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Measuring online moral reasoning: the development and psychometric properties of the cyberethics scale

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BOSTON UNIVERSITY
SCHOOL OF EDUCATION

Dissertation

**MEASURING ONLINE MORAL REASONING:
THE DEVELOPMENT AND PSYCHOMETRIC PROPERTIES
OF THE CYBERETHICS SCALE**

by

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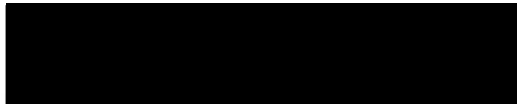
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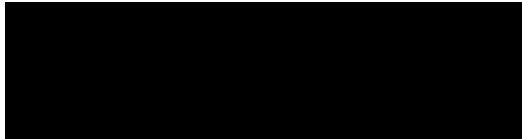
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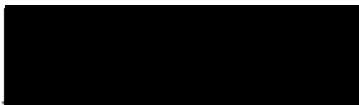
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DEDICATION

To my family

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I am grateful to all individuals who helped bring this work to fruition. Without their outpouring of love and support, the completion of this dissertation could not have been possible.

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**MEASURING ONLINE MORAL REASONING:
THE DEVELOPMENT AND PSYCHOMETRIC PROPERTIES
OF THE CYBERETHICS SCALE**

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ABSTRACT

This dissertation developed a valid and reliable instrument that measures online moral reasoning. This instrument is referred to as the Cyberethics Scale (CES). The dissertation examines theoretical basis of CES and describes the process of developing the CES. Cognitive-developmental theories of moral judgment generally explain diverse ways that individuals advance their moral judgment. The study adapted concepts of several theories—particularly those of Kohlberg (1984) and Gibbs, Basinger, and Fuller (1992)—and applied them to identify states of moral reasoning specifically in an online environment. Evidence to confirm the validity and reliability of the CES during this process derived from a pilot study, understandability study, expert review panel, and statistical analysis. The psychometric properties were assessed with data from 243 participants recruited through Amazon Mechanical Turk (Mturk) website. The CES is a short answer survey that can be group-administrable as a paper-pencil format and online format and requires an average of 10 minutes to complete 10-item survey. The scoring is self-trained. An estimated time to complete scoring a protocol is 20 minutes, which is equivalent to the SRM-SF scoring time. The psychometric properties of the CES are

acceptable ($r = .604, n = 243$). This reliability measure is comparable to the Chronbach Alpha of the Sociomoral Reflection Measure-Short Form when assessed with adult sample ($r = .5762, n=48$).

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CHAPTER ONE: INTRODUCTION

This dissertation developed a valid and reliable instrument that measures online moral reasoning. In this study, online moral reasoning is considered to be within the field of cyberethics. Thus, the proposed scale is referred to as the *Cyberethics Scale (CES)*. The scale development followed DeVellis' (2003) recommendation that was described in *The Scale Development: Theory and Application*, and Rabinovich's (2009) research methodology. In terms of a theoretical framework, cognitive-developmental theories of moral judgment generally explain how individuals advance their moral judgment. The study adopted the concept of the theories—particularly those of Kohlberg (1984) and Gibbs, Basinger, and Fuller (1992) and applied them to identify the current stage of moral reasoning specifically in an online environment. The understanding that results from the instrument developed in this dissertation provides educators with a measurement of the current state of online moral development of their students. This understanding will help the educators to determine the effectiveness of any appropriate intervention. Thus they can design appropriate instructional strategies for defining and fostering students' cyberethics by following a cognitive-moral development approach.

According to Lawrence Kohlberg's cognitive-developmental theory of morality, a moral judgment is a sequential and one-directional process (Gibbs et al., 1992). Kohlberg proposed that moral development consists of six hierarchical stages, which are grouped into three levels: pre-conventional, conventional, and post-conventional. The higher the stage and level the reasoning is in, the more adequate it is at responding to moral

dilemmas. An individual's stage of moral development is identifiable through his instrument, the *Moral Judgment Interview* (MJ; (Colby & Kohlberg, 1987)). Based on Kohlberg's moral development theory and the MJ, other researchers developed a variety of instruments that assess the respondents' stage of moral reasoning. Examples of widely recognized measurements are the *Defining Issues Test* (DIT; (Rest, Thoma, Davison, Robbins, & Swanson, 1979); and the *Sociomoral Reflection Measure—Short Form* (SRM-SF) by Gibbs, Karen, and Fuller (1992). Unlike the scale that this dissertation developed, the aforementioned instruments measure moral judgment in the physical world, not in cyber space.

This dissertation describes the development, verification, process for implementing the Cyberethics Scale, and its psychometric properties. In particular, chapter two presents an extensive review of the literature that investigates related ethical theories and defines the concept of moral reasoning online that this study measured. Chapter Three elaborates each step of the scale's development. Chapter Four presents the result of psychometric evaluations of the scale. A discussion and analysis of the scale, together with a recommendation for future research is presented in chapter five of the dissertation. The constructed scale, accompanied by its scoring manual and its rating form, are included in the appendixes.

This introductory chapter details (a) background of the topic; (b) significance and rationale of the problem; and (c) research questions. The background section conceptually describes the fields of Cyberethics, Cyberethics and education, and cyberethics measurement. A discussion of significance and rationale of the problem

addresses the importance of constructing the Cyberethics Scale. Chapter one ends with a presentation of the research questions that guides the design of the instrument.

Background

An increase in Internet accessibility has brought positive and negative consequences to society. On one hand, online technology is a medium that offers new measures for gaining knowledge and social relationships to its users. On the other hand, online technology has brought several ethical issues such as identity theft, cyber bullying, and violation of intellectual property to our technological-oriented society.

Substantial growth in the number of internet users throughout the world signifies that the global impact of this technology. Statistically, .03% of the world population were Internet users in 2004 and the number increased to 37.9% in 2013 ("Internet Users," 2014). In addition, the *Global Information Technology Report 2010-2011* pointed out that information and communication technologies “offer the foundation for major leaps forward in almost every area of human activity” (Dutta & Mia, 2011, p. vii). For instance, governments use technologies for socioeconomic achievement. Businesses use technologies to communicate with their customers and other stakeholders. Additionally, consumers inhabit the “always-connected digital world” (Dutta & Mia, 2011, p. vii). A thorough understanding of the consequences of this growth is urgent because the growth rate has consistently increased: 16.2%, 18.6%, and 21.3% of world population in 2005, 2006, and 2007 respectively. Due to such substantial consequences, the author argues that any cyberethical issues deserve immediate attention to resolve or lessen their effects and

improve education in cyber ethics. Accordingly, this dissertation attempted to improve an understanding of ethical issues in cyberspace by providing a scale with which to measure respondents' status and to gauge the effect of any interventions designed to improve a respondents' stage of cyberethical development.

Definition and the Nature of Cyberethics

Cyberethics, as defined by Tavani (2007), is “the study of moral, legal, and social issues involving *cybertechnology*” (p. 3). In his book, Tavani explained the term *cybertechnology* as “a wide range of computing and communication devices, from stand-alone computers to connected, or networked, computing and communication technologies” (p. 3). Examples of network devices in this context are personal computers, Personal Digital Assistants (PDA), tablets, and smartphones. The scope of this definition ranges from small private computer networks to the Internet. While Tavani defined cyberethics by describing the field as a whole, Yamano (2004) proposed a definition from the perception of individuals, defining cyberethics as “the guidelines or framework upon which students will base their ethical and moral decision making. Cyberethics includes the guidelines for ethical and responsible use of computers, as well as the Internet” (p. 3).

Along with the identification of this branch of ethics as cyberethics, several researchers place their articles under different titles: *computer ethics*, *Internet ethics*, or *information ethics* (Bickel, Larrondo-Petrie, & Bush, 1992; Ghazali, 2003; International Center for Information Ethics, 2009; Johnson, 2001a; Johnson, 2001b; Jung, 2009; Langford, 2000; Miller, 1999; Moskal, Miller, & King, 2002; Staehr & Byrne, 2003). The

definitions of each title vary from one author to another because there is no standard definition of these terms. Chapter two provides in-depth discussion on the definition of these relevant terms and a rationale explaining why “*cyberethics*” is the most suitable term for this dissertation.

The definition of cyberethics in this dissertation is the moral and social framework upon which people will base moral judgments that involve the use of cybertechnology as an instrument in action. This definition is an adaptation from the definitions of cyberethics that Tavani (2007) and Yamano (2004) provided.

Cyberethics and Related Ethical Theories

Utilitarianism or consequentialism, deontology, and ethical relativism are three influential ethical theories in a field of ethics that apply to behavior with cybertechnology (Forester & Morrison, 1994). Broadly defined, consequentialism and deontology are normative ethical theories—theories that describe what ought to be done. Both theories can justify an action. Consequentialism focuses on the consequences of an action. For example, those who believe in the utilitarianism that happiness is an ultimate goal of life would argue that an action is just if it results in greater happiness-producing consequences or more benefit than harm for the largest number of people in a community. Deontology, on the other hand, asserts that “an action is right or wrong in itself” (Forester & Morrison, 1994, p. 16).

Ethical relativism holds that morality is relative: there is no universal and moral norm. Whether a behavior is right or wrong depends on the culture of the evaluators.

Forester and Morrison pointed out that “ethical relativism is a descriptive account of what is being done rather than a normative theory of what should be done” (p. 15). In other words, ethical relativism does not justify an action but explains different contexts in which an action is perceived as right and wrong.

An example of copying copyrighted software without permission or without purchasing it demonstrates how the three ethical theories come into play. According to deontologist theory, copying the copyrighted software is always wrong, regardless of its consequences. Utilitarians may argue, however, that the action is justified because it benefits society. Namely, expensive software would be accessible to the poor. In this example, ethical relativism explains that it is possible for the act to be ethical in one context and unethical in another because no value is common in all moral systems.

Additionally, the example of copying copyrighted software illustrates a well-known challenge in applying standard ethical theories to address cyberethical dilemmas: Multiple standards of existing ethical principles can justify an issue in cyberethics. The reason for this challenge is, as Moor (1985) pointed out, cyberethics suffers from *conceptual muddle*—a lack of clarity in the definition of cyberethics. A series of questions exemplifies this challenge:

Should those who create software be seen as providing a service or producing a product? Or should a computer program be seen as the expression of an idea—a form of intellectual property for which copyright law is appropriate? Or is it a program a process for changing the internal structure of a computer? Or is it a series of “mental steps” capable, in principle, of being thought through by a

human, and therefore not appropriate for ownership? (Johnson, 2001b, p. 283)

The conceptual muddle in this example is also crucial to law enforcement because different legal judgments can be applied to the case depending on how software is interpreted.

Arguably, a debate on the uniqueness of cyberethics points out another venue for discussion on related ethical theories in cyberethics: Cyberethical theory. In this debate, the first group argues that what is unethical is always unethical regardless of what tool is being used (Spinello & Tavani, 2004b). In other words, all ethical issues can be examined with the existing ethical principles. The opponent argues that cyberethics is a unique ethical problem because (a) these issues did not exist before the advent of cybertechnology, and (b) without cybertechnology, the cyberethics issues could not exist (Maner, 2004) as cited in (Spinello & Tavani, 2004b). As of the time of this writing, the field has not found a conclusion. Nevertheless, Deborah Johnson proposed a compromise suggesting that cybertechnology “could alter old ethical problems in interesting and important ways and thereby ‘give them a new twist’” (Bynum, 2008b, p.32).

Facilitating Cyberethical Development through Education

This section describes the attempt of educators to develop students' cyberethics, through designing pedagogy that raises students' awareness to act responsibly in an online environment. The discussion includes a rationale for why education is an effective approach; objectives of the curricula; and outcomes of cyberethics instructions.

Rationale.

Willard (2002) suggested that educators should provide guidance to help youth in the developing online ethics. Typically, educators use external influence and/or internal influence (Willard, 2002; Yamano, 2004). The external influence refers to the use of rule enforcement regarding online behaviors. On the other hand, internal influence means “giving students information on which to base their choices and allowing them to use critical thinking skills to solve the dilemmas they may face”(Yamano, 2004, p. 6).

The character of an online environment makes external influence less effective than internal influence. To elaborate upon this idea, Willard (2002) explained why people follow a rule and how an online environment may impede moral reasoning. Specifically, individuals follow discipline due to (a) an empathic recognition that their action harms others; (b) social disapproval; and (c) punishment by authority. Willard argued that, in an online environment where tangible feedback is limited, individuals often fail to perceive the potential negative consequences of their actions to others. This results in an erosion of empathic responses and thus undermines their grief. Thus, individuals can commonly overlook the consequences of their unethical behaviors in cyber space. Meanwhile, the environment increases a perception of invisibility that “undermines the potential influence of both authority and social disapproval” (p. 3).

Research findings support a claim concerning the influence of cybertechnology on moral judgment. Evidently, students who follow ethical principles in the real world do not always apply those ethical principles to computer-related dilemmas. Ghazali (2003) surveyed 211 students in grades 10, 11, and 12 who enrolled in computer classes in

regard to a distinction between traditional and computer ethical issues. One of his questions asked whether it is wrong for a student to write insulting messages on the student's personal web site. 42% of boys and 53.3% of girls replied that it was an unethical practice. Conversely, when Ghazali asked the participants whether it is immoral or not if the student distributed a printout of that homepage, 76.5% of the boys and 93.4% of the girls said that it was immoral. Based on the empirical outcome of Ghazali's study, a difference between computer and non-computer ethics is apparent. Friedman (1997), Jung (2009), and Shin (2008) also reported similar results after they had investigated the difference in perception between online and offline dilemmas.

One conclusion based on the empirical findings discussed thus far is that the character of the WWW—with its intangible feedback and the perception of invisibility—interfere with students' moral reasoning. This interference leads to an inefficiency of external influence. Consequently, a development of students' cyberethics through the application of internal influence is a preferable approach because students will behave ethically regardless of a condition within the environment (Yamano, 2004). An implication for classroom teachers is an implementation of effective cyberethics curricula.

Objectives of cyberethics curricula.

In an attempt to help educators address the influences of the intangible feedback and the perception of invisibility in the Internet, Willard (2002) pointed out that a cyberethics instruction should:

- help young people to do what is right regardless of the potential of detection and punishment;
- help young people understand how action can cause harm to people they cannot see;
- help young people learn to use effective decision-making strategies that will result in ethical and responsible behaviors.

Accordingly, classroom teachers have transformed the objectives of cyberethics education into several practical teaching strategies. Chapter two, the literature review, presents a discussion of the cyberethics instructions in a greater detail.

Outcomes of cyberethics instructions.

Cyberethics instructions have a positive effect on student's understanding of the subject. Swain and Gilmore (2001), for instance, surveyed their students before and after their computer ethics and copyright instructions to determine instructional effectiveness. The survey participants were seventy-six students from the University of Florida and Texas Wesleyan University, majoring in teacher education. Notably, the post-lesson survey indicated a 63.9% increase in the number of participants who agreed that duplication of software programs for instructional purpose was illegal as "fair use" did not apply in such situation. They also reported a 10.4% increase in the percentage of students who agreed that ethical situations involving computers are similar to other ethical situations.

Staehr and Byrne (2003) also evaluated a computer ethics instruction. They conducted pre- and post- tests with a control group and an experimental group using the Defining Issues Test (DIT). The control group consisted of seven students who did not enroll in a course called *professional environment* that taught computer ethics for approximately 30% of 39 contact hours. The experimental group consisted of students who enrolled in that course. They found that both groups improved their moral judgment over the course of the semester, but the experimental group exhibited a larger improvement.

Measurement

Valid and reliable instruments are essential in determining the effectiveness of cyberethics instructions. Such instruments accurately should inform present stage of students' moral development. The instruments used in existing cyberethics research reflect two schools of philosophical thought: (a) Cyberethics is another variation of an existing branch of traditional ethics, and (b) Cyberethics is a wholly new branch of ethics (Spinello & Tavani, 2004b). Some researchers used instruments that were originally developed to measure general ethics such as the Moral Judgment Interview (MJI: Colby & Kohlberg, 1987), the Defining Issues Test (Rest et al., 1979, and Sociomoral Reflection Objective Measure-Short Form (SRM-SF; Gibbs et al, 1992) in their cyberethics research studies (Staehr & Byrne, 2003). Their research studies are based on a premise that cyberethical judgment is similar to other ethical judgments. Hence, it would be appropriate to use the instruments that measure traditional ethics in their

cyberethics research.

Another group of cyberethics researchers developed their instruments specifically for cyberethics domain. Their argument is that cyberethics is different from traditional ethics. Therefore, cyberethics research must apply instruments specifically designed for this purpose. The instruments in this category are either adapted from standard ethics instruments or newly constructed for cyberethics research projects. Examples of the instruments in this category are Jung's (2009) information and communication technologies (ICT) version of the Multidimensional Ethics Scale; EDICT which is a computer ethics version of the DIT (Bickel et al., 1992); the Computer and Internet Activity Questionnaire (CIAQ), which is adapted from SRM-SF (Oliver, 2002); and a survey on copyright and computer ethics (Swain & Gilmore, 2001).

Nevertheless, available cyberethics instruments are problematic because they either do not have strong psychometric data or are not accessible. For instance, Oliver (2002) reported weak correlation between the Computer and Internet Activity Questionnaire (CIAQ) and its model instrument, the Social Reflection Objective Measure (SRM-SF). The final version and corresponding psychometric data of Ethical Dilemmas in Computing Test (EDICT) is not available (Bickel et al., 1992). Lastly, Ghazali's (2003) questionnaire that measures students' view on computer and information ethics does not report any psychometric data.

In considering findings that the online environment does impact moral judgment (Jung, 2009; Shin, 2008; Viadero, 2008), this study takes the standpoint that cyberethics research requires an instrument that is specifically designed to measure cyberethics. As

the research has suggested, people's moral judgment in an online environment differs from that of a face-to-face environment. A traditional ethics instrument would yield an unconvincing outcome if the purpose of a study is to investigate cyberethics judgments. Accordingly, a goal of this study is to construct, test, and provide a measurement procedure of an instrument that observes cyberethical justifications, the *Cyberethics Scale (CES)*.

Significance and Rationale of the Problem

Validity and reliability are essential components for determining quality of cyberethics instruments. Unlike research into traditional morality that has well-established instruments available, cyberethical research does not have valid and reliable instrument available. As such, a construction of standardized measurement for cyberethics research is necessary.

Arguably, standard ethics instruments such as the Moral Judgment Interview (MJJ; Colby & Kohlberg, 1987), the Defining Issues Test (DIT; Rest et al., 1979), the Multidimensional Ethics Scale (MES; Reidenback & Robin, 1990), and Sociomoral Reflection Objective Measure-Short Form (SRM-SF; Gibbs et al., 1992) are not ideal indicators of ethical judgment in an online environment due to a question in the applicability of standard ethical principles with certain cyberethical issues (Johnson, 2001b). When responding to ethical questions in a standard ethics instrument, the respondents make their ethical judgments based upon their judgment in an offline context. This can be different from the judgment they make in an online environment due

to the influence of cybertechnology on an individual's moral judgment as the debate on uniqueness of cyberethics and empirical research has described (Ghazali, 2003; Jung, 2009; Swain & Gilmore, 2001).

Due to the fact that a cyberethics scale with strong psychometric properties does not exist at the time of this research, and the instrument is essential for advancing of the field, a goal of this dissertation is to develop, test, and verify a cyberethics instrument, the *Cyberethics Scale (CES)*. Upon completion, the scale will be available to use to help educators, researchers, or any interested party understand respondent's current stage of ethical judgment in an online environment and evaluate cyberethics interventions.

Research Questions

To provide an instrument for educators and researchers to use in measuring the states of a person's online moral reasoning, this study addressed the following questions:

1. What is the reliability and validity of the Cyberethics Scale (CES)?
2. How does the CES perform in comparing the CES' reliability and validity with other instruments that measure similar construct?
3. How does the CES compare with the readability, test administrations, and scoring processes of other instruments that measure similar constructs?

CHAPTER TWO: LITERATURE REVIEW

This chapter provides a context for inquiry into cyberethics scales. In order to construct the *Cyberethics Scale (CES)*, the literature survey begins with a broad discussion of ethics and morality. This discussion sheds light on an essential philosophical foundation from which cyberethics emerges.

The second section of this chapter focuses on the field of cyberethics. Specifically, the topics of discussion include definitions, history, and cyberethical theories. In addition, this review summarizes the literature on the uniqueness of cyberethics in comparison to other branches of ethics. The review of literature also offers a theoretical-based rationale for the cyberethical scale that the study intends to construct. The last topic of the literature survey in the cyberethics section describes research findings with respect to instructional interventions on cyberethics. The discussion addresses the current state of cyberethics curriculum and how educators measure educational outcomes specific to cyberethics.

The third section investigates several empirical approaches that measure moral reasoning in online and offline contexts. A review of literature on moral development theory provides an essential background explaining how moral reasoning is developed over time. Understanding this is of key importance in the construction of the scale because the scale will be designed to identify the current stage of moral development of a participant based upon his or her cyberethical judgments. To elaborate with practical examples, this section includes pros and cons of widely used moral reasoning

instruments. The chapter concludes with a research implication of this literature survey.

Ethics and Morality

This section reviews literature philosophical concepts from which cyberethics emerges. In particular, the discussion illustrates major ethical theories that influence moral judgments in both online and offline environments. An implication of this literature survey is the revelation of the significant role of reasoning in the field of ethics through the use of moral reasoning as the scale's basis of measurement.

The section starts with a conceptualization of the term ethics, which is an essential term closely related to cyberethics—the concept that the scale will attempt to measure. Next, three areas of ethics—metaethics, normative ethics, and applied ethics—are included. The role of moral reasoning and the design of the scale are addressed in the subsequent sections.

Definition and Background.

Ethics is a term that describes universal principles or theories that individuals refer when resolving ethical actions or ideas. Specifically, *Webster's New Universal Unabridged Dictionary* (2003) gives a definition of ethics as “the rules of conduct recognized in respect to a particular class of human actions or a particular group, culture, etc.” (p. 665). Another definition of ethics, according to the *Encyclopedia Britannica* (2011a), is “the discipline concerned with what is morally good and bad, right and wrong. Similarly, Quinn (2008) defines ethics as “the philosophical study of morality, a rational

examination into people's moral beliefs and behavior" (p. 55).

Ethics is also referred to as *moral philosophy*, which is a branch of philosophy that deals with "values relating to human conduct, with respect to the rightness and wrongness of certain actions and to the goodness and badness of the motives and ends of such actions" ("Ethics, " 2003, p. 665; Frankena, 1963). An ideal goal of this moral philosophy is to better understand the universal dichotomy that differentiates right and wrong actions. Diem (2009) pointed out that such dichotomy seldom exists because "there is rarely a single correct answer that will be appropriate for all individuals" (p. 325).

An analytical process for attaining the universal dichotomy is complex. It requires "critical examination, reflection, and explanation" (Diem, 2009, p. 325). The process is referred to as dialectic due to the character of the philosophical analysis (Johnson, 2001a). In this ongoing process, an argument or reasons for a claim are critically examined and reformulated to apply to disparate situations. The expected outcome is a claim that is consistent in every context. For instance, one has to show that his/her argument on a claim regarding the value of human life is consistent with views of capital punishment and abortion. Otherwise, an accounting of how different positions can be understood as consistent must be provided. The process also involves continual moves between a claim and its supported principles.

Both the definition and usage of ethics are closely related to that of *morality*. The word ethics comes from a Greek word *ēthos* meaning character (Becker & Becker, 2001). In Latin, ethics is translated as *ethicus* which means "belonging to morals, ethical" or

“expressive of character, psychological” (Glare, 1982). In other words, by definition, the word *ethics* is closely related to, and is often used interchangeably with, *morality* as in the phrases “personal morality” and “professional ethics” (Becker & Becker, 2001).

To distinguish between morality and ethics, ethical theories that are not considered to be moral theories must exist because the claim would prove that ethics has a broader notion than morality (Annas, 2001). The theories must lack characteristics of morality while still including ethical theories. According to Annas, such characteristics are (a) a distinction of kind between moral and nonmoral reasons; (b) a strict demand of responsibility; (c) the prominence of duty or obligation as the basic moral notion; and (d) an essential concern for the noninstrumental good of others. However, she proved that the claim is false by using the Kantian ethics as a counterexample.

Quinn (2012) distinguished morality and ethics by stating that morality is the guideline that describes moral behavior but that ethics is the rational examination of any behavior or circumstance to determine right or wrong through use of an ethical theory or theories. Morality is practice (normative) and ethics is rational examination (objective).

Ethical Theories

Philosophers divide the studies of ethics into three main areas: *metaethics*, *normative ethics* and *applied ethics* (Fieser, 2000). Metaethics focuses on the properties and evaluation of ethics. Garner and Rosen (1967) gave examples of metaethical questions such as: What is the meaning of good and wrong? Can moral maxims be justified? Fieser further described the field by stating that “metaethical answers to these

questions focus on the issues of universal truths, the will of God, the role of reason in ethical judgments, and the meaning of ethical terms themselves” (p. x). Normative ethics is more practical than metaethics: It investigates “moral standards that regulate right and wrong conduct” (Fieser, 2009, para. 1). Normative ethics may concern the good habits that one should acquire, the obligations that one should follow, and the consequences of one’s behavior on others. An example of a normative principle is the Golden Rule: We should do to others what we would want others to do to us. Lastly, applied ethics is about ethics in real life situations. It refers to determining what is ethical in relation to topics such as euthanasia, abortion, animal rights, capital punishment, and environmental ethics.

Although a field of ethics can conceptually be categorized into three distinct areas, a clear distinction may not arise in an attempt to identify an area of particular ethical issues in practice (Fieser, 2000). For instance, a debate on abortion that involves specific types of controversial behavior falls under applied ethics. However, because the argument can lead to a decision regarding whether an action is right or wrong, the issue also involves normative principles. Examples of the discussion include the topic of the right to life and the right of self-rule. To further justify the case, an understanding of “where do rights come from?” and “what kind of beings have rights?” often comes into play. Simply put, a discussion on abortion illustrates a relationship that incorporates the three areas of ethics. Therefore, it is challenging to identifying which specific ethical area the controversy falls.

With regard to cyberethical issues, many discussions on relevant ethical concepts focus only on normative ethics (Spinello, 1995; Weckert & Adeney, 1997). Weckert and

Adeney asserted that normative ethics is the only area individuals applied when making moral judgments on cyberethical issues. Along the same line, Ghazali (2003) reported in his literature survey that Spinello agreed with Weckert and Adeney. In his book, *Ethical Aspect of Information Technology*, Spinello offered extensive details about normative ethics and very brief details about metaethics. Nevertheless, Ghazali balanced his discussion of the three ethical categories in his review of theories of applied ethics supporting cyberethics. To elaborate his rationale, Ghazali made an argument in accordance with Spinello that ethical theories are avenues to complex moral dilemma that facilitate analysis and reflection on the issue.

In this dissertation, the literature review includes the three categories: metaethics, normative ethics, and applied ethics. The literature survey is not meant to provide an extensive review of ethics. Rather, its goal is to provide a sufficient background in ethics that is adequate in building the Cyberethics Scale (CES).

Figure 1 illustrates an outline of the discussion regarding ethical theories supporting cyberethics in this chapter.

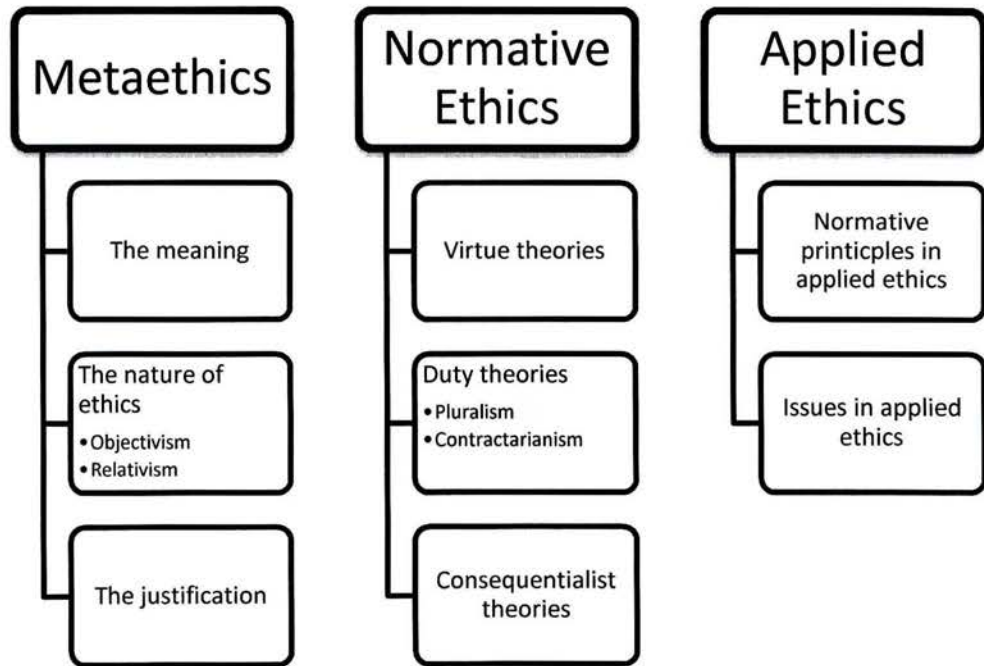


Figure 1. An outline of ethical theories presented in the literature survey.

Metaethics.

Metaethics is a study of “metaphysical, epistemological, semantic, and psychological presuppositions and commitments of moral thought, talk, and practice” (Sayre-McCord, 2008, para. 1). Unlike normative ethics that seeks answers on ethical evaluations, metaethics involves “judgments, statements, or questions about the meaning of normative judgments, their nature, or the methods of supporting them” (Garner & Rosen, 1967, p. 214). A simple notion of metaethics, according to Fieser (2009), is “a bird’s eye view of the entire project of ethics”. Examples of metaethical questions are What is goodness? Why be moral? Is it possible to justify our ethical judgments? How do moral attitudes motivate action? Presently, metaethics includes an area of how moral judgment is made ("Metaethics," 2008; Fieser, 2009).

A classification of the meta-ethical field varies from one author to the next. Garner and Rosen (1967) described the field by the problem areas that metaethics cover: (a) the meaning; (b) the nature of moral judgments; and (c) the justification. Ghazali (2003) categorized this ethical area according to its nature as objectivism and relativism. Fieser (2009) asserted that the subject of metaethics covers issues from moral semantics to moral epistemology. Nevertheless, he addressed only two prominent issues in this article: (a) metaphysical issues concerning whether morality exists independently of humans; (b) psychological issues concerning the underlying mental basis of moral judgments and conduct.

This literature review follows Garner’s and Rosen’s approach because the framework has the widest scope of metaethics amongst others. The section discusses a

notion of the three problem areas within the topic of ethics: (a) the meaning; (b) the nature of moral judgments; and (c) the justification. Significant arguments related to cyberethics are made in subsequent sections, specifically, cyberethics and moral judgment sections.

The meaning.

Problems regarding the conception of moral judgments occur when moral philosophers attempt to define ethical terms such as good, right, wrong, bad, and wicked. According to Garner (1967), the task of finding a synonym of these terms is fundamental in principle, but not in practice. He pointed out that the task is difficult even to the wisest and most experienced moral philosophers. For example, a current solution is not to define the moral terms but to define an expression that contains the terms. Specifically, a common procedure is to find a sentence that does not contain the moral term but captures the same semantic of another sentence that does contain the term. For example, a normative expression that contains the term ‘good’—“*X is good*”—is “*I approve of X, do so as well*”. Garner and Rosen comment further on the accuracy of this approach claiming that “whether or not this is a legitimate procedure, and whether or not this particular ‘definition’ is accurate, this is one proposal for a solution to a problem about the meaning of certain normative expressions” (p. 214).

The nature of moral judgments.

The nature of moral judgments constitutes the second area of the metaethics problem that Garner and Rosen (1967) described. In this area, moral philosophers seek to understand properties and/or characteristics of moral judgments. An example of a metaethical question is an inquiry to determine whether moral judgments are expressions about what God wills or facts. Another example is an examination on a claim whether moral judgments are objectively true or false statements about the presence or absence of a certain property. As Garner and Rosen pointed out, some ethical thinkers asserted that moral judgments are definable in non-moral terms and are objectively true or false. For instance, a non-moral definition of *good* is pleasurable or liked by most human beings. Another group of ethical thinkers argue that moral judgments are capable of being objectively true, and so there is objective moral knowledge, but they deny that all moral expression can be defined.

An examination as to whether morality is a human convention or exists in the spiritual realm illustrates how the nature of moral judgment affects practical discipline. According to Fieser (2009) and Deigh (2010), metaphysics is a study of things that physically and non-physically exist in the universe. Correspondingly, the metaphysical issues of metaethics involve discovering whether morality exists in a spiritual realm— independently of humans—or is a human convention. Proponents of the first view—the objectivists—argued that moral values are absolute, universal and never change. On the contrary, proponents of relativist conception argued that moral values are human conventions, relative to an individual's or a society's belief structure.

Objectivism.

Holding that moral values are human independent, objectivists proposed various answers regarding the sources of morality (Weckert & Adeney, 1997). Four well-known answers are described in the concepts of *naturalism*, *intuitionism*, *divine command theory*, and *rationalism*. Weckert and Adney briefly explained each concept in their book, *Computer and Information Ethics*. In naturalism, rightness is defined by observable and/or natural means such as the totality of human happiness or social harmony. Intuitionists argued that rightness is non-observable. They asserted, according to intuitionism, a source of rightness is perceived through a special faculty such as an intuition. The third conception is the divide command theory, which holds that morally right means are commanded by God and morally wrong means are forbidden by God. According to Freppert (1988), as cited in Fieser (2009), God reveals His commands in scripture or through moral intuitions. Lastly, Weckert and Adney stated that rationalism justifies that an action is right if it is “what any rational person would do under the appropriate circumstances” (p. 4). An example of rationalism is an argument that it is more rational to be fair and sharing than it is to be selfish.

Among many objections to objectivism, the *Diversity Problem* and the *Verification Problem* are the two general and related arguments (Weckert & Adeney, 1997). In particular, the Diversity Problem addresses the fact that moral values differ among different societies and from period to period. If there is only one source of moral facts, why do people have different moral perceptions? The existence of numerous

conflicting moral values, in turn, raises the verification problem. Namely, when moral values conflict, what process would conclusively verify the correct one?

Relativism.

Another conception of morality, *moral relativism*, purports that moral values are human interventions. On this concept, morality merely comprises standards of right and wrong conduct judged by virtue of the ends or one's interests (Deigh, 2010). That said, the end or purpose is relative to an individual's own interests or the greater interest of society. These interests differ over time, from one person to another, and from culture to culture. Fieser (2009) further explained two types of moral relativism. *Cultural relativism* maintains that morality is grounded in the approval of society. *Individual relativism* holds that individuals set their own moral standards.

For cultural relativists, moral values are relative to a society, not individual preferences (Fieser, 2009; Ghazali, 2003; Weckert & Adeney, 1997). No moral value within a society is superior to another. As Weckert and Adney stated "[t]heir values [society's values] are just different, and that is that" (p. 6). The difference is not because different societies face different circumstances but because different societies accept fundamental moral attitudes differently. An example of this can be seen in the issues surrounding intellectual property. Some countries view the issue of copying software differently from others. Arguably, this difference is due to fundamental differences in attitude toward private property, which emphasizes either individualism or collectivism.

It is noteworthy to address the issues of cultural relativism raised by anti-

objectivists (Weckert & Adeney, 1997). The first issue is in regards to moral diversity. Though they accept its existence they reject an idea that no moral standard is better than another. They argue that if moral diversity is not a matter of differential circumstances, then some societies are simply mistaken on moral matters. The second issue is that cultural relativism leaves no room for individual moral dissent. Consequently, the dissenters can be in danger or become unpopular.

Individual relativism, which is sometimes referred to as *subjectivism*, is the second variety of relativism. In this view, individuals define their own moral standards and express them through their opinions (Weckert & Adeney, 1997). In addition, there is no absolute right or wrong because every opinion is morally equal. Rachels (1986) pointed out that making moral judgment based on the idea of subjectivism is difficult. If there were two opposite opinions on a moral issue, one must be right and another must be wrong. However since subjectivism equally weighs the morality in every opinion, it is not appropriate to say that both are true (Ghazali, 2003). Similarly, Quinn (2008) argued that individual relativism is self-defeating and rejected it as a workable ethical theory.

Weckert and Adeney (1997) pointed out three main objections to individual relativism: (a) the *Irrationality Objection*, (b) the *Arbitrariness Objection*, and (c) the *Triviality Objection*. Firstly, the Irrationality Objection criticized an idea of subjectivism that sees morality as a matter of taste or opinion. If this is the case, then, there is no room for rationality. Anyone can make a moral judgment without much thought. The second objection, the Arbitrariness Objection, pointed out that individual relativism authorizes individuals to make arbitrary moral choice. For instance, one may prefer compassion over

exploitation. However, because subjectivism is a personal choice, it is also moral for another to be exploitative rather than to be compassionate. Thirdly, the Triviality Objection stated that morality should be treated as a serious matter, not trivial one. If moral judgment is a personal preference as subjectivism suggests, then it is an insult to morality.

The justification of moral judgments.

The third area in metaethics addresses the problem of the justification of, or support for, moral judgments (Garner & Rosen, 1967). Broadly speaking, the focus of this area is to understand how moral judgments are made. An example of the questions raised in this category is the question, “Can any ‘ultimate’ support be given to the moral judgments we make?” (p. 215). Another example is seen through the study of understanding of an individual’s motives to be moral (Fieser, 2009). In this regard, Fieser argued that the underlying mental basis of a moral judgment is a crucial component because one may know the reasons why an action is right or wrong but is not psychologically compelled to act on them. Research in moral psychology seeks to understand psychological components that motivate moral behaviors.

Fieser (2009) detailed three significant areas in moral psychology. The first area concerns the inherent selfishness of humans. Namely, the 18th century British philosopher Joseph Butler (1692-1752) argued that egoism and pleasure ultimately motivate human actions (Garner & Rosen, 1967). The second area of moral psychology involves the role of reason and emotion in motivating moral actions. For instances, David Hume asserted

that moral judgment involves emotion and not reason (Fieser, 2009). On the contrary, rationally-minded philosophers such as Immanuel Kant and Kurt Baier argued that moral assessments are the act of reason when it is free from emotion and desire. Lastly, the focus is on whether there is a distinction between male and female approaches to ethics. The discussions in this area focus on two claims: (a) traditional morality is male-centered, and (b) there is a unique female perspective of the world, specifically caring for others, which can be shaped in to a value theory (Fieser, 2009).

Normative ethics.

Unlike metaethics that describes the field of ethics, normative ethics involves moral standards that regulate right and wrong conduct (Fieser, 2009). The basic idea is to have one ultimate criteria of moral conduct, whether it is a single rule or a set of principles. However, according to Spinello (1997), the theories do not practically identify right or wrong conduct. Rather, they serve as avenues or approaches that facilitate an analysis and reflection of ethical issues.

Fieser (2009) described a framework for normative ethics according to three possible principles that regulate right and wrong conduct: (a) virtue theories, (b) duty theories, and (c) teleological or consequentialist theories. Deigh (2010) provided another framework that describes theories of normative ethics. In particular, he categorized the theories into the areas of teleology and Deontology—as described in the following section. This literature survey follows Fieser’s more inclusive theoretical framework: Deigh’s notion of teleology falls under Fieser’s consequentialist theories category and

deontology falls under the duty theories category in Fieser's structure. A discussion on each strategy includes a fundamental description and its significant criticisms.

Virtue theories.

A goal of virtue theories is to develop virtuous people. Deborah Johnson (2001a) asserted that a meaning of virtue for the Greeks is excellence. Accordingly, virtue theories are concerned with the "excellence of human character" (p. 51). The virtue theories state that character is built as a result of habit (Fieser, 2009). Once a person develops good habits of character, such as benevolence, he or she will acquire that character.

Several virtue theorists have proposed different sets of key virtues but a process of identifying the most important virtue comes to no conclusion (Johnson, 2001a). Plato, for example, pointed out that one should have wisdom, courage, temperance, and justice (Plato, 1992). These four virtues are also known as the cardinal virtues. Conversely, the medieval theologians listed the Christian virtues as faith, hope, and charity. According to Fieser (2009), the interest in virtue theory declined in the 19th century with the rise of alternative moral theories such as duty theories and consequentialist theories. Nevertheless, Alasdair MacIntyre and other philosophers in the mid-20th century were still in favor of the virtue theories (MacIntyre as cited in Fieser, 2009). They argued that "more recent approaches ethical theories were misguided for focusing too heavily on rules and actions, rather than on virtuous character traits" (Virtue Theories, para. 2).

Duty theories.

Duty theories, or deontology, base morality on specific foundational principles of obligation that are inherent in an action (Deigh, 2010; Fieser, 2009; Popkin & Stroll, 1993). The term deontology is derived from the word *deon*, which in Greek means obligation (Spinello, 1997). Their principles hold that an action is intrinsically good or evil regardless of its consequences.

One implication of duty theories is that an individual must fulfill their duties even when their actions yield unhappy consequences. For example, these theories suggest that parents must take care of their children even if they have to lose certain financial benefits. A reason for parents to sacrifice for ethical principles is related to human beings' rational capability. According to Deborah Johnson (2001a), the capability for rationality differentiates humans from other creatures that are dependent on the laws of nature. People are competent to legislate themselves and decide their behaviors whereas plants turn to the sun because of photosynthesis. In addition, having rational capacity implies having the capacity to be moral: Plants and animals are not moral agents because they cannot rationalize their actions. It follows that humans should live their lives seeking the greatest good, not personal happiness, because they have the capacity to recognize moral principles and to follow them. In other words, the fact that human beings are rational agents suggests that the highest goal of human beings lies beyond their personal happiness.

Another implication of deontological theories is that some actions are always bad regardless of their consequences. An example posed by Johnson (2001a) asserted the idea

that killing is always wrong even in an extreme situation. Nevertheless, deadly self-defense is not morally wrong according to deontologists because the murder is not literally intentional (Johnson, 2001a).

Deontological theories include both duty-based and rights-based approaches to ethical reasoning (Spinello, 1997). Terminologically, pluralism is another term for duty-based approach, whereas contractarianism is another term for rights-based approaches.

Pluralism.

Pluralism, or duty-based approaches to ethical reasoning, holds that an individual has obligations to other people in society “because they are people who could be helped or harmed by our actions [the individual’s actions]” (Rachels, 1986, p. 106). This concept of pluralism contrasts with Ethical Egoism that argues each person ought to pursue his or own self-interest exclusively. According to ethical egoism, the life of an individual has supreme moral value. To sacrifice a life for the good of others is to discard the value of life. Hence, one should follow the ethics of egoism, not those of altruism. Nevertheless, Rachels argued that this is such an extreme argument for altruism that nobody would find it plausible. A more appealing approach is to balance life between the ethics of altruism and egoism.

Significant theories in pluralism, according to Spinello (1997), are posed by Immanuel Kant (1724-1804) and W.D. Ross (1877-1940). Kant’s principle of *Categorical Imperative* is based on the idea that moral rules must be followed without exception (Rachels, 1986; Spinello, 1997). For example, Kant asserted that lying is

always wrong even when the lie can save someone's life. His argument is that moral rules are *categorical*. They are rules that everyone *ought* to follow regardless of personal desires and wants. It is possible for a person to discard his/her own desire and follow moral rules because a person has personal reasons. In other words, Kant's categorical oughts are binding on rational agents "*simply because they are rational*" (Rachels, 1986, p. 106).

To further explain why being a rational agent implies an obligation to follow moral rules, Kant pointed out that categorical oughts are derived from a principle that every rational person must accept: The Categorical Imperative (Rachels, 1986). Specifically, the principle states, "[a]ct only according to that maxim by which you can at the same time will that it should become a universal law" (p. 106). Simply put, this principle asserts that an action is morally permissible if it can be universally applied to everyone in all circumstances.

Criticism of the Categorical Imperative is on a theoretical argument that moral rules are absolute. In particular, the principle does not address situations wherein universal rules conflict (Spinello, 1997). Kant argued that one should avoid an act known to be evil even though it would lead to good consequences. For instance, Kant pointed out that one should not lie even when lying can save another person's life. He asserted that the consequences of an action are always unknown. Hence, one should avoid any known evil act. A criticism to this argument highlights Kant's denial of moral responsibility for any bad consequences that can occur through following moral rules while he urged for responsibility for any bad consequences from immoral acts (Rachels,

1986). Along the same line of thought, Quinn (2008) pointed out that unbending ethical theory “is not going to be useful for solving ‘real world’ problems” (p. 73).

The influence of Kant’s categorical imperative arises due to a connection between the moral and rational paradigms that it reflects (Rachels, 1986). Specifically, Kant asserted that a person is irrational if he/she does not accept the Categorical Imperative. Rachels explained that the underlying concept of Kant’s argument is that a moral judgment must be supported by good reasons. The reasons are good when they are applicable in other cases at all times. As an implication of this imperative, it is wrong for someone to regard himself as special and violate a law. This definition of good reason corresponds with a definition of moral reason: Valid moral reason is consistent with all people at all times. Recall that consistency is a requirement in the Categorical Imperative. It follows that all rational agents accept the Categorical Imperative because rational agents accept the concept of consistency. The acceptance of the principle of Categorical Imperative on rational agents implies that they are willing to discard their needs or desires and follow moral rules. Rachels further added that, though Kant was not the first philosopher who recognized a requirement of consistency in moral rules, “He was the first to make it the cornerstone of a fully worked-out system of morals” (p. 112).

Another well-known duty-based theory is that of British philosopher W.D. Ross. Like other deontological philosophers, Ross pointed out that everyone has duties to perform as a reflection of their moral convictions (Fieser, 2009). However, his theory differs from others in that it includes a *prima facie* duty, an actual duty that an individual chooses when two or more of his duties are in conflict due to a more important or higher

obligation. This difference makes his theory an extension of Kant's (Quinn, 2008). Specifically, Ross agreed with Kant that moral rules are ultimate and irreducible (Spinello, 1997). Unlike Kant, Ross argued that these obligations are not "absolute or prevailing without exception" (p. 35). He used a term moral imperatives—that duty should apply under most circumstances—instead of categorical imperative, which implies that obligations hold up in every situation.

The flexibility inherent in moral judgment that Ross proposed is, to some extent, either vague or ineffective in solving ethical conflicts. Specifically, when two moral rules conflict, Ross recommended that one should consider that an "act is one's duty which is in accord with the more stringent *prima facie* obligation" (Spinello, 1997, p. 36). If more than two duties conflict, one should follow a duty which has "the greatest balance of *prima facie* rightness over *prima facie* wrongness" (p. 36). One issue with Ross' ethical philosophy lies in his vague approach toward deciding which obligation has higher precedence over another. His second principle in resolving a conflict among more than two ethical principles is also vague as he asserted that one would intuitively know which of the conflict duties is the *prima facie* duty.

In addition to Kant's and Ross' duty-based theory, Fieser (2009) discussed Pufendorf's duty of man and right theory. Briefly put, Pufendorf put the duty of man under three headings: duties to oneself, duties to other, and duties to God. Towards oneself, Pufendorf argued that individuals should promote the health of mind and body. In addition to the avoidance of all types of physical harm, ones should always advance their knowledge and skills to develop their souls. Everyone's duties towards others

encompass treating them well. For example, one should keep promises with others; promote the good of others; and avoid wronging others. Lastly, the duties toward God are to learn about and to worship God.

Contractarianism.

Contractarianism or rights-based ethics is another ethical approach in the area of duty-based theory. It focuses on correlativity of rights and duties in that the right of one person implies the duty of others (Fieser, 2009). For instance, a privacy right of one person implies a duty to others that does not intervene in his or her personal life. The United States Declaration of Independence is a practical example of the rights theory as it recognizes three foundational rights: life, liberty, and the pursuit of happiness.

The right-based theory has its roots in a social philosophy that holds a *social contract* is a basis of morality (Spinello, 1997). Namely, morality “arises when people are brought to accept the rules that are necessary for social living” (Rachels, 1986, p. 125). A British philosopher in the seventeenth century, Thomas Hobbes, asserted that society would be dreadful without any laws because people would be doing anything to please themselves. Societal situations in which governments collapse are evidence of the veracity of this claim. To prevent such situations, “people must agree to the establishment of rules to govern their relations with one another, and they must agree to the establishment of an agency—the state—with the power necessary to enforce those rules” (p. 128). The agreement that everyone within society is a part of it is labeled the social contract.

Social contract theory and morality are closely related as the former explains the nature of the latter. Rachels (1986) argued that “the state exists to enforce the most important rules necessary for social living, while morality *consists in* the whole set of rules that enhance social living” (p. 128). Additionally, as Jean Jacques Rousseau had pointed out, living as a society provides a context for individuals to look out for others.

Like other ethical theories, the social contract theory has both strengths and weaknesses. One strength of the theory is that it can answer certain philosophical questions. For instance, the theory can identify which moral rules that people ought to follow and why. Namely, the theory argues that social agents must accept and follow social arrangements for the mutual benefit.

Another profound example lies in a question regarding when individuals are allowed to break the rules. The social contract theory answers this question by using the concept of reciprocity which states that “we agree to obey the rules on the condition that others obey them as well” (p. 130). This concept explains why it is permissible to punish lawbreakers: They disobey the social laws which release others from social obligations toward them and leave themselves open to retaliation. Furthermore, this concept has an explanation for dramatic cases evidenced by the concepts that loss of life is not required in order to save the lives of others. According to the social contract theory, one gives up his/her unconditional freedoms and accepts social agreements in order to gain the benefit of social living. However, if an individual is required to give up his/her life, consequences derived from the acceptance of social rules are no better than not having accepted them. Therefore, as Rachels pointed out, “there is a natural limit on the amount

of self-sacrifice that can be expected from anyone: we may not exact a sacrifice so profound that it negates the very point of the contract” (p. 131).

While the social contract theory has large number of advocates, the theory receives objection from opponent philosophers. For instance, Rachels (1986) argued that a flaw of the theory regarding an exclusion on an obligation toward “beings who are not able to participate in the contract” (p. 136). In particular, the theory argues that animals are not covered by any rules of mutual benefit. Consequently, according to the social contract theory, it is morally right to torture animals. On the contrary, the theory suggests people with mental retardation should be treated with care because it would otherwise be a painful situation for them. The contradiction of the implications of the theory created by these moral issues signifies that “the basic idea of the theory is deeply flawed” (p. 138).

Quinn (2008) also pointed out cases against the social contract theory. One of his examples states that the theory fails to solve moral problems with conflicting rights. The issue of abortion illustrates right conflicts between a mother’s right to privacy and a fetus’s right to live. Another issue that Quinn addressed is that no one actually signed the social contract. Hence, one may argue not to be bounded by these social rules.

Consequentialism.

Unlike duty-based theories that focus on principles that people should follow, consequentialist theories focus on the results of an action. If results of an action are good, consequentialist theories would argue that the action is morally right. The reason is that consequentialism subsume moral obligations under the question “What, given our

environment and what is obvious about human nature, is good?” (Hallgarth, 1998, p. 610). For consequentialists, an answer to this question constitutes the ultimate goal of human action. Accordingly, moral obligations follow the right way to achieve this goal. Consequentialist theories are sometimes referred to as teleological theories (Fieser, 2009; Frankena, 1963; Hallgarth, 1998). In Greek, the word *telos* means end. Thus teleological theories determine morality of an action by focusing on the end result. In particular, an act is morally proper if its total good consequences outweigh the total bad consequences (Fieser, 2009).

Definitions of a human’s ultimate good derive from assessments that consequentialist theorists put on human nature in terms of selfishness, ability to act autonomously, and ability to put rationalization before inclination, to name but a few (Hallgarth, 1998). The definitions vary as many answers as consequentialists may suggest. In terms of human nature, consequentialists agree that “humans are naturally driven to live a full life, to, in some sense, flourish as a human being in a community” (p. 610). Hallgarth pointed out that the definitions of the flourishing are varied: Plato calls it justice; Aristotle calls it *eudaimonia*; Hobbes calls it peace or security, and the utilitarians call it happiness.

Recall that a purpose of this literature literary survey is to provide an overview of ethics, the survey of literature on consequentialism in this chapter focuses on utilitarianism, a prominent form of consequentialism. Other forms of consequentialism — *egoistic consequentialism, altruistic consequentialism, and idealistic consequentialism*—

are briefly discussed to illustrate a variety of consequentialism. Figure 2 illustrates an outline of the consequentialist theories included in this literary survey.

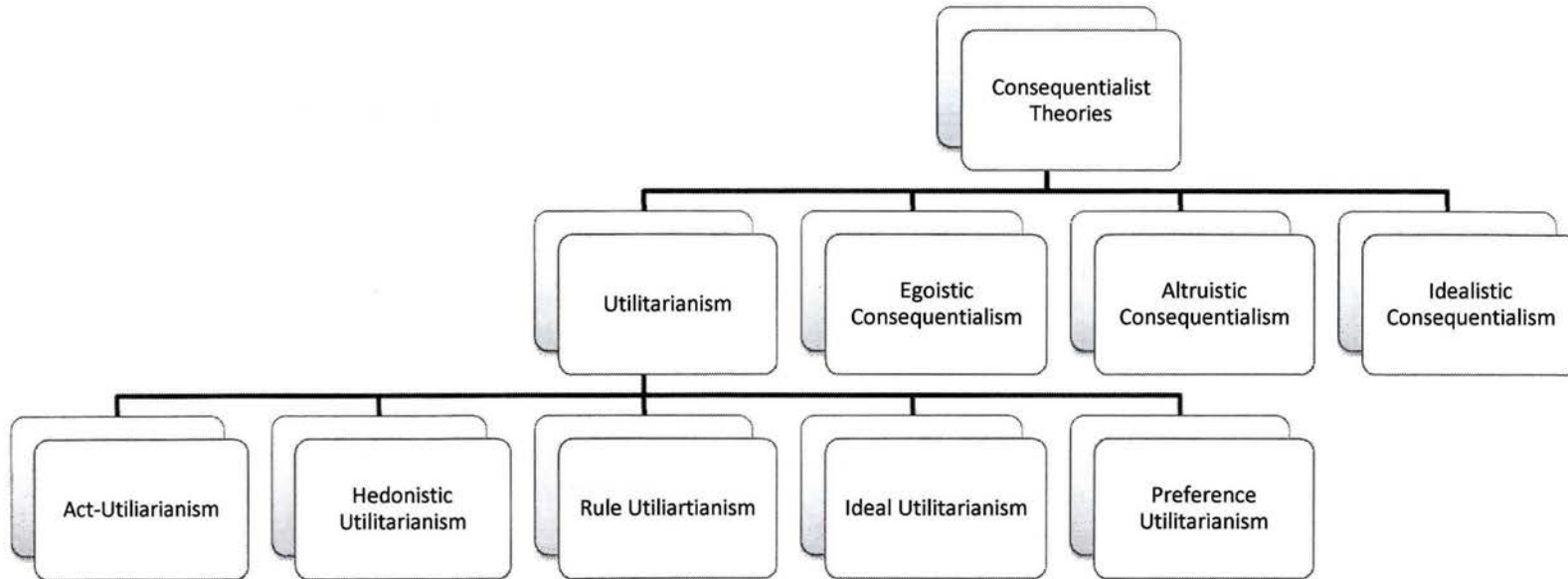


Figure 2. Outline of consequentialist theories presented in this chapter.

Utilitarianism.

Utilitarianism, a widely used form of consequentialism, was proposed by David Hume (1711-1776) but fully developed by Jeremy Bentham (1748-1832) and John Stuart Mill (1806-1873) (Fieser, 2009; Johnson, 2001a; Quinn, 2008; Rachels, 1986; Spinello, 1997). Johnson pointed out an inconsistency in definitions of utilitarianism and of consequentialism. One definition of consequentialism highlights ethical theories that state that an ethical justification of an action depends solely on a description of good and bad ends to pursue. For instance, the goal of an action is to pursue happiness, self-interest, or sacrifice for others. Utilitarianism is a version of consequentialist theory with an emphasis on happiness-producing consequences. Nonetheless, an opposing variation of utilitarianism and consequentialism is that consequentialism is a version of utilitarianism. The discussion of utilitarianism in this chapter follows the former notion.

A fundamental concept of utilitarianism is that “[e]veryone ought to act so as to bring about the greatest amount of happiness for the greatest number of people” (Johnson, 2001a, p. 36). The term utilitarianism is from the word *utility* (Johnson, 2001a). Accordingly, this theory is based upon the *Principle of Utility* or the *Greatest Happiness Principle* which states that “[a]n action is right (or wrong) to the extent that it increases (or decreases) the total happiness of the affected parties” (Quinn, 2008, p. 74). Additionally, utilitarianism is determined in on a per-situation basis (Johnson, 2001a). What is morally right in one situation can be wrong in others.

Due to its intrinsic value, happiness is the ultimate good in utilitarianism (Johnson, 2001a). Deborah Johnson argued that any discussion of what an individual

seeks in life will not stop until it results in happiness. For example, when someone asks a child why he wants to become a teacher, the first answer would be because he would like to follow in the footsteps of his favorite teacher. The question then could move to why he prefers to do what his role model has done. The question can then continue until the answer is that the certain action makes him happy. Intrinsically, everyone would understand why someone desires happiness. For this reason, utilitarians argue that happiness is intrinsically valuable in that it could be grounded in a theory of right and wrong.

Disparate systems of utilitarianism arise from variations among utility calculus (Hallgarth, 1998). Two significant features of Bentham's systems of utilitarianism are *act-utilitarianism* and *hedonistic utilitarianism*. Broadly defined, act-utilitarianism refers to "[an] ethical theory that holds that an action is good if its net effect—over all affected beings—is to produce more happiness than unhappiness" (Quinn, 2008, p. 75). Fieser (2009) pointed out that moral judgment is determined on a case-by-case basis. When consequences of an action are judged solely in terms of their pleasantness or unpleasantness, the ethical judgment is said to follow hedonistic utilitarianism. Criticisms on the limitations of the two versions of utilitarianism lead to proposals of other important versions of utilitarian concept such as *rule-utilitarianism*, *ideal utilitarianism*, and *preference utilitarianism*.

According to act-utilitarianism, an action is morally right if its social benefit outweighs its disbenefit to all affected parties. An issue with act-utilitarianism occurs when it justifies certain actions of torture or slavery (Johnson, 2001a). For instance, an

act-utilitarianism proponent may argue that slavery is justified because many people benefit from this system. Addressing a violation of moral consciousness, *rule-utilitarianism* states that an action is moral when it accords with a moral rule or principle. Moral justification suggests that society will benefit most when the rule is enforced.

An example can be made of theft of wealth from a rich man for the benefit of the poor to illustrate a difference in justification between act-utilitarianism and rule-utilitarianism ("Ethics," 2011b). Arguably, this action brings net pleasure over net pain because one person's loss leads to gain among several people. Hence, according to act-utilitarianism, this distribution is justified. Conversely, this is not the case in rule-utilitarianism. Stealing violates justified moral rule principles on consequentialist ground because allowing such action implies insecurity of property in a community.

Hedonistic utilitarianism is the second system of utilitarianism that Jeremy Bentham developed. Conceptually, hedonistic utilitarianism holds that "pleasurable consequences are the only factors that matter" (Fieser, 2009). To determine the level of pleasure and pain, Bentham developed a quantifiable scheme called *hedonic calculus* (Hallgarth, 1998). Each moral choice is evaluated using various criteria such as intensity, duration, and propinquity. The underlying construct is to establish legislation wherein rewards and punishments are measured in proportion to quantifiable results. Variations of utilitarianism developed from hedonistic utilitarianism are *ideal utilitarianism* and *preference utilitarianism*.

According to ideal utilitarianism, pleasurable consequences are not the only significant factor for an action to be considered moral. For example, according to Fieser

(2009), friendship and loyalty are moral but not always pleasing. Therefore, Fieser further argued that any good or bad recognizable consequences should be taken into account. Another variation of utilitarianism that responds to the limitation of hedonistic utilitarianism is *preference utilitarianism* proposed by R.M. Hare. According to preference utilitarianism, an action that fulfills our preferences is morally justified.

Rule-utilitarianism is another formulation of utilitarianisms. The basic idea is to have rules that maximize the happiness of each person when everyone follows the rules (Johnson, 2001a). Recognizing that both rule-utilitarianism and act-utilitarianism apply the principle of utility, Quinn (2008) argued that rule utilitarianism applies the principle to moral rules whereas act-utilitarianism applies the principle to individual moral actions. Johnson gave examples of the rules as “tell the truth”, “keep your promises”, and “don’t reward behavior that causes pain to others” (Johnson, 2001a, p. 39). Nonetheless, justification of utilitarian rule varies from situation to situation. For instance, a rule that prohibits people to put water into their swimming pool or to water their lawns is justified when water is scarce but unjustified when water is abundant.

It is noteworthy to address that rule-utilitarianism differs from deontological theories, though both suggest that moral rules must be followed (Quinn, 2008). For rule-utilitarianism, a rule is morally justified if it maximizes happiness of all affected parties. Deontological theories, on the other hand, suggest that a rule is morally justified when it is in accordance with the Categorical Imperative: Following moral rules is an obligation with no exception. In other words, the two rules derive disparate moral rules through completely different approaches. “Rule utilitarian is looking at the consequences of the

action, while the Kantian is looking at the will motivating the action” (Quinn, 2008, p. 79).

Utilitarianism, in general, received several devastating criticisms (Quinn, 2008; Rachels, 1986). One argument is that utilitarian calculus is made impossible at times due to different kinds of consequences. An example is to compare the benefit of the construction of a new gas highway, which is beneficial in terms of US dollars, but poses the potential for loss in that the project will cause fifteen divorces among the affected families. Another criticism that Quinn pointed out regards the possibility for unjust distribution of good consequences that utilitarianism suggests. According to Quinn, the goal to act so as to promote the greatest amount of good for the greatest number is not pure utilitarianism: It is a combination of the principles of utility and justice. The issue is derived from the conflicts between the two principles. In order for the utilitarian theory to be useful, this conflict must be resolved.

Egoistic consequentialism.

Egoistic consequentialism states that self-interest should be, and will be, a motivation for moral agents to perform an action regardless of its possible consequences to the society (Hallgarth, 1998). According to egoistic consequentialist, “beneficial consequences are maximized for society and the individual when persons pursue their own ends, that is, mind their own business” (p. 611). Hence, when individuals have to make a decision under a conflict of interests, they should decide on an approach that satisfies self-interests. Actions that result in social benefits would be a good approach if

that is what the individual desires. Hallgarth stated that this argument is based on a premise that just actions produce just consequences.

Hallgarth (1998) used the prohibition (twentieth) amendment of the U.S. Constitution as an example of an idealistic and socially altruistic law that contradicts many citizens' self-interest. The liquor prohibition raised personal opposition, which led to declined respect for the law among the public. It would be a better situation if citizens' interest in drinking alcohol were diminished in order to eliminate liquor from society rather than to have it forced upon them.

To entail the right self-interest, two normative issues are taken into account: method and social intervention. Firstly, education geared to develop effective critical thinking skills and how to best calculate what an individual wants, and how to achieve it, must be provided. Secondly, society should provide the necessary facilities for the development of a citizen's hedonistic interests that balance self-interest and the interests of the greater community.

Altruistic consequentialism.

Whereas egotistic consequentialism gives the highest priority to self-interest, altruistic consequentialism states that self-interest should be sacrificial for the common good if the sacrifice increases the sum of total happiness (Hallgarth, 1998). Hallgarth summarized the concept of altruistic consequentialism by stating that "altruistic consequentialism is really a euphemism for utilitarianism" (p. 612). According to altruistic consequentialist, personal sacrifice for others is the highest virtue possible for a

human being to reach. However, the detriment of self-interest would be worthless if no good results from the act. The philosophy of Mill and Bentham, utilitarianism, falls into this category.

Idealistic consequentialism.

Idealistic consequentialism is another variation of consequentialist theories. In general, the theory holds that pleasure is not the only main metric that can be used to determine the right and wrong of an action (Hallgarth, 1998). Like other forms of consequentialism, idealistic consequentialism states that the consequences of an action determine its morality. However, idealistic consequentialist disagrees on the definition of good that other consequentialist theories define as pleasure. G. E. Moore, an idealist consequentialist, asserted that a notion of good is indefinable. Good can be the result of many experiences such as contemplation, acquisition of knowledge, or aesthetic enjoyment. His argument resulted in an ongoing debate over whether these human experiences are reducible to gradation of a concept such as pleasure or pain.

Applied ethics.

The purpose of this section is to shape a construct for a cyberethical instrument through a literary review on applied ethics. As Spinello (2004a) pointed out, cyberethics is a branch of applied ethics. Thus, a discussion of applied ethics' definition, history, and the role of ethical theory provides the philosophical background of cyberethics. Additionally, a literary survey of applied ethical expertise defines underlying

characteristics of an ethical agent that educators should aim to develop. This understanding will, in turn, define items that the instrument this study aims to construct should measure. The literary survey in this section includes a definition of applied ethics, history, roles of ethical theories, and a description of applied ethicists.

Definition.

Applied ethics is “the branch of ethics which consists of the analysis of specific, controversial moral issues such as abortion, animal rights, or euthanasia” (Fieser, 2009). Analytical methods used in this field are either principle-based or case-based approach (Bedau, 2001). Namely, in the principle-based approach, a moral issue is judged according to related moral principles. For instance, lying is always wrong according to Kantian principle. The case-based approach, on the contrary, considers the case at hand and applies ethical principles to it. An example of a moral judgment according to the latter approach could be that lying is morally right if this action can save a person’s life. The application of ethical reflection to cases of practical concern is also referred to as *casuistry*.

Professional ethics is another related field of applied ethics. The focus of professional ethics includes only ethical aspects of issues within particular professions such as medicine, business, and journalism (Bedau, 2001). Besides the inclusion of ethical issues that relate to a particular profession, applied ethics includes moral problems in connection with some general issue of social concern such as employment equity or capital punishment (Winkler, 1998).

For an issue to be considered as an applied ethical issue, it must be (a) so controversial as to have significant groups of people that are supportive and opposed to the issue; (b) morally relevant (Fieser, 2009). For example, a drive-by shooting issue is not an appropriate case for applied ethics because everyone agrees that it is immoral. Prohibition of a yard sale may have significant opponents and proponents. However, this issue is not one for analysis by applied ethics—though it is a social policy issue—because the issue is not immoral in itself as long as no neighbor is against it. An issue of abortion is, on the contrary, an applied ethics issue. The issue has significant groups of people who support and are against it. Moreover, the issue of abortion concerns universally obligatory practices and is not confined to a specific society. Therefore, abortion is not merely a social policy issue but a moral issue. For these reasons, abortion is an appropriate applied ethics issue and a consultation of normative theories can help to resolve it.

Ethical issues can be grouped according to their related profession such as within the areas of medical ethics, business ethics, and environmental ethics (Winkler, 1998). Cyberethics, the most relevant ethical issue to this dissertation topic, is a variation of applied ethics. Spinello (2004a) asserted that “[c]yberethics can be defined as the field of applied ethics that examines moral, legal, and social issues in the development and use of cybertechnology” (p. 1).

History.

Applied ethics has prevailed since the mid of 1960s when the U.S. civil rights movement, the Vietnam War, and the growth of student political activism took place.

These events drew philosophers into the discussion of ethical issues of equality, justice, war, and civil disobedience. Prior the mid of 1960s, many moral philosophers—Augustine, Aquinas, Hobbes, Hume, and Bertrand Russell—attempted to answer practical questions such as suicide, abortion, and war but their dominant role was to moralize. Most of the philosophical work focused on the methodology of ethical theory and on the nature of ethical knowledge and the language of moral discourse. (Rosenthal & Shehadi, 1988, p. x). Philosophical ethics had little contribution to an understanding and/or resolution of practical issues of right or wrong (Dare, 1998).

Role of ethical theories.

Despite being a distinct area of moral philosophy, applied ethics is related to theories in normative ethics and metaethics. With normative theories, an ethical analysis in applied ethics implements normative theories in practical problems ("Ethics," 2011b). This application is controversial as Bedau (2001) asserted that identifying the proper role of ethical theory in applied ethics “constitutes the principle problem in the theory of applied ethics” (p. 81).

To illustrate an issue in the determination of the proper role of ethical theory within applied ethics, Bedau (2001) pointed out arguments on three possible roles of the ethical theory. The first alternative is a principle-based approach wherein related ethical theories are applied to judge ethical issues at hand. Criticism of this approach is based on Plato’s argument. Generally speaking, according to Plato (c. 430-347 B.C.E.), no adequate knowledge supports an idea that applied ethics is rooted in ethical theory. The

result is philosophically irresolvable conflicts among moral practices that various ethical theories or norms suggest. Gert (1992) and Hare (1992) also recognized this issue. A resolution, they proposed, is to have philosophers build a moral theory that explains and justifies a system of morality.

Philosophical conflict does not always result in moral judgment conflict. Weckert and Adeney (1997) pointed out that people who hold different philosophical points of view may agree on an action through the application of particular applied ethical issues. In their book, "*Computer and Information Ethics*", the authors argued that different metaethical views do not prevent an agreement on normative ethics and vice versa. For example, an objectivist of type intuitionism and a subjectivist may agree or disagree on a utilitarian theory that is a normative ethical theory. It could also be the case that two proponents of utilitarianism hold different meta-ethical views. Nevertheless, discussions on applied ethical issues such as censorship, copying software, and privacy often refer to normative ethical theories as their ultimate guidelines. Figure 3 illustrates the relationships as adapted from Weckert and Adeney (1997).

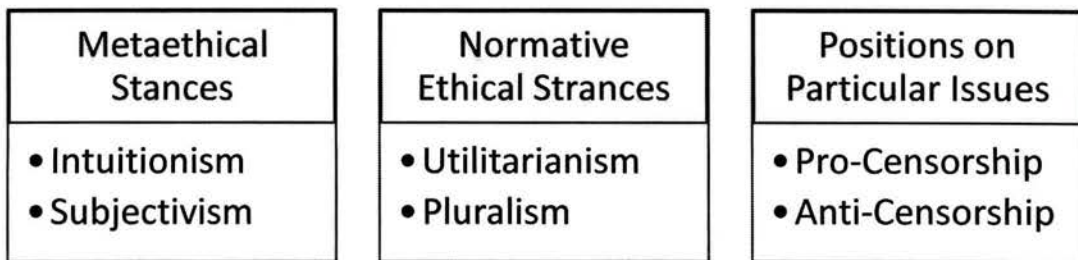


Figure 3. Relationship of the three levels of ethical thinking.

The second approach relating to a role of ethical theories in applied ethics is a case-based approach or the casuistry. In this approach, ethical judgment is performed on a case-by-case basis. Skepticism about this approach is based on an idea that, as Aristotle (384-322 B.C.E.) argued, no ethical system is complete or adequate. This results in a lack of “independent theoretical fulcrum” to justify moral argument in favor of a theory against others (Bedau, 2001, p. 81). The use of an incomplete or inadequate ethical system of applied ethical issues can lead to a dominance of uncriticized moral intuitions over more systematic and principled thinking.

The third possible role of ethical theories in applied ethics is in finding a wide *reflective equilibrium* between what ethical principles suggest and the ethical judgments regarding the case at hand. By definition, reflective equilibrium refers to “the end-point of a deliberative process in which we reflect on and revise our beliefs about an area of inquiry, moral or non-moral” (Daniels, 2011, para. 2). Examples of the inquiry are “What is the right thing to do in this case?” and “Is this the correct inference to make?” This approach offers the most effective role for ethical theory as Bedau (2001) stated that “philosophers have used wide reflective equilibrium mainly to justify the choice of ethical or political principles, but it can be used to reach solutions to practical problems in a manner superior to either the Platonic or Aristotelian methods” (p. 81).

Like casuistry, *contextualism* is another moral reasoning approach used in the field of applied ethics. According to Winkler (1998), contextualists do not attempt to find universally valid ethical theories whose existence is doubtful. Instead, they argue that moral judgment in applied ethics should appeal to historical and cultural traditions that

refer to critical institutional and profession norms and virtues. In addition, moral resolution should be performed with a method for comparative case analysis. That is, moral justification should be made in light of justifications made in other cases that share similar values.

Along with the issue of identifying the proper role of ethical theory within its field, applied ethicists found that people who hold different philosophical points of view may agree on an action toward particular applied ethical issues.

Applied ethicists.

Since the late twentieth century, philosophers' work has changed from being purely philosophical to being more practical (Dare, 1998). Their works address the role of philosophy in analyzing specific moral problems. Dare labeled philosophers as "ethical experts" or "applied ethicists" to highlight their new role in applied ethics. To define characteristics of applied ethicists, Dare discussed the central role of reasoning in the nature of ethics. Specifically, an argument can qualify what is ethical only when there are valid reasons to support it. Therefore, he argued that, "Ethical expertise will consist in expertise in ethical reasoning" (p. 186). Moreover, he listed characteristics of applied ethicists as:

- proficient reasoner,
- knowledgeable on relevant subjects,
- committed to use skills and knowledge to assess the strengths and weaknesses of moral arguments and positions

Cyberethics

This section contains a review of research literature on cyberethics. A goal is to provide the intellectual background essential to the construction of the Cyberethics Scale (CES). The topics of discussion include a definition of cyberethics, milestones of the field, uniqueness debates regarding cyberethics, difference in moral judgments in online and offline contexts, and approaches to the development of online ethical behaviors.

Definition

Broadly speaking, definitions of cyberethics are either a study of cybertechnological issues or ethical guidance referred to when individuals make moral judgments. According to Tavani (2007), *cyberethics* is “the study of moral, legal, and social issues involving *cybertechnology*” (p. 3). In his book, Tavani explained the term *cybertechnology* as “a wide range of computing and communication devices, from stand-alone computers to connected, or networked, computing and communication technologies” (p. 3). Examples of network devices in this context are personal computers, tablet, and smartphones. The scope of this definition ranges from small private computer networks to the Internet. While Tavani defined cyberethics by describing the relevant issues, Yamano (2004) proposed a definition that posed it as an ethical guidance upon which individuals rely. Namely, in her dissertation Yamano defined cyberethics as “the guidelines or framework upon which students will base their ethical and moral decision making. Cyberethics includes the guidelines for ethical and responsible use of computers, as well as the Internet” (p. 3). Similarly, the Computer Crime & Intellectual Property

Section by the United States Department of Justice defines the term "cyberethics" as "a code of safe and responsible behavior for the Internet community" (*Cyberethics.*, para. 2).

In addition to naming this branch of morality as cyberethics, several researchers placed their articles under various titles: *computer ethics*, *information ethics*, and *Internet ethics* (Bickel et al., 1992; Ghazali, 2003; International Center for Information Ethics, 2009; Jung, 2009; Langford, 2000; Miller, 1999; Moskal et al., 2002; Staehr & Byrne, 2003). Computer ethics, as defined by Walter Maner in 1976, is a field that studies ethical problems "aggravated, transformed or created by computer technology" (Bynum, 2008a, Defining computer ethics, para. 1). Spinello and Tavani (2004a) proposed a wider scope to definition by including ethical issues associated within the computing profession. In particular, their definition of computer ethics is "the study of ethical issues that are associated primarily with computing machines or with the computing profession" (p. 1).

Considering an evolution of modern technology, Rogerson (1998) argued that naming the field as information ethics is more suitable than naming it as *computer ethics*. For Rogerson, the term computer ethics signifies problems associated with computer hardware and its applications. However computer technology includes not only standalone computers, but also other embedded computer chip electronic devices such as cell phones, mp3 players, and electronic book readers. Therefore, the term computer misleads the scope of the field. Furthermore, the field of information continues to unite the industries of telecommunication and computer.

Like Rogerson (1998), Bynum (2008b) and Spinello and Tavani (2004a) asserted that the definition of information ethics is broader in scope than the definition of computer ethics. In "*Milestones in the History of Information and Computer Ethics*", Bynum pointed out that computer ethics is a subfield of information ethics. In addition to its coverage of computer-related ethical issues, information ethics includes other specific areas such as "'agent' ethics, Internet ethics, the ethics of nanotechnology, the ethics of bioengineering, even journalism ethics, and library ethics" (p. 31). Nevertheless, Bynum disagreed with Rogerson regarding term replacement. Bynum pointed out that the term computer ethics has replaced the term information ethics since mid-1970s when Walter Maner began to use this term to describe his research area.

Some authors treated these titles as synonymous by using them interchangeably in their articles (Johnson, 2001b; Rogerson, 1998). For instance, in accordance with Rogerson's (1998) definitions of computer ethics and information ethics, Ghazali (2003) used the terms computer ethics and information ethics interchangeably in his dissertation. Johnson (Johnson, 2001a) also did not make a distinction between these titles. Her notion of computer ethics is an evaluation of both individual action and collective, or institutional, behavior created by computer and information technology from both social and ethical points of view.

Internet ethics is another subject that is closely related to cyberethics. By definition, cyber is a prefix that means "involving, using or relating to computers, especially the Internet" (Cambridge Dictionaries Online, para. 1). However, the field of internet ethics is different from cyberethics. Spinello and Tavani (2004a) argued that

internet ethics concerns with ethical issues that involve the Internet whereas cyberethics includes any ethical issues that are related to cybertechnology. Along the same line, in *Internet ethics*, Duncan (2000) limited the discussion only to ethical issues related to the World Wide Web.

Despite the availability of relevant terms and their definitions, the definition of cyberethics in this dissertation is moral and social guidelines that constitute the framework upon which people will base moral judgments that involve the use of cybertechnology as an instrument in action. This definition is adapted from the definitions of cyberethics that Tavani (2007) and Yamano (2004) had presented.

Emergence of Cyberethics

The field of cyberethics emerged around the middle of World War II (Bynum, 2008b; Bynum, 2010). At that time, Norbert Wiener was a part of an engineering team that built automated anti-aircraft cannon. Having worked with this powerful technological invention, Wiener realized the enormous positive and negative potential of computer technology. In 1948, after the war ended, he wrote a book, *Cybernetics or Control and Communication in the Animal and the Machine* (1948), on the technology that he and his colleagues had invented. Two years after that, he wrote another book, *The Human Use of Human Being, Cybernetics and Society* (1950), that addressed the social and ethical influences of this new technology. According to Bynum, the two books are “the foundations of information ethics and computer ethics” (p. 26).

Though the books of Wiener are considered to be the foundation of cyberethics, Wiener himself did not intend to develop a new branch of applied ethics (Bynum, 2010).

The discussion found in the two books merely regarded “raised [raising] ethical concerns, and offered [offering] suggested solutions about the likely impacts of computers and other cybernetic machines” (p. 29). For instance, Wiener expressed his concern about an acceptance of “machine-made decisions” (p. 30) by asserting that

for the man who is not aware of this [machine is not legally or morally bound to an action or course of action], to throw the problem of his responsibility on the machine, whether it can learn or not, is to cast his responsibility to the winds, and find it coming back seated on the whirlwind. (Wiener, 1950, p. 212)

Presently, Wiener’s ideas are still considered contemporary and applicable (Bynum, 2010). Examples of the topics considered by Wiener are agent ethics, artificial intelligence, machine psychology, computers and security, computers and religion, computers and learning, computers for persons with disabilities, and responsibilities of computer professionals.

According to Bynum (2010), Wiener’s anticipation of the ethical consequences of cybernetics and computing technology had been ignored until late 1990. The cyberethical concerns between the 1950s and the early 1990s were focused on invasion of privacy, threats to security and the appearance of computer-enabled crimes (Bynum, 2008b; Bynum, 2010). Key contributors during that time were Donn Parker who led the development of the first Code of Professional Conduct for the Association for Computing Machinery; and Walter Maner who proposed that computer technology created new ethical problems that had never been seen before.

The uniqueness of cyberethics

An important continual debate in cyberethics centers on its unique nature. Namely, the focus of this debate is on a claim: “Computer ethics is unique” (Floridi & Sanders, 2004; Tavani, 2002). Floridi and Sanders pointed out that the definition of the term *unique* in this debate does not imply “‘one and only; single’; sole or ‘having no equal’” (p. 40). Rather, the interpretation should be, if X is unique, it means that “X must be new or novel in a way that challenges either: (a) our existing schemes for categorization and classification of that particular phenomenon; or (b) our existing modes of explaining and analyzing X” (p. 40). Furthermore, they addressed the significance of this debate by pointing out that the conclusion provides “more generalized conclusions in terms of conceptual evaluations, moral insights, normative guidelines, educational programs, legal advice, industrial standards, and so forth, which may apply to whole classes of comparable cases” (p. 82). One implication of this study is the development of an ethical framework and the ethical evaluation that the Cyberethics Scale can apply.

Two schools of philosophical thought grew from the debate regarding the uniqueness of cyberethics issues (Spinello & Tavani, 2004b). The first group argued that what is unethical is always unethical regardless of which measuring tool is being used. In other words, all ethical issues can be justified by existing ethical principles. Gotterbarn (1995), for example, addressed the uniqueness claim when stating that “I maintain that computer ethics is not unique; the ethical issues of it as broadly defined above are either subsumable under the issues of general ethics or they are a type of professional ethics” (p. 21). The opponent argues that cyberethics is a unique ethical problem because (a) these

issues do not exist before an advent of the cybertechnology, and (b) without cybertechnology, the cyberethics issues could not exist (Maner, 2004) as cited in (Spinello & Tavani, 2004b). As of the time of this writing, no consensus has been reached.

Despite the inconclusive resolution of the uniqueness debate of cyberethics, Tavani (2002) discussed three models of cyberethics that offer perspective on the debate. The three models are those of Floridi and Sanders (2004); Moore (1985); and Debora Johnson (Johnson, 2001a). Floridi and Sanders (2004) neither agreed nor disagreed with the uniqueness of cyberethical issues as they argued that cyberethical issues while “not uncontroversially unique, they are sufficiently novel to render inadequate the adoption of standard macroethics” (p. 81). As a result, they proposed a new ethical theory called *Information Ethics (IE)* as a foundational theory for cyberethics. This theory is another “macroethics” similar to utilitarianism and deontologism.

Fundamental principles of the IE theory are an attempt to avoid or minimize *entropy* (Bynum, 2010). To understand the concept of entropy, it is important to understand the underlying metaphysics, physiology, psychology of Aristotle’s theory of human nature (Bynum, 2010). Aristotle argued that all individual entities in the Universe consist of *matter* and *form*. Matter is “is the underlying substrate of which an entity is made” (p. 21) and form is “‘taken on’ by the matter thereby making an individual thing what it is”. More importantly, matter and form are mutually exclusive.

To further illustrate this concept, a house is an example of matter. It is made of bricks, wood, glass, or other material. However, each of these materials, when considered

alone, does not constitute a house. The form is what makes the object a house. One could replace a particular matter that makes up a house with something else: Replace wood with brick. However, the house is still a house because “the form of a house is what makes it a house and enables it to fulfill the functions of a house” (Bynum, 2010, p. 21).

According to Aristotle, humans and animals differ from plants because plants cannot perceive. He explained a process of perception wherein *information* of objects outside of an animal or human gets transferred into the animal or human. Bynum pointed out an interpretation of Aristotle explaining “individual entities in the Universe are made out of matter and forms, and forms either are or at the very least contain information. Thus matter and information are significant components of every physical thing in the Universe” (Bynum, 2010, p. 21).

According to the IE theory, every entity in the Universe can be constructed as an informational object with its form or “a characteristic data structure that constitutes its very nature” (p. 37). Consequently, Floridi referred to the whole Universe as the infosphere (Bynum, 2010; Tavani, 2002). Floridi stated that form of each entity in the Universe can be damaged or destroyed. The damage or destruction is called *entropy*. Floridi asserted that entropy should be avoided because it prevents the informational object from flourishing. Floridi and Sanders (2004) elaborated upon this idea by stating:

One should also evaluate the duty of any moral agent in terms of contribution to the growth of the infosphere, and any process, action, or event that negatively affects the whole infosphere, not just an information object, as an increase in its level of entropy and hence instance of evil. (p. 92)

By focusing on bad actions, the entropy that can harm entities in the infosphere, IE theory is not limited to human beings or animals in basis of its moral judgment (Bynum, 2010; Tavani, 2002). Therefore, the IE theory is more suitable to assist in a moral analysis involving new agents such as robots, softbots, and cyborgs. Tavani asserted that the theory's consideration on the ontological status of information and "questions whether non-biologic entities (e.g. 'data-entries') ought to be brought into the realm of moral discourse" (p. 51) are significant contributions that the IE theory brought to the field of cyberethics.

Moor's (1985) concepts of "*logical malleability*", "*policy vacuums*", "*conceptual muddles*", and "*conceptual vacuum*" constitute the second model of cyberethics that Tavani (2002) found helpful while gaining an understanding of the field. Namely, Moore's (as cited in Bynum, 2008b) concepts increase the recognition and anticipation of similar challenges that can continue. Bynum asserted that Moor's explanation "became the most influential one among a growing number of scholars across America who were joining the computer ethics research community" (p. 34). Broadly speaking, unlike technologies of the past, computer technology—the cyber technology—in this discussion, can perform a variety of functions. Its multi-functional property makes computer technology "*logically malleable*". The new capabilities this technology offers raise questions of whether one ought to engage in certain practices. In many cases, existing laws, policies, and ethical principles cannot provide the answers. Moor called the situation wherein an attempt to find out how computer technology should be used a *policy vacuum*. While an attempt is being made, one often finds that a computer ethical

issue is not well-defined, regardless of how precise the initial definition is. When such a *conceptual muddle* arises, a *conceptual vacuum* is needed. Moor suggested that “what is needed in such cases is an analysis that provides a coherent conceptual framework within which to formulate a policy for action” (p. 34).

The last model of cyberethics that Tavani (2002) found helpful for understanding the field was by Deborah Johnson. Johnson (2001a) pointed out that each side of the debate proponent comes from different point of view. The uniqueness advocates start their arguments from the standpoint of computer technology, particularly on its new and unique aspects. Thus, their arguments pose that ethical issues associated with technology are unique. Johnson further explained that traditionalists’ arguments tended to emerge from the point of view of ethical principles. As a result, their view is that cyberethical issues can be categorized from an existing ethical issue such as privacy, computing right, or bullying and are therefore not unique to cyber-technology.

Influences of the online environment on moral reasoning.

In an attempt to promote ethical behaviors online, this section reviews literature relevant to how people engage in ethical behaviors and how the virtual environment affects ethical behaviors. Next, the discussion focuses on practical approaches that promote cyberethics through external and internal influences.

Willard (2002) argued that, in addition to cognitive development, moral behaviors are influenced by personal moral code and three external factors: (a) a recognition that an action has caused harm, (b) social disapproval, and (c) punishment by authority. In many

circumstances where unethical conduct occurs, individuals try to waver from violating their moral code so that they do not feel guilty as a result. Though different individuals have differing limits of how far they will stray from their personal moral code, they are more likely to waver when they found that the action:

- caused no harm;
- had no, or very limited, chance of punishment;
- did more benefit than harm;
- caused harm to large entity such as a corporation, not a specific person;
- was a common practice though it is unethical or illegal;
- brought harm to people who engaged in illegal or unjust actions.

When applying their assessments to an online environment, individuals can easily waver from their personal moral code (Willard, 2002). Willard explained that the virtual environment's lack of tangible feedback and anonymous attribution play an important role in affecting moral judgment. Namely, the lack of intangible feedback hides, or lessens, the perception of harmful consequences of an action on others. In addition, a perception of invisibility in the cyberspace "undermines the potential influence of both authority and social disapproval" (p. 3).

Several empirical studies and media reports (Jasen, 2010; Madden, 2009; Oliver, 2002; Shin, 2008) showed the alteration of an individuals' moral judgment while in an online environment. For example, Shin asked 21 graduate students of Teachers, College Columbia University to judge 10 offline and 10 corresponding online behaviors. She found that the participants made different judgments when engaged in different

environments. To illustrate some of her findings, 9.24% of participants could not decide on the appropriateness of behaviors online, whereas the result from the offline behaviors was 4.46%. In addition, as Figure 4 illustrates, 63.64% of online behaviors were rated as acceptable comparing to an acceptability rate of 32.46% for offline behaviors.

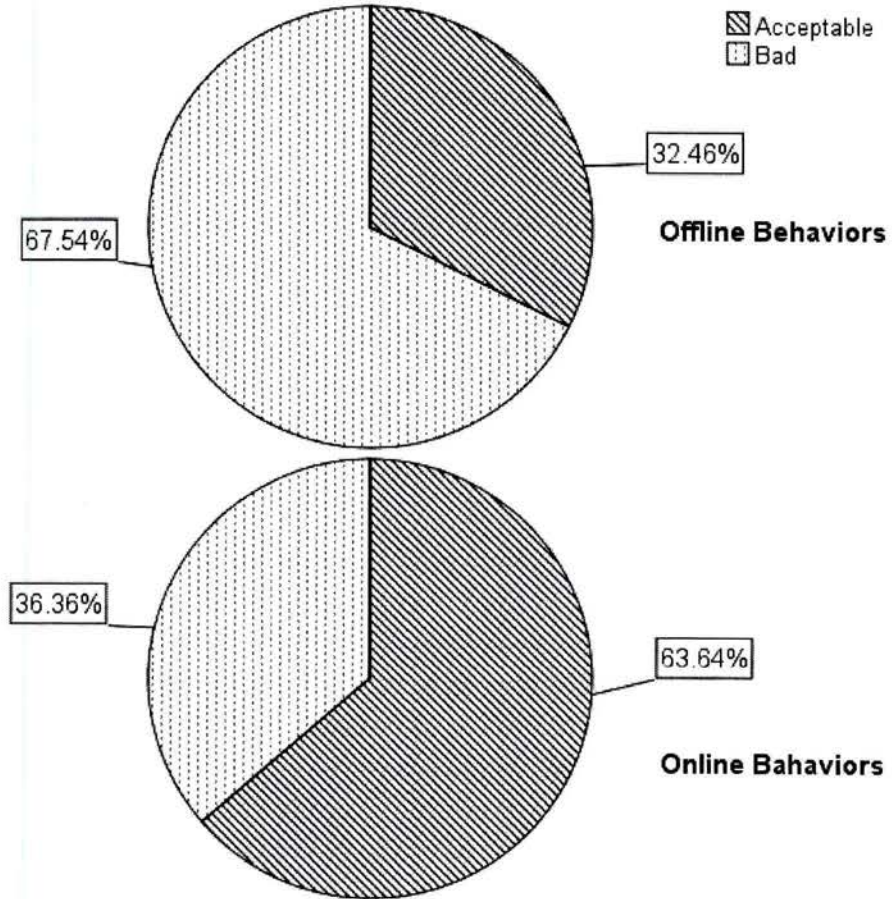


Figure 4. Comparison of moral judgment in online and offline behaviors from a study of Shin (2008).

In her dissertation, Oliver (2002) examined the developing moral judgment of 7th and 8th grade students. Scores on the Computer and Internet Activity Questionnaire (CIAQ), which measured online moral judgment, were lower than the scores from SRM-SF, which measured offline moral judgment. Though Oliver's result indicated a decrease in moral reasoning online, it is noteworthy that the correlation between the two instruments was low. Specifically, the Pearson product-moment correlation for the raw scores of the SRM-SF and the CIAQ indicates a low correlation of .469 ($n = 144$, $p < 0.01$). The correlation for global stages on the two instruments was .418 ($n = 144$).

Statistics from various surveys also reflect a wavering from normally established moral principles while in the cyberspace. According to the *Pew Internet & American Life Project's Online Music Report* (2000), 78% of adults who download commercial music online do not consider their act as stealing. In particular, the press release of this report (2000) states that

fully 78% of those who download music don't think it is stealing to save music files to their computer hard drives and 61% of downloaders say they do not care if the music they capture is copyright protected. In the general population, those under age 30, those in households earning more than \$75,000, and those with college degrees are the most likely to back the idea that downloading music isn't a crime (para. 2).

Correspondingly, another survey reported similar result regarding the difference between online and offline moral judgments. Lenhart and Madden (2005) found that 75% of 622 teens who had tried downloading music agreed that "file-sharing is so easy to do,

it's unrealistic to expect people not to do it". More importantly, the report stated that "about half of them think free downloading and file-sharing copyrighted content without permission is generally wrong, yet roughly the same number say they do not care about the copyright on the music files that they download" (p. iii).

The widespread attitude toward free downloading of commercial music was reflected in the statistics of music industry record sales. In 2008, the total sales of physical and digital album sales had decreased 45% since the industry's peak in 2000 (Sisario, 2008, December 31). In 2010, results from telephone interviews with a nationally representative sample of 1,003 adults living in the continental United States indicated that 33% of the respondents had paid to download or access music and software (Jasen, 2010). Nevertheless, statistics showed that the number of digital album sales, 65.8 million units, is significantly less than the number of physical units sold, 362.6 million physical units. Even after adding the amount of physical unit sales (Madden, 2009), the album sales are still less than the number of devices.

Approaches to the development of cyberethical behaviors.

Approaches to foster online moral judgment are categorized as external and internal influences (Willard, 2002; Yamano, 2004). The external influence implies the use of rule enforcement regarding online behaviors. On the contrary, internal influence means "giving students information on which to base their choices and allowing them to use critical thinking skills to solve the dilemmas they may face" (Willard, 2002; Yamano, 2004, p. 6). The following subsections discuss the two influences in more detail.

External influences.

In response to numerous cyberethical problems, researchers (Gattiker & Kelley, 1999; Loch & Conger, 1996; Vitell & Davis, 1990) suggested the implementation of codes of ethics as an effective method for eliminating or reducing improper behaviors online (Peterson, 2002). Willard (2002) referred to the disciplinary approach as an external influence. In practice, external influences come in the form of regulation and technology. To evaluate the effectiveness of the disciplinary approach, Peterson conducted a survey with 281 business professional respondents on the values of computer guidelines as a means of reducing the unethical use of computers. He found that the presence of computer ethical guidelines had a positive effect on the ethical intentions of business professionals with low belief in universal moral rules.

Policy.

Several forms of legislation and policy have been created to prevent illegal and unethical acts in cyberspace. Examples of prominent Acts are “the Copyright Act, the National Stolen Property Act, mail and wire fraud statutes, the Electronic Communications Privacy Act, the Communications Decency Act of 1996, the Child Pornography Prevention Act, and the Child Pornography Prevention Act of 1996” (“Computer Crime – Anti-Cyber-Crime Legislation”, 2011). More recent governmental policy can be seen in an anti-bullying bill that Massachusetts House lawmakers unanimously approved in March 2010. The bill would:

require school districts to come up with bullying prevention plans and expand the definition of bullying to include the growing problem of Internet cyberbullying through the use of e-mails or text messages.

The legislation would also require school officials to inform parents of their anti-bullying curriculum and alert both the parents of bullies and the parents of their victims after a bullying incident. (Hawksworth, 2010)

In professional settings, the first code of professional conduct for computing professionals was founded by Donn Parker and his colleagues in 1968 (Bynum, 2010). It was referred to as the Code of Professional Conduct for the Association for Computing Machinery (ACM). This code of conduct was adopted by the ACM membership in 1973 and became a guideline for all ACM members when facing ethical issues. Presently, ACM is the world's largest educational and scientific computing society ("Association for Computing Machinery," 2011). It comprises of more than 97,000 members—educators, researchers, professionals, and students in the computing professions—from over one hundred countries. In general, the objectives of a code of professional ethics are (a) to inspire members to act ethically, (b) to alert the professional the moral aspects that might be overlooked, (c) to act as a disciplinary code and to enforce certain rules in order to preserve the integrity of the profession and protect its professional standards, (d) to provide moral guidance to the members, and (e) to establish a proper service level agreement and protect institution from legal liability (Ladd, 1995). Other professional organizations, such as Data processing Management Association (DPMA), which is now Association of Information Technology Profession (AITP), and IEEE, have also

developed a professional code of ethics.

For schools, universities, or corporations, the most common form of regulation is the Acceptable Use Policy (AUP) (Yamano, 2004). Implementation of AUP was recognized as an important first step to promote cyberethics (Bell, 2002). The AUP is a document that every computing user of these institutions must sign prior to accessing the institution's computing resources. In addition, to preventing unethical or illegal activities, a purpose of the AUP is to prevent activities that are not appropriate within a particular system while viewed in accordance to the purpose of the system (Willard, 2000). For instance, a purpose of a school district's Internet service is to enhance the delivery of education. Hence, any activities that are not related to this purpose would be prohibited on the system.

The Children's Internet Protection Act (CIPA) is another example of federal approach to Internet safety. The law is enacted by Congress to prevent an access to online offensive content on school and library computers ("Children's Internet Protection Act," n.d.). Schools and libraries that comply with the law may be eligible for receiving discounts offered by the E-rate program—a program that helps schools and libraries pay for their Internet access costs. In brief, the CIPA requires that schools and library

- implement technology protection measure that blocks or filters obscene images, child pornography and content that would be harmful to minors.
- monitor the online activities of minors.
- restrict access to minors of inappropriate and harmful online content, make sure their electronic communications are safe, prevent the illegal use of

computer resource by minors including hacking, and prevent the dissemination of personal information of minors.

Technology.

Technology is another form of external influence that may promote cyberethics. According to the National Center for Education Statistics (NCES), more and more public schools had increased their use of technologies to prevent student access to inappropriate online material. Statistically, the percentage of public schools that used monitoring software were 46%, 52%, 57%, and 67% in 2001, 2002, 2003, and 2005 respectively (Wells & Lewis, 2006). In households, 53% have filtering software and 45% have monitoring software installed on their computers (“Pew Internet & American Life Project,” 2007). Typically, preventive software can prevent children’s exposures to sexual material, limit the amount of time children can be online, block information that can be sent from the computer to protect the children’s privacy, provide youth-friendly browser, and report computer usage to parents (Ybarra, Finkelhor, Mitchell, & Wolak, 2009).

Issues regarding external influences

To evaluate the effectiveness of preventive software, Ybarra, Finkelhor, Mitchell, and Wolak (2009) conducted a national Random Digit Dialing (RDD) telephone survey conducted between March and June 2005 with 800 households that have one caregiver and one child between the ages of 10 and 17. The result indicated that preventive

software was an effective means of prevention from unwanted exposure to sexual material online for children within the ages of ten and fifteen. Nevertheless, the software was not effective with children aged 16 and 17 years.

Law, Shapka, and Olson (2010) examined the association between parenting behaviors and adolescent online aggression. They asked 733 adolescents between age of 10 and 18 from Western Canada to complete a questionnaire about internet aggression and parenting. They found that good communication between parents and the adolescents is a more effective way to prevent children's aggressive behaviors online than using monitoring software or controlling adolescent Internet use. According to the research study, adolescent self-disclosure—children naturally tell parents about their online activities—was negatively associated with online aggression. However, their Internet Control items in regard to controlling internet use and parental rule setting/control did not significantly predict online aggression.

Several authors also asserted that regulation is not an effective solution for cyberethical issues. For instance, Stattin and Kerr (as cited in Law et al., 2010) reported limitation in the use of technology as a tool that prevents unethical online behaviors. They stated that “using software or checking computer histories is not effective in reducing online aggression and meshes well with previous work that has found that controlling adolescent behaviors do very little to decrease problem behaviors and was linked to poorer, rather than better, adjustment” (p. 1654). Peterson (2002) expressed his idea on the limitation of guidelines that “guidelines only account for a moderate amount of the variation in ethical intention, guidelines alone are unlikely to be sufficient for

eliminating unethical behavior” (p 358).

In an attempt to effectively promote moral behavior in cyberspace, Willard (2002) pointed out that it is essential to understand why people follow a rule and how an online environment impedes moral reasoning. Specifically, individuals follow discipline on account of (a) an empathic recognition that their action harms others; (b) social disapproval; and (c) punishment by authority. In an online environment where tangible feedback is limited, there is a tendency for people to fail to perceive the potential negative consequences of their actions toward others. A result is a decrease in the probability that harmful conducts would prompt their empathic responses. In addition, the environment increases the perception of invisibility that “undermines the potential influence of both authority and social disapproval” (p. 3). Therefore, people tend to engage in inappropriate actions while they are online. Despite the improvement of online monitoring systems and online regulations, the perception of invisibility also gives a reason why unethical behaviors are considered more acceptable on the Internet than in the offline world.

Internal influences.

The section on internal influences includes literature on the subject of cyberethical education and the effectiveness of the educational approach. Due to the fact that moral development assists in the development of an understanding of moral reasoning online (Willard, 1998), the next section includes literature on moral development and existing instruments in more detail.

Educational approach.

In addition to external influences that can develop and promote ethical behaviors online, internal influence is another approach that educators apply to accomplish this objective. According to Yamano (2004), internal influence means educating moral judgment so that students can apply this skill when they face moral dilemmas.

Unlike external influences, Education, an internal influence, is a widely acceptable approach toward developing ethical behaviors in online and offline environments. Carpenter pointed out that education is “the first line of defense against unethical attitudes that can grow into criminal behavior” (as cited in Yamano, 2004, p. 11). Along the same line, McQuade (2007) argued that cyberethics and cybercrime are educational problems. Hence, technology, legislation, and law-enforcement are, by themselves, insufficient for maintaining moral behavior. Cordes supported the educational approach by asserting that cyberethics should be included in school curricula (as cited in Baum, 2005). Willard (2002) asserted that the purposes of cyberethics instructions should:

- Help young people to do what is right regardless of the potential of detection and punishment;
- Help young people understand how action can cause harm to people they cannot see;
- Help young people learn to use effective decision-making strategies that will result in ethical and responsible behaviors.

The Accreditation Board for Engineering and Technology's (ABET) requirement illustrates an example of how the perception of invisibility encourages educators to integrate cyberethics into their curricula. Since 1990, the ABET required that a computer science program must include computer ethics in their curriculum in order to attain a national accreditation. ABET is the recognized accreditor for college and university programs in applied science, computing, engineering, and technology. Presently, ABET accredits over 3,100 programs at more than 600 colleges and universities around the world (*ABET*, 2010, February 6).

In an attempt to promote effective cyberethics education, several research articles (Benbunan-Fich, 1998; Bynum, 1990; Friedman, 1990; Gotterbarn, 1992; Howard, 2006; Konstantakis & Tsoukalas, 2008; Meyenn, 2000; Miller, 1999; Swain & Gilmore, 2001) discussed pedagogical approaches for cyberethics instruction. In addition, many articles (Bell, 2002; Tavani, 1996; Tavani, 1999; Tavani, 2008) provided lists of supplementary materials for teachers and parents to guide them in educating children in cyberethics. Additionally, several websites such as educationworld.com, justice.gov, and cybercitizenship.org are available to assist parents, educators, and librarians in finding resources to educate their children.

Effectiveness of the educational approach.

Cyberethics instruction has been shown to have a positive effect on a student's understanding of the subject. Swain and Gilmore (2001), for instance, surveyed their students before and after their computer ethics and copyright instructions to determine

instructional effectiveness. The survey participants were 76 students from the University of Florida and Texas Wesleyan University, majoring in teacher education. Notably, the post-lesson survey indicated a 63.9% increase in the number of participants who agreed that duplication of software programs for instructional purpose was illegal because no fair use applied in such situations. Another interesting finding is a 10.4% increase in the percentage of students who agreed that ethical situations involving computers are similar to other ethical situations.

Staehr and Byrne (2003) also evaluated a computer ethics instruction. They conducted pre- and post- tests with a control group and an experimental group using the Defining Issues Test (DIT). The control group consisted of students who did not enroll in a professional environment course that had a computer ethics component. The experiment group consisted of students who enrolled in that course. They found that both groups improved their moral judgment over the course of the semester, but the experimental group exhibited a larger improvement.

Theoretical Background of Moral Reasoning

This section discusses the theoretical background of development in the area of moral judgment, which provides the grounds of this study. As moral reasoning online is a construct of this dissertation, it is essential to investigate the construct from both philosophical and psychological approaches. Unlike the former sections that examine philosophical aspects of the construct—the nature of ethics, cyberethics, and moral acts—this section addresses literature about social and psychological methodology to

understand how people actually behave and what they believe about morality.

The focus of this section is on moral judgment. According to Rest and Narváez (1991), moral judgment is a major component of moral development and a major determinant of moral behaviors. The development of moral judgment is, in concrete steps, similar to cognitive development (Reimer, Paolitto, & Hersh, 1990). In addition, moral development is an intricate process that receives influences from cognition and social factors or environments (Oliver, 2002). For a reason that online moral reasoning is a particular type of moral judgment that the study investigates, it is understood that cyberethics comes from social experience and depends on the level of cognitive capacity the individual presently attains (Willard, 1998). These ideas are rich in explanatory value and provide a solid foundation for the research questions this study poses.

In this section, the work of Lawrence Kohlberg (1927-1987) on the stages of moral judgment theory is the starting point for the discussion. The discussion consists of two main topics: (a) theoretical and historical background of the theories of moral development, and (b) instruments that measure moral reasoning in online and offline contexts.

Moral Development Theory

In moral education, a common pedagogic approach to develop moral behaviors is “to confront the child repeatedly with examples of adults and other children who exhibit specific virtues by lecturing about these virtues” (Duska & Whelan, 1975, p. 5).

However, as Duska and Whelan further explained, Hartshorne’s and May’s long series of

studies on stealing, cheating, and lying reported that the moral education programs in the church, home, schools, and clubs did not effectively develop moral practices. The consistent conclusions in their research studies are:

- There is no correlation between character training and actual behavior.
- Moral behavior is not consistent in one person from one situation to another.
- There is no necessary relationship between what people say about morality and the way they act.
- Normally, everyone cheats a little.

Duska and Whelan (1975) further argued that two people could justify a moral dilemma from different perspectives. For instance, a six-year-old girl made her judgment by a size of a material consequence whereas another seven-year-old boy was able to judge on the basis of intention and was not distracted by the physical appearance. Duska and Whelan explained that the different responses were because the two children were at different stage of moral-cognitive development. They addressed that no amount of explanation, lecturing, or even punishing would persuade a person that there is another way of looking at a dilemma. To expand the growth in moral judgment, a person needs “greater cognitive maturity, together with a variety of social experiences” (p. 7). Based on this empirical finding, Duska and Whelan pointed out that “moral development, then, is not a process of imprinting rules and virtues but a process involving transformation of cognitive structures. It is dependent on cognitive development and the stimulation of the social environment” (p. 5). Accordingly, a definition of moral development, according to Rich and DeVitis (1985), is “growth of the individual’s ability to distinguish right from

wrong, to develop a system of ethical values, and to learn to act morally” (p. 7).

The response to a search for effective pedagogy for moral development is a research area in developmental psychology: the moral development theory, which explains how people morally develop. This theory focuses on the process of growth in moral judgment. According to the theory, “moral judgment develops through a series of cognitive reorganizations called stages” (Duska & Whelan, 1975, p. 5). A person’s moral judgment develops in accordance with various social experiences and his or her cognitive maturity at a particular point in time. This theory explains why an adult often finds his or her moral judgment at a younger age to be inadequate.

Kohlberg’s stage theory of moral judgment.

Similar to many articles (Cain, 2007; Duska & Whelan, 1975) on moral development, Lawrence Kohlberg’s stages theory of moral development offers a theoretical foundation for this dissertation. Broadly speaking, Kohlberg focused on a psychologically developmental process of how an individual arrives at a moral judgment. Reimer, Paolitto, and Hersh (1990) argued that Kohlberg’s theory is educationally valuable because it provides “a conceptual framework through which teachers are better able to integrate moral issues with the process and content of teaching” (p. 3). As a result, educators are able to provide the most effective education, which usually takes place when the instruction is commensurate with a student’s cognitive capacity to learn (Duska & Whelan, 1975; Sullivan, 1975). This section reviews literature on the cognitive moral development theory that emerges from the work of Lawrence Kohlberg.

Description.

Historically, Kohlberg began his work on the cognitive-developmental approach during the mid-1950s (Rest, 1994). Before Kohlberg introduced a concept of moral development as a cognitive-developmental approach, moral development was a matter of accepting a cultural norm. If the societal norm were against extramarital sex, then sex would be considered wrong outside of the bond of marriage. In particular, Kohlberg argued that the individual, not society, determined what was right or wrong.

Kohlberg's approach toward moral development embraced Jean Piaget's (1896-1980) work in the field of cognitive development in the 1930s, particularly as described in Piaget's *The Moral Judgment of the Child* (Reimer et al., 1990). Piaget formulated a model of cognition that describes how the cognitive process that underlies intelligence in the individual develops from one chronological period to the next. More importantly, he found that reasoning is aged-related. Piaget's theory encompasses human cognitive development from the infant's first suckling to the adolescent's ability to manipulate logical propositions in a symbolic fashion (Saettler, 1990).

Rest and Narváez (1994) and Duska and Whelan (1975) pointed out that Kohlberg extended Piaget's line of theory by:

- Focusing on cognition;
- Assuming that moral development is organized in stages and moves in a logical sequence;
- Collecting data by posing a problem to the subjects;
- Looking for differences in moral judgment among different age groups.

Unlike Piaget, Kohlberg included a larger number of participants from broader social backgrounds. Furthermore, he incorporated the principle of justice instead of “virtues and vices and such concepts as cooperation and equity” (Rich & DeVitis, 1985, p. 87).

Kohlberg developed his stages of moral judgment theory from his longitudinal data that investigated how his participants responded to a moral dilemma—the Heinz dilemma (Rest, 1994). According to the stages of moral judgment theory, basic problem-solving strategies on moral issues can be summarized into six stages (Rosen, 1980). The six culturally universal stages represent a developmental sequence that people with normal cognitive development apply. Stating that an individual is at a particular stage implies that half of his or her moral reasoning is grounded in the definition of that stage. Rosen further explained an interpretation of a person’s current stage of moral judgment as, “the balance of [his] moral conceptions is likely to be divided between one stage higher and one stage lower” (p. 67). Two subjects may be at the same stage even though their moral judgments oppose each other. The reason is that, “a structural analysis of the underlying reasoning is the stage determinant and not the content of the judgment” (p. 66). In other words, Kohlberg’s theory justifies the use of moral reasoning but does not rank or evaluate the relative moral worth of a person (Kohlberg, Levine, & Hewer, 1983).

To explain stage transitions, Kohlberg asserted that people move to the next stage when they find moderately more advanced moral considerations relative to their moral development level, as well as appreciate new complexities and subtleties (Rest, 1994). Role-taking opportunities can help stimulate moral development if they meet the

conditions just described (Gibbs, Basinger, & Fuller, 1992). More importantly, Rest and Narváez (1994) pointed out that the higher stages are more advanced than the lower stages because people who have moved to higher stages, which are an extension of the lower stages, argue that the lower stages are too simplistic and inadequate. Table 1 illustrates Kohlberg's six stages of moral judgment.

Table 1

Kohlberg's Six Stages of Moral Judgment

Level	Stage	Content of stage		
		What is right	Reasons for doing right	Social perspective of stage
Level I: Pre-conventional	Stage 1: Heteronomous morality	Sticking to rules backed by punishment; obedience for its own sake; avoiding physical damage to persons and property.	Avoidance of punishment, superior power of authorities.	Egocentric point of view. Doesn't consider the interests of others or recognize that they differ from the actor's. Doesn't relate two points of view. Actions considered physically rather than in terms of psychological interests of others. Confusion of authority's perspective with one's own.
	Stage 2: Individualism, Instrumental purpose, and Exchange	Following rules only when in one's immediate interest; acting to meet one's own interests and needs and letting others do the same. Right is also what is fair or what is an equal exchange, deal, or agreement.	To serve one's own needs or interests in a world where one has to recognize that other people have interests.	Concrete individualistic perspective: Aware that everybody has interests to pursue and that these can conflict; right is relative (in the concrete individualistic sense).

(continued)

Level	Stage	Content of stage		
		What is right	Reasons for doing right	Social perspective of stage
Level II: Conventional	Stage 3: Mutual interpersonal expectations, Relationships, and Interpersonal conformity	Living up to what is expected by people close to you or what people generally expect of a good son, brother, friend, etc. “Being good” is important and means having good motives, showing concern for others. It also means keeping mutual relationships such as trust, loyalty, respect, and gratitude.	The need to be a good person in your own eyes and those of others; caring for others; belief in the Golden Rule; desire to maintain rules and authority that support stereotypical good behavior.	Perspective of the individual in relationships with other individuals. Aware of shared feelings, agreements, and expectations which take primacy over individual interests. Relates points of view through the concrete Golden Rule, putting oneself in another person’s shoes. Does not yet consider generalized system perspective.
	State 4: Social system and conscience	Fulfilling duties to which you have agreed; laws to be upheld except in extreme cases where they conflict with other fixed societal duties. Right also contributes to society, group, or institution.	To keep the institution going as a whole and avoid a breakdown in the system “if everyone did it”; imperative of conscience to meet one’s defined obligations. (Easily confused with stage 3 belief in rules and authority).	Differentiates societal points of view from interpersonal agreements or motives. Takes the point of view of the system that defines roles and rules; considers individual relations in terms of place in the system.

(continued)

Level	Stage	Content of stage		
		What is right	Reasons for doing right	Social perspective of stage
Level III: Post-conventional; or principled	Stage 5: Social contract or utility and individual rights	Being aware that people hold a variety of values and opinions and that most of their values and rules are relative to their group. Relative rules are usually upheld in the interest of impartiality and because they are the social contract. Some nonrelative values and rights (e.g. life and liberty) must be upheld in any society and regardless of majority opinion.	A sense of obligation to law because of one's social contract to make and abide by laws for the welfare of all and for the protection of all people's rights. A feeling of contractual commitment, freely entered upon, to family, friendship, trust, and work obligations. Concern that laws and duties be based on rational calculation of overall utility, "the greatest good of the greatest number".	Prior-to-society perspective. Rational individual aware of values and rights prior to social attachments and contracts. Integrates perspectives by formal mechanisms of agreement, contract, objective impartiality, and due process. Considers moral and legal points of view; recognizes that they sometimes conflict and finds it difficult to integrate them.

(continued)

Level	Stage	Content of stage		
		What is right	Reasons for doing right	Social perspective of stage
	Stage 6: Universal ethical principles	Following self-chosen ethical principles, particularly laws or social agreements, usually valid because they rest on such principles; when laws violate these principles, one acts in accordance with principle. Principles are universal principles of justice, equality of human rights and respect for the dignity of human beings and individuals.	The belief as a rational person in the validity of universal moral principles and a sense of personal commitment to them.	Perspective of a moral point of view from which social arrangements derive. Perspective is that of a rational individual recognizing the nature of morality or the fact that persons are ends in themselves and must be treated as such.

Note. Adapted from “Promoting Moral Growth from Piaget to Kohlberg,” by J. Reimer and R. H. Hersh, 1983, Illinois:

Waveland Press, p. 58-61.

As Table 1 illustrates, every two of Kohlberg's six stages of moral judgment development are subsumed under a level of their own. This results in three distinct levels: *pre-conventional*, *conventional*, and *post-conventional* (Duska & Whelan, 1975). In the pre-conventional level, individuals make a moral judgment based on physical or hedonistic consequences of action or superior commands. This level consists of Stages 1 and 2. Particularly, Stage 1 states that the physical consequences of an action determine its goodness and badness. Stage 2 extends moral considerations to Stage 1 by incorporating a concept of instrumental purpose of oneself and others. Elements of equity and fairness also present in this stage. However, the exchange of fairness in this sense is explained as "you scratch my back and I'll scratch yours" (p. 46), not in greater terms of loyalty, gratitude, or justice.

The conventional level maintains the values that a person's family, group, or country has its own rights. An action is considered good or bad not because of immediate or obvious consequences, but by the expectations of social institutions. The attitude of an individual extends from, "not only one of conformity to personal expectations and social order, but loyalty to it, of actively maintaining, supporting, and justifying the order and of identifying with the persons or group involved in it" (p. 46).

The conventional level is comprised of Stages 3 and 4. In Stage 3, good behavior aims to please other people and is judged by intention. Individuals display gratitude and care for others. In Stage 4, "right behavior consists of doing one's duty, showing respect for authority and maintaining the given social order for its own sake" (p. 46).

The post-conventional level, or the principle level, states that moral values and

principles have validity apart from the authority of groups or of an individual's identification with these groups. In other words, individuals shift their conventional moral thinking—the morality of maintaining social norms—to post-conventional thinking—"the morality that rules, roles, laws, and institutions must serve some shareable ideal of corporation" (Rest, Narvaez, Bebeau, & Thoma, 1999, p. 2). Stages 5 and 6 exist in this level. At Stage 5, utilitarianism is the underlying principle. A right action is the one that promotes social utility even though the action might require a change of law and order. Stage 6 defines right action by "the decision of conscience in accord with self-chosen ethical principles appealing to logical comprehensiveness, universality, and consistency. These principles are abstract and ethical (the golden rule, the categorical imperative) and are not concrete moral rules like the Ten Commandments" (p. 47). Underlying concepts of the self-chosen principles in Stage 6 are justice, human rights and respect for all persons. Nevertheless, a distinction made between Stages 5 and 6 received much criticism (Rest, 1994). Kohlberg was still working on the definition of Stage 6 at the time of his death. More importantly, Kohlberg thought that Stage 6 occurs so rarely that he excluded it from his scoring manual. That is, "no more than 20 to 25 percent of the adult population has reached the last two stages, with only about 5 to 10 percent at Stage 6" (Rich & DeVitis, 1985, p. 89).

A and B substages.

Kohlberg integrated what he called A and B substages in his scoring techniques. The substages correspond to Piaget's distinction between heteronomous and autonomous

orientations (Kohlberg et al., 1983). According to Piaget, an individual's developmental stage of justice consists of heteronomous orientation to rules and authority and autonomous orientation to fairness, equality, and reciprocity. As children are older, their heteronomous judgment disappears. However, as Kohlberg and his associates had observed through their longitudinal study, the heteronomous orientation does not diminish in some participants. As a result, they integrated the A-B substage to identify this distinction in their scoring system. They asserted that "this distinction would be helpful to us in our attempts to relate moral judgment to moral action; that is, that subjects using B-substage reasoning would be more likely to engage in the moral action they believed to be just, than would users of A-substage reasoning" (Kohlberg et al., 1983, p. 44).

In his book, Kohlberg (1984) clarified a concept of A and B substages as "Type A makes judgments more descriptively and predictively, in terms of the given 'out there'. Type B makes judgments more prescriptively, in terms of what ought to be, of what is internally accepted by the self" (p. 185). Simply put, the B-substage is more mature than the A-substage. A person can change from A- to B- substage but can never move in the reverse direction. In addition, an individual can skip a substage: Moving from Stage 3A to Stage 4A.

Universalism.

Kohlberg claimed that stages of moral development accurately describe the moral judgment of all people. Conceptually, the stages of moral development refer to an

underlying mode of reasoning, not to a specific societal belief. He defended this claim on both philosophical and psychological grounds (Reimer et al., 1990). Namely, he began his argument by listing ten basic moral values that are universal in socio-historical circumstances as:

- Laws and rules
- Conscience
- Personal roles of affection
- Authority
- Civil rights
- Contract, trust, and justice in exchange
- Punishment
- The value of life
- Property rights and values
- Truth

Kohlberg further argued that children do not learn basic moral values directly. Rather, they develop moral concepts through their interactions with other people. It is through these social interactions, which differ practically from culture to culture, that a function of moral values is reflected in the regulation of the social behavior of children. For instance, whether children in a society learn about crossing the street or swimming in lagoons, they essentially learn how to distinguish between what they may do and what they must do. In other words, they develop an obligatory concept of rules. Stages of moral judgment represent prescribed modes of reasoning that define when one ought to

engage in the conflict of such social interaction. In addition, the modes of judgment are developmental because children at different ages have different cognitive limitations and limited social experiences.

Kohlberg, Levine, and Hower (1983) divided the criticisms to Kohlberg's cognitive-developmental theory of moral judgment into two groups: (a) criticism on the theory and its accompanying method as fundamentally flawed or biased, and (b) some revisions in the formulation and use of the theory and paradigm. The following sections review the literature according to such categorization.

Criticisms.

Critics of Kohlberg's stages of moral judgment (Craighead & Nemeroff, 2002; Rest, 1994) addressed several theoretical and methodological issues (Elm & Weber, 1994). This section discusses criticisms in regard to (a) cultural and historical universality of Kohlberg's theory, (b) gender bias, (c) stage analysis, and (d) a relationship between moral reasoning and moral behaviors.

Schweder (1982), Simpson (1974), and Sullivan (1977), as cited in (Kohlberg et al., 1983), criticized the cultural and historical universality of the moral development theory. However, empirical findings from numerous studies that Kohlberg and others conducted with subjects from various cultures using his system and technique continue to support the soundness of the theory (Duska & Whelan, 1975).

Gilligan (1977, 1982), as cited in (Kohlberg et al., 1983), pointed out an issue of gender bias in Kohlberg's theory. According to Gilligan, the theory reflected on male

personality. In their response to Gilligan's criticism, Kohlberg and his associates agreed that beneficence and care is another principle or moral orientation that should be incorporated in addition to the justice principle that they had addressed in the stages of moral judgment theory. According to Lyons (1981), as cited in (Kohlberg et al., 1983), the two moral orientations reflected gender differences that appear when male and female face a moral dilemma. Males tend to use justice as their predominant moral principle whereas females tend to use the orientation of care and response. Nevertheless, numerous studies (Gibbs, Arnold, & Burkhart, 1984; Lifton, 1985; Walker, 1984) provided empirical support for Kohlberg's application in both genders.

In *Moral Development in the Profession*, Rest and Narváez (1994) made two criticisms of Kohlberg's stages analysis: (a) The analysis does not capture an intermediate level of concepts of moral reasoning; and (b) Kohlberg omitted other psychological component processes determining moral behavior. In particular, one of Rest's criticisms on Kohlberg's stages of moral reasoning is based upon its fundamental level of conceptualization (Rest, 1994). Rest asserted that the stages represent, "only part of what goes on in the mind of a person thinking about a moral issue... Stage analysis does not give a finely-grained inventory of all of a person's thinking" (p. 9). In other words, stage analysis does not capture the intermediate level of concepts such as informed consent, paternalistic deception, and privileged confidentiality. Therefore stage analysis is not a proper instrument to measure the outcome of an ethics course that often develops these intermediate level concepts.

Another limitation of the six-stage analysis that Rest and Narváez pointed out is its omission of other psychological component processes involving in the psychology of morality (1994). According to Modgil and Modgil (as cited in Rest, 1994), Kohlberg also agreed that moral judgment development is only a part of moral development. Based on his extensive literature review on morality, Rest proposed the *Four Component Model* that defines moral behavior as a process that includes abilities to identify moral issues, establish moral intent, make moral judgments, and exhibit moral behavior (Rest, 1986).

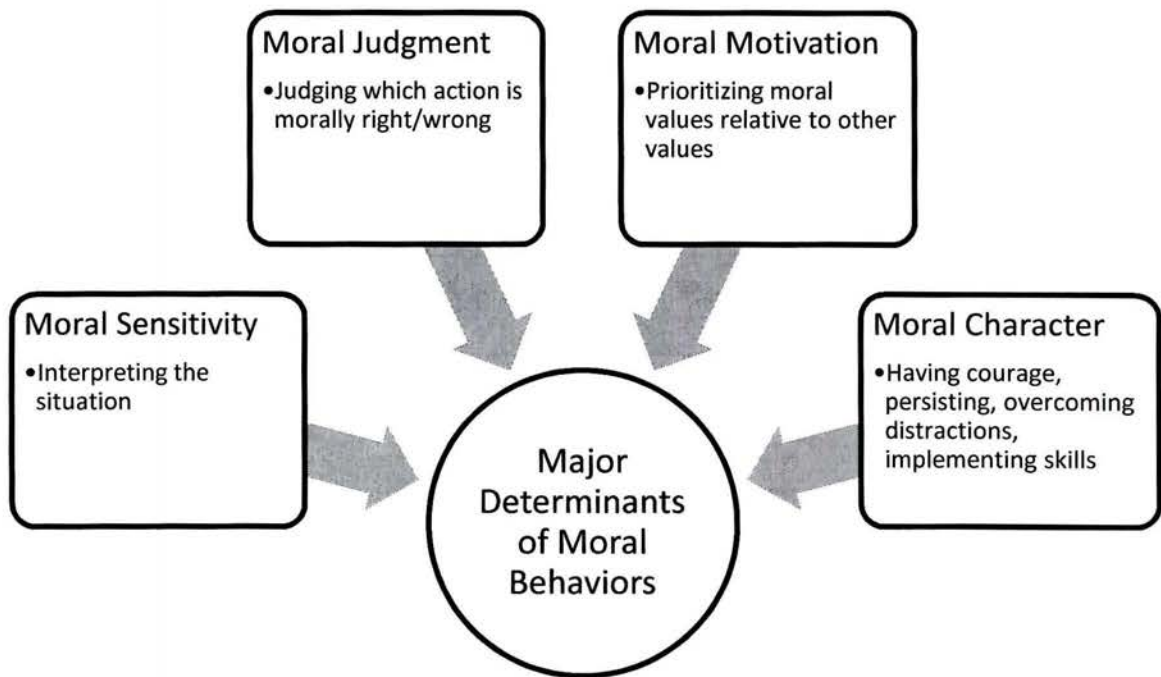


Figure 5. Four psychological components determining moral behavior. Adapted from moral development in the professions: Psychology and applied ethics (p. 23), by J. Rest, 1994, Hillsdale, New Jersey: L. Erlbaum.

The Four Component Model addresses the conceptual idea that moral judgment, particularly the six stages, is not the only determinant of the psychology of morality (Rest, 1994). Rest argued, “There is more to moral development than moral judgment development, and there is more to moral judgment than the six stages” (p. 22). Instead of asking what the determinants of moral behaviors were, Rest asked a question about what makes people fail to behave morally. By turning the findings of his question to the positive side, Rest was able to identify the four psychological components that determine moral behaviors: moral sensitivity, moral judgment, moral motivation, and moral character.

By definition, moral sensitivity refers to individuals’ awareness of to what extent their actions affect other people. The process involves “empathy and role-taking skills” (p. 22). In other words, moral behavior cannot occur at all if a person is not aware that his or her actions bring negative consequences to others.

Moral judgment, the second component in Rest’s Four Components Model, is the component that this dissertation focuses on. Moral judgment occurs through the process of recognizing consequences of possible action toward others. Through this process, individuals determine which line of action is morally justified. Rest pointed out that a deficiency in this component is due to “overly simplistic ways of justifying choices of moral action” (p. 22). Likewise, Duska (1975) argued that “moral maturity demands morally mature reasons” (p. 46). More importantly, existing instruments that measure moral judgment such as the Defining Issue Test (DIT) and the Moral Judgment Interview (MJI) cannot identify the first component: The possible line of moral actions and their

consequences on other people (Rest, 1994).

The third component in the model is moral motivation. Rest stated that, in addition to the ability to recognize the consequences of choices of action and to identify the moral ones, people need to be motivated to pursue a moral action. To illustrate an example, Rest stated that Hitler was aware of the consequences of his actions and made moral considerations. Unfortunately, Hitler decided to set aside the moral action and valued the Third Reich. This example illustrates the deficiency of the third component that occurs when a person is not motivated enough to put moral values higher than other values such as self-actualization or protecting one's organization.

In addition to moral sensibility, moral judgment, and moral motivation, moral character is a component that people must have in order to behave morally. Moral character involves "ego strength, perseverance, backbone, toughness, strength of conviction, and courage" (p. 22). Psychological toughness and strong character are necessary for a person to carry on his or her moral action.

In addition to criticisms of the cultural and historical universality of Kohlberg's theory, the gender bias, and stage analysis, the theory of moral development received criticism on an elusive relationship between moral reasoning and moral behaviors (Craighead & Nemeroff, 2002). Namely, a link between moral judgment and moral behavior is non-linear (Haan, Smith, & Block, 1968). Craighead and Nemeroff explained that

... levels of moral reasoning reflect characteristic ways of framing and interpreting moral conflicts, rather than modes of behavior. If moral behavior is

mediated by moral reasoning, it may be necessary to focus on intraindividual variation over time and situations. Knowing that people are conventional moral reasoners may not be sufficient to accurately predict their behavior; the specific normative expectations or rules that particular people hold need to be identified. Other relevant factors may include knowing how personally committed people are to translating their reasoning into action and the extent to which they possess the self-regulatory resources to do so (p. 972).

Revisions on Kohlberg's stages theory.

Besides the criticisms on the stages theory of moral development, and its accompanying method, as being fundamentally flawed or biased; revisions in the formulation and use of the theory and paradigm is an area addressed by critics. Examples of the revisions are described in (Gibbs et al., 1992; Rest, Thoma, Davison, Robbins, & Swanson, 1979).

Gibbs's revision on Kohlberg's stages theory.

Gibbs (1979) proposed another moral development model, the *sociomoral reflection*, that follows the Kohlbergian approach but incorporates only Kohlberg's Stages 1 to 4. In *Moral Maturity: Measuring the development of sociomoral reflection*, Gibbs, Basinger, and Fuller (1992) argued that Stages 5 and 6 in Kohlberg's theory should be discarded because Stages 3 and 4 already represent mature moral reasoning.

To illustrate by a relevant example, Gibbs and his associates quoted responses of

a participant in Kohlberg's longitudinal study. The example indicated a stage-regression problem discovered in late 1960s (Gibbs, Widaman, & Colby, 1982). At the age of 17, the participant's answer to a question, Why should a promise be kept? was that "friendship is based on trust. If you can't trust a person, there's little grounds to deal with him" (Gibbs et al., 1992, p. 16). At the age of 24, the same subject justified the same question as "human relationships in general are based on trust, on believing in other individuals. If you have no way of believing in someone else, you can't deal with anyone else and it becomes every man for himself" (p. 16).

Kohlberg scored the first answer at the conventional level and the second at the post-conventional level. However, Gibbs and his associates argued that Kohlberg's explanation of the distinction between the two perspectives is elusive in practice. Both responses similarly conveyed the underlying idea that trust is a crucial component of a relationship. However, the second justification renders a higher stage because Kohlberg's post-conventional level represents moral reasoning with an explicit use of ethical philosophy. For them, philosophical articulateness and verbal sophistication, do not demonstrate moral maturity corresponding to a stage advance. As a result, they suggested that Stages 5 and 6 should not be a part of the stage sequence.

In their developmental stages of moral judgment, Gibbs, Basinger, and Fuller focused on sociomoral justification. They defined the term sociomoral justification as "the reasons one gives for decisions or values (keeping a promise, telling the truth, helping a friend, saving a life, not stealing, etc.) pertaining to benevolent and fair behavior" (p. 20). They divided sociomoral reflection into two levels: the immature level

and the mature level. Each level consists of two stages. Each stage has facets or aspects that define its relevant reasoning. Figure 6 illustrates the moral-cognitive development model that Gibbs proposed.

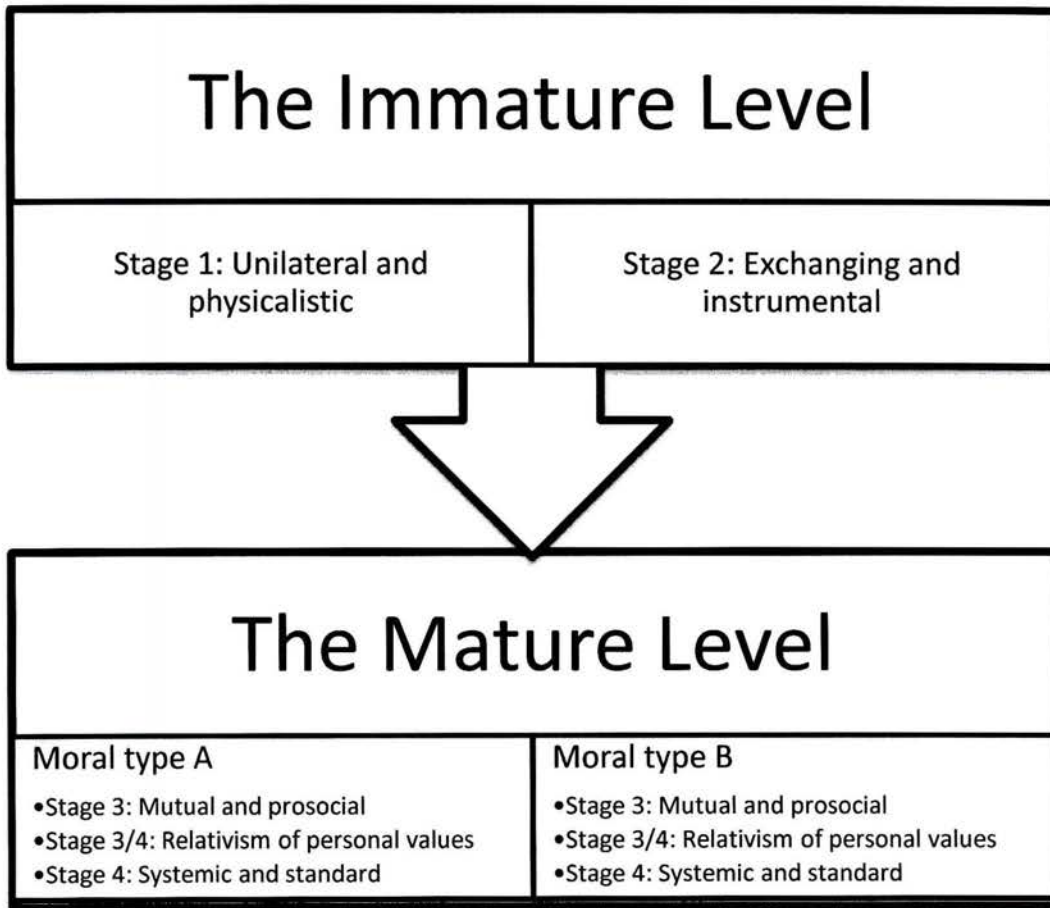


Figure 6. The sociomoral reflection model. Moral Type A and Type B indicate differences in the extent to which principled-sounding moral judgment is explicitly articulated. In addition, moral type B is more balanced in perspective.

Broadly speaking, at the immature level of sociomoral reflection, one's sociomoral justification is "relatively concrete or superficial, confusing morality with physical power (Stage 1) or pragmatic deals (Stage 2)" (p. 21). For instance, the concept that one should not steal to avoid punishment is a justification that reflects "a morality of unilateral authority" (p. 21). However if the reason for not stealing is because "I don't steal so they shouldn't either", the justification reflects the strict equalities aspect of Stage 2.

While individuals continue their cognitive decantation through social role-taking opportunities, their sociomoral judgment advances to a mature level. Gibbs, Basinger, and Fuller asserted that "the mature moral reasoned 'penetrates' through superficial or extrinsic considerations to infer the bases of interpersonal relationship (Stage 3) or society (Stage 4)" (p. 25). Unlike the immature level of sociomoral reflection, the mature level is described in terms of both moral type and stage.

A notion of moral type in Gibbs's sociomoral reflection model is the same as the definition of moral type Kohlberg described in his revised stages theory of moral development. Namely, Type A and Type B indicate differences in the extent to which principled-sounding moral judgment is explicitly articulated. In addition, moral type B is more balanced in perspective. Kohlberg (1984) illustrated examples of justifications in Stage 3A, 3B, 4A, and 4B as:

A 3A decides in terms of What does a good husband do? What does a wife expect? A 3B decides in terms of What does a good husband who is a partner in a good mutual relationship do? What does each spouse expect of the other? Both

sides of the equation are balanced; this is fairness. At 4A, the subject decides in terms of the question, What does the system demand? At 4B the subject asks, What does the individual in the system demand as well as the system, and what is a solution that strikes a balance? (p. 185)

Neo-Kohlbergian moral development approach.

Akin to Gibbs and his associates, who revised Kohlberg's developmental stages of moral judgment, Rest and Narváez (1994) also proposed a neo-Kohlbergian approach for stage assessment work. To elaborate an underlying concept of their neo-Kohlbergian approach, Rest, Narváez, Bebeau, and Thoma (1999) listed four core ideas of Kohlbergian approach that guided their design of moral development approach:

- emphasis on cognition: In order to understand moral behavior, one needs to understand how the person is making sense of the world;
- an individual's construction of moral epistemology: Individuals construct basic categories of morality, such as justice, duty, rights, and social order. They do not passively absorb the ideology of their culture;
- development of moral judgment evolves from simple ideas to more complex ones;
- Shift from conventional to post-conventional thinking.

Theoretically, the neo-Kohlbergian approach differs from the Kohlbergian approach in terms of (a) conceptualization of justice, (b) stage structure, and (c) application of cognitive structure (Elm & Weber, 1994). That is, an underlying

theoretical foundation of Rest's model is social justice. Individuals must balance their interests with those of others in association. Elm and Weber explained that, "moral thinking is based on assignment of rights and responsibilities in a social system to provide cooperation and stability" (p. 343). A definition of moral development as an endpoint, therefore, should move toward social construction instead of an individual's mental operations (Rest et al., 1999, p. 4). On the contrary, Kohlberg's model has greater emphasis on the rights and responsibilities of each person.

Table 2 shows the stage of moral development in neo-Kohlbergian approach. Each stage incorporates a combination of how rules are known and shared and how equilibrium is achieved. These two elements are the criteria that characterize responses in resolving moral dilemmas. The stage structure of Kohlbergian approach, on the other hand, is much more elaborate. Elm and Weber pointed out the distinction between the two models that

Kohlberg considers every response to be distinctly, and separately, classified on the basis of the cognitive structures evoked; while Rest considers ranges in responses to represent different manifestations of the same types of reasoning. Stage 2 reasoning is manifested in many different ways, but involves the same concepts and organizing structures in Rest's model. In Kohlberg's model Stage 2A is not only different, it is lower than a response scored as Stage 2B, 2C, or Stage 3. (p. 343)

Table 2

Rest's (1979) Model of Moral Judgment

Stage	Coordination of expectations of actions ^a	Schemes of balance ^b	General concept for determining moral rights and responsibilities
Stage 1	The caretaker makes known certain demands on the child's behavior.	The child does not share in making rules, but understands that obedience will bring freedom from punishment.	The morality of obedience: "Do what you're told."
Stage 2	Although each person is understood to have his own interests, an exchange of favors might be mutually decided.	If each party sees something to gain in an exchange, then both want to reciprocate.	The morality of instrumental egoism and simple exchange: "Let's make a deal."
Stage 3	Through reciprocal role taking, individuals attain a mutual understanding about each other and the on-going pattern of their interactions.	Friendships and relationships establish a stabilized and enduring scheme of cooperation. Each party anticipates the feelings, needs and wants of the other and acts in the other's welfare.	The morality of interpersonal concordance: "Be considerate, nice, and kind, and you'll get along with people."
Stage 4	All members of society know what is expected of them through public institutionalized law.	Unless a society-wide system of cooperation is established and stabilized, no individual can really make plans. Each person should follow the law and do his particular job, anticipating that other people will also fulfill their responsibilities.	The morality of law and duty to the social order: "Everyone in society is obligated and protected by the law."

(continued)

Stage	Coordination of expectations of actions ^a	Schemes of balance ^b	General concept for determining moral rights and responsibilities
Stage 5	Formal procedures are institutionalized for making laws, which one anticipates rational people would accept.	Law-making procedures are devised so that they reflect the general will of people, at the same time insuring certain basic rights to all. With each person having a say in the decision process, each will see that his interests are maximized while at the same time having a basis for making claims on other people.	The morality of societal consensus: "You are obligated by whatever arrangements are agreed to by due process procedures."
Stage 6	The logical of requirement of non-arbitrary cooperation among rational, equal, and impartial people are taken as ideal criteria for social organization which one anticipates rational people would accept.	A scheme of cooperation that negates or neutralizes all arbitrary distribution of rights and responsibilities is the most equilibrated, for such system is maximizing the simultaneous benefit to each member so that any deviation from these rules would advantage some members at the expense of others.	The morality of non-arbitrary social cooperation: "How rational and impartial people would organize cooperation is moral."

Note. ^a How rules are known and shared

^b How equilibrium is achieved

Another difference between Kohlbergian's and neo-Kohlbergian's models of moral judgment is seen in the application of cognitive structure. According to Elm and Weber (1994), Kohlberg argued that individuals' moral reasoning at a particular time is consistent across situations. On the other hand, Rest asserted that individuals' moral reasoning is "a composite of various types of thinking represented by several adjacent stages. Thus, an individual is never in, or out, of a given stage" (p. 343). To reflect the different concepts of cognitive structure each model posits, Elm and Weber used the term "*hard stage*" to describe Kohlberg's model and "*soft stage*" to describe Rest's model.

In spite of numerous criticisms against Kohlberg's theory of moral development, Kohlberg and his critics shared two common agreements (Kohlberg et al., 1983). The first common agreement is that "none of his [Kohlberg's] critics rejects the idea of stages of moral reasoning or the fruitfulness of using a cognitive-developmental approach to understand them" (Kohlberg et al., 1983, p. 2). Another agreement is that all critics accept the interpretation of the interview text from Kohlberg's instrument.

Measuring Moral Reasoning

Several research instruments are available to measure moral judgment in online and offline contexts. For the instruments that measure moral judgment in general, this literature review focuses on the widely accepted ones: (a) the moral judgment interview (MJI), (b) the Defining Issue Test (DIT), and (c) the Sociomoral Reflective Measure—Short Form (SRM-SF). A later section discusses the instruments that are specifically designed to measure ethical judgment in an online context.

Traditional moral reasoning instruments.

The Moral Judgment Interview (MJI).

Lawrence Kohlberg (Colby & Kohlberg, 1987) developed the Moral Judgment Interview (MJI) to measure moral concepts that participants assert to resolve moral dilemmas. As its name implies, the instrument is an interview protocol that is used by participants to explain why certain actions in the given hypothetical moral dilemmas are more morally justified than others (Rest, 1994). The responses are transcribed and are compared to the criteria in its 800+-page scoring manual. For each match, the scoring manual provides a stage score of the participants. Typically, a complete interview yields 50 matches between the respondents' answers and the scoring guide's examples. The rater then calculates the overall stage score of each participant.

Nevertheless, Gibbs, Basinger, and Fuller (1992) pointed out some limitations of MJI in that its use is time consuming and labor intensive. For instance, each interview takes 30-45 minutes per participants. In addition, researchers have to attend a 3-day workshop at Harvard University Center for Studies in Moral Development in order to become experts at moral judgment assessment. The interview questions and the scoring protocol are available in "*The Measurement of Moral Judgment*" (Colby & Kohlberg, 1987).

The Defining Issues Test (DIT).

Rest, Cooper, Coder, Masanz, and Anderson (1974) developed the Defining Issues Test (DIT) that assesses moral judgment. Unlike the MJI, which has time-consuming and complex process of training, administering, and scoring (McGeorge,

1975), the DIT is a multiple choice test that can be group-administered and computer-scored. The DIT's multiple-choice format eliminates severe limitations of self-reported explanations of one's own cognitive process (Rest et al., 1999). Namely, the interviewees might fail to articulate their reasoning verbally or may not be aware of implicit knowledge regarding human decision making. Theoretically, DIT applies Rest's model of moral reasoning which differs from Kohlberg's in the core concept that defines the different stages, the conceptualization of stage structures and in the means by which the cognitive structures are applied by an individual (Elm & Weber, 1994). Like MJI, the administration time of the DIT is approximately 35-45 minutes (Gibbs et al., 1992).

The DIT test consists of six moral dilemmas, some of which are from MJI. For each dilemma, the tasks of participants are to rate the level of importance of the corresponding twelve considerations for deciding what ought to be done. The rating is in a Likert scale of importance: most, much, some, little, and no. Some items of consideration exemplify certain distinct characteristics of the stage. Among these items, several represent the same stage to offer a variety of examples so that at least one item is suitable for a subject. Others represent "nonsense items that used high-sounding phrases" (p. 494) to detect subjects' social desirable bias. Furthermore, participants have to rank first four considerations from the given twelve items. An underlying idea is that "people define the most important issue of dilemma in different ways, and that the selection of items indicates a person's developmental level" (Rest, 1994, p. 12).

Though DIT presents moral considerations from all stage level for deciding the case, McGeorge (1975) argued that faking upwards is impossible for the subjects.

According to his experiment with 146 first-year teacher college students, the subjects were unable to fake good on the test. Statistically, the DIT scores from a standard test is $M = 26.4$ whereas the scores from the fake good test has $M = 23.7$. On the contrary, the subjects were able to fake bad as their DIT fake-bad score is $M = 16.2$ comparing with the standard DIT score $M = 26.1$. McGeorge concluded that

the results support the general theory of a sequence of cognitive stages of moral judgment such that subjects recognize stages they have passed through as immature and can respond appropriately when asked to fake low while stages higher than the subject's own are inaccessible thus precluding faking upwards (p. 108).

In terms of scoring the DIT questionnaires, researchers can perform the computation by hand or by using a computer program (Rest, 1986). The DIT manual provides instructions for the hand calculations and source code programs. A commonly used score that DIT generates is the P score, "the simple sum of scores from Stages 5A, 5B, and 6, converted to a percent" (Bebeau & Thoma, 2003, p. 19; Rest, Thoma, Davison, Robbins, & Swanson, 1979). The score ranges from 0 to 95. Alternatively, researchers can send the DIT questionnaires to the Center for the Study of Ethical Development at the University of Minnesota to score the items at cost. Nevertheless, no direct comparison between the two instruments is possible because the DIT does not generate a state score as the MJI does (Elm & Weber, 1994; Gibbs et al., 1992).

At the time of this writing, two versions of the DIT are available. The second version, DIT2, is a revised version of the first DIT (Rest et al., 1999). In particular, the

new DIT updates moral dilemmas and items. The new instrument is shorter, contains updated instructions, includes additional index, N2, and has a higher validity score than the original DIT. Researchers can select whether to use the original DIT, which comes with six moral dilemmas, or the abbreviated one with three moral dilemmas.

Statistically, according to Rest (1986; 1994), the DIT is a well-established instrument that measures moral reasoning. The total number of studies using the DIT numbers over 1,000. Hundreds of thousands of subjects had taken the DIT in over 40 countries. Additionally, about 150 newly published studies were relevant to the DIT each year.

The Sociomoral Reflective Measure – Short Form (SRM-SF).

In an attempt to develop an instrument that measures moral reasoning that both elicits a participant's spontaneous reasoning and saves time and labor for the researcher, John Gibbs and his associates developed the Sociomoral Reflection Measure—Short Form (SRM-SF) (Gibbs et al., 1992). The instrument assesses *sociomoral justification*—“the reason one gives for decisions or values (keeping a promise, telling the truth, helping a friend, saving a life, not stealing, etc.) pertaining to benevolent and fair behavior” (p. 20).

Gibbs and his associates' sociomoral stage is a revision of Kohlberg's stage of moral judgment. By definition, the sociomoral stage refers to “the character or ‘structure’ of one's justifications pertaining to prescriptive relations and transaction between people” (p. 20). The following four paragraphs are examples of a qualitatively different structure

for justifying the value or importance of keeping a promise or telling the truth in human relations:

“You should always keep your promise, and never be a tattletale. If you made a promise to a friend, it wouldn’t be nice to break your promise because then he wouldn’t play with you and wouldn’t be your friend any more. Or he’d cry or beat you up. Not only that, but your parents will punish you if you lie or break a promise”

“Your friend has probably done things for you and may return the favor if you help him by keeping your promise. Besides, you may like your friend, and this could be your only friend. Lies catch up with you sooner or later, and once they do you’ll be in worse trouble because the other person may get even. If it’s parents and children, then parents should keep their promises to the children if the children have kept their promises to their parents. But if the promise is to someone you hardly know, then why bother? They’ll probably never know whether you kept it or not.”

“Your friend has faith in you, and you shouldn’t betray that trust or hurt their feelings. After all, you’d expect them to keep their promises to you, and having a friend to share feelings with means a lot. Even if it’s not a friend, honesty is still the best policy and it’s just common courtesy. It’s selfish to break promises, and once you make a bad impression people won’t think much of you. If it’s a child and the parents don’t keep promises, the children will stop believing in their parents and will start thinking that lying is all right. Even if it’s someone

you hardly know, you may start a good relationship by showing that you care and can be trusted.”

“Society is based on trust, and keeping promises is necessary for the sake of the social order. Honesty is a standard everyone can accept, and you wouldn’t want to live in a society where you couldn’t trust anyone. After all, promises have intrinsic value, and a relationship is meaningless if there is no trust. In the case of a child, parents have an obligation to keep their word and to provide an example of character so that the child develops a sense of responsibility. Keeping a promise is a commitment and a matter of honor—failing to keep it, even if it’s to someone you hardly know, reflects on your integrity. People must be consistent and not break promises whenever they feel like it, so that they earn others’ respect to say nothing of their own.” (p. 20-21)

Unlike Kohlberg’s stage of moral judgment that is comprised of six stages, Gibbs and his associates’ model consists of only the first four stages. They argued that moral reasoning that explicitly states ethical theory or philosophical reflection and is categorized as Stage 5 or 6 does not entail any additional stages beyond Stage 4. However, they recognized that such discourse “can be functionally helpful for enhancing the clarity or ideality of one’s normative ethics” (p. 18). In their book, they agreed with Brandt’s (1959) statement that

merely explicit formulation of principles about obligations should make us more sensitive to those obligations. It should make us less liable to be deceived by

selfish ethical reasoning in ourselves or others. It should make us more perceptive in our moral assessment of ourselves and our motivation. (p. 18)

The SRM-SF questionnaire comprises of 11 short-answer items that address sociomoral values: Contract and truth; affiliation; life; property and law; and legal justice (Gibbs et al., 1992). It is a four-page questionnaire that is not daunting for the subjects and saves the researchers' administration and scoring time. In general, the SRM-SF requires 15 to 20 minutes of administration time and can then be group-administered. Appendix A and B provides the SRM-SF questionnaire and its scoring form respectively.

During administration of the test, the subjects will provide their rationale of each of the addressed sociomoral values as a short answer and their rating on the importance of the issue in a multiple choice format. For instance, question 1 in the SRM-SF asks "Think about when you've made a promise to a friend of yours. How important is it for people to keep promises to friends"? (p. 43) Following the question are three choices for the participants to select to rate the issue—Very important, important, and not important—and a white space for the participants to briefly state their rationale.

The items in SRM-SF are designed to measure different sociomoral values. Namely, questions 1 through 4 address contract and truth value. Questions 5 and 6 concern with affiliation. Questions 7 and 8 pertain to a life concept. Property and law is addressed in questions 9 and 10. Lastly, question 11 addresses an issue of legal justice. The SRM-SF reference manual provides the evaluation criteria for each response.

Statistically, SRM-SF proves to be reliable and valid. The test-retest correlation for the entire sample was $r(234) = .88, \rho < .0001$. Its item responses are homogeneous on

the basis of the results of a Cronbach's alpha computation (.92, $n = 374$), a split-half reliability computation, and an exploratory factor analysis. Interrater reliability when scored by relatively novice raters was high. In addition, the correlation between SRM-SF and MJI was highly significant, $r(43) = .69, \rho < .0001$. The SRM-SF shows no correlation with a measure of social desirability.

Cyberethics instruments.

To assess moral reasoning in an online context, researchers used instruments that are designed to either measure traditional moral reasoning or online moral judgment. Staehr and Byrne (2003), for instance, used the DIT to assess moral judgment of undergraduate students who enrolled in a computer ethics course. An empirical finding from their pre- and post- test indicated a significant increase in the development of moral judgment among students who enrolled in a professional environment that has a computer ethics component than among those who did not enroll in this course. Nevertheless, the authors did not have any empirical or theoretical evidence to assure the suitability of the use of traditional moral reasoning instruments to measure cyberethics. They argued that, "the diversity of professions that have used the DIT indicates its likely successful application to the assessment of professional ethics programs in information systems, computer science, and engineering disciplines" (p. 229).

Other researchers (Bickel et al., 1992; Ghazali, 2003; Oliver, 2002) attempted to develop and use instruments specifically designed to measure cyberethics. The reason is, as Chang (1994) pointed out, instruments derived from specific professions are likely to

provide better predictions and greater understanding of moral behaviors within each professional field. Furthermore, several empirical findings (Jung, 2009; Willard, 1998; Yamano, 2004) and philosophical arguments (Floridi & Sanders, 2004; Spinello & Tavani, 2004a; Spinello & Tavani, 2004b; Wiener, 1950) indicate influences of the online environment on moral reasoning and moral behavior. As a purpose of this dissertation is to develop a scale that assesses moral reasoning online, this section discusses two instruments of this type along with their limitations.

Ethical Dilemmas in Computing Test (EDIC).

Bickel, Larrondo-Petrie, and Bush (1992) developed the *Ethical Dilemmas In Computing Test (EDIC)* which measures participants' Kohlbergian stages of development of moral judgment. An objective of the instrument is to provide a feedback from computer ethics instruction in terms of its methodological effectiveness to educators. The authors used DIT as a model to determine a format of the EDIC. The instrument consists of eight computer related dilemmas. For each scenario, participants were asked to (a) decide whether to take a given course of action; (b) weigh this on a scale of five levels of importance for each of the 12 given considerations in arriving at their decision; and (c) rank the four most important considerations that influenced their final decision. The EDIC's scoring system is similar to the DIT's. Namely, a P score represents a percentage of principle level (Stages 5 and 6) reasoning that a subject applied. Each scenario's P score ranges from 0 to 10, where 0 indicates a low amount of principled ethical reasoning

and 10 a high amount. Figure 7 illustrates an example of a scenario and its questions in the EDIC.

Validation of an early version of EDICT against the DIT showed favorable results. The amount of principled ethical reasoning elicited by EDICT dilemmas is not significantly different from the DIT amount. Nevertheless, the present literature review could not find a final version of the EDICT. Staehr and Byrne (2003) encountered the same issue. In addition, attempts to contact the authors of the EDICT did not receive a response.

BRIAN GRAY AND THE SHIPPING DEPARTMENT

Brian Gray works as a systems analyst for Xiggle Company. Xiggle Company is in the process of reorganizing its shipping department; it wants to computerize many of the tracking functions. Brian is told by his boss that he should go to the shipping department, gain the confidence of the employees there, and have them assist him in analyzing the work so that they can computerize efficiently. When he does so, Brian realizes that there are two possible ways of creating a new system. Using Plan A, there will be a 50% increase in efficiency, but 60% of the shipping department personnel will no longer be needed once the computer system is implemented. Plan B will increase efficiency by only 25% and only cost 10% of the jobs.

Brian could just tell his boss about the Plan B, since Plan A is rather unusual and few people would think of it. Or he could tell his boss exactly what he has figured out and let the boss decide what to do next.

Should Brian tell his boss about both plans? (Check one)

- Should tell him about both _____
- Can't decide _____
- Should tell him Plan B only _____

On the left side of the page check one of the spaces by each question to indicate its importance (#1 MOST IMPORTANT)

- | | | | | | |
|---|---|---|---|---|--|
| 1 | 2 | 3 | 4 | 5 | |
| — | — | — | — | — | 1. Whether Xiggle Co. does business with South Africa. |
| — | — | — | — | — | 2. Would reorganizing the shipping department to bring about maximum efficiency actually bring about more good than not? |
| — | — | — | — | — | 3. Isn't Brian required by contract to fully inform his boss of all his findings? |
| — | — | — | — | — | 4. Don't companies like Xiggle Co. typically ignore the needs of its employees if money can be made without their cooperation? |
| — | — | — | — | — | 5. Do the shipping department employees have the right to participate with full knowledge of the situation? |
| — | — | — | — | — | 6. Whether Brian's boss is just doing his job or has a grudge against the head of the shipping department. |
| — | — | — | — | — | 7. Is it likely that Brian will be found out if he leaks the news to the shipping department? |
| — | — | — | — | — | 8. What are the values that govern the relationship between employees? |
| — | — | — | — | — | 9. Will Brian himself get into trouble if the boss realizes he is withholding information from the company? |
| — | — | — | — | — | 10. Whether the golden rule about treating others as you want to be treated applies in this instance. |
| — | — | — | — | — | 11. Whether Brian's girlfriend is one of the people who would lose her job under the first plan but not the second. |
| — | — | — | — | — | 12. Would the act of terminating employment for so many members of the shipping department be in conflict with Brian's own morality? |

From the list of questions above, select the four most important:

- Most important _____
- Second most important _____
- Third most important _____
- Fourth most important _____

Figure 7. Example of an EDICT scenario and corresponding questions.

Computer and Internet Activity Questionnaire (CIAQ).

In her attempt to determine the level of moral reasoning in computer technology, Jill Marie Oliver (2002) developed the *Computer and Internet Activity Questionnaire (CIAQ)*. The content in the SRM-SF reflected concerns associated with adolescents' computer use: property, access, boundaries and enforcement of regulation, anonymity, and distance from harm. SRM-SF's format, design, and scoring mechanism are applied in this instrument. The questionnaire consists of 9 short answer items that Oliver developed. The CIAQ items assess sociomoral values by using specific questions about computer and Internet use. Nonetheless, psychometric data indicates that the CIAQ is not parallel to the SRM-SF and that the correlation between the two is weak. The Pearson product-moment correlation for the raw scores of the SRM-SF and the CIAQ indicates a low correlation of .469 ($n = 144$, $p < 0.01$). Appendix C and D provide the CIAQ questionnaire and its rating form.

Research Implications of this Literature Survey

The literature survey in this chapter provides a theoretical, philosophical, and conceptual background in the development of the Cyberethics Scale (CES). The chapter consists of three intellectual inquiries: Ethical theory, Cyberethics, and moral judgment development. The ethical theory section discusses essential philosophical foundations from which cyberethics emerges. Specifically, the discussion illustrates major ethical theories that influence moral judgments in both online and offline environments. The literature survey reveals philosophically irresolvable conflicts among moral practices that

various ethical theories or norms suggest. An implication of the literature survey in this study is that no moral theory can universally justify an action. In other words, developing a cyberethical assessment that justifies the right and wrong of a person's moral actions would yield an invalid approach.

The second section, Cyberethics, presents a conceptual framework of cyberethics. Topics of discussion includes a definition of cyberethics, its history, uniqueness debates, cyberethical issues, differences in moral judgment in online and offline contexts, and approaches to the development of online ethical behaviors. The literature review reveals a significant difference between traditional ethics and cyberethics. An implication is that a person's moral judgment in online and offline contexts can be significantly different. Therefore, a research implication is that an assessment that measures classical ethics is not a valid instrument to measure cyberethics.

The last section in this chapter includes a survey of literature in the field of moral judgment. The discussion investigates the theoretical and historical background of the theories of moral judgment development and instruments that measure moral reasoning in online and offline contexts. Research in moral development provides an instrument of relative measurement in cyberethics, the moral reasoning online. Particularly, the discussion reveals the need of a scale specifically designed for online moral reasoning assessments, existing instruments that researchers used to measure cyberethical reasoning, their underlying theoretical concepts, and their limitations.

These ideas presented in this chapter were valuable to the development of the CES. Specifically, the discussion on cyberethics and traditional ethics indicated a

challenge in applying traditional ethical theories to address cyberethical dilemmas. Stated another way, multiple standards of existing ethical principles can justify an issue in cyberethics. Developing a cyberethical assessment that justifies the right and wrong of a person's moral actions would yield an invalid approach.

This chapter also investigated research and articles on moral development and available instruments that were used in cyberethics studies. A review of literature showed that the instruments used in existing cyberethics research reflect two schools of philosophical thought: (a) Cyberethics is another variation of an existing branch of traditional ethics, and (b) Cyberethics is a wholly new branch of ethics.

The former school of thoughts supported a premise that cyberethical judgment is similar to traditional ethical judgments. Hence, it would be appropriate to use the instruments that measure traditional ethics in their cyberethics research. Nevertheless, a question in the applicability of standard ethical principles with certain cyberethical issues (Johnson, 2001b) pointed out that traditional ethics instruments are not ideal indicators of online ethical judgment.

The other school of thought supported the use of instruments specifically designed for cyberethics domain. However, available cyberethics instruments were problematic because they either did not have strong psychometric data or were not accessible. For instance, Oliver (2002) reported weak correlation between the Computer and Internet Activity Questionnaire (CIAQ) and its model instrument, the Social Reflection Objective Measure (SRM-SF). The final version and corresponding psychometric data of Ethical Dilemmas in Computing Test (EDICT) was not available

(Bickel et al., 1992). Lastly, Ghazali's (2003) questionnaire that measured students' view on computer and information ethics did not report any psychometric data.

Due to the fact that a cyberethics scale with strong psychometric properties did not exist at the time of this research, and the instrument was essential for advancing of the field, a goal of this dissertation was to develop, test, and verify a cyberethics instrument, the Cyberethics Scale (CES). Chapter 3 presents a scale development process of the CES.

CHAPTER THREE: METHODOLOGY

This chapter describes the steps leading to the construction of the Cyberethics Scale (CES). Broadly speaking, the study used qualitative and quantitative measures to develop the instrument and to validate its psychometric properties. The chapter elaborates on the process of scale development through the following topics of discussion: (a) the purpose of the study, (b) research questions, and (c) research design and procedures.

Purpose

The purpose of this study was to construct a reliable and valid scale, the *Cyberethics Scale (CES)*, that assesses moral reasoning online. The study integrated both theoretical and empirical analysis. According to Kohlberg's stage theory of moral development, moral development of all people passes through invariant qualitative stages (Rich & DeVitis, 1985). The stages are systems of thought and, "are defined according to responses to moral dilemmas classified in terms of a scoring scheme" (p. 90). In addition, the moral stages describe the structures as opposed to the content of moral judgment. For instance, a moral dilemma asks participants whether a man should steal an expensive drug to save her life if stealing is his only option to get the medicine. In this case, the participants' answer regarding the man's choice of action is indicative of the person's moral judgment. The structure of moral judgment involves that what participants define as valuable in the context of the moral dilemma, as well as their reasons for holding the demonstrated value(s).

According to survey of literature, as described in chapter 2, several instruments that measure moral reasoning are available but are inappropriate in assessing moral reasoning in an online context. An online environment has an influence over how people make moral judgments (Willard, 1998; Willard, 2002). Willard's preliminary analysis indicates four factors that influence ethical behavior in cyberspace: (a) a lack of effective feedback and remoteness from harm; (b) reduced fear of risk of detection and punishment; (c) an idea that new environments mean new rules; and (d) a perceptions that inappropriate behavior is acceptable because society is unjust and corrupt. Several empirical evidences (Ghazali, 2003; Jung, 2009; Oliver, 2002; Yamano, 2004) report that people use a different form of moral judgment when they are online. Specifically, research to date report that most people are less ethical when they are in cyberspace. Some theorists (Baird, Ramsower, & Rosenbaum, 2000; Bynum, 2008a; Floridi & Sanders, 2004; Forester & Morrison, 1994; Himma, 2003; Johnson, 2001a; Maner, 2004; Moor, 1985; Tavani, 2002; Tavani, 2007; Weckert & Adeney, 1997) argued that an online environment generates new ethical issues. Due to the differences between online and offline moral reasoning that individuals apply, it is essential that online moral reasoning be measured by an instrument that is specifically designed to assess this construct. Unfortunately, available instruments (Bickel et al., 1992; Oliver, 2002) do not have desirable psychometric properties. It is a goal of this dissertation to construct a valid and reliable scale to measure online moral reasoning. For educators, a successful construction of the CES will help them (a) identify moral judgment that students apply in online context; and (b) evaluate Cyberethics curriculum. The design of CES consists of

the following five considerations, which are adapted from valuable features of Social Reflection Measure-Short Form (SRM-SF):

- The reliability and validity of CES should be comparable to the MJI and SRM-SF;
- The CES should be reliably scorable on the basis of relatively easy self-training exercises, rather than workshop training;
- The CES's administration time should be comparable to SRM-SF's;
- The CES should be group administrable;
- The CES's scoring process should be analogous to SRM-SF's.

Research Questions

The research questions of this study are:

1. What is the reliability and validity of the Cyberethics Scale (CES)?
2. How does the CES perform in comparing the CES' reliability and validity with other instruments that measure similar construct?
3. How does the CES compare with the readability, test administrations, and scoring processes of other instruments that measure similar constructs?

Research Design

The instrument construction in this study adapted a scale development process that DeVellis (2003) described in his book, *Scale Development: Theory and applications*, and the scale construction steps in Zhang's (2003) dissertation. The scale development

involved descriptive analysis that will provide a better understanding of the sample population, validity assessment, and reliability measures. SPSS 20 was the statistical analysis software in the study. Procedurally speaking, the CES was developed per the following steps:

1. Defining the construct to be measured;
2. Generating an item pool;
3. Determining the format for measurement;
4. Expert review of initial item pool;
5. Inclusion of validation items;
6. Administration to a development sample;
7. Evaluate items through data analyses;

The subsequent sections in this chapter further elaborate upon details in each step of this process.

Step 1: Defining the construct to be measured.

The Cyberethics Scale (CES) identifies the present stage of moral reasoning that participants apply to an online environment. Lawrence Kohlberg's stages theory of moral development provides a theoretical foundation for this construct. Kohlberg argued that basic problem-solving strategies on moral issues can be summarized into six invariant stages (Rosen, 1980). The six culturally universal stages represent a developmental sequence that people with normal cognitive development apply. Stating that an individual is at a particular stage implies that half of his or her moral reasoning is grounded in the

definition of that stage. Figure 8 illustrates the six stages of moral reasoning in Kohlberg's theory of moral development.

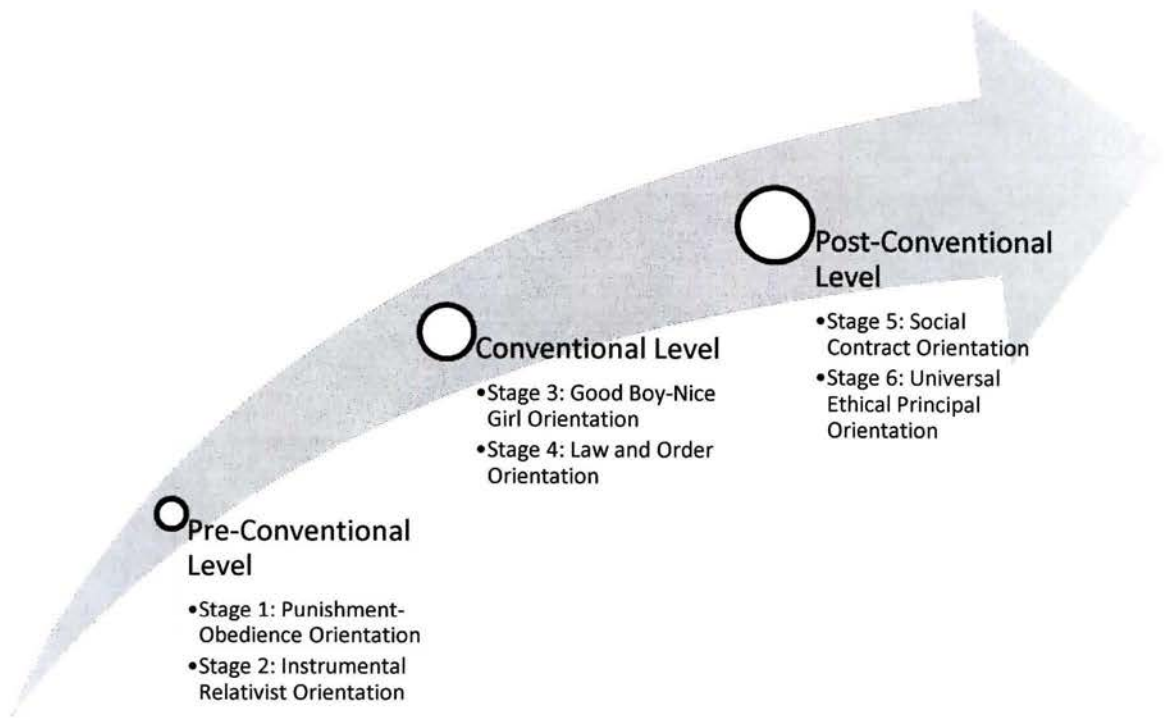


Figure 8. Kohlberg's six stages of moral development.

Gibbs, Basinger, and Fuller (1979) revised Kohlberg's moral development model by removing Stages 5 and 6. They argued that Stages 3 and 4 already represent the maturity of moral reasoning that an individual possesses. Stages 5 and 6 simply demonstrate the participants' ability to articulate philosophical and ethical theories, not the level of advancement of their moral maturity. The literature review in chapter 2 investigates the theory of moral development and its revisions in detail.

This dissertation applied the stages model of moral development that Gibbs and his associates revised. The CES identified a participants' stage of moral reasoning according to the four stages model. Though the model describes the development of moral reasoning in an offline context, the development of the CES was based on the premise that the developmental process of online moral reasoning follows the same sequence. A distinction, if there is any, is a difference between the stage of moral reasoning online and the stage of moral reasoning in offline contexts.

The CES assessed a participants' stage of online moral reasoning that encompasses eight cyberethical areas: (a) contract, truth, and trustworthiness; (b) affiliation; (c) property; (d) regulation; (e) legal justice; (f) life; (g) privacy; and (h) courtesy. These eight main areas are the constructs that the CES is intended to reflect. They are drawn from the most common cyberethical issues from several scholarly articles (see Table 3) and the context that changes in the online moral development can be discerned in the stages as identified by Gibbs and his associates.

Table 3

Summary of Major Themes that Appear in Various Cyberethics Articles

Areas	Examples	Sources								
		(Baird et al., 2000)	(Bickel et al., 1992)	(Ghazali, 2003)	(James et al., 2009)	(Oliver, 2002)	(Spinello, 2006)	(Spinello & Tavani, 2004b)	(Willard, 1998)	(Whittier, 2006)
Property	Piracy, computer fraud, and plagiarism	X	X	X	X	X	X	X	X	X
Privacy	Access to protected systems or information	X	X		X	X	X	X		X
Rule and regulation	Boundaries and enforcement of regulation			X	X	X	X	X	X	
Cyber bullying	Respect for other and common courtesy, hate speech	X		X	X			X	X	X
Identity, truth, and trustworthiness	Anonymity, online identity	X			X	X				X

Step 2: Generating an item pool.

Sources.

The researcher developed the item pool by using the following sources as the framework:

1. Research instruments that assess moral reasoning in a traditional context.
Examples of the instruments are Moral Judgment Interview (MJI), Defining Issues Test (DIT), and Sociomoral Reflective Measure – Short Form (SRM-SF).
2. Research instruments that assess moral reasoning in an online context.
Examples of the instruments are Computer and Internet Activity Questionnaire (CIAQ), and Ethical Dilemmas in Computing Test (EDIC).
3. Items in research instruments that address cyberethical issues.
4. Conversations and/or surveys with experts in the field of cyberethics and moral development.
5. Consolidation by dissertation committee.

Each item reflected the purpose of the CES: to identify the stage of cyberethical reasoning of participants at the time of measurement. The eight major areas in cyberethics guided a selection of moral dilemmas that the scale addresses. Efforts were made to exhaust possibilities for items within the bounds of the definitions of the construct, the moral reasoning online.

Redundancy.

During the early stage of scale development, the CES included multiple redundant items. DeVellis asserted that “the useful redundancy pertains to the construct, not incidental, aspects of the items” (p. 65). To illustrate with an example, the redundancy between two items is not meant to be indicative of a change in an article. Rather, having a set of items that address the same issue in various ways is a desirable redundancy. The inclusion of such items in the early versions allowed the researcher to select the most reliable item(s) in the final scale.

Number of items.

At the piloting stage of scale development, the number of items was about three times as large as the final scale. In theory, the initial pool can be 50% larger than the final scale if the items are difficult to generate or if empirical data indicates that numerous items are not needed to generate good internal consistency. Recall that internal consistency is a function of how strongly the items correlate with one another and the amount of items the scale includes. Therefore, having a large number of items was a means to improve internal consistency, particularly when the correlations among items were unknown during the developmental stage.

Item quality.

The researcher attempted to improve item quality by adapting Zhang’s (2003) strategies. They are:

- Ambiguous items were avoided or eliminated.
- Exceptionally lengthy items were avoided. Length increases complexity and diminishes clarity.
- Multiple negatives were avoided, as well as rare and complex vocabulary with which college students may not be familiar.
- Double-barreled items (items that contain two or more ideas) were also avoided because they introduced ambiguity regarding the respondents' opinion.
- Ambiguous pronoun references and misplaced modifiers were eliminated.
- Both negatively and positively worded items were used in the scale in order to avoid agreement bias (also called acquiescence, affirmation bias)—that is, a respondent's tendency to agree with items irrespective of their content. A potential concern in using negatively worded items was that their reversals may cause confusion in some respondents, especially when the scale was long and when they were tired. The researcher was aware of both the acquiescence and confusion problems and tried to achieve a balance and wrote the items and instructions as clearly as possible. (DeVellis, 2003)

Reading level.

The Flesch-Kincaid reading grade level test and the Flesch reading ease test determined the scale's reading level. Each test bases its rating on the average number of syllables per word and words per sentence. The researcher used the built-in readability

test in Microsoft Word 2013 to obtain the reading level of the questionnaire. According to the Microsoft Office website (2011), the formula for the Flesh-Kincaid grade level is $(0.39 * a_l) + (11.8 * a_w) - 15.59$, where a_l is average sentence length (the number of words divided by the number of sentences); and a_w is average number of syllables per word (the number of syllables divided by the number of words). The result will signify the U.S. school grade level of the questionnaire.

Additionally, the formula for the Flesch reading ease is $206.835 - (1.015 * a_l) - (84.6 * a_w)$, where a_l is average sentence length (the number of words divided by the number of sentences); and a_w is average number of syllables per word (the number of syllables divided by the number of words). The result indicated reading ease of the text on a 100-point scale ranging from 0 for the most difficult reading level to 100 for the easiest reading level.

Step 3: Determining the format for measurement.

In an attempt to parallel the CES with the Reflective Measure – Short Form (SRM-SF), the format of CES followed the SRM-SF's. A reason for the parallelism is ease of validity analysis. According to Gibbs, Basinger, and Fuller (1992), the SRM-SF replaces moral dilemmas—a common component in most moral judgment assessment—with simple lead-in statements such as, “Think about when you’ve made a promise to a friend of yours” or, “Think about when you’ve helped your mother or father”. They found that the simple lead-ins, “provide sufficient contextual support for reflection even with children and delinquents” (p. 38). A question follows the lead-in that asks the

subjects to evaluate the importance of the given moral dilemma. The choices are “very important”, “important”, and “not important”. Gibbs and his associates pointed out that the evaluation facilitates the respondents’ process of moral justification. As a result, the participants sufficiently express their moral justification in short answers. Appendix A provides a copy of the SRM-SF in its full format.

Step 4: Expert review of initial item pool.

At this step, experts in the field of cyberethics and moral development reviewed the item pool. The purpose of the review is to validate and confirm that (a) each item is relevant to what it is intended to measure, namely, online moral reasoning; (b) each item is clear and concise; and (c) the item pool includes all possible ways to tap the phenomenon.

Each expert received an email containing a MS Word document that includes the item pool and a brief description of the study and working definition of the construct. All documents and communication were in an electronic format. The researcher requested that the experts:

- rated how relevant they thought each item is to what CES tends to measure;
- commented why any items are ambiguous;
- pointed out ways of tapping the phenomenon that the scale failed to include

The list of experts was composed of researchers, authors, faculty, or anyone who actively involved in the field of cyberethics and moral development. In particular, the panel consists of

- Professionals in educational measurement, educational statistics, and educational psychology or similar fields;
- Scholars in cyberethics and moral development;
- Experts in the measurement of moral reasoning
- Experts in communication

The names and contact information of the experts were retrieved from relevant conference proceedings, journals, books, and university web sites.

Step 5: Inclusion of validation items.

The purpose of an inclusion of validation items is to assess *construct validity* of the instrument. Fundamentally, construct validity is concerned with “the extent to which a measure ‘behaves’ the way that the construct it purports to measure should behave with regard to established measures of other construct” (DeVellis, 2003, p. 88). To demonstrate construct validity, the study must have evidence of both convergent and discriminant validity (Trochim, 2006). By definition, *convergent validity* is “its [the scale’s] property of not being discriminatory where theory says there should not be any” (Sapsford, 1999, p. 139). On the contrary, the *discriminant validity* refers to “the power of the test to discriminate between persons or situations which theory says should be different” (Sapsford, 1999).

In order to investigate an evidence of convergent validity, the CES included items that examine the participants ‘gender and ethnicity. According to Kohlberg, the stages of moral development, which constitute the theoretical framework of this study, are

universally common (Reimer et al., 1990). Therefore, if the CES is construct-valid, the CES scores should be uncorrelated with the theoretically relevant variables, gender and ethnicity.

An inclusion of the 13-item social desirability scale assessed the CES' discriminant validity for the reason that inclusion in a high stage of moral reasoning does not imply success in expressing socially desirable behaviors. Strahan and Gerbasi (1972) developed 13-item social desirability measure that was conveniently appended into the questionnaire of this study.

Step 6: Administration to a development sample.

Participants.

Two sample groups of Amazon Turk workers were recruited to participate in the pilot study and the main study. Amazon Mechanical Turk or (MTurk) is a website (mturk.com) that started in 2005 and offers an online labor market for its members perform tasks that are difficult or impossible for computers to do such as transcribing and extracting data from photos. People with 18 years of age or older can subscribe and work on the tasks that are posted on the website or hire the MTurk workers. The workers submit their work on the MTurk website and receive the compensation after the employer approves their work. Recently, MTurk has been extensively used for academic research studies (Mason & Suri, 2012; Rand, 2012). Researchers used MTurk as an online meeting place where they could rapidly recruit a large and diverse participant pool at low cost (Buhrmester, Kwang, & Gosling, 2011). MTurk participants are slightly more

demographically diverse than are standard Internet samples and are significantly more diverse than typical American college samples (Paolacci, Chandler, & Ipeirotis, 2010). More importantly, experiments conducted with Mturk workers are just as valid as laboratory and field experiment (Horton, Rand, & Zeckhauser, 2010).

The first administration: Pilot study.

The first sample group ($n = 30$) was for the purpose of a pilot study. This sample size was recommended by Johanson and Brooks (2010) for initial scale development. Respondents were adults with 18 years of older who were MTurk workers. Each participants received a compensation of \$1. The pilot test answered the following questions adapted from a work of Oliver (2002):

1. How long does it take the typical respondent to finish all the questions?
2. Is the language and reading level appropriate for the audience?
3. Is the introductory message effective in helping people to want to take the time to respond?
4. Are there question stems that respondents stumble over, do not understand, or are hesitant to answer?
5. Do the questions naturally lead from one to another? Should there be better transitions?
6. Should questions be regrouped?
7. Should there be additional question(s)?

The second administration: Main study.

After the scale revision based on the feedback from the pilot study, another 350 MTurk workers were asked to take the CES. This sample size corresponds to the recommended item-to response ratio that range from 1:4 to at least 1:10 (Hinkin, 1998). The researcher expected 25% drop-out rate (approximately 90 subjects) and therefore recruited 125% of the recommended sample size. Each participant received a compensation of \$1.50 upon submission. The findings and revisions made to the survey are discussed in chapter 4.

Step 7: Evaluate the items.

After an administration of the initial item pool and scoring of all the responses, the researcher statistically evaluated individual items to construct the final version of the CES. The scoring process involved a rating that represents the moral developmental level found in each of the scorable items in each questionnaire. Based on the reliability and validity basis of the scale, the following sections detail the analysis items.

Item variances and item means.

Each item that was included in the final version of the CES was expected to have relatively high variance. This psychometric attribute indicates that a question successfully classifies all responses of the participants within different levels of moral reasoning online. Each developmental level corresponded to a unique numerical value. To illustrate

the item statistics, a table that summarizes each item's mean, standard deviation, skewness, and kurtosis was produced.

Item-scale correlation.

The purpose of computing the item-scale correlation is to increase the internal consistency reliability of the CES. Conceptually, two factors that affect the internal consistency reliability of a test are test length and consistency among the test's items. In this item refinement step, consistency among the test's items was the most significant. By definition, the internal consistency is "the degree to which differences among persons' responses to one item are consistent with differences among their responses to other items on the test" (Furr & Bacharach, 2008, p. 159). Every item in the final version of the CES was expected to be consistent with others in order to enhance the internal consistency of the scale.

In practice, the researcher used a statistical approach called "*corrected item-total correlation*" in order to arrive at a set of highly intercorrelated items. This correlation correlates the score of the item being evaluated with all other item scores in the scale. In other words, if an item has a high item-scale correlation, it logically follows that knowing a participant's score of this item implies the ability to anticipate the participant's total score.

Typically, the values range from -1 to 1. Items with positive values that are closer to 1 are desirable because the value indicates that the item is consistent with the test as a whole. Any items with an item-scale correlation lower than 0.30 was subject to be

removed. This was another attempt that researcher made to increase internal consistency reliability of the CES.

Factor analysis.

Factor analysis is a fundamental tool and is the most common statistical approach of examination that addresses the issue of test dimensionality (Furr & Bacharach, 2008). In test development, evaluation, and use, it is critical to know the number of dimensions that underlie the test; whether or not those dimensions are correlated to each other; and what the dimensions of the test are. Without this understanding, the total score of the instrument would have no clear meaning. For instance, a meaningless total score is a combination of unrelated dimensions such as someone's hair length and his or her weight. In this study, an implication of factor analysis to the item refinement process is an identification of items that do not contribute to major identifiable factors. An elimination of such items will result in an enhancement in the psychometric quality of the CES.

The study included confirmatory factor analysis (CFA). In general, CFA is used for (a) psychometric evaluation of measures; (b) construct validation; (c) testing method effects; and (d) testing measurement invariance (Harrington, 2009). In this step, the CFA served the first two stated purposes. Maximum likelihood (ML) was the model estimation method in this study. According to Harrington (2009), when dealing with multivariate normal data, ML is a superior estimation model to other estimation methods such as weighted least square (WLS) and generalized least square (GLS). The researcher

determined the possibility of dropping low loading items which resulted in a shorter scale, or items whose elimination improve a model fit.

Coefficient alpha.

After removing poor items and retaining only the highly correlated ones, the researcher computed the reliability coefficient, Cronbach's alpha. The alpha determined the reliability of each factor. In this computation, the number of factors underlying the items pool will be the result of the factor analysis.

Inter-rater reliability.

Inter-rater reliability accesses the degree to which different raters give consistent estimates of the same phenomenon (Trochim, 2006). In this study, the inter-rater reliability assessed the consistency of the implementation of the scoring system. Scorings from two raters, the author and one co-rater, was used to compute the inter-rater reliability. The co-rater was a doctoral student in Psychology department with emphasis on social development. She holds a Master degree in Education and another in Philosophy. The co-raters self-trained the scoring of the SRM-SF and the CES. In addition to the SRM-SF practice exercises, the author randomly selected three answers from the main study as self-training exercises for the co-raters. The author and the co-rater discussed the scoring scheme before the co-rater independently scored the fifteen samples for inter-rater reliability purpose.

Summary

In summary, the study constructed the Cyberethics Scale (CES) to measure the stages of moral development through moral justification on cyberethical issues. *Table 4* summarizes the data analysis that was used to assess the psychometric properties of the CES.

Table 4

Summary of the Data Analysis that Enhances the Reliability and Validity of the CES

Analysis	Properties	Description	Assessment Methods
Descriptive Analysis	Reading level	Readability describes an extent to which some texts are easier to read than others due to the style of writing (Dubay, 2004).	Flesch-Kincaid reading grade level Flesch reading ease test
	Item variability	Item variability signifies correlational characteristics of the items (Furr & Bacharach, 2008). That is, items with limited variability—all participants answer the same way—are less likely to have good correlational characteristics than are items with substantial variability.	Item's mean Standard deviation Skewness Kurtosis
Reliability	Internal consistency	Reliability focuses on the extent to which the scale provides consistent results across repeated measurements (Carmines & Zeller, 1979). The internal consistency reliability assesses the consistency of results across items within a test.	Cronbach's alpha computation Average inter-item correlation Average item total correlation Corrected item-total correlation
	Inter-rater reliability	Inter-rater reliability assesses the degree to which different raters/observers give consistent estimates of the same phenomenon (Trochim, 2006).	Inter-rater correlation

(continued)

Analysis	Properties	Description	Assessment Methods
Validity	Scale Dimensionality	This study investigated three questions regarding the dimensionality: (a) How many dimensions are reflected in the CES? (b) If the CES has more than one dimension, are those dimensions correlated with each other? (c) If the CES has more than one dimension, what are those dimensions?	Exploratory factor analysis Literature review Expert review panel
	Content validity	“Content validity depends on the extent to which an empirical measurement reflects a specific domain of content” (Carmines & Zeller, 1979, p 20). To put it simply, the content of the CES is content-valid if the scale includes items that adequately reflect the full domain of online moral reasoning.	Literature review Expert review panel
	Construct validity: Discriminant validity	Discriminant validity refers to “the power of the test to discriminate between persons or situations which theory says should be different” (p. 139). Evidently, social desirability is a distinct concept from moral reasoning (Gibbs et al., 1992; Oliver, 2002).	Correlation between CES scores and social desirability scale.

(continued)

Analysis	Properties	Description	Assessment Methods
Validity	Construct validity: Convergent validity	Convergent validity is “its [the scale’s] property of not making discriminations [between persons or situations] where theory says there should not be any” (Sapsford, 1999, p. 139). In this study, the criteria correspond to a theoretical assumption that the stage construct is universally common (Reimer et al., 1990). Therefore, if the CES is construct-valid, the CES scores must be uncorrelated with the theoretically relevant variables that indicate its relativist holds such as age, gender, and ethnicity.	Expert reviews Factor analysis Correlation between the CES scores and theoretically relevant variables: age, gender, and ethnicity.
	Criteria-related validity: Concurrent validity	Criteria-related validity refers to “the degree to which test scores can predict specific criterion variables... the key to validity is the empirical association between test scores and scores on the relevant criterion variables” (Furr & Bacharach, 2008, p. 184). Accordingly, this study investigated an empirical association between the CES scores and criteria variables—the SRM-SF scores. The CES would be criteria-valid if its scores can predict specific outcomes or differentiate different levels of online moral reasoning.	Pearson’s product-moment correlation coefficient (r) between CES and SRM-SF

CHAPTER FOUR: FINDINGS

This chapter reports findings from expert reviews, the pilot study, and the main study during the scale development. The chapter begins with a discussion on how the item pool was generated. Next, the chapter reports results from expert reviews and descriptive analysis from the pilot study. Lastly, the chapter describes results from the main study and psychometrics of the instrument.

Item Pool Development

The researcher developed the item pool by consolidating various sources such as relevant research instruments; conversation and surveys with experts in the fields of cyberethics and moral development; and consultations by dissertation committee. The Sociomoral Reflection Measure-Short Form (SRM-SF) which was developed by Gibbs, Basinger, and Fuller (1992) was a model instrument. The SRM-SF is an 11 short-answer questionnaire that assesses moral development in traditional contexts. The items address sociomoral value such as saving a life, not stealing, and keeping a promise. Respondents are asked to rate the importance of the issue in question and give moral justifications. The justifications are scored to determine the stage of moral development of the person. In addition, the SRM-SF has impressive psychometric properties (Basinger, 1990; Gibbs et al., 1992) and is practical to administer.

An initial item pool consisted of 32 items in short answer format similar to the SRM-SF. Because the SRM-SF was a principle model for the survey, the researcher

adapted the same sociomoral values that the SRM-SF addressed to questions on behavior in the online or cyberspace context. For instance, one SRM-SF question asked “How important is it for people to tell the truth?” An adjusted question in the CES item pool was “Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?” Table 5 shows an item mapping between the SRM-SF and the CES items.

Table 5

Item Mapping between the SRM-SF Items and the CES Items for Expert Reviews

Aspects	SRM-SF items	CES items
Contract: friends	(1) Think about when you've made a promise to a friend of yours. How important is it for people to keep promises, if they can, to friends?	(1) Let's say you promise your friend to keep a secret. How important is it for people to keep their word by not telling the secret online?
Contract: Anyone	(2) What about keeping a promise to anyone? How important is it for people to keep promises, if they can, even to someone they hardly know?	(2) At times, people e-mail or chat with someone they do not know in person. If people make promises to such stranger, how important is it for people to keep their word? (3) Think about when you sign an agreement on a website. How important is it for a person to keep his or her word online?
Contract: Children	(3) How about keeping promise to a child? How important is it for parents to keep promises, if they can, to their children?	(4) Let's say a website will give discounts on games if children get their friends to join. How important is it for the website to keep such promise?
Truth	(4) In general, how important is it for people to tell the truth?	(5) Think about when people participate in an online message board. How important is it for people to tell the truth when online? (6) How important is it for people not to pretend to be someone else when online?

(continued)

Aspects	SRM-SF items	CES items
Truth	(4) In general, how important is it for people to tell the truth?	(7) Some people make-up their online profiles. How important is it for people not to fool others with their unreal online profiles? (8) Think about when you create your user profile on a safe website. How important is it for people to tell the truth on such website?
Affiliation: Parents	(5) Think about when you've helped your mother or father. How important is it for children to help their parents?	(9) Think about when parents prevent their children to do certain things online. How important is it for minors not to do such things? (10) Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?
Affiliation: friends	(6) Let's say a friend of yours needs helps and may even die, you're the only person who can save him or her. How important is it for a person (without losing his or her own life) to save the life of a friend?	(11) Think about when a friend asks for some kind of help from you online. How important is it for people (without risking their own lives) to help a friend online? (12) Think about an e-mail that requests your donation for a friend's medical bills. How important is it for people to help such friend?

(continued)

Aspects	SRM-SF items	CES items
Affiliation: friends	(6) Let's say a friend of yours needs helps and may even die, you're the only person who can save him or her. How important is it for a person (without losing his or her own life) to save the life of a friend?	(13) Often people have an argument with friends online. How important is it for people to be nice and helpful when arguing with friends online?
Property	(11) How important is it for people not to take things that belong to other people?	(14) How important is it for people not to share pirated songs online?
Property	(11) How important is it for people not to take things that belong to other people?	(15) How important is it for people not to send out a computer virus? (16) How important is it for people not to hack someone else's e-mail? (17) Many people use a Wi-Fi with no prior consent. How important is it for people to use the Internet only through an allowed channel? (18) Many people copy pictures from the Internet for their work. How important is it for people to cite the online sources?
Law/Regulation	(9) How important is it for people to obey the law?	(19) How important is it for people to adhere to law when they are online? (20) Think about when a government blocks certain websites. How important is it for people not to go around the block?

(continued)

Aspects	SRM-SF items	CES items
Legal justice	(10) How important is it for judges to send people who break the law to jail?	(21) How important is it for an IT staff to cut a hacker's online access? (22) How important is it for judges to fine people who break the law online? (23) How important is it for a webmaster to ban a bully?
Life	--	(24) Some animal rescue groups use online ads to raise funds. How important is it for people to support this cause to rescue the animals?
Life: Stranger	(7) What about saving the life of anyone? How important is it for a person (without losing his or her own life) to save the life of a stranger?	(25) Some hunger relief groups ask for donation online. How important is it for people to support this cause to save the lives of others?
Life: Self	(8) How important is it for a person to live even if that person doesn't want to?	(26) Let's say a patient with chronic pain posts a suicide plan to end his pain on his blog. How important is it for a person to live though that person does not want to?
Privacy	--	(27) Think about when you share your thoughts on a website. How important is it for people to be able to hide their identity online? (28) Many people share their private photos with friends online. How important is it for a person not to make a friend's private photos public?

(continued)

Aspects	SRM-SF items	CES items
Privacy	--	(29) Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?
Courtesy	--	(30) How important is it for people to be on-topic on an online message board? (31) How important is it for people to be polite and kind online? (32) Let's say a website asks the users to hold a seat only when they can join an event. How important is it for people to care for others when online?

Expert Review

The researcher contacted thirty-nine experts in the fields of cyberethics, moral development, moral reasoning, and communication between February and May 2012. Fifteen percent of the experts declined the researcher's invitation due to their limited availability during the time of survey. Seven experts agreed to review the item pool. The researcher did not receive responses from the remaining.

Table 6 lists the panel of experts in this study. The purpose of their review was to validate and confirm that (a) each item is relevant to what it is intended to measure, namely, online moral reasoning; (b) each item is clear and concise; and (c) the item pool appropriately addresses and assesses the desired phenomenon.

Table 6

List of Experts

Expert name	Affiliation	Areas of expertise
Alireza Isfandyari-Moghaddam	Assistant Professor of Library and Information Studies, Hamedan Branch, Islamic Azad University	Cyberethics
Carrie James	Research Director & Principal Investigator, Project Zero, Harvard Graduate School of Education	Cyberethics Moral Development
Giannis Stamatellos	Professor of Philosophy and researcher at University of Copenhagen	Computer Ethics
Herman Tavani	Professor of Philosophy at Rivier College President of the International Society for Ethics and Information Technology (INSEIT) Visiting scholar (in applied ethics) at the Harvard School of Public Health.	Cyberethics
Kadir Beycioglu	Dokuz Eylul University Editor-in-Chief at International Journal of Cyber Ethics in Education	Cyberethics in education
Katie Davis	University of Washington, Information School	Cyberethics Moral Reasoning
Lara Zwarun	Faculty at Department of Communication, University of Missouri-St. Louis	Sensitive Media Messages

Each expert received an overview of this research study, the Cyberethics Manual, and the expert review survey. All experts communicated with the researcher through email. Appendix E shows a copy of the documents that experts received.

In the expert review survey, all experts rated the clarity, conciseness, and relevance to cyberethics for each item. The rating was in a scale of 1 to 4 where 1 = Very weak; 2= Weak; 3 = Strong; 4 = Very Strong. Table 7 presents the average scores of the expert's reviews for each item. In addition, some experts provided additional comments about each item if they preferred. At the end of the survey, the reviewers were asked to share their thoughts concerning the overall scale.

Table 7

Average Experts' Ratings on Clarity, Conciseness, and Relevance of Each Item

Aspects	No.	CES items	Clarity	Conciseness	Relevance
Contract: Friends	1	Let's say you promise your friend to keep a secret. How important is it for people to keep their word by not telling the secret online?	3.67	3.83	3.33
Contract: Anyone	2	At times, people e-mail or chat with someone they do not know in person. If people make promises to such stranger, how important is it for people to keep their word?	3.14	3.50	3.50
	3	Think about when you sign an agreement on a website. How important is it for a person to keep his or her word online?	3.67	3.83	3.50
Contract: Children	4	Let's say a website will give discounts on games if children get their friends to join. How important is it for the website to keep such promise?	3.67	4.00	3.00
Truth	5	Think about when people participate in an online message board. How important is it for people to tell the truth when online?	3.80	3.80	3.80
	6	How important is it for people not to pretend to be someone else when online?	3.57	3.83	3.60

(continued)

Aspects	No.	CES items	Clarity	Conciseness	Relevance
Truth	7	Some people make-up their online profiles. How important is it for people not to fool others with their unreal online profiles?	2.83	3.80	3.80
	8	Think about when you create your user profile on a safe website. How important is it for people to tell the truth on such website?	3.29	4.00	3.50
Affiliation: Parent	9	Think about when parents prevent their children to do certain things online. How important is it for minors not to do such things?	3.50	3.83	3.5
	10	Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?	3.50	3.50	3.33
Affiliation: Friends	11	Think about when a friend asks for some kind of help from you online. How important is it for people (without risking their own lives) to help a friend online?	3.14	3.50	3.33
	12	Think about an e-mail that requests your donation for a friend's medical bills. How important is it for people to help this friend?	3.83	3.83	3.00
	13	Often people have an argument with friends online. How important is it for people to be nice and helpful when arguing with friends online?	3.40	3.80	4.00
Property	14	How important is it for people not to share pirated songs online?	3.67	3.67	4.00

(continued)

Aspects	No.	CES items	Clarity	Conciseness	Relevance
Property	15	How important is it for people not to send out a computer virus?	4.00	4.00	4.00
	16	How important is it for people not to hack someone else's e-mail?	4.00	4.00	4.00
	17	Many people use Wi-Fi with no prior consent. How important is it for people to use the Internet only through an allowed channel?	3.67	3.67	4.00
	18	Many people copy pictures from the Internet for their work. How important is it for people to cite the online sources?	3.83	3.83	4.00
Law/ Regulation	19	How important is it for people to adhere to laws when they are online?	3.14	3.83	3.83
	20	Think about when a government blocks certain websites. How important is it for people not to go around the block?	4.00	4.00	4.00
Legal justice	21	How important is it for an IT staff to cut a hacker's online access?	3.67	4.00	3.83
	22	How important is it for judges to fine people who break the law online?	3.33	3.67	3.67
Life	23	How important is it for a webmaster to ban a bully?	4.00	4.00	3.83
	24	Some animal rescue groups use online ads to raise funds. How important is it for people to support this cause to rescue the animals?	3.33	3.33	2.86

(continued)

Aspects	No.	CES items	Clarity	Conciseness	Relevance
Life: Stranger	25	Some hunger relief groups ask for donation online. How important is it for people to support this cause to save the lives of others?	3.50	3.50	2.86
Life: Self	26	Let's say a patient with chronic pain posts a suicide plan to end his pain on his blog. How important is it for people to stay alive if they do not want to?	3.17	3.33	2.57
Privacy	27	Let's say you share your thoughts on a website. How important is it for people to be able to hide their identity online?	3.17	3.50	3.50
	28	Many people share their private photos with friends online. How important is it for a person not to make a friend's private photos public?	3.57	3.83	4.00
	29	Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?	3.43	3.83	3.50
Courtesy	30	How important is it for people to be on-topic on an online message board?	3.50	3.67	2.67
	31	How important is it for people to be polite and kind online?	3.57	3.83	3.50
	32	Let's say a website asks the users to hold a seat only when they can join an event. How important is it for people to care for others when online?	2.50	3.00	3.17

Note. Rating are 1 = very weak, 2 = weak, 3 = strong, 4 = very strong.

Many reviewers offered suggestions on wording and phrasing to improve clarity and conciseness of the items. Many experts pointed out that some scenarios were vague or not relevant to the cyberethics. For instance, the experts commented that question 4, “Let's say a website will give discounts on games if children get their friends to join. How important is it for the website to keep such promise?” was not relevant. Another example is question 32—“Let's say a website asks the users to hold a seat only when they can join an event. How important is it for people to care for others when online?”—was considered vague because the first and second sentences were not related. Such items were removed from the item pool.

Three experts commented that the 32-item survey was too lengthy particularly when the respondents had to provide detailed explanation. However it was the intention of the piloting stage of scale development to include three times of items as large as the final scale. As such, later on in the scale development, attempts were made to remove statistically and/or theoretically poor performance items from the item pool.

Based on the expert comments and ratings, items with low rating under relevancy were subject to remove. Items with low rating under clarity and concise were either removed or revised. In this study, a rating below 3.25 was considered low and was subject to removal or revision. For instance, item 24, 25 and 26, which were under Life aspect, were considered irrelevant. However, Life was one of the main dimensions set forth by the review of literature. The researcher replaced the three items with a new question concerning Life but in a more relevant online context. Table 8 lists the revised item pool that was a result of the expert reviews.

Another addition that was made as a result of expert review was an alternative grouping structure. An expert suggested that the researcher could consider how each item relates to online contexts. Therefore, this study demonstrated how the item pool was grouped by (a) aspects as recommended by the survey of literature and (b) online contexts.

Table 8

Revised Item Pool based on Expert Reviews

Aspects	Online contexts	Revised CES items
Contract: Friend	Blog	1. Often people promise their friends to keep a secret. How important is it for people to keep their word by not discussing the secret on their personal blogs?
Contract: Anyone	Online chat	2. At times, people e-mail or chat with someone they do not know in person. If people make promises to a stranger, how important is it for people to keep their word?
	Web agreement	3. Think about when people sign an agreement on a website. How important is it for them to adhere to the agreement?
Contract: Children	Online campaign	4. Let's say a website will give discounts on games if children get their friends to join. How important is it for the website to keep such promise?
Truth	Truth, identity	5. A lot of people take part in online message boards or twitter. How important is it for people to tell the truth when using such online social media?
	Truth, identity	6. Think about when you create your user profile on a safe website. How important is it for people to tell the truth on such website?
Affiliation: Parent	Rule, regulation	7. Think about when parents prevent their children to do certain things online. How important is it for minors not to do such things?
	Rule, regulation	8. Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?
Affiliation: Friend	Piracy, property	9. Many people ask their friends to help them download a protected software. How important is it for people not to pirate software for a friend?
	Support causes online	10. Think about an e-mail that requests your donation for a friend's medical bills. How important is it for people to help this friend?

(continued)

Aspects	Online contexts	Revised CES items
Affiliation: Friend	Cyber-bullying, courtesy	11. Often people have an argument with friends online. How important is it for people to be nice and respectful when arguing with friends online?
Life: Stranger	Online survey	12. How important is it for people to take part in risk-free online surveys that can save life?
Law/ Regulation	Rule, regulation	13. How important is it for people to adhere to laws when they are online?
	Rule, regulation	14. Think about when a government blocks certain websites. How important is it for people not to go around the block?
Legal justice	Hacking	15. How important is it for an IT staff to cut a hacker's online access?
	Law/ regulation	16. How important is it for judges to fine people who break the law online?
	Cyber-bullying	17. How important is it for a webmaster to ban a bully?
Property	Piracy, property	18. How important is it for people not to share pirated songs online?
	Virus, property	19. How important is it for people not to knowingly send out computer virus?
	Hacking	20. How important is it for people not to hack someone else's e-mail?
	Wi-Fi access	21. Many people use Wi-Fi with no prior consent. How important is it for people to use the Internet only through an allowed channel?
	Plagiarism	22. Many people copy photos from the Internet for their work. How important is it for people to cite the online sources for the photos?
Privacy	Privacy	23. Many people have online access to their friends' private photos. How important is it for people not to make a friend's private photos public?
	Privacy	24. Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?
Courtesy	Cyber-bullying, courtesy	25. How important is it for people to be polite and kind online?

Pilot Study

A sample of 30 participants was recruited through Amazon Mechanical Turk Website (mturk.com). A pilot study was conducted on Friday October 11, 2013. The survey was hosted on Boston University Qualtrics website. Participants accessed the survey through a generic link that was posted on the MTurk website. The first page of the survey was an informed consent. The system automatically redirected a participant to the end of survey if he or she disagreed with the consent. Participants who agreed with the consent were asked to complete demographic questions, the CES, the SRM-SF, and the social desirability scale (Strahan & Gerbasi, 1972). The demographic questions and social desirability scale which were included as validation items.

Descriptive statistics.

Out of 30 participants, only one participant rejected the study's informed consent. As a result, the pilot study had an effective sample size of 29. Table 9 reports descriptive statistics of the pilot study participants.

Table 9

Descriptive Statistics of Participants in Pilot Study

Variables	<i>n</i>	Percent
Gender		
Male	17	58.62
Female	12	41.38
Age		
18-20	1	3.45
21-29	18	62.07
30-39	6	20.69
40-49	2	6.90
50-59	1	3.45
60 or older	1	3.45
Continent of origin ^a		
Africa	1	3.45
Antarctica	1	3.45
Asia	21	72.41
Australia	1	3.45
Europe	2	6.90
North America	9	31.03
South America	1	3.45
Ethnicity		
African American	--	--
American Indian or Alaska Native	1	3.45
Asian	21	72.41
Native Hawaiian or Other Pacific Islander	--	--
White/Caucasian	7	24.14
Country		
India	20	68.97
USA	9	31.03
English as a native language		
Yes	21	72.41
No	8	27.59

(continued)

Variables	<i>n</i>	Percent
English reading skill for non-native English speakers		
Beginner	--	--
Intermediate	2	25.00
Fluent	6	75.00
English writing skill for non-native English speakers		
Beginner	--	--
Intermediate	--	--
Fluent	8	100

Note. ^aSome participants grew up in multiple continents

Answers to pilot study questions.

This section presents findings to seven questions that the pilot study aimed to answer. See Chapter 3 for the complete question listing.

Survey completion time.

Qualtrics' timing feature was used to measure the time each participant spent on the survey. The timers were set for each section of the survey. The completion time of each section refers to a duration when the participant first loaded a section until the participants exited that section. An overall completion time was also recorded. It measured a total time a participants spent to complete the demographics section, the SRM-SF questionnaire, the Cyberethics Scale, and the social desirability scale.

In average, the participants spent 39 minutes to complete an entire survey. The minimum completion time was 7 minutes and the maximum completion time was 1 hour 46 minutes. Participants spent between 2 minutes and 59 seconds and 1 hour 23 minutes and 37 seconds to complete the Cyberethics Scale (CES). An average completion time for the CES section was 27 minutes and 31 seconds. Table 10 illustrates overall completion time the participants spent on each section in detail.

Table 10

Pilot Study Administration Time (HH:MM:SS)

Section	Min	Max	<i>SD</i>	Mean	Median
Age	0:00:03	0:00:51	0:00:10	0:00:08	0:00:06
Demographic section	0:00:01	0:02:24	0:00:27	0:00:28	0:00:23
CES section	0:02:59	1:23:37	0:22:02	0:27:31	0:20:15
SRM-SF section	0:00:35	0:27:34	0:06:44	0:08:38	0:06:36
Social desirability scale	0:00:14	0:02:49	0:00:37	0:00:44	0:00:32
Entire survey	0:06:34	1:45:46	0:27:20	0:38:39	0:29:52

Language and reading level.

The researcher found that the language and reading level of the survey was appropriate for the audience mainly for two reasons. First, four readability testing tools were used to measure the reading level of the Cyberethics Scale. The same tests were applied to the SRM-SF questions. The results reported that the scale has middle school grade readability. The readability scores of the Cyberethics Scale is comparable to the SRM-SF'. Table 11 reports the comparison of the readability scores between the CES items during the pilot study and the SRM-SF item. The other evidence that suggested appropriate language and reading level was that all responses from the pilot study were in expected formats. This could be interpreted as the participants understood the questions and the instructions of the survey.

Table 11

Comparison of the Readability Scores between CES items and the SRM-SF Items during the Pilot Study

Readability tests	Tools	SRM-SF	CES (Pilot study)
Average grade level	Readability-score.com	6.14	6.9
Flesch reading ease	MS Word	79.2	73.4
	Online-utility.org	77.9	77.9
	Readabilityformulas.com	81.9	75.6
Flesh-Kincaid grade level	MS Word	5.6	6.1
	Online-utility.org	5.8	5.5
	Readabilityformulas.com	5.2	5.9
	Readability-score.com	5.2	5.8

Introductory message.

To answer the introductory question—“Is the introductory message effective in helping people to want to take the time to spend?”—the researcher compared how the participants responded to the Cyberethics Scale (CES) section with how they responded to the SRM-SF section. The SRM-SF’s introductory message was reported to be effective (Gibbs et al., 1992). The null hypothesis was that the CES’ introductory message was ineffective if participants took time to answer the SRM-SF questions but did not answer the questions in the CES section.

Evidently, the participants who spent more time on the CES section also spent a lot of time on the SRM-SF section and vice versa. The fact that the CES completion time was mostly higher than the SRM-SF completion time was expected because the CES section consists of 25 questions whereas the SRM-SF section has only 11 questions.

In the CES section, two participants did not take time to complete the study. Specifically, participant number 16 gave the exact same answer as participant number 7 though both participants have different Mturk worker IDs. Participant number 6 gave the same answer to all CES questions.

In the SRM-SF section, responses from the participant number 16 and 6 were the same as their performance in the CES section. In addition, respondent number 21, 24, and 29 did not answer the why questions. Thus, five participants did not take time to respond to the SRM-SF items.

Statistically, 6.89% and 17.2% of the participants did not take time to answer the questions in the CES section and the SRM-SF section respectively. The researcher

concluded that introductory messages for both sections can be considered as effective. The proposed explanation for why participants did not answer the why question in the SRM-SF section was because they might want to submit their responses as fast as possible. This was a common practice of some Amazon Mechanical Turk workers who aimed to maximize their hourly income with least amount of work (Downs, Holbrook, Sheng, & Cranor, 2010).

Ambiguous questions.

The researcher found that some questions in the pilot study were ambiguous to the participants. Revisions were made to clarify such items. Table 12 shows the problematic items and their revisions.

Table 12

Revision of Problematic Items based on an Observation of Pilot Study Responses

Ambiguous questions	Problems	Actions	Revised questions
1) Often people promise their friends to keep a secret. How important is it for people to keep their word by not discussing the secret on their personal blogs?	This question was under “contract with friend” dimension. However, some respondents did not address the dimension but rather focused on keeping the secret.	Replaced with a new question	At times, people promise to a friend to use his/her Wi-Fi legally. How important is it for people to keep the promises to a friend?
2) At times, people e-mail or chat with someone they do not know in person. If people make promises to a stranger, how important is it for people to keep their word?	“keep their word” is an ambiguous phrase. Participants interpreted it as lie, promise, and secret. In addition, the responses are not relevant to online context.	Replaced with a new question	Think about when people take on an online task (selling, transcription, and writing). How important is it for people to commit even to those they never meet face-to-face?
4) Let's say a website will give discounts on games if children get their friends to join. How important is it for the website to keep such promise?	Participants focused on the consequences that will happen to the website whereas a purpose of this question is on contract and children.	Revised the question	Some websites promise to give rewards to children. How important is it for a website to keep promises to minors?

(continued)

Ambiguous questions	Problems	Actions	Revised questions
5) A lot of people take part in online message boards or twitter. How important is it for people to tell the truth when using such online social media?	Question was lengthy.	Revised the question	Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?
6) Think about when you create your user profile on a safe website. How important is it for people to tell the truth on such website?	The term "safe website" is unclear. Most responses addressed the issue of security and privacy.	Replaced with a new question	Think about when people take part in an anonymous online survey. How important is it for them to tell the truth?
7) Think about when parents prevent their children to do certain things online. How important is it for minors not to do such things?	Question was lengthy.	Revised the question	When parents prevent their children to do certain things online, how important is it for minors not to do such things?
8) Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?	Participants focused on children visiting the banned website instead of parent-child affiliation.	Revised the question	Some minors can get at websites that parents ban. How important is it for minors to do as parents say?
9) Many people ask their friends to help them download protected software. How important is it for people not to pirate software for a friend?	Most participants focused on "pirate software" instead of the affiliation with friends i.e. "virus may affect your system" or "Pirating software is wrong and illegal"	Revised the question	How important is it for people not to help a friend by pirating a software?

(continued)

Ambiguous questions	Problems	Actions	Revised questions
10) Think about an e-mail that requests your donation for a friend's medical bills. How important is it for people to help this friend?	Many participants concerned with the legitimacy of the email and the affordability of contributing to paying the medical bills when the focus was about "Life"	Replaced with a new question	Let's say a friend is a cyber-bullying victim and may take his/her life. How important is it for a person to try to save the life of the friend?
12) How important is it for people to take part in risk-free online surveys that can save life?	Participants commented that the scenario is unreal and many responses focused on the survey instead of the saving life dimension.	Revised the question:	What about saving the life of any cyber-bullying victim? How important is it for a person to try to save a life of a cyber-bullying victim?
15) Many people use Wi-Fi with no prior consent. How important is it for people to use the Internet only through an allowed channel?	The question did not fully address the property issue as some participants argued that the owner of an open WIFI might intend to make it available for public use.	Revised the question	Many business owners give out their Wi-Fi passwords only to their customers. How important it is for the non-customers not to use the protected Wi-Fi?
16) Many people copy photos from the Internet for their work. How important is it for people to cite the online sources for the photos?	Many participants did not recognize this scenario as an ethical issue.	Revised the question	Many people copy content from the Internet for their work. How important is it for people to credit the author when using his/her work?

(continued)

Ambiguous questions	Problems	Actions	Revised questions
22) How important is it for people to take part in risk-free online surveys that can save life?	Most responses did not focus on the dimension of this question, which is to save life of a stranger. Examples of the responses are “To earn money”, “It was collected for some reason”, and “Each person would have to decide for themselves what they would want to participate in.”	Revised the question	What about saving the lives of any cyber-bullying victims? How important is it for a person to prevent cyber bullied victims from suicide?

Flow of the survey.

The researcher did not find any issue with the flow of the survey. However, a rearrangement was made so that a question concerning saving the life of a stranger was immediately after another question under the affiliation with friend dimension which concern saving a life of a friend. As such, the transition became

Affiliation with friend question: *Let's say your friend is a cyber-bullying victim and may take his/her life. How important is it for a person to try to save the life of the friend?*

followed by

Saving a life of a stranger question: *What about saving the life of any cyber-bullying victim? How important is it for a person to try to save a life of a cyber-bullying victim?*

Question grouping

Question 14, How important is it for people not to hack someone else's e-mail?, was moved from the property dimension to the privacy dimension. With the new numbering, this question became question number 26. This is because participants perceived this question as a question about privacy.

Additional question(s).

An expert suggested that the instrument should address the diversity of contexts. As such, one question pertaining an access to electronic content was added. The question asked: "How important is it for people not to copy a file without the owner's consent?" Table 13 presents a revised item pool as a result of the pilot study. Appendix H shows the resulted survey.

Table 13

Revised CES Item Pool for the Main Study – Categorized by SRM-SF Dimensions

Aspects	Online contexts	CES items
Contract: Friend	Wi-Fi access	1. At times, people promise to a friend to use his/her Wi-Fi legally. How important is it for people to keep the promises to a friend?
Contract: Anyone	Online jobs	2. Think about when people take on an online task (selling, transcription, and writing). How important is it for people to commit even to those they never meet face-to-face?
	Online agreement	3. Think about when people sign an agreement on a website. How important is it for them to adhere to the agreement?
Contract: children	Online campaign	4. Some websites promise to give rewards to children. How important is it for a website to keep promises to minors?
Truth	Truth, identity	5. Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?
	Online survey	6. Think about when people take part in an anonymous online survey. How important is it for them to tell the truth?
Affiliation: Parent	Rule, regulation	7. When parents prevent their children to do certain things online, how important is it for minors not to do such things?
	Rule, regulation	8. Some minors can get at websites that parents ban. How important is it for them to do as parents say?
Affiliation: Friend	Piracy, property	9. How important is it for people not to help a friend by pirating a software?
	Cyber- bullying, courtesy	10. Often people have an argument with friends online. How important is it for people to be nice and respectful when arguing with friends online?
	Cyber- bullying	11. Let's say your friend is a cyber-bullying victim and may take his/her life. How important is it for a person to try to save the life of the friend?

(continued)

Aspects	Online contexts	CES items
Life-Stranger	Cyber-bullying	12. What about saving the life of any cyber-bullying victim? How important is it for a person to try to save a life of a cyber-bullying victim?
Property	Piracy, property Virus, property Wi-Fi access, property Plagiarism	13. How important is it for people not to share pirated songs online?
		14. How important is it for people not to knowingly send out computer virus?
		15. Let's say a store locks its Wi-Fi for customers. How important it is for the general public not to hack the protected Wi-Fi?
		16. Many people copy content from the Internet for their work. How important is it for people to credit the author of the online work?
Law/Regulation	Hacking Rule, regulation Rule, regulation Law/Regulation	17. How important is it for people not to copy a file without the owner's consent?
		18. How important is it for people to adhere to laws when they are online?
		19. Think about when a government blocks certain websites. How important is it for people not to go around the block?
		20. How important is it for an IT staff to cut a hacker's online access?
Legal justice Privacy	Law/Regulation Cyber-bullying Privacy	21. How important is it for judges to fine people who break the law online?
		22. How important is it for a webmaster to ban a bully?
		23. Many people have online access to their friends' private photos. How important is it for people not to make a friend's private photos public?
Privacy	Privacy Hacking	24. Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?
		25. How important is it for people not to hack someone else's e-mail?
		26. How important is it for people to be polite and kind online?
Courtesy	Cyber-bullying, courtesy	

Main Study

This section discusses the item evaluation process and reports the psychometric properties of the CES. Each subsection includes a discussion of effective sample sizes and statistical findings.

Item evaluation.

The item evaluation was computed from questionnaires that contained at least one moral justification to the CES questions. The researcher rated each moral justification by assigning a numerical value to represent the stage of moral development the justification revealed. Table 14 shows the numerical values and corresponding stage of moral development used in the scoring process. A description on how the researcher determined which stage of moral development matched the participants' online moral justification is in Appendix K.

Table 14

Score Conversion Table

Scores	Definition
[Missing]	Unscorable responses
1	Stage 1
1.5	Transitional stage from stage 2 to stage 3
2	Stage 2
2.5	Transitional stage from stage 2 to stage 3
3	Stage 3
3.5	Transitional stage from stage 3 to stage 4
4	Stage 4

Description of the usable subjects

Descriptive statistics were performed with SPSS version 22. Subjects used to determine the psychometric properties of the Cyberethics Scale (CES) were adults who were 18 years or older and were recruited from Amazon Turk website (mturk.com). A total of 350 MTurk workers agreed to participate in this study. Out of 350 participants, 29 participants did not provide any moral justification in the CES protocol and were dropped from item evaluation accordingly. This resulted in an effective sample size of 321. As such, the attrition rate was 8.2%.

During the main study, the participants were asked to complete a demographic section, the CES, the SRM-SF (Gibbs et al., 1992), and a 13-item social desirability scale (Strahan & Gerbasi, 1972). Table 15 provides the main study participant demographic data that were reported in the demographic section.

Table 15

Demographic Data of the Effective Samples for Item Evaluation

Variables	<i>n</i>	Percent
Gender		
Male	166	48.3
Female	155	51.7
Age		
18-20	2	0.90
21-29	77	35.6
30-39	66	30.6
40-49	39	18.1
50-59	21	9.7
60 or older	11	5.1
Continent of origin ^a		
Africa	4	1.2
Antarctica	1	0.3
Asia	138	43.0
Australia	5	1.6
Europe	13	4.0
North America	168	52.3
South America	6	1.9
Ethnicity		
African American	18	5.6
American Indian or Alaska Native	10	3.1
Asian	140	43.6
Native Hawaiian	1	0.3
White/Caucasian	150	46.7
Not specified	2	6

(continued)

Variables	<i>n</i>	Percent
Country		
Canada	2	0.6
Egypt	1	0.3
India	127	39.6
Indonesia	2	0.6
Jamaica	1	0.3
New Zealand	1	0.3
Philippines	2	0.6
Romania	2	0.6
Serbia	1	0.3
Singapore	1	0.3
Spain	2	0.6
Switzerland	1	0.3
Trinidad and Tobago	1	0.3
United Kingdom	1	0.3
United States	175	54.5
Not specified	1	0.3
English as a native language		
Yes	232	72.3
No	88	27.4
English reading skill for non-native English speakers		
Beginner	--	--
Intermediate	12	3.7
Fluent	75	23.4
Not specified	1	0.3
English writing skill for non-native English speakers		
Beginner	1	0.3
Intermediate	19	5.9
Fluent	67	20.9
Not specified	1	0.3

Note. ^aSome participants grew up in multiple continents.

The following sections discuss statistical results from an evaluation of the item pool. Specifically, the analysis involved an investigation on item variability, item-scale correlation, factor analysis, and coefficient alpha.

Item variances and item means

Item's mean, standard deviation, skewness, and kurtosis were computed to assess item variability. An item with either extremely high or extremely low mean is likely to have limited variability, and thus is likely to have poor psychometric qualities (Furr & Bacharach, 2008). Table 16 shows item's mean and standard deviation for all items on the Cyberethics Scale. An inspection of the item's means did not show any item with extremely high or extremely low value. As such, no item was removed from the item pool based on an inspection of the item variances and item means.

Table 17 shows that the mean of the CES scores was 2.43 and the standard deviation was .26. Both kurtosis (kurtosis = $-.493$, $SE .271$) and skewness (skewness = $.492$, $SE = .136$) indicated that the distribution was normal.

Table 16

Descriptive Statistics for CES Items in the Main Study

Items	Min	Max	Mean	SD	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
CES 1	1.00	4.00	2.4885	.72512	-.158	.136	-.071	.271
CES 2	1.00	4.00	2.8925	.74080	-.885	.136	1.179	.271
CES 3	1.00	4.00	2.7880	.86513	-.631	.136	-.291	.271
CES 4	1.00	4.00	2.6729	.66947	-.948	.136	.962	.271
CES 5	1.00	4.00	2.4845	.73599	-.160	.136	.197	.271
CES 6	1.00	4.00	2.5709	.69084	-.002	.136	.475	.271
CES 7	1.00	4.00	2.4299	.60964	.262	.136	.799	.271
CES 8	1.00	4.00	2.2853	.67076	-.011	.136	.151	.271
CES 9	1.00	4.00	2.0029	.86588	.595	.136	-.301	.271
CES 10	1.00	4.00	2.5758	.69656	-.769	.136	.637	.271
CES 11	1.00	4.00	2.7385	.64653	-.912	.136	1.840	.271
CES 12	1.00	4.00	2.8015	.52843	-1.335	.136	4.147	.271
CES 13	1.00	4.00	2.0903	.73325	.406	.136	.351	.271
CES 14	1.00	4.00	1.8842	.78507	.751	.136	.225	.271
CES 15	1.00	4.00	2.0383	.66083	.620	.136	.894	.271
CES 16	1.00	4.00	2.0925	.82136	.241	.136	-.612	.271
CES 17	1.00	4.00	2.0086	.85573	.658	.136	-.224	.271
CES 18	1.00	4.00	2.6342	.89172	-.222	.136	-.422	.271
CES 19	1.00	4.00	2.4368	.79013	.077	.136	-.137	.271
CES 20	1.00	4.00	2.1116	.86533	.533	.136	-.352	.271
CES 21	1.00	4.00	2.5920	.69726	-.221	.136	.176	.271
CES 22	1.00	4.00	2.4807	.73565	-.272	.136	.238	.271
CES 23	1.00	4.00	2.5787	.78490	-.581	.136	-.343	.271
CES 24	1.00	4.00	2.5866	.86335	-.535	.136	-.680	.271
CES 25	1.00	4.00	2.2111	.95393	.148	.136	-1.162	.271
CES 26	1.00	4.00	2.6136	.72800	-.689	.136	.441	.271

Table 17

Descriptive Analysis for Responses with Moral Justifications on the CES

Measure	Adjusted CES Raw Scores
<i>n</i>	321
Minimum	1.75
Maximum	3.26
Mean	2.4265
<i>SD</i>	.26060
Skewness	
Statistic	.492
Standard error	.136
Kurtosis	
Statistic	.439
Standard error	.271

Item-scale correlation

Twenty-six items were computed for their corrected item-total correlation. This statistic correlates the score of the item being evaluated with all other item scores in the scale. Coaley (2010) suggested that only items with the correlation $\geq .3$ should be kept in the item pool. An item with lowest correlation was removed one at a time. The item-total correlations of the remaining items were recalculated to determine the next remove item. The process continued until the researcher found that all items have correlations $\geq .3$ except for item 5. This item was kept because it represented the identity, truth, and trustworthiness theme. As discussed in chapter 3, the review of the literature suggested the identity, truth, and trustworthiness theme as one of the five major themes appeared in cyberethics literature. Table 18 shows the resulted item pool.

Table 18

CES Item Pool with 13 Items Whose Correlation is .3 or Above Except for Item 5

Item No.	Questions	Corrected Item-Total Correlation
5	Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?	.2
7	When parents prevent their children to do certain things online, how important is it for minors not to do such things?	.3
8	Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?	.3
9	How important is it for people not to help a friend by pirating a software?	.3
13	How important is it for people not to share pirated songs online?	.3
14	How important is it for people not to knowingly send out computer virus?	.3
18	How important is it for people to adhere to laws when they are online?	.3
19	Think about when a government blocks certain websites. How important is it for people not to go around the block?	.3
22	How important is it for a webmaster to ban a bully?	.3
23	Many people have online access to their friends' private photos. How important is it for people not to make a friend's private photos public?	.3
24	Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?	.3
25	How important is it for people not to hack someone else's e-mail?	.3
26	How important is it for people to be polite and kind online?	.3

Factor analysis

Confirmatory factor analysis (CFA) was used to confirm that the item pool measure the dimensions they were designed to measure. The researcher removed item 7 and 23 from the item pool before performing the factor analytic because the questions were duplicated with item 8 and 24 respectively. Factor loading was used as a criterion to choose an item to be removed. Analysis of Moment Structure (Amos 22.0.0, Arbuckle, 2013) was used to perform confirmatory factor analysis with the remaining eleven items. Stated another way, the data for the CFA was from eleven questions measuring five themes of cyberethical issues as discussed in chapter 3: (a) Privacy; (b) rule and regulation; (c) cyber-bullying; (d) property; and (e) truth, trustworthiness, and identity. The analysis was done by means of Maximum Likelihood (ML) estimation.

An initial confirmatory factor analysis of the 11-item model is presented in Figure 9. An initial inspection of the model suggested a removal of item 14 because the item's factor loading (.25) was below the cutoff value, which should be $\geq .3$ (Brown, 2006). This resulted in a 10-item model of the CES.

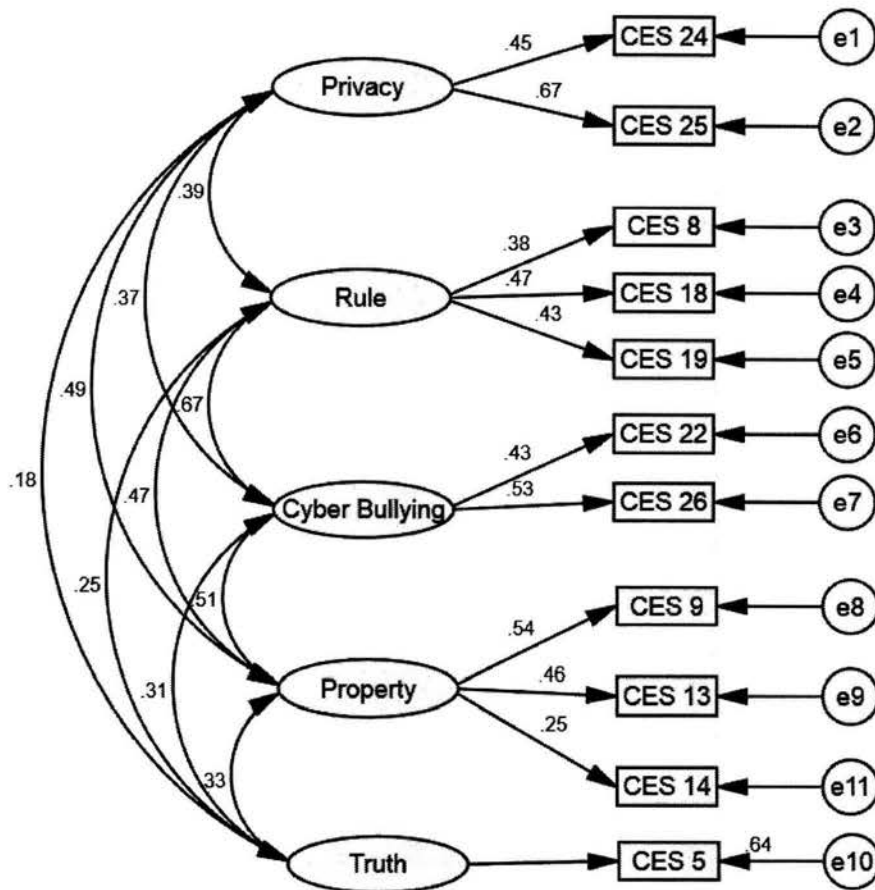


Figure 9. Initial confirmatory factor analysis model of the CES with standardized estimates.

An assessment on the adequacy of the sample size and the assessment of normality were conducted. The sample size of 321 was considered to be adequate for this analysis. There is no exact rule for the number of participants but the general consensus is ten sample per estimated parameter (Schreiber, Nora, Stage, Barlow, & King, 2006). The confirmatory factor analysis model with ten items, see Figure 10, has 25 estimated parameters. As such, the initial same size of 321 yielded an acceptable ratio of 12.84 participants per estimated parameter.

An assessment of normality showed that the multivariate kurtosis value or Mardia's coefficient was 12.831 and the critical ratio value was 7.420. According to Mardia (1970), a sample can be considered multivariate normally distributed at .05 significant level when the critical ratio is less than 1.96. Thus, the sample data is not multivariate normal. Yuan, Bentler, and Zhang (2005) pointed out that an ML method with non-normal data will lead to biased statistics and inappropriate scientific conclusion. As such, model fit was assessed using the Bollen-Stine corrected p-value rather than the usual maximum likelihood-based p-value. In addition, the results of analyses using ML were tested with bootstrapping, using 2,000 samples, 95% CI, and significant tested with bias corrected confidence intervals to generate parameter estimates, standard errors of parameter estimates, and significance tests for individual parameters.

Figure 10 illustrates the confirmatory factor analysis model with standardized parameter estimates whereas Figure 11 shows the same model with unstandardized parameter estimates. The model contains one variable with single indicators: Truth. Error variance for this variable was fixed to .20. The calculation was on the basis of the

measure's sample variance estimate and known internal consistency estimate (Brown, 2006). Specifically, the formula is

$$\delta_x = \text{VAR}(X)(1 - \rho)$$

Where VAR(X) is the sample variance of the single indicator which is .542 and ρ is the reliability estimate of the indicator ($r = .638$). A correlation table with means = 0 and standard deviations = 1 is shown in Table 19.

The acceptability of the fitted CFA solution was evaluated on the basis of three major aspects: (a) overall goodness of fit; (b) the presence and absence of localized areas of strain in the solution; and (c) the interpretability, size, and statistical significance of the model's parameter estimate (Brown, 2006).

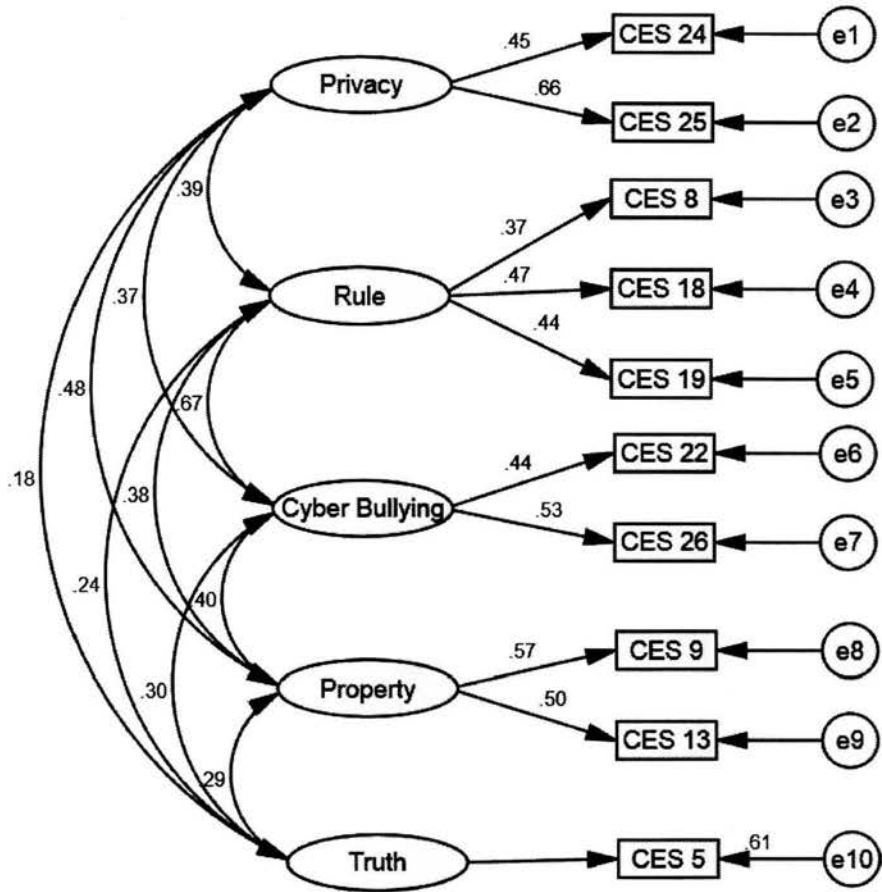


Figure 10. Confirmatory factor analysis model of the final version of the CES with standardized estimates.

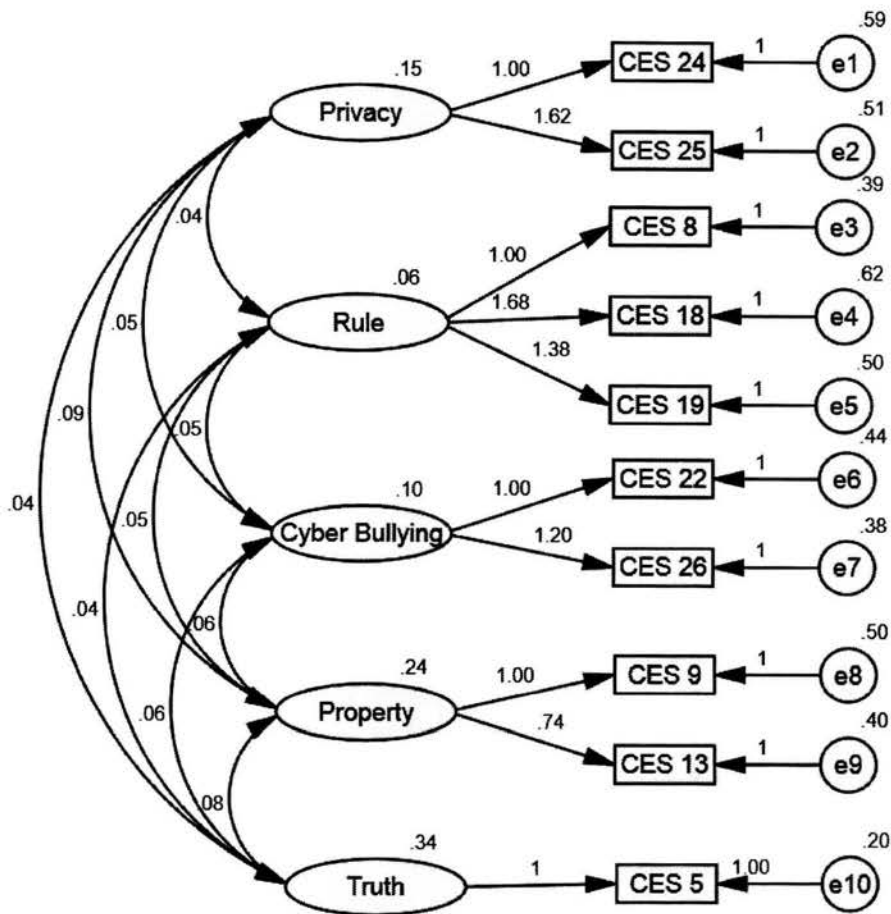


Figure 11. Confirmatory factor analysis model of the final version of the CES with unstandardized estimates.

Table 19

Correlation Matrix for CES Item Pool

	CES 5	CES 8	CES 9	CES 13	CES 18	CES 19	CES 22	CES 24	CES 25	CES 26
CES 5	1									
CES 8	.078	1								
CES 9	.135	.088	1							
CES 13	.114	.070	.284	1						
CES 18	.055	.190	.211	-.054	1					
CES 19	.121	.107	.087	.083	.236	1				
CES 22	.088	.193	.062	.131	.065	.112	1			
CES 24	.113	.140	.106	.142	.038	.021	.139	1		
CES 25	.071	.136	.165	.168	.089	.144	.145	.299	1	
CES 26	.137	.089	.115	.114	.203	.172	.230	.031	.106	1

Three goodness-of-fit indices were used to evaluate overall goodness of fit in model: The root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). Chi-square statistics was commonly reported as another goodness-of-fit index but was widely recognized to be problematic (Brown, 2006). Namely, χ^2 was sensitive to sample size and may be invalid when distributed assumptions are violated. It could reject good models or retain bad ones. In this study, the data was observed to be non-normal and $\chi^2(26) = 39.856, p = .040$. Nevertheless, a result of bootstrap technique yielded $\chi^2(26) = 27.940, p = .070$ suggested that this model fits the data well.

The root mean square error of approximation (RMSEA) is a widely used index for evaluating model fit. The RMSEA “assesses the extent to which a model fits reasonably well in the population (as opposed to testing whether the model holds exactly in the population; cf. χ^2)” (Brown, 2006, p.83). RMSEA values less than .05 suggest good model fit. In this study, the RMSEA = .041.

Unlike RMSEA, which is an absolute fit index, the comparative fit index (CFI) is a comparative or incremental fit index. It “evaluates the fit of user-specified solution in relation to a more restricted, nested baseline model” (Brown, 2006, p. 84). The CFI has a range of 0 to 1 with the value closer to 0 implying good model fit. The CFI value of the initial model was .922. The Tucker-Lewis index (TLI) is another widely used comparative fit index. Its value can fall outside the range of 0 to 1 but it is interpreted in a fashion similar to the CFI. The TLI values from the initial model were .865 or .9 when in one decimal format. According to Brown, the CFI and TLI values below .9 should lead to

a strong suspect in the solution. The CFI and TLI values in this study were above the cutoff and indicated a good model fit.

While the RMSEA, CFI, and TLI provided initial support for the acceptability of the model, residuals were used to identify focal areas of misfit in the CFA solution. The residuals provide specific information about how well each variance and covariance was reproduced by the model's parameter estimates. With a cutoff value between ± 2.58 , no item was further removed from the item pool. As a result, the standardized residuals ranged from -2.535 to 1.957. This outcome leads to a conclusion for the absence of localized areas of ill fit in the solution. $\chi^2(26) = 27.940, p = .070, RMSEA = .041, (90\% CI, .009 \text{ to } .065), CFI = .922, TLI = .865.$

Statistical results from an inspection of the direction, significance, and magnitude of the parameter estimates are in accord with prediction. Specifically, the examined parameter estimates are the factor loadings; factor variances and covariance; and indicator errors. As evidence in Figure 10, all indicators are positively related to their corresponding latent constructs. As such, the direction of the parameter estimates is in accord with prediction.

The results provided in Table 20 indicate that every freely estimate parameter is statistically significant. Stated another way, these results can be interpreted to mean that all indicators load significantly on their corresponding latent factor. In addition, to demonstrate that the resulting parameter estimates are of magnitude that is substantively meaningful, the researcher examined the size of the factor loadings, as displayed in Figure 10. Brown (2006) argued that a cutoff value of .30 or above was commonly used

to operationally define a salient factor in applied factor analytic research. All the factor loadings in the CFA model are .3 or above. Therefore, all indicators can be regarded as reasonable measures of their latent constructs.

Table 20

Parameter Estimates from the CFA Model

Items	Estimates	S.E.	C.R.	<i>p</i>
Privacy				
Item 24	1.000			
Item 25	1.617	0.509	3.179	0.001
Rule				
Item 8	1.000			
Item 18	1.677	0.479	3.497	≤ 0.05
Item 19	1.379	0.400	3.446	≤ 0.05
Cyber Bullying				
Item 22	1.000			
Item 26	1.197	0.337	3.554	≤ 0.05
Property				
Item 9	1.000			
Item 13	0.737	0.209	3.528	≤ 0.05
Truth				
Item 5	1.000			

Psychometric properties of the CES.

The following section reports psychometric properties of the Cyberethics Scale (CES). The analysis was based on the 10-item model that resulting from confirmatory factor analysis as described in previous section. A report on the psychometric properties of the CES includes descriptive analysis and findings on both validity and reliability of the CES.

Description of the usable subjects.

Computation of reliability and validity assessments were based on usable protocol of the final version of the CES. For a protocol to be regarded as usable, at least 6 of 10 items must be scorable. This criterion was similar to that of SRM-SF, which requires 7 out of 11 scorable responses. Of 350 subjects who participated, 107 participants were dropped. A total of 243 protocols were usable. Table 21 shows descriptive statistic of the usable subjects for psychometric properties report.

Table 21.

Descriptive Statistic of the Usable Subjects for Psychometric Properties Report

Variables	<i>n</i>	Percent
Gender		
Male	116	47.7
Female	127	52.3
Age		
18-19	2	0.8
20-29	89	36.6
30-39	74	30.5
40-49	41	16.9
50-59	23	9.5
60 or older	14	5.8
Continent of origin ^a		
Africa	1	0.4
Asia	90	36.2
Australia	2	0.8
Europe	10	4.0
North America	144	57.8
South America	2	0.8
Ethnicity		
African American	14	5.8
America Indian or Alaska Native	3	1.2
Asian	94	38.7
Native Hawaiian or Other Pacific Islander	1	0.4
White/Caucasian	131	53.9
Country		
Canada	2	0.8
India	76	31.3
Indonesia	2	0.8
Jamaica	1	0.4
New Zealand	1	0.4
Philippines	2	0.8
Romania	2	0.8
Singapore	1	0.4
Spain	1	0.4
Trinidad and Tobago	1	0.4

Variables	<i>n</i>	Percent
United Kingdom	1	0.4
United States	152	62.6
Not specified	1	0.4
English as a native language		
Yes	180	74.1
No	63	25.9
English reading skill for non-native English speakers		
Beginner	--	--
Intermediate	8	12.70
Fluent	54	85.71
Not specified	1	1.59
English writing skill for non-native English speakers		
Beginner	1	1.59
Intermediate	10	15.87
Fluent	51	80.95
Not specified	1	1.59

Note. ^a Some participants grew up in multiple continents.

Descriptive analysis.

This section presented findings from descriptive analysis of the CES. The report includes results on item variability and readability.

Item variability.

Normal distribution analyses of the score that was an average of the item ratings for each participant CES were made. Recall that the item rating is a numerical value that represents stage of moral development the justification revealed. For instance, question 1 asked “Let’s say your friend left his e-mail screen open. How important is it for people not to read other people’s e-mails without prior consent?” A moral justification that explained it is important not to read other people’s emails without prior consent as “It is necessary to maintain relationship.” was rated as 3 because it represent Stage 3, relationship aspect. Appendix K explains the scoring process in detail.

The minimum score was expected to be 1 for every response to a question yielding exclusively Stage 1 ratings. The expected maximum was 4 for every response to a question yielding exclusively Stage 4 ratings. Analysis of CES items showed that the lowest score was 1.17 and the highest score was 3.57. The range was 2.40. As such, the scores covered more than 80% of the expected range. The mean of the scores was 2.389; the standard deviation was .497; skewness = -.022, $SE = .156$; and kurtosis = -.606, $SE = .311$. Table 22 presents descriptive statistics (mean, standard deviation, skewness, and kurtosis) for items in the final version of the CES.

Table 22

Descriptive Statistics for Items in the Final Version of the CES

Items	Min	Max	Mean	SD	Skewness		Kurtosis	
					Statistic	S.E.	Statistic	S.E.
CES 5	1	4	2.55	.843	-.215	.172	-.537	.343
CES 8	1	4	2.33	.803	-.101	.169	-.728	.337
CES 9	1	4	2.04	1.011	.477	.165	-1.020	.328
CES 13	1	4	2.08	.898	.374	.169	-.694	.337
CES 18	1	4	2.67	1.145	-.249	.182	-1.413	.362
CES 19	1	4	2.48	.994	.033	.181	-1.174	.360
CES 22	1	4	2.50	.918	-.232	.176	-.920	.350
CES 24	1	4	2.58	1.032	-.417	.168	-1.389	.334
CES 25	1	4	2.22	1.143	.140	.168	-1.714	.335
CES 26	1	4	2.65	.861	-.668	.174	-.463	.346

The Global Stage in terms of an item rating showed in Table 22 can be interpreted as follows:

- 1.00 – 1.25 = Stage 1
- 1.26 – 1.49 = Transition 1(2)
- 1.50 – 1.74 = Transition 2(1)
- 1.75 – 2.25 = Stage 2
- 2.26 – 2.49 = Transition 2(3)
- 2.50 – 2.74 = Transition 3(2)
- 2.75 – 3.25 = Stage 3
- 3.26 – 3.49 = Transition 3(4)
- 3.50 – 3.74 = Transition 4(3)
- 3.75 – 4.00 = Stage 4

The point boundaries for Global Stage replicated those use for the Global Stage in the SRM-SF, which the CES followed. The mean or an average score of 2.55 for question 5 implies that, on average, responses to question 5 represent Transition 3(2).

Reading level.

Readability describes an extent to which some texts are easier to read than others due to the style of writing. Flesch-Kincaid reading grade level and Flesch reading ease test were used in readability test. Table 23 shows the readability scores for the CES as measured by MS Word and 3 online readability test tools. The results indicated that CES had an average readability of middle school grade levels.

Table 23

Readability Statistics for 10-Item CES

Tools	Readability Statistics	
	Flesch-Kincaid Reading Grade Level	Flesch Reading Ease
MS Word	5.8	73.7
online-utility.org	5.4	78.0
read-able.com	5.6	76.1
readability-score.com	5.5	76.9

Reliability

Several techniques were employed to determine the CES' level of reliability. Inter-rater reliability was assessed to explore the level of agreement between raters. Internal consistency of the CES was assessed by Cronbach's Alpha and Guttman's split half reliability. The following sections discuss the reliability tests that the study carried.

Inter-rater reliability.

To assess the level of agreement between raters, fifteen CES protocol were randomly selected from a usable subject pools. The researcher and a doctoral student from the department of psychology independently scored the protocols. The co-rater had no scoring experience but had a solid background in stage theory of moral development.

During the training process, the co-rater self-trained the SRM-SF manual and completed the exercise at the end of the book. The co-rater then practiced the SRM-SF scoring and CES scoring with three samples that were randomly selected from the useable item pool. The two raters compared their ratings and extensively discussed the scoring criteria before they independently scored the fifteen samples for the purpose of the inter-rater reliability assessment. The correlation between the raters on the fifteen protocols was $r = .731, n=15, p < .001$. This correlation indicates substantial agreement between the two raters (Viera & Garrett, 2005).

Internal consistency.

Internal consistency of an instrument refers to “how well the items that make up an instrument or one of its subscales fit together” (Pett, Lackey, & Sullivan, 2003, p.175). This study determined internal consistency of the CES using Cronbach’s Alpha and Guttman split-half reliability.

Computational procedure for calculating Cronbach’s alpha was based on questionnaires with at least 6 scorable items. Missing item scores and/or unscorable scores were replaced with the mean score of that item because the calculation assumes complete protocols. In this study, Cronbach’s Alpha was .603 and standardized item alpha was .604. DeVellis (DeVellis, 2003) pointed out that an acceptable rate for the alpha is .60. As such, the Cronbach’s Alpha of the CES was in an acceptable range. In addition, the resulting alpha is comparable to the Cronbach’s Alpha from the SRM-SF’ adult age samples which was .576 ($n = 48$); standardized item alpha was .601.

To compute Guttman’s split half reliability, the researcher obtained a random order of items to be selected for the analysis by using a random number generator in SPSS. The 10-item CES was divided in half. The first half consisted of item 8, 13, 26, 19, and 9. The other half consisted of item 22, 18, 5, 25, and 24. The split-half correlation coefficient for this sample was $r = .620$ ($n = 243$). The mean score of the first part was 11.569 and the second part was 12.503.

Validity

This section presents results from two aspects of validity assessments that this study assessed: construct validity and concurrent validity. Relationships between CES scores and theoretically relevant variables were explored for a purpose of construct validation. Those variables were social desirability scores, age, gender, and ethnicity. In addition, CES' performance was compared with a well-established measure of moral reasoning, the Sociomoral Reflection Measure-Short Form (SRM-SF) to determine a level of concurrent validity.

Construct validity.

Construct validity “involves accumulating evidence that a test is based on sound psychological theory” (McIntire & Miller, 2007, p.228). To demonstrate construct validity, evidences that the CES scores relate to observable behaviors in the ways predicted by moral development theory must be established. As such, this section reports findings on the relationships between the CES scores and theoretically relevant variables: social desirability score, age, gender, and ethnicity.

According to Basinger (1990), a tendency to respond in a socially desirable manner is theoretically distinct from moral maturity. In this study, a correlation between the CES scores and social desirability scores was computed as an investigator of the construct validity. Zero-order product moment correlation was found to be $r = .013$, $p = .842$, $n = 243$. Thus the correlation between the two scores did not appear to be significant.

A relationship between age and the CES Scores was investigated because moral development is an age-related progression. In theory, there should be a positive correlation between the two variables. However, the relationship between age and the CES scores in study was expected to be not significant because all participants were adults. Zero-order product-moment correlation between age and the CES scores revealed no significant relationship ($r = .003, p = .967, n = 243$).

Correlations between CES scores and gender as well as ethnicity were also included as moral development is universalistic. The CES scores should not be related to participants' gender and ethnicity. T-test was used to compare the mean scores of both groups. The mean score of the male group was 2.399. The mean score of female participants was 2.415. The difference in means was not significant, with $t(241) = 3.06, p = .760$. One-way ANOVA was computed to compare the mean scores of people in different ethnicity. The result also indicated no significant difference in the scores ($p = .264$).

Concurrent validation.

Concurrent validity examines empirical association between test scores and scores on the relevant criterion variables (Furr & Bacharach, 2008). To determine concurrent validation of the CES, its scores were compared with the Sociomoral Reflection Measure-Short Form (SRM-SF) scores. Out of 350 participants, 209 participants provided scorable protocols for both CES and SRM-SF. Namely, the protocols had at least six scorable CES responses and at least seven scorable SRM-SF responses. Zero-

order product moment correlation was computed between the two scores. The correlation coefficient was $r = .321$, $p < .001$, $n = 209$. As such, the correlation between the CES scores and the SRM-SF scores was significantly positive.

Final version of the CES.

To make items in the same group next to each other, items were rearranged in the final version of the CES. Table 24 presents the CES items in a new order.

Table 24

Final Version of the CES Item Pool

Online Contexts	CES Questions
Truth	1) Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?
Property	2) How important is it for people not to help a friend by pirating a software?
Property	3) How important is it for people not to share pirated songs online?
Rule	4) How important is it for people to adhere to laws when they are online?
Rule	5) Think about when a government blocks certain websites. How important is it for people not to go around the block?
Rule	6) Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?
Cyber-bullying	7) How important is it for a webmaster to ban a bully?
Cyber-bullying	8) How important is it for people to be polite and kind online?
Privacy	9) Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?
Privacy	10) How important is it for people not to hack someone else's e-mail?

Conclusion

This chapter reports findings on psychometrics properties of the CES and the test administrations. Statistically, the reliability and validity of the resulting 10-item CES was acceptable. The reliability test of the CES was comparable to the SRM-SF on adult age group. Cronbach's Alpha for the CES was .603 ($n = 243$); standardized item alpha was .604. The SRM-SF Cronbach's Alpha for their adult age samples which was .576 ($n = 48$); standardized item alpha was .601. The scale appears to be valid in terms of correlations with SRM-SF, age, gender, ethnicity, and social desirability. The readability testing indicated that the measure is appropriate to participants with middle school readability level. On average, participants' completion time on the CES was 1 minute and 6 second per question. The inter-rater reliability between two raters who went through some self-training was in substantial level of agreement ($r = .731, n = 15, p < .001$). A discussion of the findings and recommendations for future research are presented in chapter 5.

CHAPTER FIVE: DISCUSSION

This study developed an instrument that assesses cyberethical reasoning, the Cyberethics Scale or CES. The CES is a Likert scale in combination with short answer questions. Participants were asked to rate the importance of the given cyberethical issue and provide their moral justification. As a result, the scale reported which stage of moral development each participant was in as an output. The CES items were designed to cover different content areas set forth by Kohlberg and cyberethical literatures: (a) Privacy; (b) rule and regulation; (c) cyber-bullying; (d) property; and (e) truth, trustworthiness, and identity. The psychometric properties of the CES appeared to be valid and reliable. This chapter discusses the findings as reported in chapter 4, describes limitations of the study, and provides recommendations for future research.

Summary Discussion of Findings

The goal of this study was to develop a valid and reliable instrument that measures online moral reasoning. The study accomplished the goal through a process of systematic and rigorous instrument development and validation. Thorough research on ethics, cyberethics, moral development, moral reasoning, and instruments that measure relevant constructs; and data analysis from expert reviews and a pilot study led to development of an item pool with 26 questions. The data analysis data obtained from 350 participants further refined the item pool and resulted in the 10-item Cyberethics Scale.

Discussion of findings was organized into three parts in accordance with the three research questions proposed for this study. Specifically, the research questions were

1. What is the reliability and validity of the Cyberethics Scale (CES)?
2. How does the CES perform in comparing the CES' reliability and validity with other instruments that measure similar construct?
3. How does the CES compare with the readability, test administrations, and scoring processes of other instruments that measure similar constructs?

Discussion of findings as related to research question 1

The first research question addressed the validity and reliability of the CES. Namely, the question asked “What is the reliability and validity of the Cyberethics Scale (CES)?”

In general, the CES appeared to be reliable and valid. The reliability was assessed in terms of internal consistency and inter-rater reliability. The data analysis was conducted with 350 participants. A total of 107 protocols were removed from the analysis because more than four of the CES responses were unscorable. As a result, 243 responses were included in an examination of the scale's psychometric properties. Appendix K provides full details of the criteria that the raters used to mark a response as unscorable. Cronbach's Alpha and Guttman split-half reliability were used to assess internal consistency of the CES. In addition, the CES appears to be valid in terms of correlations with SRM-SF, Social Desirability Score, age, and ethnicity.

The results, as reported in chapter 4, indicated an acceptable value of Cronbach's Alpha which was .603; standardized item alpha was .604. This value is comparable to the Cronbach's Alpha for an adult age samples of the SRM-SF, $\alpha = .5762$, $n = 48$; standardized item alpha was .6012. When the SRM-SF author measured the correlation coefficient samples among various age groups ranging from middle graders to adult, the value appeared to be .9177 ($n = 374$) (Basinger, 1990).

Tavakol and Dennick (2011) argued that alpha cannot be simply interpreted as an index for a test's internal consistency. This is because alpha is affected not only by internal consistency but also test length and dimensionality. In addition, alpha is grounded in the 'tau equivalent model', which assumes that each test item measures the same latent trait on the same scale. If multiple factors underlie the items on a scale, as revealed by Factor Analysis, this assumption is violated and the alpha would underestimate the reliability of the test. More importantly, a high value of alpha ($> .90$) may suggest item redundancies. Considering that the CES consists of 10 items and has five underlying dimensions, Cronbach's Alpha may underestimate the reliability of the CES.

To determine the validity of the scale, correlation between the CES scores and the social desirability scores was investigated. The result indicated no significant correlation between the two scores. This result supports a hypothesis that moral maturity is a distinct construct from social desirable manner ($r = .013$, $p = .842$, $n = 243$). In addition, the CES scores did not correlate with ethnicity ($p = .264$). This lack of significant correlation supports a theory that the moral reasoning is universalistic. Lastly, the correlations

between the CES scores and age did not approach significant. This finding supported a hypothesis that people in the same age group—an adult age group in this case—would be in similar stage of moral development.

Discussion of findings as related to research question 2

The second research question focuses on a comparison of psychometric properties between CES and other instruments that measure similar constructs. To address this question, the psychometric properties of the CES were compared with the Computer and Internet Activity Questionnaire (CIAQ) which was developed and reported by Oliver (2002). CIAQ is a Likert scale in combination with short answer questions. Oliver took the format, design, and scoring mechanism from the SRM-SF. The CIAQ questions involve contexts of adolescents' computer use: property, access, boundaries and enforcement of regulation, anonymity, and distance from harm. Responses to nine CIAQ items were scored for moral judgment level by using the same coding system for the SRM-SF. The data for CIAQ development was collected from 7th and 8th grade students from three middle schools in the US. Table 25 compares psychometric properties of the CES and the CIAQ.

In general, the internal consistency as measured by split-half reliability and standardized alpha showed that the CES outperformed the CIAQ. Both scales have significant positive correlation with SRM-SF. The inter-rater reliability of the CIAQ ($r = .777, p < .01$) is slightly higher than the CES ($r = .731, p < .01$). However, CIAQ co-rater had experiences with the SRM-SF scoring whereas the CES co-rater did not have prior

experience with the SRM-SF. The co-rater's prior scoring experience may contribute to the result of this reliability.

Table 25

Comparing Psychometric Properties of the CES and the CIAQ

Psychometric Properties	CIAQ	CES
Split-half reliability	$r = 0.43, n = 31$ <ul style="list-style-type: none"> • The mean for first part = 1.97 • The mean for the second part = 2.09 • Standardized alpha = .5238 ($n = 31$) 	$r = .622, n = 243$ <ul style="list-style-type: none"> • The mean for first part = 11.569 • The mean for the second part = 12.503 • Standardized alpha = .604 ($n = 243$)
Standardized alpha	.524	.604
Inter-rater reliability	$r = .777 (p < .01, n = 10)$	$r = .731 (p < .001, n = 15)$
Correlation with SRM-SF (Pearson product moment correlation)	$r = .469 (p < .01)$	$r = .321 (p < .01)$
Reading level Flesch-Kincaid reading grade level	9.2	5.6

Discussion of findings as related to research question 3

Research question 3 addressed the readability, test administrations, and scoring processes of the CES compared with other instruments that measure similar constructs. The question asked “How does the CES compare with the readability, test administrations, and scoring processes of other instruments that measure similar constructs?” The Flesh-Kincaid reading grade level showed that the CES has lower grade school level than the CIAQ. Namely, the statistics suggested that the CES questions were written at a fifth grade level of reading difficulty. The CIAQ, on the other hand, were written at a ninth grade level of reading difficulty. As such, the readability score would suggest that the CES may be used with middle school students.

In terms of test administration, the author observed that all relevant instruments are in paper and pencil format. The SRM-SF, which contains 11 items and has the same format as the CES requires 15 to 20 minutes of administration time. Out of 350 participants in the main study, an average completion time for the 26-item CES was 20.737 minutes. This resulted in an average of 47.8 seconds per question. Mathematically, the administration time for 10-item CES is approximately 8 minutes which is less than half of the SRM-SF administration time. Nevertheless, the CES administration time was based on adult samples. If the CES were to be used with younger age group, an average administration time may slightly increase.

The scoring process of the CES was comparable to the SRM-SF and the CIAQ. The scoring of the three instruments can be self-trained. On average, a CES rater

completed a scoring of 10 items in 15-20 minutes. The scoring was completed in less time once the raters were familiar with the scoring process and criteria.

Implications

The CES has several implications both in theoretical aspects and practical aspects. For theoretical aspects, the CES can be used as a tool to further investigate relationships between stage of moral development as indicated by online moral reasoning and other theoretical constructs. This study found that, on average, the participants were in Transition 2(3) if their moral justifications concern online contexts. However, an average stage of moral development of the participants was on Stage 3 when their moral justifications concern offline ethical issues as measured by the SRM-SF. This difference in the stage of moral development suggests that future research should pay attention to the contexts where moral justifications were made. That is, the context may affect theoretical conclusions that one may make.

In terms of practical implications, educators can also use the CES to evaluate students' stage of online moral reasoning and design appropriate program to foster students' online moral development. Similar implications are also possible for other applications that need to identify the stage of moral development in an online context and use the result to further develop their programs.

Limitations

The development of the CES has five major limitations. First, the samples of this study represented an adult age group. Namely, all participants were 18 years or older. Considering that moral development is an age trend development, the study did not include any responses from other age groups. Nevertheless, this study found that the CES scores support an assumption that participants in the same group would be in the same stage of moral maturity (mean CES score = 2.941, $SD = .362$).

The second limitation is in regard to raters' scoring experiences with the SRM-SF. In this study, both raters familiarized themselves with the SRM-SF scoring manual before they scored the CES. This practice might positively impact how they rated the CES responses comparing with other raters who have no prior experience with the SRM-SF. Due to time and financial limitations, this study could not afford to have more co-raters to address this concern.

Another limitation is due to the scoring process that requires high cognitive load from the CES raters. Arguably, the scoring manual extensively provides the stage justification, a rater's ability to recognize that the justification matches with a discussion in the scoring manual is mandatory. A failure to do so would result in wrongly marking the response as unscorable. As such, the scoring process is still subject to human error and subjectivity.

A comparison of psychometric properties between CES and CIAQ based on two independent samples is the fourth limitation of this study. The psychometric properties of the CES were obtained from adult subjects who participated in this study. The

psychometric properties of the CIAQ were results reported in another study (Oliver, 2002) with adolescent participants. It is possible that the discrepancy between the outcomes were due to the differences in the samples, test administration, and scoring.

Lastly, the online contexts that appear in the CES questions would need to be updated over time. For instance, at the time of development, twitter is a popular way of communication. This might not be the case in decades after the instrument was developed, if not sooner, due to the rapid change in cyber technology. By that time, it is possible that twitter has evolved into another technology. Future revisions will likely involve an adjustment in examples of technology mentioned in the questions but not the underlying dimensions of the scale. Stated another way, the underlying aspects of the scale should contain (a) Privacy; (b) rule and regulation; (c) cyber-bullying; (d) property; and (e) truth, trustworthiness, and identity.

Recommendations for future research

Based on the findings and experiences with the CES development, the researcher suggested five recommendations for future research. First, future research can administer the CES with various age groups and special populations such as delinquent vs non-delinquent participants. Various samples would further evaluate the reliability and validity of the scale.

Second, future research can investigate the terms and contexts involving online technology that becomes obsolete over time or including new ones. As Moor (1985) pointed out, cyber technology can perform a variety of functions that makes computer

technology “*logically malleable*” (Moor, 1985). The new capabilities this technology offers raise questions of whether one ought to engage in certain practices. In many cases, existing laws, policies, and ethical principles cannot provide the answers. Moor called the situation wherein an attempt to find out how computer technology should be used a *policy vacuum*. In this case, it is possible that new ethical scenarios will arise and researchers will need to update examples in the survey accordingly.

The third suggestion is future research could include a deeper examination of removed items and final scale. The current CES model emerged from adult sample statistics. Future research could examine if other possible models are more meaningful and lead to superior psychometric properties of the scale especially when data are obtained from various age groups and backgrounds.

Another recommendation is to rephrase questions that are unclear to some participants or are in a form that is uncommon to the native speakers. For instance, a question states “How important is it for people not to help a friend by pirating a software?” Though some participants commented that they did not truly understand some questions, the study found that the majority of the participants could answer the questions as intended. As such, the study did not discard those questions from the analysis. However, to improve the survey clarity, future research can rephrase the questions.

Lastly, with an advancement of artificial intelligence technology, future research could investigate on how those technologies can assist the scoring process. For instance, future studies can investigate on how the technology can be used to suggest relevant Stage of moral development that a given response represents or develop a computer-

based scoring training. Such development could increase the efficiency of the scoring process.

Conclusion

The CES appears to be a practical, valid, and reliable instrument. The scale can be group-administered, completed in 10 minutes, and scored by a self-trained rater. Though the CES was tested with an adult samples, the readability testing scores suggested that future research may use the instrument with younger participants and/or those with at least middle school readability level. The researcher recommends that future studies investigate the integration of computer technology in the scoring to further improve the speed and efficiency of the scoring.

APPENDIXES

Appendix A: Social Reflection Measure-Short Form Questionnaire (SRM-SF)

John C. Gibbs, Karen S. Basinger, Dick Fuller

Social Reflection Questionnaire¹

Name: _____ Date: _____
Birthdate: _____ Sex (circle one) Male Female

Instructions

In this questionnaire, we want to find out about the things you think are important for people to do, and especially why you think these things (like keeping a promise) are important. Please try to help us understand (your thinking by **WRITING AS MUCH AS YOU CAN TO EXPLAIN—EVEN IF YOU HAVE TO WRITE OUT YOUR EXPLANATIONS MORE THAN ONCE.** Don't just write "same as before." If you can explain better or use different words to show what you mean, that helps us even more. Please answer all the questions, especially the "why" questions. If you need to, feel free to use the space in the margins to finish your answer.

¹ From *Moral Maturity: Measuring the development of sociomoral reflection*, by Basinger, K.; Fuller, D.; and Gibbs, J., 1992, Hillsdale, NJ: Lawrence Erlbaum Associates. Copyright 1992 by Lawrence Erlbaum Associates. Reprinted with permission.

SRM-SF

(code #: _____)

1. Think about when you've made a promise to a friend of yours. How important is it for people to keep promises, if they can, to friends?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

2. What about keeping a promise to anyone? How important is it for people to keep promises, if they can, even to someone they hardly know?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

3. How about keeping promise to a child? How important is it for parents to keep promises, if they can, to their children?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

4. In general, how important is it for people to tell the truth?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

5. Think about when you've helped your mother or father. How important is it for children to help their parents?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

6. Let's say a friend of yours needs help and may even die, you're the only person who can save him or her. How important is it for a person (without losing his or her own life) to save the life of a friend?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

7. What about saving the life of anyone? How important is it for a person (without losing his or her own life) to save the life of a stranger?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

8. How important is it for a person to live even if that person doesn't want to?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

9. How important is it for people not to take things that belong to other people?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

10. How important is it for people to obey the law?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

11. How important is it for judges to send people who break the law to jail?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

Appendix B: SRM-SF Rating Form²

Code #:		SRM-SF:	
Rater:		Global Stage:	
Date:		Moral Type B:	Fundamental valuing _____ Balancing _____ Conscience _____
		Number of Moral Type B components	

Question	Highest Development Level	Aspect Citations	Comments (e.g. Moral Type B components, marginal score, Rules applied)
1. Contract: Friends			
2. Contract: Anyone			
3. Contract: Children			
4. Truth			
5. Affiliation: Parents			
6. Affiliation: Friends			
7. Life: Stranger			
8. Life: Self			
9. Property			
10. Law			
11. Legal Justice			

² From *Moral Maturity: Measuring the development of sociomoral reflection*, by Basinger, K.; Fuller, D.; and Gibbs, J., 1992, Hillsdale, NJ: Lawrence Erlbaum Associates. Copyright 1992 by Lawrence Erlbaum Associates. Reprinted with permission.

Appendix C: Computer and Internet Activity Questionnaire (CIAQ)

Computer and Internet Activity Questionnaire³

Instructions

In this questionnaire, we want to find out about the things you think are important for people to do when they are working or playing with the computer and the Internet, and especially why you think these things are important. As you are looking at these activities, decide how important the activity is and then, answer why you think so in your own words. **Remember, your answers are anonymous, so please answer each question as you really believe.**

³ From *Early Adolescents' Moral Reasoning about Computer and Internet Rules* (Doctoral Dissertation), by Oliver, J. M., 2002, Arizona State University: ProQuest Dissertations and Theses Database, Retrieved from <http://search.proquest.com/docview/304804769?accountid=9676>. Copyright 2002 by J. M. Oliver. Reprinted with permission.

1. Graphics and text on the Internet are usually protected by copyright rules, a promise to ask permission before you download or save. How important is it to have the permission of the designer of a web site when copying graphics (icons, wallpaper, etc.) or information from a web site?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

2. How important is it to have the permission of software designers when giving software to someone else, such as a friend?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

3. When people are trading messages with someone they do not know over email or in a chat room, how important is it to be truthful?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

4. Often, people argue online. How important is it to be nice or remain helpful (no swearing, being mean, etc.) when arguing online with a friend?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

5. Some users show their computer skill by playing tricks, like writing or sending a virus that can damage a computer program. How important is it to respect another person's computer system?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

6. Users also show their computer skill by copying a file from someone else's computer without that person's knowledge. How important is it to leave files alone that someone is protecting, if the file is only copied?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

7. Sometimes users tell other users how to gain access to a protected file. How important is it to not tell anyone about security holes in someone else's computer system?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

8. Teenagers have access to web sites that many adults do not approve of, such as sites with sex and nudity or sites with potentially dangerous information, like bomb making. How important is it to stay away from those sites?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

9. How about viewing web sites that your parents don't approve of? How important is it to stay away from those sites?

Circle one: Very important Important Not important

WHY IS THAT VERY IMPORTANT/IMPORTANT/NOT IMPORTANT
(WHICHEVER YOU CIRCLED)?

Appendix D: Computer and Internet Activity Questionnaire (CIAQ) Rating Form⁴

Code #: _____ CIAQ: _____
 Global Stage: _____
 Rater: _____ Fundamental
 Moral Type B: valuing _____
 Date: _____ Balancing _____
 Conscience _____
 Number of Moral Type B
 components _____

Question	Highest Development Level	Aspect Citations	Comments (e.g. Moral Type B components, marginal score, Rules applied)
1. Contract: Anyone			
2. Contract: Anyone			
3. Truth			
4. Affiliation			
5. Property			
6. Property			
7. Property			
8. Legal Justice			
9. Affiliation: Parents			

⁴ From *Early Adolescents' Moral Reasoning about Computer and Internet Rules* (Doctoral Dissertation), by Oliver, J. M., 2002, Arizona State University: ProQuest Dissertations and Theses Database, Retrieved from <http://search.proquest.com/docview/304804769?accountid=9676>. Copyright 2002 by J. M. Oliver. Reprinted with permission.

Appendix E: Expert Review Survey

Cyberethics Scale's Expert Review Survey

Thank you very much in advance for taking the time to complete this survey and for sharing your thoughts. This expert review survey consists of 2 parts. In part 1, you will rate and comment on each item pool's clarity, conciseness, and relevance to cyberethics. The second part asks for your comments on the CES and the scoring manual in general. You may provide feedback on the instructions, additional item(s) or dimension(s) that should be added into the item pool, and the scoring process.

Additional information about the CES

- The study will compute a correlation between the CES scores and the Sociomoral Reflection Measure—Short Form (SRM-SF) scores to evaluate the validity of the CES. For your convenience, the rating form includes SRM-SF questions in the corresponding themes where CES's dimensions overlap with the SRM-SF's. Specifically, the overlap dimensions are *contract, truth and trustworthiness; affiliation; property; regulation; legal justice; and life*.
- Following is the instruction for the CES participants.

Instructions

In this questionnaire, we want to find out about things you think are important for people to do when they are on the Internet. We are particularly interested in the reasons why you think such things are important. Please try to help us understand your thinking by

Writing as much as you can to explain—even if you have to write out your explanations more than once;

Do not simply write “same as before.” If you can explain better or use different words to show what you mean, it helps us even more;

Answering all the questions, especially the “why” questions. If you need to, feel free to use the space in the margins to finish writing your answers.

As you are looking at these activities, decide how important the activity is and then answer why you think so in your own words. **Remember, your answers are anonymous, so please answer each question to match your true belief.**

- All CES questions ask the participant to rate the importance of cyberethical issues in question and request the reasons why they think the issue is not important/important/very important. The following figure illustrates an example of the questionnaire format:

1. How important is it for people to be truthful online?

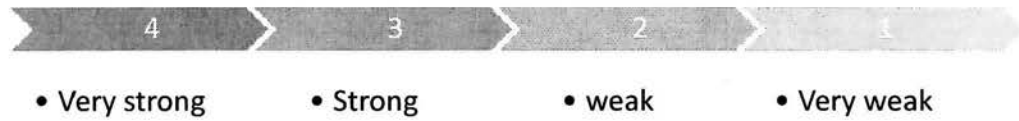
Select one: Very important Important Not important

Why is that very important/important/not important (whichever you selected)?

Part 1

Please read each item carefully and then rate them with respect to the construct of cyberethics using the scale below.

- Rate the clarity of the item.
- Rate the conciseness of the item.
- Rate the relevance of the item with respect to cyberethics.
- Provide any additional comments regarding the item.



Reviewer Name:

No.	Dimensions	Questions	Clarity	Conciseness	Relevance	Comment
<i>Scale Rating: 1 = Very Weak, 2 = Weak, 3 = Strong, 4 = Very Strong</i>						
1.	Contract: Friends	Let's say you promise your friend to keep a secret. How important is it for people to keep their word by not telling the secret online?				
2.	Contract: Anyone	At times, people e-mail or chat with someone they do not know in person. If people make promises to such stranger, how important is it for people to keep their word?				
3.	Contract: Anyone	Think about when you sign an agreement on a website. How important is it for a person to keep his or her word online?				
4.	Contract: Children	Let's say a website will give discounts on games if children get their friends to join. How important is it for the website to keep such promise?				
5.	Truth	Think about when people participate in an online message board. How important is it for people to tell the truth when online?				
6.	Truth	How important is it for people not to pretend to be someone else when online?				
7.	Truth	Some people make-up their online profiles. How important is it for people not to fool others with their unreal online profiles?				

No.	Dimensions	Questions	Clarity	Conciseness	Relevance	Comment
<i>Scale Rating: 1 = Very Weak, 2 = Weak, 3 = Strong, 4 = Very Strong</i>						
8.	Truth	Think about when you create your user profile on a safe website. How important is it for people to tell the truth on such website?				
9.	Affiliation: Parent	Think about when parents prevent their children to do certain things online. How important is it for minors not to do such things?				
10.	Affiliation: Parent	Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?				
11.	Affiliation: Friends	Think about when a friend asks for some kind of help from you online. How important is it for people (without risking their own lives) to help a friend online?				
12.	Affiliation: Friends	Think about an e-mail that requests your donation for a friend's medical bills. How important is it for people to help this friend?				
13.	Affiliation: Friends	Often people have an argument with friends online. How important is it for people to be nice and helpful when arguing with friends online?				
14.	Property: Intellectual property	How important is it for people not to share pirated songs online?				
15.	Property: Hacking	How important is it for people not to send out a computer virus?				
16.	Property: Hacking	How important is it for people not to hack someone else's e-mail?				

No.	Dimensions	Questions	Clarity	Conciseness	Relevance	Comment
<i>Scale Rating: 1= Very Weak, 2= Weak, 3 = Strong, 4 = Very Strong</i>						
17.	Property: Hacking	Many people use Wi-Fi with no prior consent. How important is it for people to use the Internet only through an allowed channel?				
18.	Property: Plagiarism	Many people copy pictures from the Internet for their work. How important is it for people to cite the online sources?				
19.	Regulation	How important is it for people to adhere to laws when they are online?				
20.	Regulation	Think about when a government blocks certain websites. How important is it for people not to go around the block?				
21.	Legal justice	How important is it for an IT staff to cut a hacker's online access?				
22.	Legal justice	How important is it for judges to fine people who break the law online?				
23.	Legal justice	How important is it for a webmaster to ban a bully?				
24.	Life	Some animal rescue groups use online ads to raise funds. How important is it for people to support this cause to rescue the animals?				
25.	Life	Some hunger relief groups ask for donation online. How important is it for people to support this cause to save the lives of others?				
26.	Life	Let's say a patient with chronic pain posts a suicide plan to end his pain on his blog. How important is it for people to stay alive if they do not want to?				

No.	Dimensions	Questions	Clarity	Conciseness	Relevance	Comment
<i>Scale Rating: 1= Very Weak, 2= Weak, 3 = Strong, 4 = Very Strong</i>						
27.	Privacy	Let's say you share your thoughts on a website. How important is it for people to be able to hide their identity online?				
28.	Privacy	Many people share their private photos with friends online. How important is it for a person not to make a friend's private photos public?				
29.	Privacy	Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?				
30.	Courtesy	How important is it for people to be on-topic on an online message board?				
31.	Courtesy	How important is it for people to be polite and kind online?				
32.	Courtesy	Let's say a website asks the users to hold a seat only when they can join an event. How important is it for people to care for others when online?				

Part 2

Please provide your comment/suggestion regarding the scale in general.

No.	Questions	Agree / Disagree	Comment
<i>A = Agree, D = Disagree</i>			
33.	The CES instructions are clear.		
34.	Questions about the participant's demographic information are adequate. (These questions are included at the end of this survey).		
35.	CES covers all major issues in cyberethics.		
36.	The item pool is adequate.		
37.	The CES' context is appropriate to undergraduate students in the US.		
38.	Undergraduate students in the US have sufficient knowledge/ability to answer the CES questions.		
39.	The CES requires reasonable cost/burden for the college students to respond.		
40.	The scoring manual is clear.		
41.	Additional comments/suggestions.	N/A	

******* Thank You *******

Followings are the questions in the CES' demographic information section:

Demographic Information

Please answer the following questions about yourself. Your responses will help us better understand the survey result.

1. Please choose the age range in which you best fit:

- Under 16
- 16-18
- 19-23
- 24-28
- Over 28

2. Please choose your gender:

- Female
- Male

3. Which continent(s) did you grow up in? (Select all that apply)

- North America
- Europe
- Asia
- Australasia
- Africa
- South America

4. What is your ethnic background?

- African American
- American Indian or Native American
- Asian or Pacific Islander
- Caucasian, Non-Hispanic
- Hispanic or Latino

- Middle Eastern
- Bi/Multiracial (list) _____
- Other _____

5. Is English your native language?

- Yes
- b) No

6. If English is not your native language, please rate your English-reading skill.

- Beginner
- b) Intermediate
- c) Fluent

7. If English is not your native language, please rate your English-writing skill.

- Beginner
- b) Intermediate
- c) Fluent

Appendix F: Consent Language

Consent Language for Pilot Study

Posted on the first page of the online survey

Dear Participant,

Thank you very much for your interest in participating in this research study. Before you begin the online survey, please take a moment to read and acknowledge your understanding of the following informed consent:

This research is a part of a doctoral dissertation study at Boston University School of Education. The purpose of this research is to design and develop an online questionnaire that assesses moral development, called the Cyberethics Scale or CES. The instrument assesses moral development based on moral reasoning that people apply when facing online ethical dilemmas.

You must be 18 or older to participate in this study. During the online participation, you will be

- answering demographic questions;
- responding to the online questionnaire: Rate the importance of the ethical issues and explain why in a short answer format;
- completing a social desirability questionnaire.

An estimated time to take part in this research is 60 minutes. Your participation will qualify you for \$1 payment. By participating in this research study, you will help educators and researchers in the field of cyberethics obtain a valid and reliable instrument that identifies the current stage of individuals' online moral development.

The participation in this online questionnaire is entirely voluntary, and has no risk. Should you choose to participate, you can withdraw at any time without consequences of any kind. No identifiable information will be obtained in any way.

Your responses will be kept confidential. Only the principle investigator, her faculty advisor (Dr. David Whittier), and two co-raters will have access to the raw data. The results of this research study will be published as a part of Ms. Eisara Supavai's doctoral dissertation. At some future date, some or all of the study may be incorporated into additional scholarly publications or conference presentations. The copyright in any such publication will belong to Ms. Eisara Supavai, Boston University, or any subsequent publisher of materials based on this online survey.

Should you have any questions or concerns regarding this research, please do not hesitate to contact the persons below:

Eisara Supavai
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Two Silber Way
Boston, MA 02215
Tel. 857-293-0999
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Two Silber Way
Boston, MA 02215
Tel. 617-353-3181
whittier@bu.edu

To obtain further information about your rights as a research participant, please contact the BU CRC IRB Office at irb@bu.edu or 617-358-6115.

I am looking forward to your participation in this important study project.

Sincerely,

Eisara Supavai
Doctoral Candidate in Educational & Technology Program
Boston University School of Education

By clicking the Agree button, you acknowledge your understanding of the above consent document and are willing to continue to the study.

- Agree
- Disagree

Consent Language for Main Study
Posted on the first page of the online survey

Dear Participant,

Thank you very much for your interest in participating in this research study. Before you begin the online survey, please take a moment to read and acknowledge your understanding of the following informed consent:

This research is a part of a doctoral dissertation study at Boston University School of Education. The purpose of this research is to design and develop an online questionnaire that assesses moral development, called the Cyberethics Scale or CES. The instrument assesses moral development based on moral reasoning that people apply when facing online ethical dilemmas.

You must be 18 or older and had never completed a related HIT in the past to participate in this study. You may check whether you had completed a related HIT by visiting https://bostonu.qualtrics.com/SE/?SID=SV_doFVbtJlofUfmWp. During the online participation, you will be

- answering demographic questions;
- responding to the online questionnaire: Rate the importance of the ethical issues and explain why in a short answer format;
- completing a social desirability questionnaire.

An estimated time to take part in this research is 60 minutes. Your participation will qualify you for \$1 payment. By participating in this research study, you will help educators and researchers in the field of cyberethics obtain a valid and reliable instrument that identifies the current stage of individuals' online moral development.

The participation in this online questionnaire is entirely voluntary, and has no risk. Should you choose to participate, you can withdraw at any time without consequences of any kind. No identifiable information will be obtained in any way.

Your responses will be kept confidential. Only the principle investigator, her faculty advisor (Dr. David Whittier), and two co-raters will have access to the raw data. The results of this research study will be published as a part of Ms. Eisara Supavai's doctoral dissertation. At some future date, some or all of the study may be incorporated into additional scholarly publications or conference presentations. The copyright in any such publication will belong to Ms. Eisara Supavai, Boston University, or any subsequent publisher of materials based on this online survey.

Should you have any questions or concerns regarding this research, please do not hesitate to contact the persons below:

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To obtain further information about your rights as a research participant, please contact the BU CRC IRB Office at irb@bu.edu or 617-358-6115.

I am looking forward to your participation in this important study project.

Sincerely,

Eisara Supavai
Doctoral Candidate in Educational & Technology Program
Boston University School of Education

Appendix G: Cyberethics Scale for Pilot Study

Demographic Questions

1. **Which category below includes your age?**
 - 17 or younger
 - 18-20
 - 21-29
 - 30-39
 - 40-49
 - 50-59
 - 60 or older

2. **What is your gender?**
 - Female
 - Male

3. **Which continent(s) did you grow up in? (Select all that apply)**
 - Africa
 - Antarctica
 - Asia
 - Australia
 - Europe
 - North America
 - South America

4. **What is your ethnic background?**
 - African American
 - American Indian or Alaska Native
 - Asian
 - Native Hawaiian or Other Pacific Islander
 - White/Caucasian

5. **Is English your native language?**
 - Yes
 - b) No

6. **If English is not your native language, please rate your English-reading skill.**
 - Beginner
 - b) Intermediate
 - c) Fluent

7. **If English is not your native language, please rate your English-writing skill.**
 - Beginner
 - b) Intermediate
 - c) Fluent

Cyberethics Scale

Instruction

In this section, we want to find out about the things you think are important for people to do when they are working or playing with the computer and the Internet, and especially why you think these things are important. Please try to help us understand your thinking by

- Writing as much as you can to explain—even if you have to write out your explanations more than once;
- Do not just write “same as before.” If you can explain better or use different word to show what you mean, that helps us even more;
- Answer all the questions, especially the “why” questions. If you need to, feel free to use the space in the margins to finish writing your answers.

As you are looking at these activities, decide how important the activity is and then answer why you think so in your own words. Remember, your answers are anonymous, so please answer each question, as you really believe.

	Click to rate the importance			Click to write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
1) Often people promise their friends to keep a secret. How important is it for people to keep their word by not discussing the secret on their personal blogs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2) At times, people e-mail or chat with someone they do not know in person. If people make promises to a stranger, how important is it for people to keep their word?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3) Think about when people sign an agreement on a website. How important is it for them to adhere to the agreement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4) Let's say a website will give discounts on games if children get their friends to join. How important is it for the website to keep such promise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5) A lot of people take part in online message boards or twitter. How important is it for people to tell the truth when using such online social media?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6) Think about when you create your user profile on a safe website. How important is it for people to tell the truth on such website?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7) Think about when parents prevent their children to do certain things online. How important is it for minors not to do such things?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Click to rate the importance			Click to write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
8) Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9) Many people ask their friends to help them download protected software. How important is it for people not to pirate software for a friend?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10) Think about an e-mail that requests your donation for a friend's medical bills. How important is it for people to help this friend?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11) Often people have an argument with friends online. How important is it for people to be nice and respectful when arguing with friends online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12) How important is it for people not to share pirated songs online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13) How important is it for people not to knowingly send out computer virus?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14) How important is it for people not to hack someone else's e-mail?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15) Many people use Wi-Fi with no prior consent. How important is it for people to use the Internet only through an allowed channel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16) Many people copy photos from the Internet for their work. How important is it for people to cite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Click to rate the importance			Click to write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
the online sources for the photos?				
17) How important is it for people to adhere to laws when they are online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18) Think about when a government blocks certain websites. How important is it for people not to go around the block?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19) How important is it for an IT staff to cut a hacker's online access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20) How important is it for judges to fine people who break the law online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21) How important is it for a webmaster to ban a bully?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22) How important is it for people to take part in risk-free online surveys that can save life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23) Many people have online access to their friends' private photos. How important is it for people not to make a friend's private photos public?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24) Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25) How important is it for people to be polite and kind online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Appendix H: Cyberethics Scale for Main Study

Demographic Questions

1. What year were you born? _____
2. What month were you born? _____
3. What is your gender?
 - Female
 - Male
4. Which continent(s) did you grow up in? (Select all that apply)
 - Africa
 - Antarctica
 - Asia
 - Australia
 - Europe
 - North America
 - South America
5. What is your ethnic background?
 - African American
 - American Indian or Alaska Native
 - Asian
 - Native Hawaiian or Other Pacific Islander
 - White/Caucasian
6. Is English your native language?
 - Yes
 - b) No
7. If English is *not* your native language, please rate your English-reading skill.
 - Beginner
 - b) Intermediate
 - c) Fluent
8. If English is *not* your native language, please rate your English-writing skill.
 - Beginner
 - b) Intermediate
 - c) Fluent

Instruction

Rate the importance of what people do online and give the reasons for your ratings.

Please answer all the questions, write as much as you can, and try to use different word to show what you mean.

	Click to rate the importance			Click to write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
1) At times, people promise to a friend to use his/her Wi-Fi legally. How important is it for people to keep the promises to a friend?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2) Think about when people take on an online task (selling, transcription, and writing). How important is it for people to commit even to those they never meet face-to-face?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3) Think about when people sign an agreement on a website. How important is it for them to adhere to the agreement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4) Some websites promise to give rewards to children. How important is it for a website to keep promises to minors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5) Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6) Think about when people take part in an anonymous online survey. How important is it for them to tell the truth?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7) When parents prevent their children to do certain things online, how important is it for minors not to do such things?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8) Some minors can get at websites that parents ban. How important is it for minors not to go to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Click to rate the importance			Click to write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
such websites?				
9) How important is it for people not to help a friend by pirating a software?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10) Often people have an argument with friends online. How important is it for people to be nice and respectful when arguing with friends online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11) Let's say your friend is a cyber-bullying victim and may take his/her life. How important is it for a person to try to save the life of the friend?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12) What about saving the life of any cyber-bullying victim? How important is it for a person to try to save a life of a cyber-bullying victim?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13) How important is it for people not to share pirated songs online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14) How important is it for people not to knowingly send out computer virus?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15) Many business owners give out their Wi-Fi passwords only to their customers. How important it is for the non-customers not to use the protected Wi-Fi?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16) Many people copy content from the Internet for their work. How important is it for people to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Click to rate the importance			Click to write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
credit the author of the online work?				
17) How important is it for people not to copy a file without the owner's consent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18) How important is it for people to adhere to laws when they are online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19) Think about when a government blocks certain websites. How important is it for people not to go around the block?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20) How important is it for an IT staff to cut a hacker's online access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21) How important is it for judges to fine people who break the law online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22) How important is it for a webmaster to ban a bully?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23) Many people have online access to their friends' private photos. How important is it for people not to make a friend's private photos public?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24) Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25) How important is it for people not to hack someone else's e-mail?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Click to rate the importance			Click to write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
26) How important is it for people to be polite and kind online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Appendix I: Cyberethics Scale

Demographic Questions

1. What year were you born? _____
2. What month were you born? _____
3. What is your gender?
 - Female
 - Male
4. Which continent(s) did you grow up in? (Select all that apply)
 - Africa
 - Antarctica
 - Asia
 - Australia
 - Europe
 - North America
 - South America
5. What is your ethnic background?
 - African American
 - American Indian or Alaska Native
 - Asian
 - Native Hawaiian or Other Pacific Islander
 - White/Caucasian
6. Is English your native language?
 - Yes
 - b) No
7. If English is *not* your native language, please rate your English-reading skill.
 - Beginner
 - b) Intermediate
 - c) Fluent
8. If English is *not* your native language, please rate your English-writing skill.
 - Beginner
 - b) Intermediate
 - c) Fluent

Instruction

Rate the importance of what people do online and give the reasons for your ratings.

Please answer all the questions, write as much as you can, and try to use different words to show what you mean.

	Rate the importance			Write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
1) Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2) How important is it for people not to help a friend by pirating a software?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3) How important is it for people not to share pirated songs online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4) How important is it for people to adhere to laws when they are online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5) Think about when a government blocks certain websites. How important is it for people not to go around the block?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6) Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7) How important is it for a webmaster to ban a bully?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Rate the importance			Write your reason
	Not Important	Important	Very Important	Why is that very important/important/not important? (whichever you chose)?
8) How important is it for people to be polite and kind online?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9) Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10) How important is it for people not to hack someone else's e-mail?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Appendix J: Cyberethics Scale Rating Form

Code #: _____ CES Scores: _____
 Global Stage: _____
 Rater: _____
 Date: _____

Question	Highest Development Stage	Aspect Citations
1. Truth		
2. Property		
3. Property		
4. Rule		
5. Rule		
6. Rule		
7. Cyber-Bullying		
8. Cyber-Bullying		
9. Piracy		
10. Piracy		

Appendix K: Cyberethics Scale Manual

This manual provides self-trained instruction on scoring each Cyberethics Scale (CES) question. The instruction is adapted from the SRM-SF instruction by Gibbs, Basinger, and Fuller (1992). The basic idea of CES scoring is to assess the cyberethical-developmental level of the responses in accordance with the criteria in this reference manual. In addition, this manual contains annotated answer keys for each of the CES questions. Raters should be familiar with stage-related themes, distinctions, and justifications before they start their ratings.

Scoring

1. Familiar yourself with the scoring manual.
2. For each of the CES items:
 - a) Determine that the response is scorable i.e. the answer is not left empty and the writing is legible.
 - b) Make a preliminary rating of the stage (or transitional level)
 - c) Examine the criterion justifications (CJs) to confirm or adjust your estimated rating.
 - d) Record the score according to the scoring manual on a work sheet.
3. Count how many items are scorable. If the questionnaire has 6 or more scorable response, proceed to the next step. Otherwise, mark the global stage of this questionnaire as unscorable.
4. Calculate the mean for the scorable items in this questionnaire.
5. Use Table K1 to assign a Global Stage status to the questionnaire.

Table K1

Mapping between Average CES Scores and CES Global Stages

Mean Score	Stages
1.00 - 1.25	Stage 1
1.26 - 1.49	Transition 1(2)
1.50 - 1.74	Transition 2(1)
1.75 - 2.25	Stage 2
2.26 - 2.49	Transition 2(3)
2.50 - 2.74	Transition 3(2)
2.75 - 3.25	Stage 3
3.26 - 3.49	Transition 3(4)
3.50 - 3.74	Transition 4(3)
3.75 - 4.00	Stage 4

Note: Transitional levels are named by the more prominent, or major, stage first, with the minor stage indicated in parentheses.

Complexity in Scoring

The following sections discuss how to deal with complexity in scoring i.e. scoring multiple-unit, ambiguous, or “same as above” responses.

Multiple Response Units

If a response yields more than one scorable idea or unit of justification, score each scorable unit that you find. Then, establish the rating of the response with the highest developmental level. For example, a response states that, “You are truthful to a friend so others will like you and you need friends.” This response expresses two distinct scorable units: (a) that the action will lead to one’s being liked; and (b) that one will thereby satisfy the need for friends.

Ambiguous response units

If a response matches CJs at multiple levels, the following rules are applied

Rule 1: If a response unit matches equally well with CJs at two adjacent developmental levels (e.g. CJs at Stage 3 and Transition 3/4), score the justification at the higher of the two levels (in this case, Transition 3/4).

Rule 2: If a response unit matches equally well with CJs disparate by three developmental levels (e.g. CJs at Transition 2/3 and Transition 3/4), score the justification at the intermediate level (in the example, Stage 3).

Rule 3: If a response unit matches equally well with CJs that are disparate by more than three developmental levels (e.g., CJs at Transition 2/3 and Stage 4), designate the response as unscorable.

“Same as Above” Responses

When a participant refers to a previous response, assign the same score as that assigned to the previous response, provided that the “same as above” response seems appropriate to the question.

Cyberethics Scale Criteria Justifications

This section describes criteria justifications for the Cyberethics Scale (CES) responses to which a rater refers when rating a subject’s justifications. The justifications pertain to reasons one gives for decisions or values related to benevolent and fair behaviors in an online environment. By comparing each justification with the corresponding CES’ criteria justification provided in this appendix, you will be able to identify which stage of moral development the participants are in. The overall stage, which is the mean of the item ratings, reveals the participants’ moral-cognitive development stage in an online context.

In the present study, the author argues that changes in the development of moral judgment can be observed in five common values: Privacy, Rule/Regulation, cyber-bullying, property, and truth & identity.

Each context follows the developmental structure described by Gibbs, Basinger, and Fuller (1992). Stage 1 responses are concerned with a morality of unilateral authority

and are often expressed in absolute terms such as always or never. Stage 2 responses reflect perspectives that arise through relationships with others. However, the justifications are still narrow in the sense that a relationship is treated as a pragmatic deal or exchange. For instance, one should help a friend so that the friend may return the favor later on. Stage 3 and 4 are at the mature level. Gibbs and his associates described a main characteristic of mature moral responders in that they “penetrate through superficial or extrinsic considerations to infer the bases of interpersonal relationships (Stage 3) or society (Stage 4)” (p. 25). Accordingly, Stage 3 responses focus on relationship as mutualistic, empathic, and reciprocal. At Stage 4, the justifications extend their scope to a social system.

Besides rating each justification according to its Stage of moral development, a rater may assess moral types of the justifications that reside in the mature level. As noted in chapter 2, the distinction between moral type A and moral type B is “the extent to which the prescriptive ideals of the mature stages are evidenced” (p. 25). Broadly speaking, Moral Type B includes principle-sounding justifications, whereas Moral Type A is more conventionally expressed. For instance, a Stage 3A response concerns, “What does a good husband do? What does a wife expect?” A Stage 3B response would state, “What does a good husband who is a partner in a good mutual relationship do? What does each spouse expect of the other?” In other words, concepts of moral type B are more balanced, universe, and consciously conceived.

Not all responses are capable of being scored by the CES rating process. The first indication of unscorable responses is a “focus on some technological aspects as opposed

to the value in the question” (Oliver, 2002p. 125). For instance, a question may ask “How important is it for people not to hack someone else’s e-mail?” An unscorable response states “We have to protect our e-mail ID from others”. Additionally, responses that are not readable to the raters due to the handwriting, unintelligibility, or poor penmanship are unscorable as well. Likewise, the rater must dismiss sarcastic or flippant responses.

The following sections provide criteria for assessing the development of online moral justifications. The criteria are categorized according to different contexts of reasoning. Though the criteria of all justifications follow the same developmental structure, a specific description according to the related contexts offers a more comprehensive and concrete scoring justification criteria to the CES rater. The criteria justification includes justifications from the experimental CES data.

Criteria Justifications: Truth and Identity

An Item in truth and identity context surveys general justifications for the importance of reasoning in support of telling the truth in cyberspace. The first item is the only item under this category. The question asks “Think about when people take part in an online forum or twitter. How important is it for them to tell the truth?”

The conceptualization of the consequences changes qualitatively by stage. Stage 1 responses are evident in absolute proscriptions and predicted consequences. Stage 2 responses are more instrumental and calculative. Some of Stage 2 responses cover justifications where the favorable evaluation is made on the actor’s wishes. The transition 2/3 justifications are more intrinsically concerned with the friendship involved. Stage 3

responses illustrate that the other becomes a part of the involvement. The responders express empathic guilt toward the way in which others feel if they know the truth. Many of the responses consist of appeals to normally expected role conduct or to the consequences if normative expectations are violated. At the transition 3/4, functions of truthfulness consequences are more generalized: "There are already too many people (in society) who don't tell the truth" (Gibbs et al., 1992, p. 61) . Lastly, Stage 4 responses indicate a link between the general practice of being truthful to social systems: "you wouldn't want to live in a society where you couldn't trust anyone" (p. 61). Table K2 presents criteria justifications that support a confident assessment of stage level. The justifications are an excerpt from the SRM-SF reference manual and the data collected for this study.

Table K2

Reference Manual for Responses Pertaining Truth

Stage	Aspects	Criterion justifications
Unscorable		Seems like a very small portion of social media posts are truthful We are getting an idea about discussion. People should not lie, a moral person will always tell the truth. Telling the truth is important.
1	Labels	It's the right thing to do. If it's a stranger, it's not important because you should never talk to strangers—they will tell you to do something bad. You should <i>always</i> tell the truth.
	Absolute proscriptions/rules	
	Physical consequences	You can be easily discovered by someone fact-tracking you.
1/2	Labels/advantages	The other might be a criminal.
2	Equalities	People lie on the Internet more often than in other places, you could also say the same thing regarding the truth.
	Preferences	It's their choice.
	Needs	No need to tell the truth. You want to person giving their opinion or advice to be truthful.
	Advantages	If you hardly know them, then you can do what you want since it won't matter anyway-they'll never know.
2/3	Needs/emphatic role-taking	Many people search for information from such forms, so truthful information can help someone.
2/3	Advantages/empathic role-taking/relationships	You don't even know the person, and he is not important to you. Telling a lie about someone or something can impact that person's life greatly.
	Advantages/prosocial	It should be expected that people lie in environments such as these.

(continued)

Stage	Aspects	Criterion justifications
3	Relationships	Your friend has faith in you. If it's someone you hardly know, you may start a good relationship or friendship by showing that you care and can be trusted.
	Normative expectations	Honesty is the best policy. Deception in any aspect is unjust.
	Prosocial intentions	You wouldn't feel like much of a friend and once you make a bad impression, people won't think much of you. Also, you just don't feel good about yourself.
	Intrapersonal approval	You would feel proud or good inside, or would feel good or better about yourself. You would feel guilty, feel terrible, regret it, have it in your conscience, or blame yourself.
3/4	Relationship/societal requirements	Relationships are <i>based</i> or <i>built</i> on trust, respect, honesty, or caring. (In order) to establish, build, develop relationship. Otherwise you break or destroy the trust (that is the basis of the relationship)
	Relationships/basic rights or values	That way there would be better communication or harmony in the world, or mutual respect in the family.
	Prosocial intentions/character	You would lose others' respect.
	Empathic role-taking/procedural equity	It does <i>depend on</i> the <i>circumstances</i> . There can be special <i>cases or situations</i> .
4	Societal requirements	Society is based on trust. Honesty is a standard everyone can accept, and you wouldn't want to live in a society where you couldn't trust anyone. Spreading lie is wrong and bad for humanity. True statements form the base for what is stated in an online forum or twitter.

Criteria Justifications: Property and rule.

This section describes criteria justifications for the value of property and rule. The value of property was in a context of piracy. The two sociomoral values share the same criteria justifications because reasoning for both pertain to the functions of laws, and the consequences of breaking them (Gibbs et al., 1992). Following are the questions pertaining to property and rule:

Property.

- Question 2: How important is it for people not to help a friend by pirating a software?
- Question 3: How important is it for people not to share pirated songs online?

Regulation.

- Question 4: How important is it for people to adhere to laws when they are online?
- Question 5: Think about when a government blocks certain websites. How important is it for people not to go around the block?
- Question 6: Some minors can get at websites that parents ban. How important is it for minors not to go to such websites?

Broadly speaking, responses that simply discuss the consequences of breaking the law as physical disadvantages or put a label on the action are in Stage 1. Examples are

“It’s illegal” or “It can result in fines or prison”. Transition 1/2 responses describe the group consequence in terms of both physical and instrumental disadvantages. An examples “You could be in jail”. Stage 2 responses explicitly address the instrumental nature of disadvantages such as that people will be able to get away with the pirated item. Responses that point out prudential calculation to address an importance of obeying of the law—Obeying the law is important if you know you would get caught or in trouble—are also in Stage 2. Stage 2/3 rating refers to consequences for themselves in a more internal sense. An example is presented when respondents indicate their conscience as their extrinsic source of disturbance. At higher levels, the consideration is more intrinsic such as the concept that the guilt of having pirated is in the minds of the thieves. Stage 4 responses define disapproval as a set of internal ethical principles that one must live up to.

Another line of development specific to property items could address a concern with the importance of working rather than stealing. Stage 2 responses express a concern with ownership. The higher level, Stage 3, discusses empathic concern with property owners. “They work hard for their things” is an example of transition 2/3. A more directly-expressed empathic response such as “they sacrificed or worked so hard for their things” is an example of a Stage 3 response. Furthermore, Stage 3 responses may discuss expectations that everybody should work for their things. However, if the justifications address a broader and societal concern with the loss of motivation to work, the responses are in transition 3/4. Responses that discuss elimination of theft for the sake of an ideal society are in Stage 4.

Table K3 illustrates criteria justifications that support a confident assessment of stage level pertaining property and rule. The justifications are an excerpt from the SRM-SF reference manual and from the experiment in this research.

Table K3

Reference Manual for Responses Pertaining Property and Regulation

Stage	Aspects	Criterion justifications
Unscorable		<p>Stealing is bad, even it for a good cause. It isn't fair to take other people's things. It's illegal/immoral. I think sharing your songs with friends or family should be allowed. You can get music easily through YouTube. It shows that children are thinking outside the box. The sites are banned for a reason. Don't give the children Internet access. Depends on the laws. Law are in place for a reason. Government should not block sites. That's what laws are for. The law is there for you to follow. We must always adhere laws. Rules and guidelines always need to be maintained.</p>
1	<p>Absolute proscriptions Rules</p> <p>Physical consequences</p> <p>Labels</p>	<p>You will be caught, injured, killed, found out, sent to jail. You will be in jail. It will keep the children's eyes from seeing things. It's like shoplifting/stealing/illegal. It's law whether it's online or offline. Stealing is a bad thing to do, and you're not nice if you steal.</p>
1/2	Physical consequences/advantages	<p>If you steal they will get mad. You could get arrested. This may spread the virus and spoil others' data.</p>

(continued)

Stage	Aspects	Criterion justifications
2	Equalities	So many people do it.
	Exchange	The laws will help you if you help them.
	Freedoms	If you want the music, you should pay the artist. People should be able to go visit any sites they like. If it's blocked, it's none of our business.
	Preferences	You don't want to get in trouble. It's upon one's choice. They are something parents don't want to child to see. You don't want to commit criminal acts or get sued by someone for your actions online.
	Advantages	If you hardly know the artists, then who cares? You both could get in trouble if found out. The person you steal from might get mad at you. It's useful to all. It's for the kids' benefit. It can prevent terrible things from happening.
2/3	Freedoms/ Empathic role-taking	They put their effort in building the software. People (may have) worked <i>hard</i> or <i>long</i> for it.
	Needs/empathic role-taking	So that parents <i>will</i> trust or believe their children.
	Preferences/ empathic role-taking	Pirating software really hurt no one. Someone will feel bad, or will <i>get upset</i> , or <i>get hurt</i> . Other people get hurt when their music is stolen.
	Preferences/ Prosocial intentions/ relationships	Most people don't care.

(continued)

Stage	Aspects	Criterion justifications
2/3	Advantages/ normative expectations	It's safer for everyone. To maintain peace. If people break the law, someone you love might go to jail, someone could be hurt, the world would be unsafe, a mess, and full of crime.
3	Relationship	So their parents will <i>know</i> or <i>feel</i> that they can trust them. It may affect real life relationship.
	Normative expectations	They are taking money away from people who deserve it. Piracy shouldn't be committed. Laws prevent total chaos. If laws are not followed, chaos can ensue. Then the world would be happier. People should respect rules and not go to those blocked websites.
	Empathic role- taking	People work <i>so hard</i> for their things. There are people who truly cannot afford overpriced software. Pirated songs are abuse for a singer. The minor cannot understand the fraud hid in the website. You should realize that people often work so hard and feel sentimentally attached to their property, and it causes a hardship when you steal something that means a lot to them.
	Conscience	Remember, it will be on your mind if you steal.

(continued)

Stage	Aspects	Criterion justifications
3/4	Normative expectations/ responsibility/ societal requirement	Although it is considerate to help a friend in need, you should always do so while not breaking any laws.
	Relationship/ Normative expectations/ basic rights or values Prosocial/ societal requirement Prosocial intentions/ character	People need to follow the rules in order to keep the Internet a viable entity for everyone to use. Laws are made for the people, and if people don't follow them, there would be no point in having them. Laws make life more harmonious. We have to teach the friend about the loss of the product when pirating. Doing so would set a bad example. Obeying the law shows your trustworthiness. The children will become irresponsible.
4	Societal requirements	The software manufacturer loses out in business when people steal the merchandise. This effects the whole economy. Pirating software is a crime. We must make an effort to make our society crime free. Laws are made for the protection of individual in a society.
	Basic rights or values	Laws make order possible in society. The law is for the common good and protects people's rights, including the right to property. It is copyright of an individual premise so it should be stopped.
	Responsibility	It's an intellectual property theft. It is copyright of another individual. You should not participate in piracy unless you are willing to accept the consequences.
	Characters	Going to the banned website is a <i>breach of trust</i> . Share pirated songs online was not a good character. The website may distort the child's character.

Criteria Justifications: Cyber-bullying.

This section discusses changes in development of moral justification in the context of cyber-bullying. Justifications that pertain to cyber-bullying contexts are presented. The justification criteria in this section are adapted from sociomoral development stages as described in (Gibbs et al., 1992) and main study respondents. The relevant CES questions are

- Question 7: How important is it for a webmaster to ban a bully?
- Question 8: How important is it for people to be polite and kind online?

Stage 1 justifications consist of superficial application of simple or undifferentiated labels such as right/wrong, good/bad. Stage 2 thinking treats ethics as a matter of pragmatic deals or exchange. For example, a participant stated “If someone breaks the rules, they should be banned”. In addition, appeals to unconstrained freedoms as concrete rights are considered as Stage 2 responses. For instance, one argued “People can be whoever they want to be and/or do whatever they want to do”. Responses in Stage 3 consist of appeals to normally expected role or conduct or to the consequences if normative expectations are violated. An explicit or strongly empathic reference to another’s psychological or emotional welfare also represents Stage 3 responses. An example of such response is “The person on the other side of the Internet is a real person. We all have feelings and need to respect one another”. Lastly, Stage 4 justifications support moral values as a requirement for society or one of its institutions. An example is “A bully can destroy the very purpose of a legitimate online system”. Table K4 presents

criteria justifications that support a confident assessment of stage level pertaining to cyber-bullying contexts.

Table K4

Reference Manual for Responses Pertaining Cyber-Bullying

Stage	Aspects	Criteria justifications
Unscorable		<p>Webmaster should ban bullies. Bullies can have extreme consequences. Online bullies can be simply ignore. It depends on whom he is chatting with. If there are people that can't handle strangers saying things that are less than nice, then those people should remove themselves from the Internet.</p>
1	Labels/Absolute proscriptions (rules)	<p>It is the right thing to do. It is a crime. Bullying should never be tolerated. It's good/right thing to do. It's the Internet, not church. You must always be polite to others.</p>
	Physical consequences	<p>It will reduce crime. People have died because of bullies. Otherwise you will not have friends online.</p>
1/2	Physical consequences/ advantages	<p>Banning bully could save a life. He could lose members if he does not ban bullies. Things you post in anger could never go away. It can potentially lead to cyber-bullying.</p>
2	Preferences	<p>If they want people to enjoy their website, then they should stop bully. Nobody wants to be abused online.</p>
	Freedoms	<p>People can be whoever they want to be. People are under no obligation to act a certain way online. It's a personal choice.</p>
	Exchange	<p>If someone breaks the rules, they should be banned. Treating people the way they treat you. Be kind to people who are kind to you.</p>
	Advantages	<p>To prevent bad things to happen. Your word is there in writing and you would be held accountable.</p>

(continued)

Stage	Aspects	Criteria justifications
2/3	Needs/freedoms/ Normative expectations	People should be free to use a service without being harassed. People need to see rules are being adhered to and punishments enforced.
	Needs/empathic role-taking	It can ruin other people's experiences.
	Advantages/ empathic role- talking	It will improve the life of the victim and everyone else who has to read it. Your kind words and deeds are perhaps the only good parts of another person's day. It is important to stop bullying before someone gets seriously hurt.
	Advantages/ prosocial intentions	It is the only way to express oneself.
3	Relationships	You should treat others the way you want to be treated.
	Normative expectations	We have to respect others. The other members don't deserve bullying. Bullies interrupt the flow of conversations. That's what expected of a webmaster. A bully should not be entertained under any circumstances.
	Generalized caring	Bully should not be tolerated. One should always be polite and kind, to known as well as strangers. Whether online or in-person, everyone should be kind to others.
	Empathic role- taking	Bully has caused major grief and sorrow for others. The person on the other side of the Internet is a real person. We all have feelings and need to respect one another.

(continued)

Stage	Aspects	Criteria justifications
3/4	Normative expectations/basic rights or values Empathic role-taking/societal requirements Prosocial intentions/characters Relationships/societal requirements/basic rights or values	Basic rules of civility should be followed just as in real life. No one likes to deal with mean people online and it makes the cyber community run smoother. To show that you are trustworthy. A webmaster needs to foster a sense of community on his site. To maintain a healthy online community. To create online harmony. Banning bully allows others to have a sense of security when visiting the website. The Internet is more pleasant with polite communities. Everyone deserve respect.
4	Societal requirements Responsibility Basic rights/values	Bully is bad for a civilized society. A bully can destroy the very purpose of a legitimate online system. We have to maintain civilization and society. Morals should follow you everywhere you are even if it is online. Manners are social lubricant, no matter the medium. It is an obligation/duty of a webmaster to stop cyber bullying from their website. Bully breaches privacy laws. Politeness is an essential virtue.

Criteria Justifications: Privacy

The purpose of this section is to investigate the conceptualization of privacy that individuals refer to when they decide what is right or wrong in the cyberspace.

Justifications that pertain to the value of privacy are presented. The justification criteria in this section are adapted from sociomoral development stages as described in (Gibbs et al., 1992) and main study respondents. The relevant CES questions are

- Question 9: Let's say your friend left his e-mail screen open. How important is it for people not to read other people's e-mails without prior consent?
- Question 10: How important is it for people not to hack someone else's e-mail?

Stage 1 responses are concerned with a simple appeal to the embodiment of authority or labels. For example, a response states "It is bad." or "You should never read other people's emails". Transition 1/2 indicates a concerns of labels and freedom such as "It does not belong to you". At Stage 2, the justifications appeal to unlimited freedoms as concrete rights. A typical response to illustrate this aspect would be, "You shouldn't stick your nose in someone else's business".

At the mature level, reasoners develop their cyberethical judgment through superficial and extrinsic considerations to infer the bases of interpersonal relationships in Stage 3 or society in Stage 4. Stage 3 focuses on an invested state of trust as a noun. For instance, Stage 3 response state "The email's owner will *have trust* in you." This is different from Transition 2/3 where trust is viewed as a verb and possibly pragmatic

more obligatory such as “It is our moral obligation to respect other people’s privacy”.

Table K5 presents criteria justifications that support a confident assessment of stage level pertaining to privacy. The justifications are an excerpt from the SRM-SF reference manual and the experiment in this research.

Table K5

Reference Manual for Responses Pertaining Privacy

Stage	Aspects	Criterion justifications
Unscorable		The person shouldn't have left his email in plain view. They should close the email. Just ask if you are curious. We should not read their emails without permission. Email is a private form of communication. Privacy is important.
1	Labels	It's like personal diary. It's a grave misstate to take advantage. It is unethical/illegal/wrong. Their privacy must be kept. It's a cyber-crime. Never snoop on people.
1/2	Absolute proscriptions, rules Labels/freedoms	It's theirs.
	Physical consequences/ advantages	It isn't yours or doesn't belong to you. You can mess someone's life up. They may misuse the data. They might be caught for a crime.
2	Preferences/needs	If someone wanted you to look, they would give you their password. It's unnecessary to see others' emails. Just as you will not like your friend to read yours, same is applicable vice versa.
	Freedoms	It is not their business (and not for others to know about). The email is not yours.

(continued)

Stage	Aspects	Criterion justifications
2/3	Advantages/ empathic role-taking	Hacking can cause a lot of pain to someone. It affect their welfare.
3	Relationship	It shows a lack of trust in your friend. You have to trust your friends. <i>A good friend</i> will log out. It's important to avoid breaking the trust of our friends.
	Normative expectations	It is common decency. Respecting a person's privacy is a basic human courtesy. We should not invade anyone's privacy.
	Empathic role-taking	We must realize how we would feel if someone were to do the same thing with us.
3/4	Normative expectations/basic rights or values	It is their private information which must be respected. It is an invasion of privacy.
	Relationship/societal requirements/basic rights or values	It breaks trust. You should respect your friend's privacy.
	Normative expectations/standard of conscience	You should follow some basic ethics.
4	Societal requirements	The expectation of security in communication allows for the transfer of sensitive information. If that expectation of safety is lost, the utility of email is decreased.
	Responsibility	It's our moral obligation to respect other people's privacy. It's moral duty.
	Basic rights or values	In truth a <i>sacred</i> trust should never be violated for a great wrong is always a great wrong. Everyone has the right to keep their own privacy. Everyone has the right to privacy.
	Standard of conscience	Principle is life is very important and it is very important to follow such principle.

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