

Moral Judgment, Role Concepts, and Empathic Response as
Predictors of Dental Student Clinical Effectiveness

A DISSERTATION
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL
OF THE UNIVERSITY OF MINNESOTA
BY

Verna Monson

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

David W. Johnson, Advisor
Muriel J. Bebeau, Co-Advisor

January, 2009

© Verna Monson 2009

Acknowledgments

The Center for the Study of Ethical Development at the University of Minnesota and University of Alabama provided support for completion of this research. Dr. Mickey Bebeau, Professor of Primary Care, provided immeasurable guidance throughout the process of conceptualizing and implementing this dissertation. Her accounts of informal conversations with Jim Rest brought to light many nuances of the Four Component Model (FCM) that directly shaped the research questions of this study. Her work with assessment of moral sensitivity and implementation has taken the FCM into exciting new directions that are as fresh and relevant as they were at their inception. In particular, her concept of moral implementation as both an intra- and interpersonal component of moral behavior paves the way to many new research questions that integrate social psychology.

Dr. David W. Johnson's work on positive social interdependence was also instrumental in shaping the conception of moral implementation used in this study, moving it from a trait or personality construct to one directly informed by social psychological phenomenon. Others who contributed substantially to shaping the research ideas in this study include Dr. Pat McCarthy Veach, Professor, Department of Educational Psychology; and Dr. Kate Hathaway, Professor and Consulting Psychologist, Academic Health Center, both at the University of Minnesota. I am also grateful to Dr. Martin Hoffman of New York University, who graciously reviewed an early proposal, affirming the general direction and sharing some new directions in his research.

Gratitude is also owed to colleagues, Drs. William R. Knecht, Di You, and Michelle Tichy, who made major contributions to the development and content validation of the coding scheme, including rating, discussing, and re-rating data. The feedback and insights of Mac Walton on the development of the Empathic Response coding scheme were invaluable. His perspective as a former counselor who had worked with adolescent girls suffering with anorexia grounded the effort with realism and practical wisdom.

Last, I am eternally grateful to the personal support of Mac Walton, William Knecht, and Sister Mary Frances Reis of Visitation Monastery, all of whom provided unfailing moral support and sustenance throughout this dissertation process.

Dedication

This work is dedicated to Mac Walton for providing encouragement, moral support, and sustenance throughout this study.

Abstract

Rest's Four Component Model (FCM) of morality framed two studies examining whether measures of the components predicted clinical effectiveness (moral behavior) on case simulations. Archived course portfolios for 120 students were randomly selected from five dental cohorts ($N=386$) who completed a well-validated ethics curriculum between 1996 and 2001. Data included (1) case assessment transcripts, (2) moral judgment scores (component 2) (Defining Issues Test [DIT]); (3) motivation or role concept scores (component 3) (Professional Role Orientation Inventory [PROI]), and (4) responses to eight cases from a Professional Problem Solving (PPS) course (clinical effectiveness).

In study one, to measure an element of moral implementation (component 4) in students' transcribed verbal responses to a patient presenting with symptoms of an eating disorder, an empathic response coding scheme—guided by Davis' multidimensional theory of empathy—was designed. Four expert judges participated in content validation of the empathy codes and scales, suggested additional codes including the likelihood the response would elicit shame, guilt, and fear from the patient, and rated student transcripts to produce an index score of empathic response (EMPTH).

Study two utilized DIT, PROI, and EMPTH as predictor variables in multiple and logistic regression analyses. Response variables included PPS scores and two binary clinical effectiveness outcomes: (1) whether the patient would accept the student's advice, and (2) whether the student acknowledged the patient's pain.

The DIT and PROI explained 5% of the variance in clinical effectiveness; the test of model fit was significant ($F_{.05} 3.22_{2, 116}, p = .04$). Adding EMPTH to the model increased explained variance to 8% (*ns*). The small amount of variance gained by adding EMPTH may be a function of case difficulty (few student responses were rated empathic), and that performance was judged on only one case. PROI scores predicted performance in PPS,

$\beta = 2.75$ ($p = .01$). DIT scores predicted clinical effectiveness, Wald $\chi^2 = 14.52(1)$ ($p = .001$) and Wald $\chi^2 = 5.39(1)$ ($p = .03$).

Future research should adapt the coding scheme for a fuller range of cases, add a measure of ethical sensitivity as a predictor variable, and increase sample size for logistic regression analyses to increase statistical power.

Table of Contents

FRONT MATTER

Acknowledgments	i
Dedication	ii
Abstract.....	iii
Table of Contents.....	v
List of Tables	ix
List of Figures.....	x

CHAPTER ONE: INTRODUCTION

Theoretical Perspectives, Morality	3
Moral Behavior Outcomes.....	5
Theoretical Perspectives, Empathy.....	5
Empathy and Healthcare.....	6
Empathic Response: An Element of Moral Implementation	7
Statement of the Problem.....	8
Research Questions.....	8

CHAPTER TWO: REVIEW OF THE LITERATURE

Morality	
Kohlberg and Rest.....	9
Rest and Moral Theory.....	10
The Defining Issues Test (DIT).....	11
From Stages to Schemas	12
From Four Components to a Gestalt Theory of Moral Behavior	13
Neo-Kohlbergian Moral Theory.....	16
Criticism of Moral Development Theory	18
Moral Trees and the Moral Forest.....	19
FCM Assessment Approaches in Ethics Education in the Professions	20
Moral Implementation	23
Bridging to the Interpersonal.....	23
Post-Implementation Impact	25

Prospective or Post-Implementation Justification Processes	26
Empathy	27
Overview	27
Definitions.....	28
Measures	30
Dimensions.....	33
Empathic Bias	34
Empathy in Medical Education.....	34
Research	34
Can Empathy be Taught? Empirical Evidence.....	36
Other Approaches to Empathy Instruction.....	38
Statement of the Problem.....	39
Research Questions and Statement of Purpose	39
Hypotheses and Rationale	41

CHAPTER THREE: METHOD

Procedures and Context	45
Population and Demographics of Sample.....	46
Research Design	46
Study 1	46
Empathic Response: A Dimension of Moral Implementation	46
Coding Scheme Development, Empathic Response	47
Data Analysis, Study 1	48
Study 2	48
Dependent Variables	48
Independent Variables.....	49
Moral Judgment (Defining Issues Test, DIT)	50
Moral Motivation / Role Concepts (Professional Role Concepts, PROI)	51
Empathic Response (EMPTH).....	51
Data Analysis, Study 2.....	51

CHAPTER FOUR: RESULTS

Study 1: Preliminary Review of Responses and Data	53
Coding Scheme Development, Empathic Response	55
Moral Implementation.....	56
Reliability and Agreement	61
Validity Evidence	63
Patient Would Comply with the Dentist’s Advice (COMP)	65
Dentist Addressed the Patient’s Chief Complaint (APCC).....	66
Study 2: Independent Variables and Descriptive Statistics	67
Moral Judgment (DIT)	67
Moral Motivation / Role Concepts (PROI)	68
Moral Implementation / Empathic Response (EMPTH)	68
Dependent Variables	
Preparation of Moral Implementation / Empathic Index	69
Professional Problem Solving (PPS)	69
Patient Would Comply with the Dentist’s Advice (COMP).....	70
Dentist Addressed the Patient’s Chief Complaint (APCC)	70
Zero-order correlations	71
Research Question 1, Moral Capacities and Clinical Effectiveness (PPS).....	71
Hypothesis 1	71
Hypothesis 2.....	74
Research Question 2, Moral Capacities and Predicting Patient Compliance (COMP).....	76
Hypothesis 3.....	76
Hypothesis 4.....	79
Research Question 3, Moral Capacities and Acknowledging the Patient’s Chief Complaint (APCC).....	80
Hypothesis 5.....	80

CHAPTER FIVE: DISCUSSION

Summary of Findings	83
Implications of Findings	85
Limitations	88
Future Directions	88
Conclusion	91
REFERENCES	93
Appendix A. Sample case from Professional Problem Solving (PPS): Excerpt from the Joe Fitzgerald case	105
Appendix B. The Dental Ethical Sensitivity Test (DEST): Excerpt from the Sandy Johnson case, and probe questions.....	107
Appendix C. The Dental Ethical Sensitivity Test (DEST): Excerpt from the Jim Lohman case, and probe questions.....	111
Appendix D. The Professional Role Orientation Inventory (PROI): Examples of Items	114
Appendix E. Empathic Response Coding (ERC) Guide	115
Appendix F. Histograms and Scatterplots of Variables	129

List of Tables

Table 1.	Forms of Moral Conformance and Deviance	25
Table 2.	Empathic Communication Coding System (ECCS)	33
Table 3.	Excerpts from Empathic Responses, With Reviewer Comments.....	54
Table 4.	Empathic Response Codes (ERC) and Variable Names	56
Table 5.	Valence of Opening Response (VOR), Ratings and Excerpts.....	56
Table 6.	Rubric for Rating Empathic Concern (EC)	58
Table 7.	Frequency Distribution and Percentages, ERC Dimensions	60
Table 8.	Item Total Statistics, Rated Variables, Empathy and Effectiveness.....	63
Table 9.	Nonparametric Correlations of ERC, DEST, and PPS Variables	64
Table 10.	Descriptive Statistics, DIT Variables	67
Table 11.	DIT, PROI, PPS, and Empathic Index Scores, Nonparametric Correlations	67
Table 12.	Moral Motivation / Role Concepts Variable (PROI), Descriptive Statistics.....	68
Table 13.	Clinical Effectiveness / Moral Behavior Outcomes (PPS Scores), Descriptive Statistics	69
Table 14.	Nonparametric Correlations (Spearman's <i>rho</i>), Four Component Model Measures and Likelihood of Complying with the Dentist's Advice.....	71
Table 15.	Summary of Multiple Regression Analysis, Clinical Effectiveness.....	77
Table 16.	Four Component Model Variables (DIT-P, PROI, and EMPH) Regressed on the Likelihood that the Patient would Comply with the Dentist's Advice (COMP).....	78
Table 17.	Four Component Model Variables (DIT-P, PROI, and PROI-DIT-P) Regressed on the Likelihood that the Patient would Comply with the Dentist's Advice (COMP) .	80
Table 18.	Four Component Model Variables (DIT-P, PROI, and EMPH) Regressed on the Acknowledgement of the Patient's Chief Complaint (APCC).....	81
Table 19.	Eigenvalues and Extracted Sums of Squared Loadings from Components Analysis, ERC Codes	129
Table 20.	Raw and Rescaled Component Scale Value.....	130

List of Figures

Figure 1. FCM as a dynamic process model	25
Figure 2. Histogram of grades from the Professional Problem Solving (PPS)	129
Figure 3. Scree Plot, Eigenvalues of ERC variables	130
Figure 4. Histogram of DIT P-Score	131
Figure 5. Histogram of PROI Scores.....	131
Figure 6. Histogram of EMPATH Index score, with log transformation.....	132
Figure 7. Histogram, P-P Plot of PPS Standardized Residuals	132
Figure 8. Scatterplot, Standardized Residuals, PPS and Pre-PROI.....	133

MORAL JUDGMENT, ROLE CONCEPTS, AND EMPATHIC RESPONSE AS
PREDICTORS OF DENTAL STUDENT CLINICAL EFFECTIVENESS

*Empathy is to moral thought and action
what hunger is to the evaluation and consumption of food.*
Pizarro, Detweiler-Bedell, & Bloom (2006, p. 85)

On February 25, 2007, 12-year old Deamonte Driver of Baltimore died of an abscessed tooth (Otto, 2007). A simple extraction, costing less than a hundred dollars, could have prevented his death. But complications with the Medicaid system and difficulty in finding a dentist led to delays in treatment. The boy's infection spread to his brain, ultimately causing his death.

Since 2004, the rate of untreated dental disease in the U.S. has been rising, reversing a 30-year trend of overall decline, despite the fact that U.S. expenditures for healthcare are larger than in any other industrialized country (Berenson, 2007; National Coalition on Healthcare, 2008)¹. Children from families living below the poverty line suffer twice the rate of dental disease than their peers (Centers for Disease Control and Prevention, 2008)². Access to care disproportionately affects ethnic minorities and rural citizens (IOM, 2002). Quality of care also varies by race and socioeconomic status (Abreu, 1999; van Ryn, & Burke, 2000).

Short of transforming our national healthcare system and legislative mandates³, what can be done? Do dental and medical schools adequately emphasize the moral responsibility of the profession to society? To what extent does healthcare education foster empathy for the

¹ In 2007, total healthcare expenditures in the U.S. were 16% of the Gross Domestic Product, compared to 11% in Switzerland and Germany (NCH, 2008).

² In a year-long study, the Centers for Disease Control and Prevention (CDC, 2008) found that among children covered by Medicaid, less than 20% actually received dental care. In many states, the only available dental care provided for adult Medicaid patients is through an emergency room (CDC).

³ The Deamonte Driver Dental Care Access Improvement Bill was introduced in U.S. Congress on March 6, 2008, and has been referred to the Senate Finance Committee for consideration. The bill would authorize federal funding to dental schools aimed at expanding the workforce of dental professionals in underserved areas, and to fund public awareness and education programs aimed at prevention (Library of Congress, 2008).

plight of children such as Deamonte Driver? Or does technical competence trump compassion and caring in the curriculum?

Research suggests that empathy declines with dental and medical school education (Bellini, Baime, & Shea, 2002; Bellini & Shea, 2005; Chen, Lew, Hershman, & Orlander, 2007; Diseker & Michielutte, 1981; Sherman & Cramer, 2005; Spencer, 2004). This apparent decline in empathy from admission to graduation opposes a central goal of health professions education: to educate graduates to provide competent patient care including conveying empathy and compassion toward all patients.⁴ But would more empathy for the poor⁵, among dentists and the Medicare system, have been sufficient in altering the course of events that led to young Deamonte Driver's death?⁶ Or would a deeper commitment to social justice and the moral obligation of professionals to society have been necessary?

To begin investigating these questions, Rest's Four Component Model of moral action or behavior (1979) was used to explain the extent that individual components (*sensitivity, judgment, motivation, and implementation*) or interactions predict projected moral behavior outcomes in the context of a simulated clinical interaction within a dental ethics course. An operational definition of moral implementation was explicated drawing on the literature on empathy and health communication, and a measurement approach was developed in preparation for this study. In addition to contributing to knowledge about moral implementation processes, this study aims at providing professions education with knowledge of methods and measures involved with assessing ethical development.

⁴ In dental education, standards for accreditation stipulate only that schools provide instruction in "patient care and community service" to all students (Commission on Dental Accreditation, 2008). In medical education, accreditation standards mandate several competencies of graduates related to professionalism, including the ability to "demonstrate caring" for the patient (Accreditation Council of Graduate Medical Education, 2008).

⁵ Communities of recent immigrants, minorities, and rural citizens are disproportionately affected by the current healthcare crisis (Abreu, 1999; van Ryn, & Burke, 2000).

⁶ Growing healthcare costs and lack of affordable health insurance are presenting significant challenges for health care providers, and forcing care providers to triage who, and who will not, receive care (Hoffman, 2001; Myhrvold, 2006).

Theoretical Perspectives, Morality

Rest (1986) viewed morality as both “rooted in the individual human psyche [and] cooperative social organization” (p. 2), echoing social psychologists’ view behavior as the product of the person and the environment, $B=f(P,E)$ (Lewin, 1951/1997). Through this interaction, moral emotions (e.g., empathy, guilt, or shame) are elicited. Moral emotion influences moral thought. Moral thought influences moral emotion. The relevance of empathy to each of the moral capacities is thus central.

Rest (1982, 1983) suggested that moral behavior results from four distinct psychosocial capacities, called the Four Component Model (FCM). The FCM posits that *sensitivity, judgment, identity or motivation, and implementation* predict or explain moral behavior. Capacities that are not accessible or developed likely reduce the probability of moral behavior occurring.

The first component, *moral sensitivity*, involves awareness of the moral dimensions of issues, of which empathy is a direct analog (Rest, 1986, p. 7). Without awareness of the moral dimensions of an issue is a necessary, reasoning and judgment about an issue would tend to lack depth and dimension, and susceptibility to perceptual biases would be more likely to occur. People are predisposed to a variety of perceptual biases that are likely to interfere with the awareness of moral issues, including favoring one’s in-group members, attending to immediate concerns or needs, or confirming one’s beliefs or opinions (Hoffman, 2001, Wason, 1960). Empathy and other moral emotions may function to overcome perceptual biases, and permit greater sensitivity to the moral dimensions of an issue.

Moral judgment, the second component, is the ability to adequately reason about possible solutions to an ethical problem in a way that takes into account multiple perspectives, responsibilities, and consequences of a decision. Morality develops across the lifespan, despite the common belief that moral values are primarily shaped during childhood (Rest, 1986). Judgment is often cast as a cognitive process, but Rest viewed cognition and emotion as integral to all moral processes including judgment. Empathy may act as a catalyst for analysis and reasoning about a moral problem, and in turn, enhance moral judgment capacity.

Education is the strongest factor associated with moral development gains (Bebeau, 2002). In studies of accountants and teachers, moral judgment ability has been found to strongly predict job effectiveness (Rest & Narvaez, 1994). Nursing internship performances are better predicted by moral judgment than by grade point average, standardized entrance scores, or age (Duckett & Ryden, 1994). Higher moral judgment scores are associated with pro-social behaviors, such as community involvement ($r = .31$) and civic responsibility ($r = .44$), with both correlations being statistically significant at $p = .01$ (Rest, Narvaez, Bebeau, & Thoma, 1999a, p. 81).

The third component, *moral identity or motivation*, involves prioritizing moral values among competing values and needs. A dentist with a solid foundational identity that fuses professionalism with prioritizing the oral health needs of the community would perhaps have been more likely to sacrifice their personal time and convenience to make a phone call on behalf of Deamonte Driver to an emergency clinic. In the context of a fast-paced, high-pressure work context, empathy for a patient slipping through the cracks of a broken healthcare system may supply to motivation to prioritize the patient's health.

The fourth component, *moral implementation*, involves "perseverance, resoluteness, competence, and character" (Rest, 1986, p. 15). According to Rest, component four involves anticipating the "sequence of concrete actions, working around impediments and unexpected difficulties" (p. 15). The breadth of Rest's definition of moral implementation suggests thinking strategically about a moral outcome, and identifying mutual interests in dealing with conflict or opposition. It involves thinking "on one's feet," through managing one's emotions, actively listening to another's concerns, and constructively managing interpersonal conflicts.

Moral implementation involves frontline interaction with the moral agent and the social world, in which communication, interpersonal effectiveness, and organizational savvy come into play. For health professionals, communicating with patients in ways that the patient perceives as respectful and empathic is a key goal (Rosenfeld & Jones, 2004). According to findings of Squier (1990), empathic communication with Deamonte's mother during a phone call may have increased the probability of her following up on treatment recommendations.

Moral Behavior Outcomes

Moral behavior has typically been conflated with moral implementation. This study discriminates between the concepts, defining *moral behavior outcomes* as the anticipated or judged likelihood of a moral behavior occurring. In the ideal, making a judgment about someone's moral behavior should be based on patterns of behavior, rather than single acts. But with the practical limitations of designing studies measuring moral behavior, related to the difficulty in using control groups and random assignments within educational programs, methods that use data from realistic cases or simulations that gauge the probabilities of patient outcomes expand the possibilities for research and assessment.

Moral behavior outcomes in this study included (1) final grades from a two-year sequence of role-play clinical case assignments, (2) the judged likelihood that a patient, suffering with advanced symptoms of an eating disorder or malnutrition, would comply with the dentist's advice given in a simulated clinical interaction, and (3) whether, in the context of a simulated clinical interaction, the student-dentists attended to the chief complaint of a patient with limited financial resources.

Theoretical Perspectives, Empathy

Definitions of empathy in social sciences stemmed from theories of the self of sociologist Mead (1934) and developmental psychologist Piaget (1962/1935). Social perspective taking relates directly to the capacity to experience empathy. Empathy combines social perspective taking with vicarious experiencing of another's emotion or distress (Hoffman, 2001). In medicine, Hogan (1969) defined empathy as a cognitive process without vicarious experiencing of another's emotions.

Hoffman (2001) defines empathy as "as an affective response more appropriate to another's situation than one's own," and states that it is one of the most fundamental of moral emotions (p. 4). Though often thought of as an emotional construct, empathy involves both emotion and cognition. An operational definition of empathy was developed for the present

study guided by theory and research from social and clinical psychology (Davis, 1983; Hoffman, 2001; Tangney & Dearing, 2002), and health communication (Bylund & Makoul, 2005; Suchman, Markakis, Beckman, & Frankel, 1997).

Empathy is susceptible to forms of bias, which would tend to block sensitivity to moral issues. Hoffman (2001) defines two forms of *empathic bias*, including *here and now* bias and *familiarity* bias. In an increasingly fast-paced and culturally diverse society, medical professionals may be more prone to empathic bias.

Hoffman (2001) discusses the mental state resulting from the prolonged demands of intense, emotional situations as *empathic overarousal*, which can result in “numbing up” to the situation in order to maintain function and objectivity. Ultimately, it can result in *compassion fatigue*, or what clinicians in mental health have referred to as *secondary post-traumatic stress syndrome* (Figley, 2006; Myhrvold, 2006). Thus, in coping with the stress and demands of caring for others in pain and distress, one’s capacity to accomplish a moral outcome may be compromised.

Empathy and Healthcare

The moral issues embedded in the interactions between patient and physician span a broad emotional range. Classic moral dilemmas involving patient rights in end-of-life issues or abortion decisions have potentially profound emotional impact. Patient-physician communication conveys the norms and social role of the physician, which may also have moral implications. The clinical interview telegraphs the underlying attitudes, ideas, beliefs, and values about the social role of the physician in a number of ways (e.g., dispassionate scientist or empathic professional). The moral issue embedded in patient-physician communication is the inherent right of humans to be treated with respect and dignity, and ends in themselves, and not simply as means to an end (Kant, 1785/1998).

In medicine, empathy is defined primarily as a cognitive process that permits an understanding of another’s affective state *without* vicariously experiencing it, permitting the clinician to maintain objectivity and emotional distance (Aring, 1958; Hojat et al., 2001). For

clinicians, empathy is a crucial ability associated with numerous beneficial outcomes including improved diagnostic accuracy (Marvel, Epstein, Flowers, & Beckman, 1999); decreased patient litigation (Levinson, Roter, Mullooly, Dull, & Frankel, 1997); improved patient satisfaction (Colliver, Willis, Robbs, Cohen, & Scharz, 1998); and increased patient motivation to follow-through on the treatment plan (Squier, 1990).

Empathy within physician-patient communication is defined as an outcome of the interaction between physician and patient, rather than as an internal trait or state of a physician (Suchman et al., 1997). In the physician-patient dialog, the patient's statements or questions present *empathic opportunities* of which there can be implicit or explicit emotional content, and a negative or positive valence. *Empathic response* occurs when the physician acknowledges the emotional content of the patient's statement. A *missed empathic opportunity* occurs when the physician ignores or does not recognize emotions of the statement. An *empathic communication terminator* occurs when the physician responds in a manner that denies the patient's emotions or is otherwise insensitive to the patient.

The empathic opportunities in this study are derived from realistic clinical cases in a required dental ethics course (Bebeau, 2006), and utilized content analysis of recorded responses.

Empathic Response: An Element of Moral Implementation

This study operationally defines empathic response as a dimension of Rest's fourth component—a component that includes problem solving, social-emotional skills, interpersonal interaction and active listening, the fortitude or courage (i.e., the moral character) to persevere—common interpretations of the fourth component. Including empathic response as a dimension of moral implementation was guided Rest's writings and by research within a dental ethics curriculum based on the Four Component Model (Bebeau, 2002). Moral implementation (together with sensitivity and judgment) is a capacity that enables the actor to achieve outcomes that are judged by others as “moral behavior.” --- when he or she intends to do so (motivation).

Statement of the Problem

The growing divide in healthcare between insured and uninsured has amplified concerns that the fundamental social contract between health professionals and society has changed. People question whether the ethical responsibility of medical professionals – to place the interests of the patient over self – has been displaced by the external forces of the market-driven economy. In an effort to respond to these concerns, assessment of ethics, professionalism, and clinical effectiveness in medical and dental schools is on the rise. Rest's (1983) Four Component Model of morality provides the theoretical lens to examine clinical effectiveness in relation to multiple dimensions of morality, including empathic response, an element of moral implementation.

Research Questions

These questions guided the study: (1) To what extent do measures of FCM capacities (judgment, motivation, and implementation) predict the level of dental student competence on a performance assessment of clinical interaction skills? (2) To what extent do measures of judgment and motivation predict the perceived likelihood that the patient would comply with the clinician's advice? (3) To what extent do FCM capacities predict whether student-dentists would verbally acknowledge the patient's chief complaint?

REVIEW OF THE LITERATURE

This section provides an overview of research on morality, describes capacities that give rise to morality, and then discusses an operational definition of moral implementation that focuses attention on empathic response within health communication. Because empathy is integral to moral processes, theoretical perspectives and empirical research for both morality and empathy are provided. Research questions and hypotheses conclude this chapter.

Morality

Kohlberg and Rest

The roots of moral theories of Kohlberg and Rest stem from the moral philosophy of Kant (1785/1994) and cognitive developmental theory of Piaget (1932/1965). Notions of justice, fairness, universal principles, and the reign of reason over emotions were central in early moral theory. In observing children resolving issues of fairness and working out rules to their play, Piaget developed general stages of moral development. Before the ages of 10 or 11, children's reasoning is egocentric. Moral rules are seen as external, imposed on them by parents or authority figures, or *heteronomous* morality. Through social interaction with peers, the child experiences *cognitive disequilibrium*, necessary for growth and development to more advanced stages of moral thought, or *autonomous* morality.

Kohlberg (1969) advanced Piaget's theory by investigating moral thinking with older children by conducting extensive interviews to assess developmental stages. From this inquiry, Kohlberg identified six distinct stages of moral cognitive development. At the *preconventional* level (stages 1 and 2), the individual reasons about moral issues from a perspective of fear of punishment, self-interest, or greed; *conventional* (stages 3 and 4), the desire to please one's friends and family and to follow the rules and conventions set up by society; and in *postconventional* (stages 5 and 6), the recognition that moral rules and conventions are socially constructed and that through democratic processes, rules and laws can increasingly become

more just. Kohlberg's ideas continue to be applied within psychology and moral education, and his Moral Judgment Interview (MJJ) is still used to assess moral stages.

Criticism of Kohlberg. Kohlberg's theory was criticized on several points (Rest et al., 1999a). First, the six levels of moral development were derived from interview data from a sample of upper-class boys. Second, the global nature of the dilemmas presented (e.g., Heinz and the Drug) did not capture the moral reasoning abilities embedded in context, culture, or religion. Third, the Moral Judgment Interview (MJJ) protocol scored rationale statements citing "care" reasons for moral decisions as reflective of a lower stage of development, suggesting bias against girls and women.

In response to this criticism, Carol Gilligan (1982) conducted in-depth interviews with women, and based on this data, formulated a theory of women's moral development. Gilligan asserted that women use care-based arguments, and not justice, in resolving moral issues. Like Kohlberg, Gilligan defined three developmental levels of women's moral reasoning: (a) individual survival, (b) willingness to sacrifice for others, and (c) non-violence towards self and others. However, Gilligan's claim that women and men reason differently about moral issues would also be disproved because of a methodological flaw: her sample did not include men, so no meaningful comparison could be made. In later research, both men and women have been found to use care and justice based arguments (Walker, 2006).

Rest and Moral Theory

Rest advanced moral theory in several ways: (1) through developing an improved method of studying adolescent and adult morality, and subsequently finding evidence that moral development can increase throughout the lifespan through education and exposure to new ideas; (2) through the Four Component Model (FCM) (1983), a dynamic process model of moral behavior that integrated cognition and affect; and (3) through the formulation of Neo-Kohlbergian moral theory, which addresses criticisms of stage theory and integrates social cognition approaches (Rest, Narvaez, Bebeau, & Thoma, 1999b). These are next discussed.

The Defining Issues Test (DIT) (Rest, 1979). Kohlberg's Moral Judgment Interview (MJJ), which required extensive training for scoring, was viewed as impractical for most researchers (Colby & Kohlberg, 1987). Interested in a more efficient methodology of assessing moral reasoning, Rest developed the Defining Issues Test (DIT) (1979) using verbatim responses to moral dilemmas from a range of expert to novice groups, from junior high to doctoral-level philosophy graduate students. The result was psychometrically sound and efficient means of measuring moral reasoning. Because inductive methods were used, the issues and arguments in the DIT represent a construct much broader than Kohlbergian justice reasoning, and encompassed concepts of care and religion. While Kohlberg was still validating the coding scheme for the MJJ, Rest had conducted extensive validation of the DIT through hundreds of studies (1986).

The DIT presents six short moral dilemmas followed by a series of 12 justification statements representing various moral arguments or schemas. Dilemmas include the well-known "Heinz and the Drug" dilemma, in which a husband must decide whether or not to steal a drug that would save his dying wife's life or whether he must abide by society's laws against stealing. Participants rate the importance, rank the top four decision factors, and provide an action choice.

As a tacit recognition task, the DIT is thought to improve upon interview or essay methods, which can confound verbal or writing ability with moral reasoning. The DIT may have improved validity because it may be less vulnerable to presentation effects or social desirability bias that may occur in production tasks. Reliability checks are included to detect "faking high" or inattention to the task through "nonsense" items – responses that may sound sophisticated, but are meaningless.

Although the common belief that one's moral orientation does not change beyond childhood years prevails, research provides evidence to the contrary (Rest et al., 1999a). Outcome studies of college students have found that increases in moral development are stronger than for other developmental domains. The effect size of .8 for moral development over four years of college exceeds achievement in general verbal (.56), oral skills (.60), or

independence (.36) (Pascarella & Terenzini, 2005; Rest et al., 1999a). Higher moral judgment scores are associated with pro-social behaviors, such as community involvement ($r = .31$) and civic responsibility ($r = .44$), with both correlations statistically significant at $p = .01$ (Rest et al., 1999a, p. 81). Nursing internship performances are better predicted by moral judgment than by GPA, ACT score, or age (Duckett & Ryden, 1994). A key advantage of using the DIT to measure moral judgment (component 2) is the availability of norms by age, undergraduate major, and profession.

DIT studies have found no support that moral development theory was biased against women; in fact, when there was a difference, it most commonly favored women (Walker, 2006).

From Stage to Schemas

Unlike Kohlberg's Moral Judgment Inventory (MJJ), which relied on participants' production data, which required that they produce or verbalize their reasoning, the DIT is a tacit recognition task, allowing insight into implicit schemas which may be active (Rest, et al., 1999b). Items elicit just enough of the line of reasoning to activate the preferred moral schema (top-down processing) but require that the participant supply additional reasoning of the schema to preference and action choices (bottom-up processing). The task of rating and ranking is akin to recall or recognition tasks of social cognition research, tapping into schemas that are preferred or predominant. While Kohlberg's research focused on younger children and adolescents, and involved production tasks, i.e., structured interviews with complex coding schemes, Rest's focused on tacit recognition tasks, allowing for efficient test administration, improving on validity of responses, and expanding research with college students and adults.

Schemas are internal, organizational conceptions of knowledge based in long-term memory that allow the perceiver to take in stimuli (like Piaget's concept of assimilation), process it quickly, and guide decision making and action (Fiske & Taylor, 1991). Schemas can be either consciously accessible, i.e., the individual can recount or produce the line of reasoning involved with the processing of information, or they can be unconscious or implicit. Much of the research in social cognition utilizes memory and reaction time, to allow exploration of

unconscious, implicit processes. Schema theory is useful in understanding implicit processes, those that may elude researchers relying on interview methods. An example of this line of research is a classic study in which participants were presented with drawings of polygons at such a rapid speed they could not be perceived. Yet when shown the exact drawings later, they preferred them, but could not explain why (Kunst-Wilson & Zajonc, 1980).

Using factor analysis of very large datasets of DIT data, researchers identified three underlying factors or patterns, thought to represent moral schemas. The three moral schemas as defined by neo-Kohlbergian theory are: (1) personal interests (previously Kohlberg's stages 2 and 3), (2) maintaining norms (stage 4), and (3) postconventional (stages 5 and 6). The fact that stages 2 and 3 are combined in the personal interests schema does not indicate a theoretical difference between stages 2 and 3, but rather, is reflective of the fact that older subjects tend to consider stages 2 or 3 together.

From Four Components to a Gestalt Theory of Moral Behavior

The Four Component Model (FCM) of morality (Rest, 1983) addresses recent criticisms of Kohlberg and moral development theory (e.g., Haidt, 2001; Krebs & Denton, 2005) by integrating moral cognition and emotion. The FCM articulates psychological processes of perceiving and interpreting social problems as moral (sensitivity); cognitive and affective processing about moral issues (reasoning and judgment); evaluating the importance of moral values in relation to other competing goals, needs, or drives (identity or motivation); and formulating an implementation plan, taking into account the interpersonal and social dynamics of the situation (character and competence, or moral implementation). Rather than the four components representing a four-step, linear process of predicting or explaining behavior, the FCM represents a complex interaction of cognition, affect, and social dynamics that are a holistic process (Rest et al., 1999a). Either the underdevelopment of abilities or suppression of their function serves to impede moral behavior.

Sensitivity. The first component, *sensitivity*, is the individual's ability to perceive the moral dimensions of a problem, through awareness of existing codes of ethics, regulations, or

laws; interpretation of complex situations through role reversal and social perspective taking; and creative imagination of possible moral dimensions of a problem. Moral emotions of empathy, sympathy, shame, and guilt may heighten sensitivity to moral dimensions of problems.

Judgment. The second component involves the ability to provide a sound rationale for one's decision about a moral problem. Moral judgment has the longest research history of the four components, and although it is often compared to Kohlberg's measure of moral judgment, the Moral Judgment Inventory (MJI), Rest's operational definition of moral reasoning was derived inductively in the instrument development process.

Identity or motivation. The third component involves identity formation and the integration of personal values with professional ones. It involves prioritizing moral values over other competing values, needs, or interests. This focus on conceptions of one's role in society and how embedded moral values within the concept of self draws heavily on the research on identity by Blasi (1984) and Kegan (1982, 1994). Self conceptions develop from egocentric, self-focused to other-oriented, likely increasing sensitivity to moral issues as a parallel process.

Implementation. The fourth component involves the process of *implementation* of the decision within the social realm, and is often described as *moral character* as well as *moral courage* (Rest, 1983).

Moral implementation as character is a first-generation operational definition of the fourth component that focuses on personality traits or dispositions including at character, courage, or ego-strength (Rest, 1986). The limitations of this approach alone are that it fails to acknowledge research that situational factors more strongly correlate with behavior, and that situational characteristics inhibit or interact with moral traits in inconsistent ways (Mischel, 1968). This suggests a person perceived as strong-willed or courageous may behave morally in one situation, but perhaps not in a novel situation. In fact, in studies of moral exemplars, individuals thought of as courageous by others often do not perceive themselves as courageous, but as simply attending to the demands of the situation (Rule & Bebeau, 2005). Thus, the trait or virtue approach severely limits the power to predict or explain moral behavior and the need to

acknowledge approaches from social psychology and social cognition (Lapsley & Narvaez, 2004).

Rest's conception of moral implementation, however, carried elements that acknowledged the situational contributions to shaping behavior. Rest (1986) stated that

Component 4 involves executing and implementing a plan of action [and] involves figuring out the sequence of concrete actions, working around impediments and unexpected difficulties, overcoming fatigue and frustration, resisting distractions and allurements, and keeping sight of the eventual goal. p. 15.

In fact, this operational definition has been the basis of an approach used within professional ethics education for over two decades (Bebeau, 1994). The fourth year curriculum in dental ethics defines moral implementation as a set of intra- and interpersonal cognitive and affective capacities and skills that are related to effectively navigating the role demands and social dynamics of the profession.

Self regulation of emotions is particularly relevant to moral implementation in the health professions (e.g., dentistry or emergency medicine), where one's role involves repeated exposure to patients who are experiencing intense emotions, anxiety, or physical pain; whose judgment may be impaired by substance abuse; or who may have a variety of mental or physical disorders or disabilities (Bebeau, 1994).

Rest's operational definition links substantively to the development of communication and leadership capacities, managing the demands of relationships in a pluralist society with multiple cultural, class, or value differences among clients, patients, or colleagues, and negotiating organizational climate and politics without compromising the moral self. Rest and Bebeau's approach thus becomes a "second-generation" operational definition of moral implementation – one that is increasingly relevant in a rapidly changing society.

Thus, moral implementation is defined as an anticipatory step in interacting with the social world, involving intra- and interpersonal capacities. Intrapersonal capacities involve managing internal conflicts arising from imagined or actual implementation of the moral behavior (e.g., anticipation of positive or negative sanctions, or coping with out-group

opposition). Interpersonal capacities intersect with the anticipated or actual reactions from others to moral ideas, which may thus initiate controversy or conflict. Managing interpersonal communication about moral ideas thus involves persuasion, negotiation, and conflict resolution. Although courage may be required in order to confront an oppositional actor, courage may not be sufficient to negotiate a moral resolution to a conflict. Interpersonal effectiveness and organizational savvy are also necessary and the related skills and knowledge can be taught. Despite the effectiveness of the individual in negotiating a moral agreement, the severity of opposition to a proposed moral behavior may doom even the most ethically competent.

In Rest's (1982, 1983) view, attempting to implement an action plan may or may not result in an act that is judged to be moral. Situational factors within the social environment or the moral agent's level of competence may block attempts at moral behavior. Rest viewed each component as a complex interaction of cognition and affect, and rather than a sequential set of steps, the model represents a dynamic process. For example, an individual implementing a moral behavior may receive feedback from his or her environment that signals the decision is not viewed as the most moral option. The individual then has the choice to incorporate this feedback and engage in greater perspective taking and more nuanced reasoning, which likely results in greater moral sensitivity.

Neo-Kohlbergian Moral Theory

Rest, Narváez, Bebeau and Thoma (1999b) articulated neo-Kohlbergian moral theory, which addressed criticisms of Kohlberg's and Rest's theories, while retaining central ideas of justice and the lifespan developmental perspective of morality. The distinguishing features include

1. Kohlberg's idea that development progresses one stage at a time, the "hard stage" model, is replaced with one less rigid. Development proceeds as overlapping waves, with shifting distributions of moral schemas.
2. Neo-Kohlbergian moral theory acknowledges that morality is a social phenomenon and that dialogue and evolving conceptions of what is moral and what is not must be taken

into account. In neo-Kohlbergian terms, normative theories that propose a single universal notion of morality are replaced by the possible redefinition of an ideal society, based on processes of debate and consensus, and founded upon principles of justice.

3. The single construct of justice is replaced with a *moral epistemology*. The rationale is that justice alone does not fully address personal or private moral issues, nor does it adequately explain moral behavior. Neo-Kohlbergian theory allows integration of other paradigms or disciplines (e.g., cultural, sociological, religious).
4. The global, lifespan nature of research in moral development must be supplemented with more concrete, situation-specific levels. One, *intermediate concepts* common to a profession or discipline (e.g., right to client privacy, informed consent, or conflict of interest) and specific professional codes of ethics are important areas (Bebeau & Thoma, 1999).
5. Social cognition approaches will shift morality research from production tasks to recognition tasks, facilitating the measurement of implicit knowledge of moral concepts (Rest, Narváez, Bebeau & Thoma, 1999b).

Neo-Kohlbergian theory posits multiple approaches to the study of morality – from social and personality psychology to Aristotelian virtue ethics (Rest et al., 1999a). The rationale for this approach is given from a study by Albert Jonsen and Stephen Toulmin over a period of four years on the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research providing evidence that people can arrive at the same moral decision but through utilizing different ethical paradigms (Beauchamp & Childress, 1994). Jonsen and Toulmin found that in discussing cases, the participants chose the same decision outcome on cases, but disagreed on how they had arrived at those decisions. In other words, utilitarianism, Kantianism, care, culture, religion, or justice could all be applied to a case, but the decision outcome was the same.

Criticism of Moral Development Theory

Criticisms of moral development theory focus on a perceived neglect of motivation, emotion, or affect (e.g., Haidt, 2001; Hoffman, 2001; Krebs & Denton, 2005; Sonenshein, 2007; Tangney & Dearing, 2002). The perpetuation of the dichotomization of emotion and cognition may result from the origins of Kohlberg's theory with justice based reasoning, and domination of cognitive research during this period of time. In returning to their writing to clarify, neither Kohlberg nor Rest intended to limit explanations of moral behavior to cognition. Kohlberg stated: "[I have] long assumed the inseparability and the parallel development of cognition and affect." Although Kohlberg's research and theoretical work clearly focused on moral judgment, he was also deeply influenced by Dewey, who wrote of the need for a "unifying principle" to provide alternatives to dualistic views of thought and sensation (1896, p. 1) writing

It is the very cumulation of discrete facts creating the demand for unification that also breaks down previous lines of classification. The material is too great in mass and too varied in style to fit into existing pigeon-holes, and the cabinets of science break of their own dead weight. (p. 357)

In an article directed to school administrators, Kohlberg (1975) stressed the importance of the "moral atmosphere of the home, the school, and the broader society" (p. 53) and for "the democratic process [as a] vehicle for moral discussion" (p. 54). Although he called moral judgment the most critical aspect of morality, he also placed the "universal human tendency toward empathy or role-taking" as central in cognitive developmental theory.

Rest (1986) was unequivocal in stating that no one process can be studied in isolation stating that

I take the view that there are no moral cognitions completely devoid of affect, no moral affects completely devoid of cognitions, and no moral behavior separable from the cognitions and affects that prompt the behavior." (p. 4).

Rest instead viewed the interconnections between the four component process, and cognition and affect, as critical to a next-generation research agenda for the FCM, which he

framed as a shift from “instrumentation” to the “more substantive theoretical questions of the life conditions that influence moral judgment” (p.20).

Moving from the study of verbalizations to hypothetical dilemmas, however, into the realm of real life moral behavior, entails a quantum leap in complexity and juggling many variables and processes simultaneously. (p. 20)

Rest stated that emphasizing morality in “real life” – beyond the hypothetical dilemmas of the DIT – was optimal for professional education.

Moral Trees and the Moral Forest

Critics have suggested a more “pragmatic” theory of morality is needed (Krebs & Denton, 2005). Haidt (2001) proposes a theory of morality in which social intuition is the central process, claiming “moral reasoning is usually a post-hoc construction, generated after a judgment has been reached” (p. 814). Emphasizing the interpersonal nature of moral judgments, Haidt cites as evidence numerous theories from attitude and persuasion research on the dual-process nature of human judgment, one that is automatic (intuition) and the other that is more deliberate and effortful (e.g., Petty & Cacioppo, 1984). Haidt frames the social intuitionist approach as an “alternative to rationalist models.” Kohlberg and Rest would have not disagreed with Haidt’s approach per se. In fact, Kohlberg (1980) acknowledged this point in his writing to educators by stating

A classroom focus on moral reasoning is not enough . . . moral behavior consists, in part, of unconscious patterns of behavior learned through modeling and osmotic interaction with the culture. (p. 20).

When Haidt states that “there is evidence that . . . most of the [moral judgment] action is in the intuitive process” he is, ironically, partially agreeing with Kohlberg’s point from over a quarter century ago, and in the process is reinforcing false dichotomies of rationalism vs. intuition and cognition vs. affect. Missing from Haidt’s theory is the fact that humans can and do engage in moral reasoning all the time, as Piaget first noted more than a century ago, and this leads to moral judgment. Thus, Haidt appears to see only the moral tree of social intuition, and

misses the larger moral forest that integrates deliberative thought with automatic implicit reasoning and emotion. This “forest” is Rest’s Four Component Model.

FCM Assessment Approaches in Ethics Education in the Professions

The Four Component Model is widely used within professional education, including medicine, dentistry, law, nursing, and veterinary medicine (Bebeau, 2006). The following reviews FCM measures used within the dental school curriculum, the context for the present study.

Moral sensitivity. The Dental Ethical Sensitivity Test (DEST) (Bebeau, Rest, & Yamoor, 1985) has been used in conjunction with a mentoring program for dental students for over 20 years. Students respond to diverse cases about clinical problems ranging from untreated oral disease to anorexia. Students receive feedback on their assessment from their mentor, and experienced dental professional. Measures of moral sensitivity, based on the DEST, have been developed in business, counseling, medicine, and teacher education and have been found to have good psychometric properties for use as assessment tools (You & Bebeau, 2005). The DEST has also informed the development of a Racial Ethical Sensitivity Test (REST) for teachers (Brabeck & Sirin, 2001; Sirin, Brabeck, Satiani, & Rogers-Serin, 2003).

Moral judgment. Bebeau (2002) reviewed 33 studies of moral development research from five professional fields, including medicine, law, dentistry, nursing, and veterinary medicine. The review studied effects of the curriculum and ethics interventions on moral judgment ability using the DIT. The effect sizes of ethics interventions were positive and ranged from .16 to .65 (nursing); .77 to .97 (law); and .12 to .78 (dentistry). None of the professions showed statistically significant increases in moral judgment at the end of the program without the inclusion of ethics intervention. A key advantage of the DIT is the availability of norms for age-group and discipline, providing comparison data for evaluating programs.

The largest body of outcome research using the DIT comes from dentistry, extending over a 20-year period (Bebeau, 2002; Rest & Narvaez, 1994). The program model from dentistry is based on the FCM and includes assessment and instruction in each of the moral capacities across the four-year curriculum. Bebeau, Rodriguez, and Maeda (2002) examined data from pretests and posttests of 15 sequential years of the dental school graduating classes. In 13 out of the 15 classes examined, all had significant increases in *p* scores from freshmen to senior levels.

Identity or motivation. The Professional Role Orientation Inventory (PROI) measures moral identity or motivation along multidimensional constructs of authority, responsibility, autonomy, and agency that are associated with professional role concepts (Bebeau, 2001; Bebeau, Born & Ozar, 1993). In an outcomes study of a dental school curriculum, PROI scores statistically, significantly increased from pre- to posttest (freshmen to senior) (Thoma, Bebeau & Born, 1998).

The PROI-Authority dimension is defined as the "[D]egree to which a person sees the self as knowledgeable, a good judge of outcomes, respected, and deferred to for expertise." Using the Authority scale as a pre-test early in professional education may likely reflect the novice status of students. The second scale, Responsibility, measures the "[Breadth of an individual's commitment to others." This dimension appears to be the most relevant to studying empathy in clinical communication. The third scale, Agency, deals with differing viewpoints of the commercial model underlying the dental practice. The fourth scale, Autonomy, entails the individual's sense of self competence and effectiveness at managing multiple demands of their professional role.

In a recent validation study, internal consistency reliability of the PROI was overall good ($\alpha = .88$); for authority and responsibility, it is stronger (Kang, Bebeau, Born, & Thoma, 2006). In their factor analysis, Kang et al. explored the interrelationships of three psychological dimensions that have been proposed to better represent the dimensions of Agency and Autonomy, including (a) Personal Efficacy, (b) Interpersonal Effectiveness, and (c) Sociopolitical Management. Although factor analysis indicated that items within these three

dimensions were highly correlated, providing some evidence to support the new factor structure. According to the researchers, their finding may have more to do with the population they sampled, experienced dentists, and that the proposed factor structure may differ for student-dentists.

Other approaches to measuring moral identity include the use of Kegan identity formation assessment (1982). Kegan's theory states there are five stages of the self-other dynamic that develop in a spiral of increasing affiliation from local (family or provincial) to global (all of humanity). In childhood (ages 5 to 7), the self is egocentric and grounded by the affiliation with family or close others, but can increasingly take multiple perspectives into account (Stage 2 or "Imperial"). Between the ages of 7 and 15, increasing individuation and growing cognitive capacity to take multiple perspectives into account begin, referred to by Kegan as Stage 2/3 Transition. In adolescence (ages 15-24), the individuation process begins, with increasing affiliation with peer groups or influential others (Stage 3 or "Interpersonal"). In adulthood (ages 24-40), according to Kegan, the self becomes increasingly autonomous and self-directed with growing capacity for social perspective taking (Stage 4 or "Institutional"). Using structured interviews, Kegan's has found empirical evidence supporting the theory. However, validation studies of Kegan's theory within graduate management education have found fewer students in stage 3 and 4 than predicted by the theory (Snook, Forsythe, & Lewis, 2007). A study of two entering classes of dental students confirmed that a majority of students had not achieved Stage 3 or 4, and that 52 to 70 percent were in Stage 2 / 3 transition, with some still in Stage 2 (Monson, Roehrich, & Bebeau, 2007).

Other validation studies of Kegan's theory confirm that stage transitions from 2 to 3 and 3 to 4 occur much later than adolescence. In a cross-sectional and longitudinal study, Forsythe, Snook, Lewis, and Bartone (2002) conducted in-depth interviews with entering freshmen and seniors. They found that 21 percent of freshmen were still in Stage 2; 63 percent at Stage 2 to 3 transition; and 16 percent were at Stage 3. None had achieved Stage 4. Among seniors, 19 percent had advanced to Stage 3 to 4 transition Stage, 47 percent had achieved Stage 3; 28 percent were at Stage 2 to 3 transition; and 6 percent remained at Stage 2.

Implementation. Approaches to assessment of moral implementation skills are well suited to case analysis in ethics instruction, and exposure to exemplars of the field (Bebeau, 2002; Rule & Bebeau, 2005). In professional education, instruction in interpersonal communication, negotiation, active listening, ethics, and cultural sensitivity can all enhance implementation effectiveness. Cases or simulations that require role play, Standardized Patient (SP) techniques which involve assessing students on clinical and communication skills; or preparing an actual physician-patient dialog, which requires the creative process of imagining what the patient might say in response to questions are all useful in assessing component four. The later method, case dialogs, was used to assess implementation and empathic communication in the present study.

In a later section, relevant studies examining how empathy is taught and measured within professional education are discussed.

Moral Implementation

Bridging to the Interpersonal

Once the individual has entered the realm of interaction with the social world through moral implementation, a cascade of reactions, conflict, sanctions, or expulsion from groups or organizations can likely occur. This has traditionally been the outer boundary of Rest's FCM theory of individual moral psychology. But as Rest (1986) pointed out, it is at this boundary where the individual may also encounter "the personal costs of moral action . . . [and] may defensively reappraise and alter their interpretation of the situation (component 1) so that they can feel honorable, but at less cost to themselves" (p. 18). The potential for heightened sensitivity, consideration of new reasons to support a moral judgment, or greater coherence of values and motivational factors that comprise one's identity, exists at these margins of the FCM. It is at the boundaries of post-implementation processes where the relevance of Haidt's social intuitionist model of moral judgment fits within the framework of the FCM, and does not, in

fact, represent a new idea. To clarify some of the misconceptions of the FCM perpetuated by Haidt and others, and to respond to their assertions, three points are offered:

1. Haidt seems to assume that intuition precedes judgment. The FCM incorporates this possibility, but presents numerous other alternative pathways to moral judgment, and ultimately to action. The FCM is not a four-step linear process, but more dynamic and complex.
2. Decision processes vary in relation to individual and environmental factors (e.g., socioeconomic status or organizational culture) (Bruine de Bruin, Parker, & Fischhoff, 2007). A culture where negative social interdependence (competition) predominates, decision making is likely prone to rapid, social intuitionist process, and resulting moral lapses (Gioia, 1992).
3. Through social interaction, engaging in moral implementation may result in cognitive disequilibrium; plausibly shifting the decision process from heuristic or social intuition to deliberative reasoning. In turn, this could alter the cognitive-affective system and FCM capacities. There is considerable empirical evidence of this effect from intervention and outcome studies using the DIT (Bebeau, 2002).

In sum, moral implementation can result in a feedback loop, i.e., the individual executes a moral behavior resulting in sensory feedback, which instigates change within the individual, which in turn, can influence future attempts to change or persuade. In a sense, moral decision making and implementation involve an iterative process which can entail growing capacities of moral sensitivity, thinking, and identity. Figure 1 depicts the dynamic processes of the FCM.

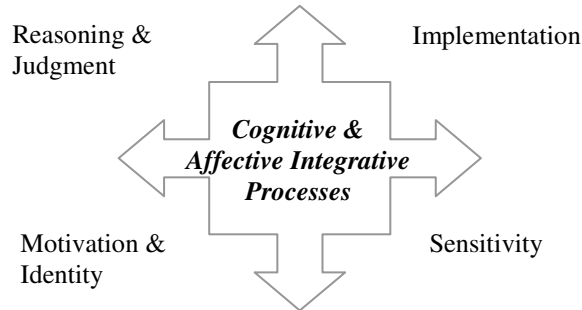


Figure 1. Rest’s Four Component Model illustrated as an integrative psychosocial process, in which moral action may elicit resistance, opposition, conflict, or reward, which may in turn alter the individual, group, or social system.

Post-Implementation Impact

Several consequences could follow implementation of the moral decision that can instigate change within the moral actor or group. The consequences relate to conformance or deviance from moral or immoral norms, and the resulting change to either the system or the actor. The potential consequences of moral implementation are probably best summarized by graphic display, shown in Table 1.

Table 1. *Forms of Moral Conformance & Deviance*

	<i>Conformance</i>	<i>Deviance</i>
<i>Moral Norms</i>	Constructive conformance to moral norms	Destructive deviance from moral norms
<i>Immoral Norms</i>	Destructive conformance to immoral norms	Constructive deviance from immoral norms

What this implies for the FCM dynamic process is that deviance from moral or immoral norms is more likely to elicit conflict, resistance, or change – either intrapersonal or intrapersonal. In turn, this conflict likely prompts a new “round” of individual moral decision making.

The relevance of this process is that the FCM represents a web of connected attitudes and moral schemas which are part of an internal system. Through interacting with the social realm, they may be more or less likely to instigate internal change through cognitive disequilibrium processes. For example, moral identity is thought to be a key process in moral decision making (Bebeau, 2006). If one's identity is strongly grounded in multiple social institutions (e.g., family, school, a profession, or a citizen within a democracy) the result is an integrated system of ideology, values, attitudes, and knowledge. According to persuasion theory and research, strongly held attitudes linked to related ideas, values, and beliefs are more resistant to change (McGuire, 1981). Thus, a physician who identifies strongly with the social responsibility of the profession to serve the needs of the most vulnerable in society (e.g., volunteering weekly at a homeless shelter) would be less likely deterred by negative sanctions resulting from positive moral deviance (e.g., refusing to reduce the number of volunteer hours to increase clinic hours for paid cases).

Conversely, a diffused or undeveloped moral identity would be associated with prioritizing self-interest (e.g., kickbacks from drug companies) or conforming to morally questionable norms (see Blasi, 1984; Kegan, 1983). Fazio (1987) points out that less strongly held attitudes are more likely to change based on observing one's own behavior. For example, a physician who accepts incentives from drug companies observes herself and others reaping perquisites, and begins to view the practice as normative or amoral, rather than as a conflict of interest.

Prospective or Post-Implementation Justification Processes

The consequences of failed moral implementation are likely to have some results predicted by prior research on cognitive dissonance (Festinger & Carlsmith, 1959) and theoretical work in moral disengagement processes (Bandura, 1991). When confronted with the reality of conforming to an undesirable moral outcome in order to preserve one's status within an organization or work group, the individual may need to protect against negative self appraisals by adopting a set of justifications for the action that exonerate the individual from the moral

lapse (Bandura, 1991). The individual may also engage in such justifications in order to maintain the network of related attitudes and cognitions that are interconnected to protect against what Eagly and Chaiken (1993) call the “domino effect” which points to the interconnectedness of attitudes and values and the resulting resistance towards persuasion or change.

These processes can occur either prospectively, during the moral implementation phase when the individual is engaging in making concrete plans to carry out the moral action, or in the post-implementation phase, in which the individual has gleaned feedback from peers that the moral action proposed is not accepted.

If the moral decision implemented in a social context may involve negotiation, persuasion and intergroup, interpersonal, or intrapersonal conflict (Deutsch, 1971) and formal or informal, positive or negative sanctions (e.g., ostracizing or sabotaging by group members, Tajfel, 1982). Failed attempts at moral persuasion can cost one’s job, a common result of whistleblowing in corporate fraud cases (McClellan & Elkind, 2003). The resulting intrapersonal conflict could cause a questioning of one’s identity, grief over the loss of status or of income, frustration, shame, or guilt. It could also result in strengthening one’s resolve to do the right thing. The opposite could hold true as well; implementing an unethical action in the social world (or anticipation of doing so) could also result in similar sanctions and conflicts.

Empathy

Overview

Moral emotions such as empathy, shame, or guilt – are thought to regulate behavior toward moral norms, helping us adhere “to the straight and narrow” (Tangney & Dearing, 2002, p. 81). Haidt (2003) categorizes four moral emotions: (1) *other-condemning emotions* of contempt, anger, and disgust; (2) the *self-conscious emotions* of include shame, guilt, and embarrassment; (3) *other suffering* emotions of sympathy, empathy, or compassion; and (4) the *other praising* emotions of gratitude, awe, and elevation. Haidt sees these emotions as present in

varying forms in animals and children, arguing that the more complex forms of these emotions qualify as “moral.” Through awareness of the self, others, and identity and social interaction, moral emotions such as empathy, embarrassment, shame, and guilt develop early in life.

Moral emotions function as either a result of interaction in the social world, or anticipation of interaction. For example, considering cheating on one’s taxes might cause one to anticipate a feeling of shame and guilt at getting caught (or knowing one has violated a moral norm), which would serve to inhibit the impulse to cheat.

Guilt and shame, two of the negatively valenced moral emotions, are often used interchangeably, but psychologists make the distinction that guilt tends to be more constructive and outward, while shame is associated with internalization and preoccupation with the self. Shame is associated with destructive and dysfunctional actions towards others including psychological abuse, violence, increased intensity of anger, and blaming others for one’s problems (Tangney, Stuewig, & Mashek, 2007). Individuals reported to have experienced shame surrounding a life event have been found to be less likely to have made amends for their transgression than those reporting guilt or a combination of guilt and shame (Silver, 2007). Guilt, in contrast, is positively associated with social perspective taking and the ability to empathize with others (Tangney et al., 2007).

Of the moral emotions, empathy has the most established presence in the health communication literature, with considerable evidence of its relation to effectiveness in parenting, health communication, and in the ability to apply moral principles to “real-life interpersonal situations” (Tangney & Dearing, 2002, p. 79).

Definitions of Empathy

The psychoanalytic movement of the 19th century brought empathy into the lexicon (Jahoda, 2005). Mead (1934) and Piaget (1962/1935) viewed empathy as integral to theories of the self. Hogan (1969) defined empathy as a cognitive function or "the intellectual or imaginative apprehension of another's condition or state of mind without actually experiencing that person's feelings" (p. 308). Hogan viewed empathy as consisting of both dispositional traits

(e.g., extroversion) and sociopolitical attitudes. In contrast, Mehrabian and Epstein (1972) defined empathy as an orientation toward helping others.

Contemporary psychological definitions of empathy integrate cognition and affect, involving the social-perspective taking, and sensing their emotional state, pain, or distress. In contrast, sympathy is defined as the cognitive awareness of another person's distress, without vicariously feeling their emotions (Eisenberg, 1986).

Hoffman (2001) defined empathy as an understanding another person's state of mind and being, the ability to "read" another's emotional state, and experience that emotion vicariously without losing the self. The reflexive response of newborns to hearing another infant cry is an early manifestation of empathy.

Hoffman views empathy as susceptible to various perceptual biases, for example (1) the familiarity bias, which would suggest we are more likely to empathize with friends or family than with strangers, and (2) the "here and now" bias, which suggests that we may empathize with others within proximity who are in distress or pain, and postpone feeling empathy for others at a distance.

Carl Rogers (1980) defined empathy in the context of client-centered therapy as the ability to

[P]erceive the internal frame of reference of another with accuracy and with the emotional components and meanings which pertain thereto . . . it means to sense the hurt or the pleasure of another as he senses it and to perceive the causes thereof as he perceives them. (p. 140).

Social and developmental psychologists have approached empathy in relation to child development (Eisenberg, Spinrad, & Sadovsky, 2006); interpersonal relationships and aggression (Eisenberg, 1986); altruism (Eisenberg & Miller, 1987), prosocial behavior (Hoffman, 1982) and parenting effectiveness (Feshbach, 1987). Tangney and Dearing (2002) define empathy as "the 'good' moral affective capacity or experience, leading us in moral directions and diverting us from paths of vice and perdition" (p. 79).

In medical education, Francis Peabody (1927) stated to Harvard medical students that the “secret of the care of a patient is caring for the patient.” Despite this early emphasis on the emotional experience of caring for patients, definitions of empathy in health fields exclude vicariously experiencing the patient’s distress or emotion (Eisenberg, 1986; Hogan, 1969). In health fields, empathy is cognitive understanding of the other, while retaining detachment from the situation. In contrast with social science definitions, sympathy in medicine contains the element of shared feeling in health communication. Disparate views of empathy stem from the intensity of the emotional demands of practicing medicine, the need to maintain “compassionate detachment” in order to avoid burnout (Hojat et al., 2004).

Measures of Empathy

Scales. A search of the PUBMED database using the keywords “empathy scale” resulted in 21 hits, of which 6 were relevant to assessment within health communication.

The Emotional Empathic Tendency Scale (EETS) (Mehrabian & Epstein, 1972) focuses on seven affective dimensions of empathy including (a) susceptibility to emotional contagion; (b) appreciation of the feelings of unfamiliar and distant others; (c) extreme emotional responsiveness; (d) tendency to be moved by others' positive emotional experiences; (e) tendency to be moved by others' negative emotional experiences; (f) sympathetic tendency and (g) willingness to be in contact with others who have problems.

Davis (1983) developed and validated the “Interpersonal Reactivity Index (IRI),” a multidimensional scale of empathy that is integrated cognitive and affective operational definitions of empathy and is well validated. The four dimensions of the IRI include: (1) Perspective-Taking (PT) scale, the extent to which the individual adopts the viewpoint of the other; (2) Fantasy scale (FS) or the process of imagining the feelings or perspectives of others; (3) Empathic Concern (EC) scale, which taps into feelings of sympathy or concern for others, and (4) the Personal Distress (PD) scale or “self-oriented” empathy. Internal consistency reliability of the IRI ranges from .70 to .78; test-retest reliability estimates range from a

correlation of .68 to .81. The IRI is recommended for empathy research and assessment by experts (e.g., Tangney & Dearing, 2002).

Hojat, Mangione, Nasca, Cohen, Erdman, Veloski et al. (2001) developed the Jefferson Scale of Physician Empathy (JSPE) an empathy scale developed for health education and medical settings. Hojat et al. define empathy as follows.

In the medical context, empathy can be viewed as an uncritical understanding of a patient's inner feelings and experiences as a separate individual, as opposed to "feeling with" the patient, which characterizes sympathy. (p. 352).

The JSPE integrates dimensions of the Interpersonal Reactivity Index (IRI) (Davis) as well as items analogous to other personality and empathy measures, including the Faith in People scale (Rosenberg, 1957), and the NEO PI-R⁷ (Costa & McCrae, 1992). In construct validation studies, Hojat et al. report moderate, positive correlations of the JSPE empathy index and Empathic Concern from the IRI or $r = .40$ for residents; and $r = .41$ for medical students ($n = 193$). The correlation between Rosenberg's "Faith in People" scale and JSPE empathy index was low, $r = .12$. From the NEO PI-R, indices of Warmth and Dutifulness had a moderate, positive correlation with the JSPE empathy index at $r = .33$ for medical students; $r = .24$ for residents. Other items on the JSPE include self-reported assessments of compassion, sympathy, tolerance, personal growth, communication, self-protection, humor, and clinical neutrality. A strong, positive correlation was found between self-reported level of compassion and the JSPE empathy index, at $r = .56$ for residents; $r = .48$ for medical students. In estimates of internal consistency reliability, Hojat et al. report estimated alpha at .87 for residents and .89 for students.

Observational measures. Two prominent approaches to assessing empathic ability within health education involve observing students in clinical simulations (Deladisma, Cohen, Stevens, Wagner, Lok, Bernard, et al., 2007), and coding videotapes of physician-patient interaction (e.g., Bylund & Makoul, 2005). Other approaches include intervention studies using

⁷ The NEO PI-R (Costa & McCrae) is a widely used measure of the so-called "Big Five" personality traits, including neuroticism, extraversion, openness, agreeableness, and conscientiousness.

randomized clinical trial (RCT), quasi-experiments, experiential learning methods, and integrating arts into medical school curriculum.

Deladisma et al. conducted a study with medical students comparing a standardized patient (SP) method of assessing student clinical communication skills to a virtual patient (VP) methodology ($n = 33$). The VP entails a videotape of an actor in role play as a physician and represents a more cost effective method of assessment than SP. The student's clinical interview is videotaped and rated by four experts according to criteria for communication effectiveness, including empathy. The dimensions included in the rubric included: (a) eye contact, (b) body lean, (c) head nod, (d) immersion level, (e) anxiety, (f) attitude, (g) empathy, (h) question clarity, and (i) overall rating. All of the dimensions used a four-point rating scale except for the overall rating. For dimensions relevant to the present study, alpha for empathy was .92, and for attitude, .82. Question clarity was lower, at .69, although still acceptable. This supports the idea that assessing communication skills using simulations of patient interaction, which is the focus of the present study, can yield valid and reliable data.

In another study of empathic communication in clinical interviews, Bylund and Makoul (2005) gathered 500 videotapes of 20 physicians interviewing on average of 25 patients each. The framework for analysis was based on the notion that in clinical settings, patients present *empathic opportunities* (a statement by the patient about his or her emotional or physical state), a *praise opportunity* (a patient remark that infers compliance with the physician's instructions or education), and *potential empathetic opportunities* (indirect clues to the patient's emotional or physical condition) (Suchman et al., 1997). A rubric was developed to categorize empathy from a random sample of empathic opportunities ($n = 100$). The categories are shown in Table 2.

Table 2.

Empathic Communication Coding System (ECCS) (Bylund & Makoul, 2005)

<i>Level</i>	<i>Name</i>	<i>Description</i>
6	Shared feeling or experience	Physician self-discloses, making an explicit statement that he or she either shares the patient's emotion or has had a similar experience, challenge, or progress.
5	Confirmation	Physician conveys to the patient that the expressed emotion, progress, or challenge is legitimate.
4	Pursuit	Physician explicitly acknowledges the central issue in the empathic opportunity and pursues the topic with the patient by asking the patient a question, offering advice or support, or elaborating on a point the patient has raised.
3	Acknowledgment	Physician explicitly acknowledges the central issue in the empathic opportunity but does not pursue the topic.
2	Implicit recognition	Physician does not explicitly recognize the central issue in the empathic opportunity but focuses on a peripheral aspect of the statement and changes the topic.
1	Perfunctory recognition	Physician gives an automatic, scripted-type response, giving the empathic opportunity minimal recognition
0	Denial/disconfirmation	Physician either ignores the patient's empathic opportunity or makes a disconfirming statement.

Dimensions of Empathy

Hoffman (2001) defined the limitations of empathy based on situational and individual characteristics, including *empathic over-arousal* and *empathic bias*. Empathy is generally possible when the individual is in a balanced state. If the individual is stressed, anxious, or distracted, their capacity to engage in empathy is limited. Thus, Hoffman defines the state as *empathic distress* or *empathic over-arousal* as

. . . an involuntary process that occurs when an observer's empathic distress becomes so painful and intolerable that it is transformed into an intense feeling of personal distress, which may move the person out of the empathic mode entirely (p. 198).

Tendencies towards empathic over-arousal vary by individual disposition, as well as occupation. Individuals who are highly empathetic by disposition are more likely to experience empathic over-arousal. This dispositional tendency towards empathy has been demonstrated as early as kindergarten. With healthcare, highly-empathetic nurses must overcome feelings of emotional exhaustion and avoidance of terminally ill patients more than moderate or low

empathy nurses (Figley, 1995). Ironically, research has found that clinicians who are most empathetic and caring are also most susceptible to empathic over-arousal (Figley).

For helping professionals working with patients or clients who have been traumatized or who are chronically, terminally ill, empathic over-arousal can lead to *compassion fatigue* (Hoffman, 2001) or what Figley has termed *secondary post-traumatic stress disorder*. A measure of compassion fatigue, the *Pro-QL: Professional Quality of Life Scale: Compassion Satisfaction, Burnout and Fatigue Scale* is used in assessing compassion fatigue and burnout; it has been translated into five languages and used in 30 countries worldwide.

Empathic Bias

Potential biases in empathic response including the *familiarity bias*, characteristic of in-group / out-group membership (including family, friends, race, or social class); and the “*here and now*” bias, pertaining to the tendency to prioritize what is most salient (Hoffman, 2001). Given the growing divide between the rich and poor in society, and growing diversification of our population, issues of empathic bias have increasing relevance for health professionals and policy makers. Poverty increases the uncertainty of life, exposing individuals to greater risk for chronic illness; there is evidence that quality of care may vary by race and socioeconomic status (Abreu, 1999; van Ryn, & Burke, 2000). Practitioners note that “a lack of empathy [for others] . . . is linked to differentness” (Myrhvold, 2006).

Empathy in Medical Education

Research

A search on key words “empathy” and “medical education” using the Academic Source Premier database yielded 12 results. Cross-sectional studies of empathy in medical education have found evidence that it declines with medical training (Chen, Lew, Hershman, & Orlander, 2007). Using the Jefferson Scale of Physician Empathy (JSPE) (Hojat et al.), Chen et al. surveyed incoming medical students through fourth-year classes ($n = 658$), with a response rate

of 81 percent. Empathy appears to increase from point of admission to first year, but then declines with each year. The analysis included statistically controlling for gender, age, future debt upon graduation, and area of interest. Students who had declared interest in people-oriented professions had higher levels of empathy than students who planned on entering technically-oriented fields. Women were more likely to enter people-oriented fields, and also scored higher on the JSPE than men.

In another study, Sherman and Cramer (2005) administered the Jefferson scale in a cross-sectional study of dental students ($n = 130$). The response rate was 61 percent; analysis of nonrespondent characteristics found no systematic sources of bias in the sample. Levels of empathy among dental students did not differ from norms for medical students. Similar to the Chen et al. study, levels of empathy appeared to decline from freshmen to senior year. The authors suggest that what is needed is training and education to prevent the decline and enhance empathic abilities. The limitations of these studies include the research design, which was cross-sectional. Potential exists that the difference from freshmen to senior year was due to pre-existing differences among the cohorts, and not to actual decline. However, longitudinal studies of empathy in health education, have found further evidence of the decline (Bellini, Baime, & Shea, 2002; Bellini & Shea, 2005; Diseker & Michielutte, 1981).

What is the reason for the decline in empathy? Researchers point to the culture of medical school, which is intense, competitive, and often results in instability in social support, and chronic lack of sleep (Spencer, 2004). Students are repeatedly exposed to sadness and grief involved with human illness and injury causing them to adopt emotional distance as a survival mechanism -- what Hoffman would call compassion *fatigue* (2001). Others observe varying levels of empathic ability in students, noting that students may defensively maintain they feel empathy for the patient, while maintaining emotional distance, referred to as *pseudo-empathy* (Rosenfeld & Jones, 2004).

Can Empathy Be Taught? Empirical Evidence

With the evidence that medical and dental students' empathic abilities decline with training, the question arises as to whether interventions could address the problem. Given the lack of research on dental student empathy, a search of the Academic Source Premier database using keywords "medical student empathy" was done, yielding 67 hits within academic journals dating from 1980 to present day. Of this set of 67, several studies were redundant to studies reviewed in previous sections of this paper (e.g., Chen et al.). However, there were several articles that report on intervention studies involving courses, written feedback, or through Simulated Patient (SP) assessments in medical training, involving observing students interacting with an SP trained to provide feedback on diagnostic, professional, and communication skills. In the interest of spreading best practices in empathy research from medical education to other health education fields, two studies are next reviewed.

A randomized control trial (RCT) examined the effect of various methods of communication skills training (including empathy) with practicing oncologists in the UK (Fallowfield, Jenkins, Farewell, Saul, Duffy, & Eves, 2002). The methods included (a) a written assessment of the physicians' skills based a videotaped clinical interview followed by a three-day course; (b) the course alone; (c) the written assessment alone; and (d) control group. A pre-test and post-test was administered to all groups. In the post-test, the groups who had received training demonstrated significantly higher levels of empathic communication, more frequent responses to empathic opportunities presented by the patient, fewer leading questions, and fewer closed-end questions within the interview assessment. Group A (course plus feedback) also showed improvement in the ability to paraphrase patient statements, i.e., checking for understanding and summarizing information. The group receiving only written feedback and the control group did not show significant improvement. The significance of this study is the strength of the research design in providing unambiguous evidence of the efficacy of instruction in communication skills and empathy. The authors support the need for more, not less training in communication skills, noting that in a pilot study, physicians who attended a 3-day course benefited more than those attending a 1.5 day course.

Shapiro, Rucker, Boker, and Lie (2006) explored whether the use of narrative reflection in clinical training would positively influence pre-clinical medical students' capacity for empathy, professionalism, communication skills, and sense of well-being. Using a quasi-experimental design, pre-clinical students were randomly assigned to a clinical reasoning (CR) section ($n = 45$) or a Point-of-View (POV) section ($n = 47$). The CR section focused on medical decision-making, reasoning about clinical issues, and the development of justifications for decisions. The POV section involved training students in a technique that fosters the ability to take the patient's perspective about the emotional and social impact of their illness and the long-term ramifications. The analysis involved coding of written responses to cases by both groups, and Standardized Patient (SP) ratings within an Objective Structured Clinical Examination (OSCE). Students in the POV were more likely to express empathy for the treating physician in the case, and less likely than the CR group to blame the patient for his illness. For the SP ratings in the OSCE, no significant differences in ratings of communication, empathy, and professionalism were found. The reason for the disparate findings, according to the authors, may relate to the difficulty involved with transfer of skills (from a writing task to verbal communication in the OSCE), and with the fact that SPs, in their role play, may have not been able to adequately discriminate empathic communication levels, or may undervalue its importance.

In another RCT study, Shapiro, Schwartz, & Bonner (1998) investigated the effect of stress reduction on self-reported levels of empathy and depression among medical students ($n = 73$). Students were randomly assigned to a seven-week course in mindfulness or control group; pre- and post-tests were administered. Measures included the Empathy Construct Rating Scale (ECRS) (La Monica, 1981); the Hopkins Symptom Checklist 90 (Revised) SCL-90-R (Derogatis, 1977); and state and trait anxiety. The intervention had a significant positive impact on indicators of psychological health (as measured by the SCL-90-R and anxiety) and on overall levels of empathy. Trait anxiety was negatively related to empathy ($b = -.39, p = .001$). The reasons for the impact of stress on empathy, according to the authors, may be because controlling stress permits more focused listening to patients, along with more openness towards

alternative factors on overall health and well being. Mindfulness training appears to foster growth towards cognitive and emotional self-regulation, thus indirectly increasing empathic capacity.

Other Approaches to Empathy Instruction

Other approaches to teaching and assessing empathy are varied, and range from observations and checklists to direct instruction on empathy. These are briefly reviewed. (1) Ratings from Objective Structured Clinical Exam (OSCE) and Standardized Patient (SP) assessments integrated criteria from student communication skills with empathic communication and ethics (Colliver, Willis, Robbs, Cohen, & Scharz, 1998; Van Zanten, Boulet, Norcini, & McKinley, 2005). Colliver et al. found that empathy correlated highly with communication items that rated the extent the student was able to set a relaxed and positive tone for the interview. (2) Direct instruction about empathy, including its importance and how patients perceive physician communication, resulted in increases in empathy scores (Winefield & Chur-Hansen, 2000). (3) Empathy instruction using the arts was found to positively influence students' ability to gauge emotional content of narratives, and to engage in social perspective taking (Shapiro, Rucker, & Beck, 2006). (4) Henry-Tilman, Deloney, Savidge, Graham, and Klimberg (2002) designed an experiential intervention in which medical students accompanied patients to clinical visits, and observed practicing physicians interact with the patients. Students reported observing various communication approaches, and how empathy was or was not conveyed. (5) Deloney and Graham (2003) report on the use of the play "Wit," which concerns a woman who is dying of cancer, to instruct medical students on end-of-life issues. (6) DiLalla, Hull, and Dorsey (2004) found that students who attended sessions on wellness, spirituality and empathy scored higher on empathy, than those who did not. (7) McDonagh and Ljungkvist (1999) observe that in teaching about empathy through death and dying that listening is the most critical skill, stating that

Listening is perhaps the most important thing a doctor can do. . . .In our opinion, the best way for doctors to become good listeners and develop empathy is for them to

develop and hone their own humanity. They must read and write and participate in artistic expression regularly. (p. 386)

Statement of the Problem

The growing divide in healthcare between insured and uninsured has amplified concerns that the fundamental social contract between health professionals and society has changed. People question whether the ethical responsibility of medical professionals – to place the interests of the patient over self – has been displaced by the external forces of the market-driven economy. In an effort to respond to these concerns, assessment of ethics, professionalism, and clinical effectiveness in medical and dental schools is on the rise. Rest's (1983) Four Component Model of morality provides the theoretical lens to examine clinical effectiveness in relation to multiple dimensions of morality, including empathic response, an element of moral implementation.

Research Questions and Statement of Purpose

In preparation for an investigation of the interrelationships between moral capacities and clinical effectiveness, Study 1 operationally defined empathic response--a dimension of moral implementation that would increase the likelihood of patient compliance with clinician advice.

Study 2 explored these research questions: (1) To what extent do three measures of FCM capacities (judgment, motivation, and implementation) at the beginning of a dental school program predict the level of competence on a performance assessment of clinical effectiveness? (2) To what extent do measures of FCM capacities predict the perceived likelihood that the patient would comply with the clinician's advice? (3) To what extent do FCM capacities predict whether student-dentists would verbally acknowledge the chief complaint of a patient who cannot afford treatment?

The purpose of this study was to determine the extent that a model of multiple moral capacities, including empathic response as a dimension of moral implementation, predicts moral

behavior outcomes in the context of a simulated clinical interaction. The research design was mixed methods, with Study 1 focusing on the development and validation of a coding system for measuring empathic response as a dimension of moral implementation, and Study 2 examining the predictive characteristics of three moral capacities and a moral behavior outcome within a clinical interaction.

Study 1 addressed the research questions: What are the characteristics of empathy within a verbal response to a patient case? How would experts judge the quality of those characteristics?

In Study 2, the first research question explored the relationship of three of the Four Component Model of Morality (Rest, 1983) capacities (judgment, motivation, and implementation/ empathic response) to a moral behavior outcome, operationalized as scores from a performance assessment in which students constructed dialog responses to realistic cases in a dental ethics course, Professional Problem Solving (PPS). This question was guided by past moral development studies linking job performance to moral judgment (e.g., Duckett & Ryden, 1994).

In response to cases, students prepared written dialogs between the dentist and the patient, with the goal of maximizing the likelihood that the patient would accept the treatment plan, and is thus outcome-focused. PPS scores were final grades based on eight cases, and were part of the data archives. Better scores were associated with more effective dialogs. Thus, high scores across a series of cases suggested a pattern of behavior that was consistent with effective clinical behavior (or job performance).

Because moral implementation / empathic response scores were derived from a case used in the Dental Ethical Sensitivity Test (DEST) (Bebeau & Rest, 1983), moral sensitivity was not included in the final research questions and statistical modeling because of concerns about meeting the assumption of independence of observations required for inferential methods, and safeguarding against multicollinearity.

The second research question examined the judged likelihood that a patient would comply with the advice of the student-dentist, based on the response to a case. The case was one

of four used in the DEST, a third-year assessment of ethical sensitivity, using a simulated clinical interaction format. Because the data was heavily positively skewed, the variable was re-coded dichotomously, as 0-likely to not comply; and 1-likely to comply, and logistic regression used to analyze the association between moral capacities and the likely outcomes of the interview.

The third research question involved a moral behavior outcome derived from a case involving a young man in need of a dental procedure who does not have the financial resources to pay for treatment. The case was also used in the DEST. The moral behavior outcome was whether or not the student-dentist verbally acknowledged the patient's chief complaint or instead focused on discussing options for dealing with the cost of treatment (e.g., financing options, payment plans).

Hypotheses and Rationale

Research Question 1: To what extent do FCM capacities (judgment, motivation, and implementation) predict the level of demonstrated competence on a performance assessment of clinical effectiveness (PPS)?

Hypothesis 1. Rest stated the each of the four components of morality is necessary in order for moral behavior to occur. This hypothesis explores the relationship between three measures of moral judgment (DIT), moral motivation (role concepts or PROI index), and moral implementation (empathic response or EMPH) with performance on an assessment of clinical effectiveness (PPS) in the last two years of a dental education program.

H₀₁: A model including three moral capacity predictors (DIT, PROI, and EMPH) of clinical effectiveness (PPS) will not explain a statistically significant amount of variance in a multiple regression.

H_{A1}: A model including DIT, PROI, and EMPH scores will account for a statistically significant amount of variance in a multiple regression model predicting clinical effectiveness (PPS).

Hypothesis 2. This hypothesis tests the addition of two- and three-way interaction terms (PROI, DIT, and EMPH scores) to a regression model predicting clinical effectiveness (PPS scores). The rationale is that Rest's Four Component Model is a dynamic process model, and the components are thought to contribute to moral behavior both as single factors and interactions.

H₀₂: The interaction terms produced by the variables PROI, DIT, and EMPH scores will have no additional influence on the overall variance accounted for in a multiple regression model predicting clinical effectiveness compared to the single factor model.

H_{A2}: The addition of the interaction terms to the prediction model will account for more variance in a multiple regression model predicting clinical effectiveness compared to the single factor model.

Research Question 2: To what extent do measures of FCM capacities predict the perceived likelihood that the patient would comply with the clinician's advice?

Hypothesis 3. Rest's Four Component Model (FCM) states that all four moral capacities are required in order for moral behavior to occur. This hypothesis tests whether a model that includes three of four components (judgment, motivation, and implementation) would better predict the judged likelihood that a patient would comply with the dentist's response, or the "Likelihood the Patient Would Comply" with the advice of the dentist than would single factors using logistic regression in analysis. The response variable was dichotomized as 0=would likely

comply, and 1=would not comply with the advice of the dentist, a proxy for moral behavior outcomes.

H₀₃: The likelihood of a patient complying with the dentist's advice will have no association with Rest's Four Component Model predictor scores (PROI, DIT, and EMPH).

H_{A3}: A model including three of Rest's components (PROI, DIT, and EMPH) will better predict the odds of the patient complying with the dentist's advice than any single predictor.

Hypothesis 4. This hypothesis tests whether adding interaction terms of significant or near significant predictors to the model would increase the overall predicted probability based on the logistic regression model. Two- and three-way interaction terms (PROI, DIT, and EMPH scores) were created. The dependent variable was the dichotomous "Likelihood the Patient would Comply with the Dentist's Advice" variable (COMP), a proxy for moral behavior outcome.

H₀₄: Adding two- and three-way interaction terms (PROI, DIT, and EMPH scores) to the model will have no influence on likelihood of predicting whether the patient would comply with the advice of the dentist.

H_{A4}: The addition of two- and three-way interaction terms (PROI, DIT, and EMPH scores) to the logistic regression model will increase the likelihood of predicting whether or not the patient would comply with the dentist's advice.

Research Question 3. To what extent do FCM capacities predict whether student-dentist would verbally address the chief complaint of a patient who cannot afford treatment?

Hypothesis 5. Moral capacities as predictors of a moral behavior outcome were explored. The response variable was “Addressed the Patient’s Chief Complaint” (APCC) derived from a case involving a young man in need of a dental procedure, but who has limited financial resources. A model that includes three of four components (judgment, motivation, and implementation) was tested using logistic regression in analysis.

H₀₅: The likelihood of verbally acknowledging the patient’s chief complaint (APCC) will have no association with Rest’s Four Component Model predictor scores (PROI, DIT-P, and EMPH).

H_{A5}: A model including three of Rest’s components (PROI, DIT, and EMPH) will better predict the odds of verbally acknowledging the patient’s chief complaint (APCC) than any single predictor.

METHOD

Procedures and Context

Archival data from a dental ethics curriculum for a five-year period from 1996 to 2000 was obtained from the course director. Although the curriculum had been in place for a 25-year period at the time of this study, an earlier period (1996-2000) was selected because there had been minimal changes with curriculum and instructors during this period, which reduced the potential for confounds within the study.

The context in which the tests and assessments were administered was part of a required ethics curriculum, Professional Problem Solving (PPS), designed to promote each of the four capacities defined by Rest's FCM. The curriculum experiences, distributed across the four years of the DDS program, integrated professional problem solving with interpersonal communication skill development (Bebeau, 1994). Whereas the PPS curriculum included only 45 contact hours, the curriculum featured several principles of effective instruction: small group instruction lead by experienced faculty facilitators, use of well-validated classroom and outcome assessment techniques, frequent for feedback on performance with opportunities to revise and resubmit, and use of high-status practitioners who not only provide feedback on outcome measures, but demonstrate the validity of the cases and curriculum for professional ethical development.

PPS included (1) baseline and outcome assessments of moral reasoning and motivation; (2) realistic cases in which students must identify and resolve ethical issues, (3) exposure to moral exemplars through small-group discussion facilitated by clinical faculty and one-on-one interaction with experienced dentists in practice in the community serving as expert assessors, (4) assessment of moral sensitivity at the beginning of the final year, and (5) cases depicting dentist-patient encounters that require students to take on the role of the dentist and resolve the issue by formulating an action plan and writing a dialog depicting how they would facilitate the moral behavior and discussion with the patient.

Population and Demographics of Sample

The population consisted of five cohorts of dental students who had been enrolled in PPS over a four-year period prior to graduation.

Demographics. The population of dental students from 1996 to 2000 averaged 88% Caucasian, 10% Asian, and less than 1% each of Blacks and Hispanics. Women represented an average of 35% of the population; and men, 65%.

Sampling. A random sample (without replacement) had been drawn from the archives consisting of 24 cases from each of the five cohorts for a total of $n = 120$. A total of 60 men and 60 women were chosen.⁸

Research Design

The purpose was to explore the relationship between three measures of moral capacities and moral behavior outcomes. The research design was mixed methods, using content analysis, expert judgment in the development of a coding scheme in study 1. For study 2, the design was correlational using a random sample with multiple regression, and logistic regression analyses.

Study 1

Empathic Response: Dimension of Moral Implementation

At the suggestion of the course director (M. Bebeau, personal conversation, October 25, 2007), transcripts of verbal responses to cases used in the Dental Ethical Sensitivity Test (DEST) were reviewed for content related to empathic response / moral implementation. Criteria used in DEST scoring had focused on recognition of issues and projected consequences – and not on tone or valence of the communication, i.e., whether the response validated the

⁸ The sample had been used in a study on moral sensitivity and gender, in which the researcher had oversampled women because of the nature of the research questions (You, 2007).

patient's concerns and emotional state, and avoided pitfalls such as shaming or blaming the patient, or using overly technical language.

DEST had been administered via audio-taped cases depicting four patient-dentist encounters. The issues with the patients were left unresolved. The narrator asks the student to take on the role of the dentist, and record a verbal response. Following their initial response, students were prompted to self assess their performance. The DEST provided probe questions on each case, and asked students to comment on their response, and to gauge how they would respond with a real patient. Experienced dentists serving as mentors scored each response. The results were given to students individually by their mentor, along with developmental feedback.

The four DEST cases were presented to two experts in clinical counseling and psychology for evaluation of content related to empathic response / moral implementation. Both identified the Sandy Johnson case as having the greatest potential as a stimulus for eliciting a wide range of qualitative characteristics within the empathic response (e.g., shame, fear). Prior content validation of the cases had been conducted by the PPS instructor, who had developed the cases with collaboration of practicing dentists in the community, and periodically sought input from members of the American College of Dentistry to ensure the cases retained relevance and realism. Experts also noted that the Jim Lohman case had potential because of the issues related to the patient's financial difficulties.

Coding Scheme Development, Moral Implementation-Empathic Response

To guide the development of a coding scheme for judging empathic response, an expert panel provided feedback on an initial sample of responses. The consultants included: (a) a professor of educational psychology who teaches in the counseling and student personnel psychology program, (b) a licensed clinical health psychologist, (c) a research psychologist who had a background as a psychiatric nurse and counselor in a state psychiatric hospital; (d) a psychologist trained in educational psychology, counseling theory and social psychology; (e) a psychologist trained in educational and social psychology who had been diagnosed with an eating disorder as a teenager; and (f) a former psychiatric technician who had counseled

juvenile patients who had been hospitalized with eating disorders. None were informed of the specific hypotheses of the study, and none received compensation for participating.

Data Analysis, Study 1

Comments from the course director and expert reviewers were content analyzed for themes, and frequent checks of interpretations from interviews or comments were conducted during all phases of the development of the coding scheme.

SPSS 10.1.3 was used for statistical analysis of rated data. Descriptive statistics were computed for all variables. Nonparametric correlations with different dimensions of empathic response and unrelated measures (e.g., length of the response) were computed to gauge convergent and divergent validity. Item analysis and factor analysis were used to determine which rated variables should be included in an overall index of empathic response.

To estimate reliability and rater agreement, intraclass correlation coefficients, and Kappa were used procedures defined by Cohen (1960) and Fleiss (1971).

Study 2

Dependent Variables

Dependent or response variables were derived from the third and fourth year course in Professional Problem Solving (PPS) which focused on eight realistic cases requiring students to take on the role of the dentist, and construct a dialog in role, addressing the concerns of the patient. Scores were final ratings assigned by the instructor. Because ratings were based on maximizing the extent that the patient would accept the treatment recommendation, PPS scores served as a proxy for moral behavior outcomes. A sample PPS case is included as Appendix A.

A second dependent variable was derived from ratings from the Sandy Johnson case, one of four used in the Dental Ethical Sensitivity Test (DEST) (Bebeau & Rest, 1983). Representing the judged likelihood that the patient would comply with the clinician's advice, this variable was defined as a projected moral behavior outcome. The rationale for using this

proxy was judges were instructed to gauge the likely outcome of the students' responses, as opposed to judging the qualitative differences of various dimensions of empathy.

The Sandy Johnson case involves a young woman who presents in the dentist's office requesting an aesthetic procedure, but whose clinical symptoms that contraindicate treatment. The symptoms are consistent with an advanced stage eating disorder, with clinical evidence of deteriorating tissue health, suggesting the condition may be life threatening, and the need for intervention. Criteria for measuring ethical sensitivity (DEST) focus on interpreting the moral dimensions of the situation, including the dentist's responsibilities recognition of moral sensitivity issues – and not on the effectiveness of the interaction or outcomes, thus permitting responses to serve a dual purpose for assessment purposes. A transcript of the case is presented in Appendix B.

A third dependent variable was derived from student responses to the Jim Lohman case, representing the extent to which the student-dentist attended to the patient's chief complaint by verbally acknowledging the patient's pain. The case is also one of four used in the Dental Ethical Sensitivity Test (DEST) (Bebeau & Rest, 1983). Lohman, a young man with limited financial resources, presents with a severe toothache. After hearing the case on audiotape, the student-dentist must respond to the patient as he thinks, recording a verbal response on tape. Verbally acknowledging the patient's chief complaint was defined as a positive moral behavior outcome. This criterion differed from DEST criterion, in that the judgment was based only on the opening response to the patient, and not on the self reflection and assessment that DEST also prompted. An excerpt from the Lohman case is included as Appendix C.

Independent Variables

Independent or predictor variables consisted of pre-test assessments of moral judgment and motivation that were administered at the beginning of the freshmen year of dental school. A third predictor variable, operationalized as *empathic response* (a dimension of moral implementation), drew on the literature from medical education and empathy (Suchman et al., 1997).

Measures

Moral Judgment

The Defining Issues Test (DIT) (Rest, 1979), a measure of moral schema preferences, was the measure of moral judgment. The DIT can be taken within a 30-45 minute period. The DIT has been cited in research articles involving hundreds of thousands of participants over three decades, and used in over 40 countries around the world. Six moral dilemmas are presented in the DIT, followed by 12 items each reflecting schema arguments: Personal Interests (PI), (stages 2 and 3); Maintaining Norms (MN) (stage 4); and Postconventional (POST) (stages 5 and 6) (Rest et al., 1999b). Participants rate arguments as to their overall importance, rank the most important arguments overall, and select an action choice for the protagonist of the dilemma.

DIT scores represent the proportion of arguments rated and ranked as important per schema item (PI, MN, and P Score). An overall index score, N2, provides an indication of the degree that postconventional arguments appealed to the respondent. However, the N2 utilizes data from all of the items by examining the importance ratings of non-postconventional items, and the extent the individual was able to discriminate between schema-based arguments. Validation studies of the N2 have found evidence it is an improved index of change and development (Rest, Thoma, Narvaez, & Bebeau, 1997).

The validity of the DIT has been demonstrated on seven dimensions (Rest et al., 1999a): (1) discrimination between novice and experts in moral reasoning, and with age and education; (2) gains in moral reasoning over time; (3) positive correlation with other cognitive measures; (4) gains in pre- and post-test intervention studies; (6) correlation to political attitudes; and (7) adequate internal consistency, and test-retest reliability (alpha in the upper .70s to low .80s). Divergent validity of the DIT has been supported by its low correlation with tests of verbal ability, general intelligence, and conservative-liberal political attitudes.

A sample DIT scenario and response choices are available at the Website for the Center for the Study of Ethical Development (2004).

Moral Motivation / Professional Role Concepts

The Professional Role Orientation Inventory (PROI) (Bebeau, Born, & Ozar, 1993) assessed moral motivation, operationalized as the understanding of professional role concepts and the ability to prioritize professional values over personal values. The PROI measures four dimensions of professionalism including authority, responsibility, agency, and autonomy. Test-retest reliability for the items is .75, with a range of .68 to .82 for the four scales and the average internal consistency is .56.

PROI data has been demonstrated to be reliable ($\alpha = .88$); however, the dimensions of authority and responsibility generally have greater internal consistency than agency and autonomy.

PROI scores were obtained from a researcher who had used the dataset in a study of moral sensitivity (You, 2007). Scores from items related to the authority and responsibility dimensions were combined to form an index score.

Samples of PROI items are included as Appendix D.

Empathic Response: Dimension of Moral Implementation

Moral implementation scores were derived from responses to the Dental Ethical Sensitivity Test (DEST), which was administered at the end of the third year of the curriculum (Bebeau & Rest, 1982). The stimulus case involved a patient presenting with symptoms of a late-stage eating disorder, which can be life-threatening, thus maximizing the likelihood empathy would be elicited. Student verbal responses were coded, producing ordinal-level variables measuring various dimensions of empathy. The development and validation of the coding scheme is reported in the following chapter.

Data Analysis, Study 2

Correlations between variables were produced to prepare for model testing. Interaction terms were produced. All variables were centered prior to inclusion in modeling.

Plots of residuals were examined for normality and outliers, as well as centered and leverage values, variance inflation factor levels, and tolerance factors.

Logistic regression was used for dichotomous response variables.

RESULTS

Study 1

Preliminary Review of Responses

The responses to the Sandy Johnson case varied in length and in content. Of the 120 responses, $n = 119$ responded in role. Only responses in role were included in analysis. The author and two colleagues participated in a preliminary phase of analysis, which generated ideas for a formal coding scheme. In preparation of developing the coding scheme used in the present study, a clinical psychologist with expertise in health psychology, and a research psychologist with a background in clinical and counseling reviewed a random sample of responses ($n = 20$), selected by the author, and provided ideas and suggestions. Table 3 shows phrases experts interpreted as indicative of problematic language likely to interfere with patient cooperation,

Following the initial review of responses, the Empathic Communication Coding System (ECCS) (Bylund & Makoul, 2005) was selected for coding the data. The ECCS defines seven characteristics of an empathic response including: (1) shared feeling or experience, (2) confirmation, (3) pursuit, (4) acknowledgment, (5) implicit recognition, (6) perfunctory recognition, and (7) denial/ disconfirmation. The ECCS assesses specific empathic opportunities or themes. In the present study, those themes included: (a) the patient's health and life were endangered, (b) the patient's primary concern is about her appearance, and (c) the patient is conflicted about her relationship with her parents.

Table 3
Excerpts from Student Responses, With Reviewer Judgments

Excerpt	Reviewer Comments
<i>You may have some sort of systemic disorder, a hyper-thyroid problem that's causing you to be thinner than you should be and causing you not to get the nutritional value from foods that you might need.</i>	Here the dentist acknowledges that there might be a systemic cause of the oral health problem, as opposed to attributing the symptoms to an eating disorder. Using lay language, rather than “systemic disorder” and “hyper-thyroid problem” would reduce the likelihood of eliciting fear.
<i>I do need to inform you of your dental health. For being young like you are, you do have more problems than the normal 25-year old. Sometimes, this can be caused from people that [sic] don't eat healthy. Their whole dentition can become carious lesion.</i>	Comparing Sandy to a “normal 25-year old” would very likely elicit shame or anger. Both “dentition” and “carious lesion” could be discussed in lay language. Using such technical terms would likely elicit fear and shame.
<i>Well Sandy, I am not trying to sound like your mother. And I am not trying to hound you, but I am concerned about your gums. And I believe like that your gums, the status of your gums being unhealthy and dying is due to what you are eating.</i>	In this response, the dentist begins with a defensive statement, seemingly in attempt to respond with empathy but focusing very narrowly on Sandy's gums (as opposed to her overall health and well being). The student or respondent uses alarming language (i.e., “dying”) likely to elicit fear. The response presumes that the patient has an eating disorder, and that there is not some other explanation for her condition (e.g., leukemia). Topics related to weight or diet would tend to elicit shame or anger.

Evaluation of ECCS. Feedback was again obtained in interviews with experts using a random sample of 21 responses that was read aloud by the author. Experts were asked to apply the ECCS codes as well as to comment on how well the codes fit the content, and whether there were issues that were not accounted for by using the ECCS codes.

The main observation, shared by both reviewers, was that it was difficult to discriminate between ECCS codes across 3 different themes within each response. Other observations were that the codes did not account for (1) changes in valence from the beginning to the end of the response; (2) the overall degree that the student engaged in the role play; (3) the impact of self disclosure from students who revealed their own struggles with eating

disorders within their responses; and (4) the potentially destructive effects of inducing shame, anger, or fear. One reviewer also commented that there might be potential for more objective measures, such as word counts. Verbatim excerpts from reviewer comments are provided in Appendix E, as annotations to sample responses.

Coding Scheme Development, Moral Implementation / Empathic Response

Comments from reviewers aligned closely to the multidimensional definition of empathy measured by the Davis (1983) Interpersonal Reactivity Index (IRI), which defines empathy as consisting of (1) perspective taking, (2) empathic concern, (3) fantasy, and (4) personal distress.

Content validation checks during the development of the criteria and periodically during coding were conducted. Empathic response codes included (1) the extent that the response conveyed empathy, as opposed to paternalistic pity, condescension, or judgment; (2) the extent that the response would elicit shame, anger, fear, and (3) the valence of the opening response, operationalized as a dichotomous variable that provided a gauge of the shift in emotional tone from beginning to end of the response.

In response to comments about the dominance of subjective ratings in the first coding scheme, two measures were added. The first, length to an empathic communication terminator (LET) was defined as the word count of the opening word(s) or phrase(s) until a shift in valence occurred, or the point an empathic communication terminator appeared (Suchman et al., 1997). The second was defined as the overall length of the response (TOT), operationally defined as the total word count of the response, or a proxy for overall engagement in the role play, relating to the Davis “Fantasy” dimension of empathy.

Table 4 summarizes each code and type of measurement.

Table 4
Empathic Response Codes (ERC) and Variable Names

<i>Dimension / Code</i>	<i>Type of Measurement</i>	<i>Dimension / Code</i>	<i>Type of Measurement</i>
Valence of Opening Response (VOR)	Rating , dichotomous	Shame or Embarrassment (SHM)	Rating, scale 1-4
Length to Empathic Terminator (LET)	Word Count	Fear or Anxiety (FR)	Rating, scale 1-4
Total Length of Response or Empathic Engagement (TOT)	Word Count	Anger (ANG)	Rating, scale 1-4
Empathic Concern (EMC)	Rating, scale 1-4	Self-Other Orientation (SOTH)	Rating, scale 1-4

Empathic Response: A Dimension of Moral Implementation

Valence of opening response (VOR). The theoretical rationale for this code came from research on persuasion and serial position effects, with evidence that primacy effects are more relevant in health communication (Bettinghaus & Cody, 1994). In other words, patients may be more likely to attend to and remember the first words of a clinical encounter than those in the middle or the end. Further, the primacy of affect, as opposed to cognition, has been found to be a critical factor in persuasion in health psychology (Norton, Bogart, Cecil, & Pinkerton, 2005). Thus, this code captured the judged valence of the opening response, as positive/neutral or negative with the idea that the patient would be heavily influenced by the valence of the opening response.

Overall, 52% of responses were coded unempathic; 48% were coded empathic.

Examples of statements coded respectively as unempathic or empathic are shown in Table 5.

Table 5
Valence of Opening Response (VOR), Ratings and Excerpts

Rating	Examples, Opening Responses
1 (Unempathic)	<i>As a dentist, I see the deterioration of your gum tissue that is consistent with a nutritional disorder.</i>
2 (Empathic)	<i>Well Sandy, I just want to let you know that I'm here to help you and that means taking care of your teeth and gums, yes, but also trying to help you stay healthy.</i>

Length to empathic terminator (LET). The rationale for LET supposes that the duration of the opening message, along with the valence, will have considerable influence over the patient's perception of the empathic response. The operationalization of this variable is a simple word count prior to phrases or words that were judged as empathic communication terminators (Suchman et al., 1997). An empathic communication terminator was defined by any of the following: (1) a word or phrase that would be a "hot button" issue for a patient with an eating disorder (e.g., diet, weight), (2) a remark that was condescending or disrespectful, (3) a comment that was overly didactic (e.g., lecturing the patient about diet); (4) phrases or words that communicated judgment or delivered (inappropriately) a diagnosis; and (5) phrases or words that were egocentric in nature, revealing the dentist's self-interests or personal distress. This variable measured the degree the valence of the opening response remained neutral or positive.

The distribution was positively skewed ($M = 42$; $SD = 38.46$; $Mdn = 34$; $Mo = 11$). Appendix E includes word counts and examples of opening phrases to the point of the empathic communication terminator.

Total length of response or empathic engagement (TOT). This variable relates to the extent that the dental student engaged in the case role play, operationalized as the total word count of the response. The assumption underlying this definition was that students who were disengaged with the assessment would provide shorter, more cursory responses, and those more engaged would elaborate more fully. The theoretical foundation of this code relates to the Davis (1983) Fantasy dimension of empathy, or the extent an individual can transpose oneself into a drama or role play and engage empathically with imagined others.

The shape of the distribution was positively skewed ($M = 277$; $SD = 142.93$; $Mdn = 251$). The range was 58 to 935, with one outlier (935).

Empathic concern (EMC). A summative rating of the level of empathy with the response, this variable aligns to Davis' Empathic Concern dimension of empathy. The rating scale used to produce this variable was 1 to 4, with 1 indicating no or minimal empathy, and 4 a

strong degree of empathic concern. No neutral position in the scale was used in order to maximize the ability to discriminate qualitative differences in the responses.

Table 6 displays the rubric for rating empathic concern, providing specific criteria for each scale anchor, from 1 to 4. The scale ranges from language that is clinical and lacking concern or acceptance of the patient (“1”) to language that validates the patient’s concerns and avoids blaming or shaming the patient (“4”). The criteria and examples were also included in Appendix E.

Table 6
Rubric for Rating Empathic Concern

Score	Criteria
	<ul style="list-style-type: none"> › Validates patient’s concerns, indicates shared feelings, unconditional regard, and acceptance › Uses a neutral tone in conveying information, avoids a clinical diagnosis on the spot or in a didactic tone.
4	<ul style="list-style-type: none"> › Avoids blaming or shaming the patient. › Normalizes the situation for the patient, setting the patient at ease, and establishing rapport. › Uses active listening to probe for deeper understanding. › <u>Engages and empowers the patient as a partner in treatment decision.</u>
3	<ul style="list-style-type: none"> › Acknowledges patient’s concerns and issues, but may miss underlying or hidden factors › <u>Makes explicit statements of concern for the patient’s overall health and well being.</u>
2	<ul style="list-style-type: none"> › Acknowledges the patient’s concerns, but focuses on tangential issues that may or may not be related to the primary issue. › <u>Minimal explicit statements indicating concern for the patient – may be limited and specific.</u>
1	<ul style="list-style-type: none"> › Ignores or is oblivious to the patient’s primary concerns, › Is primarily cold and clinical in the acknowledgement; › Lacks statements indicating concern or acceptance, or limits them to clinical procedures.

To further clarify ratings, a question and scale was posed to raters: “Based on the total response, how would you rate the overall level of empathic concern reflected in the language of the student-dentist’s response?” The results were positively skewed, towards un-empathic, with approximately one third of the sample rated “somewhat empathic or empathic.” Frequency distributions and percentages per category are shown in Table 7.

Self-other dynamic (SOTH). This dimension of empathy concerned self-focus and egocentrism, evidenced by the general extent the pronoun “I” was used or egocentric reasoning used to justify statements (e.g., “I’m not going to do all this work on your mouth only to have it

not last . . .”). The item asked the rater to consider the question: “Which of the following phrases best describes the use of language centered on the self vs. the patient (other) in the response?” The category choices were: 1-Self-Focused; 2-Somewhat Self-Focused; 3-Somewhat Other-Focused; and 4-Other-Focused. The theoretical grounding of this variable is in Davis’ Perspective Taking and Personal Discomfort dimensions of empathy.

The results showed more self- than other-focused language throughout the responses. The frequency distribution of the responses is shown in Table 7.

Shame or embarrassment (SHM). The judged likelihood that the patient would feel shame or embarrassment (SHM) was grounded by counseling theories which focus on unconditional positive regard for the client (Rogers, 1980). This dimension focused on the extent that the language used was judged as likely to induce shame or embarrassment in the patient. The question posed to raters was: “Based on the response of the student-dentist, what would you say the likelihood is that the response would elicit shame or embarrassment from the patient? The response choices were 1-Likely; 2-Somewhat Likely; 3-Somewhat Unlikely; and 4-Unlikely.

Examples of phrases that would be rated “1” included:

For being young like you are, you do have more problems than the normal 25-year old.

I think you should see a physician on maybe just being re-educated on what is nutritious and what isn’t nutritious and what is [sic] the four food groups and how many servings you need per day. That doesn’t mean you have to be eating all the time.

The results showed a positive skew towards language that was judged as likely or somewhat likely to induce shame for approximately 65% of the sample. The frequency distribution of the responses is shown in Table 7.

Fear or anxiety (FR). This dimension was also grounded in counseling theory. The question dealt with the judged likelihood that the overall response would elicit fear or anxiety in the patient. The focus question to raters was: “Based on the response of the student-dentist, what would you say the likelihood is that it would elicit further fear or anxiety from the patient?” An excerpt from one of the responses rated as “1” (likely to induce fear and anxiety)

was: “I know a situation where a person [who] doesn’t get enough nutrition can take a real rapid effect. Within weeks, a person can become, you know, very critically ill.”

More responses were judged as likely or somewhat likely to induce fear and anxiety than unlikely, by a ratio of approximately 3:2. The distribution of ratings was non-normal, and bi-modal. The frequency distribution of the responses is shown in Table 7.

Anger (ANG). This dimension dealt with response content that was judged as likely to induce anger or hostility in the patient. The focus question provided to raters was: “What would you say the likelihood is that it would elicit more anger or hostility from the patient?” Content that was judged as “likely to induce anger” was described by raters as “presumptive, condescending, authoritative, manipulative, or otherwise inappropriate.” A phrase that was judged as “1” or likely to induce anger was: “[If you would tell me what you eat in a typical day, then . . .] maybe after you feel more comfortable talking to me about it, you wouldn’t protest so much about going to a physician.” The rating scale was 1 to 4, with 1 indicating that the response was very likely to elicit anger, and 4, very unlikely.

Responses were heavily weighted towards “likely to induce anger or hostility,” with “1” the mode. The frequency distribution and percentages are shown in Table 7.

Table 7
Frequency Distribution and Percentages, ERC Dimensions

Empathic Concern (EMC)	<i>Minimal (1)</i>	<i>Somewhat un-empathic (2)</i>	<i>Somewhat empathic (3)</i>	<i>Empathic (4)</i>
	37 (34.3%)	40 (37%)	27 (25%)	4 (3.7%)
Self-Other Focus (SOTH)	<i>Self-focused (1)</i>	<i>Somewhat self-focused (2)</i>	<i>Somewhat other-focused (3)</i>	<i>Other-focused (4)</i>
	60 (55.6%)	27 (25%)	19 (17.6%)	2 (1.9%)
<i>Perceived Likelihood of Inducing:</i>	<i>Likely (1)</i>	<i>Somewhat likely (2)</i>	<i>Somewhat unlikely (3)</i>	<i>Unlikely (4)</i>
Shame or Embarrassment (SHM)	31 (28.7%)	39 (36.1%)	27 (25%)	11 (10.2%)
Fear or Anxiety (FR)	39 (36.1%)	26 (24.1%)	40 (37%)	3 (2.8%)
Anger or Hostility (ANG)	60 (55.6%)	29 (26.9%)	17 (15.7%)	2 (1.9%)

Detailed criteria and instructions for raters are provided in the Empathic Response Coding (ERC) coding guide, including operational definitions for each dimension, examples of statements and scale positions, a rubric for rating empathic concern, and a set of 10 annotated cases with comments from experts. The final version of the ERC manual is included as Appendix E.

Empathic Response, Reliability and Agreement

To estimate interrater agreement, the author and a research psychologist with 10 years of clinical and in-patient counseling experience coded an initial sample of cases ($n = 5$). Coding was done collaboratively with the author, using in-depth discussion of the criteria and scales used for rating. This provided information critical in developing instructions for coders.

Following this step, a second random sample ($n = 10$) of responses to the Sandy Johnson case was coded by the author (rater A) and three doctoral-level colleagues. One, the research psychologist who coded the initial sample (rater B); two, an educational psychologist with a master's degree in counseling (rater C); and three, also an educational psychologist who had been treated for an eating disorder, but was now in recovery (rater D). Rater B was male, which could have influenced his level of awareness of issues related to body image. Rater C was a native of China who had completed college and graduate school in the U.S. These gender and cultural characteristics are noted because the case deals with a disorder that is most prevalent among girls and women, and stems from U.S. cultural norms related to body type and self image. These rater differences may result in a degree of bias, and the need for more frequent calibration.

The intraclass correlation coefficient was used to estimate agreement, across all 5 rated variables. The intraclass coefficient statistic adjusts for variance within and between raters. Coefficient Alpha was .77 for overall ratings.

To estimate agreement on critical individual codes, percent agreement and Cohen's Kappa (1960) was computed for Empathic Concern (EMC) prior to discussion of differences.

Overall percent agreement was .43; Kappa was .24, indicating a greater than chance level of agreement. An example of a statement with perfect agreement between the four raters (unempathic or “1”) follows:

Sandy, I really don't think you're just fine. Some of the things that I have seen in your mouth have led me to believe that you have an eating disorder. Some things that just don't show up with anything else. Such as the extreme wear on these teeth here. And because of, of the health of your gum tissues. . . Sandy, eating disorders are very critical and sometimes life threatening. And I think it's in your best interest to go see a doctor and get help for any condition if you might have one.

Discrepancies in ratings were discussed by email and phone between the author and individual raters after the first and second samples. Differences in ratings were resolved, and raters provided suggestions that were used to further develop the criteria and instructions in the coding manual.

Prior to rating the entire dataset, a third check of interrater agreement was calculated for a new random sample of 20 cases rated by 3 raters for empathic concern (EMC), and likelihood of inducing anger (ANG). No discussion was conducted to resolve rating differences. For EMC, Kappa was .68; for ANG, Kappa was .73.

It should be noted that agreement improved for the EMC variable with discussion, and that during the third ratings sample, no calibration checks were conducted. Final ratings of the entire dataset were completed by the author.

Internal consistency reliability. Coefficient alpha was used to gauge internal consistency reliability of the eight rated items; results by item are displayed in Table 8.

Table 8
Item Total Statistics, Rated Variables, Empathic Response

	<i>Scale if Item Deleted</i>	<i>Scale Variance if Item Deleted</i>	<i>Corrected Item-Total Correlation</i>	<i>Squared Multiple Correlation</i>	<i>Alpha if Item Deleted</i>
VOR	13.81	16.40	.24	.25	.80
EMC	13.34	13.87	.53	.42	.76
SOTH	13.65	14.27	.46	.36	.77
SHM	13.12	12.78	.57	.46	.76
FR	13.22	14.10	.39	.24	.79
ANG	13.65	12.94	.69	.58	.74

Coefficient alpha was estimated at .79 for the eight items, considered acceptable. The item with the highest correlation to the overall ERC ratings was ANG – or the likelihood that the response would elicit anger in the patient at .69. VOR was the lowest, at .24, and the total coefficient would improve if this item was dropped.

Validity Evidence, Empathic Response Variables

Because of the exploratory nature of the dependent measures, a plausible alternative explanation for results could be that moral implementation / empathic response was conflated with moral sensitivity. In order to rule out this explanation, correlations were examined for evidence of convergent and divergent validity.

Empathic response and DEST. Scores from Dental Ethical Sensitivity Test (DEST) (Bebeau & Rest, 1983) represent a composite of ordinal ratings from five cases ($M = 71.1$; $SD = 5.82$, $n = 119$). Nonparametric correlations (Spearman ρ) between DEST index scores and empathic response variables were computed. The correlation between DEST and Empathic Concern (EMC), one of the central dimensions of the codes, was $r_s = .05$, ns. Correlations with DEST other empathic response variables ranged from $-.14$ (valence of opening response) to $.16$ (total length of response). The nonsignificance of these correlations provides some evidence of divergent validity, supporting the overall construct validity of the Empathic Response (ERC) criteria. Table 9 shows correlations between all ERC variables and DEST total scores.

Empathic response and length of response. A plausible alternative explanation for ERC ratings was that empathic response variables were conflated with the length of the response or

verbal facility. To determine whether the ERC scores were biased by the length of the response, nonparametric correlations were again run. The results indicate significant correlations between two ERC variables and the total length of the response (TOT): Empathic Concern (EMC), $r_s = .41$; and the Self-Other Dynamic (SOTH), $r_s = .33$. The moderate level of correlation between total length with EMC and SOTH may relate to *empathic engagement*, or the extent that the student engaged actively with the assessment, which likely converged with the level of empathic concern demonstrated, and the extent that the student engaged in perspective taking. Table 9 displays all correlations.

Table 9
Nonparametric Correlations of ERC, DEST, and PPS Variables

	1	2	3	4	5	6	7	8	9
1. VOR (Valence of Opening)	1.0								
2. EMC (Empathic Concern)	.40	1.0							
3. SOTH (Self-Other Dynamic)	.001	.41	1.0						
4. SHM (Would Elicit Shame)	.09	.29	.28	1.0					
5. FR (Would Elicit Fear)	.08	.23	.11	.28	1.0				
6. ANG (Would Elicit Anger)	.22	.50	.42	.57	.38	1.0			
7. DEST (Dental Ethical Sensitivity)	-.15	.05	-.08	-.02	-.05	.01	1.0		
8. TOT (Response Length)	.13	.41	.33	.18	.10	.11	.21	1.0	
9. PPS (Prof. Prob. Solving Grade)	.02	.19	.26	.06	.10	.15	.08	.07	1.0

Correlations > .21 are significant at the $p < .001$ level, two-tailed.

Correlations > .18 are significant at the $p < .050$ level, two-tailed.

Exploratory components analysis. Only 5 of the 8 variables were chosen for this procedure to maintain a minimum ratio of 20 cases per factor (Kline, 1994). The purpose was to find evidence that empathic response and moral behavior outcome rated variables loaded on one or more factors that might be combined to form an index score. Excluded were dichotomous variables (VOR); and variables with excessive spread and many outliers (i.e., word count variables). An additional criterion for inclusion was a minimum correlation of .3 with other variables. An exception to this criterion was made for Self-Other Orientation because of its strong theoretical link to empathy. Variables were entered in the order from least to most

theoretically grounded: (1) Likelihood Patient would Comply with the Dentist's Advice (a moral behavior outcome, or COMP); and empathic response variables including (2) Anger Induction (ANG); (3) Shame or Embarrassment Induction (SHM); (4) Self-Other Orientation (SOTH); and (5) Empathic Concern (EMC).

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy result was .76, considered adequate for the analysis. Bartlett's test of Sphericity was rejected at $p = .001$, also supporting the viability of the analysis.

Varimax rotation produced eigenvalues ranging from .21 to 2.00, explaining approximately 56% of the variance. The raw and rescaled components and variance explained are shown in Appendix F as Table 19.

Dependent Variables Produced by Ratings

Patient Would Comply with the Dentist's Advice (COMP)

Whether or not the patient would comply with the dentist's advice (COMP), was the second dependent variable used in the third and fourth hypothesis tests. COMP represented the holistic judgment of expert raters as to whether or not the patient would comply with the advice as given by the dental student. To produce this variable, responses to the Sandy Johnson case were rated on a scale of 1 to 4, with 1 indicating that the patient would likely not comply with the dentist's advice, and 4 they would likely comply.

The focus question was: "Based on the initial response of the student-dentist, rate the likelihood that the patient would comply with the advice?" The results indicated a majority of responses would be somewhat unlikely or unlikely to be effective in helping the patient (84%). The data was heavily positively skewed; categories were collapsed to form a new dichotomous variable, and used in logistic regression analysis.

Validity evidence. To rule out the potential rival explanation that the COMP variable was biased by the total length of the response, crosstabs of COMP and the TOT variable (total

length of response, re-coded into quartiles) variable were examined. A larger proportion of longer responses (i.e., Q4 of TOT) were categorized as “would comply with advice.”

To test whether or not the observed frequencies were significant by chance or whether COMP was conceptually overlapping with the length of the response (which could indicate rater bias or a halo effect), the first and second, and third and fourth quartiles were combined to form 2 by 2 contingency table, and *chi square* test run. The result was nonsignificant, $\chi^2 = 1.82 (1), p = .18$. We can conclude there is no relationship between the length of the response and whether or not experts rated the response as likely to comply with the dentist’s advice.

To explore the possibility that COMP was conceptually overlapping with empathic response variables (ANG, SHM, SOTH, and EMC), an exploratory components analysis was utilized. Examination of the scree plot showed an elbow between the first and second components, confirming that the variable “Likelihood Patient Would Comply” or COMP was distinct from empathic response variables. The scree plot is displayed as Figure 3, and the rescaled variables are displayed in Table 20, both in Appendix F.

Acknowledged the Patient’s Chief Complaint (APCC)

Whether or not the student acknowledged the patient’s chief complaint (APCC), which involved a request that the dentist extract a tooth, was used to test hypothesis five. APCC was derived from responses to the Jim Lohman, one of the DEST cases. Because Lohman did not have financial resources to pay for treatment up front, a common response was to discuss options for financing procedures, and ignore the chief complaint.

The descriptive results indicated that 78 students did address the patient’s chief complaint, or 65.5%. A total of 41 students did not address the chief complaint, or 34.5%.

Study 2

Independent Variables and Descriptive Statistics

Moral Judgment Variable (Defining Issues Test, Rest, 1979)

The descriptive statistics for moral schema scores [Postconventional or P-score, Maintaining Norms (MN), Personal Interests (PI), and N2, an index of moral reasoning] are displayed in Table 10.

Table 10
Descriptive Statistics, DIT Variables

Variable	N	M (SD)	95% Confidence Intervals	Minimum and Maximum
DIT-P	119	44.8 (12.44)	42.17 to 46.91	18.33 to 80.00
N2	119	47.67 (10.99)	45.6 to 49.74	17.55 to 72.50
MN	119	33.22 (12.17)	30.93 to 35.51	6.67 to 66.67
PI	119	16.45 (8.69)	14.81 to 18.90	00 to 36.67

The P-score, or the percentage of arguments selected by the respondent that align to postconventional reasoning, was selected for modeling because of its relationship to other variables selected for model testing. Correlations for all variables chosen for modeling are displayed in Table 11. A histogram of the P-score variable was examined for normality and outliers, shown in Appendix F as Figure 4.

Table 11
DIT-P score, PROI, PPS, and EMPH Scores, Correlations

	1	2	3	4
1. DIT-P Score	1.00			
2. PROI	.09	1.00		
3. PPS	.03	.23*	1.00	
4. EMPH	.19*	-.11	.14	1.00

*Significant at the $p < .05$ level, two-tailed.

Moral Motivation/ Role Concepts Measure (PROI)

The Professional Role Orientation Inventory (PROI) provided a measure of moral motivation/ role concepts. The descriptive statistics are displayed in Table 12.

Table 12
Moral Motivation / Role Concepts Variable (Pre-PROI), Descriptive Statistics

PROI Variable	<i>N</i>	<i>M</i> and <i>SD</i>	95% Confidence Confidence Intervals (95%)	Minimum and Maximum
	119	78.59 (<i>SD</i> = 5.73)	77.55 to 76.63	64 to 94.40

To prepare the pre-PROI index scores for inclusion in regression modeling, the shape of the distribution was examined, and outliers identified through a boxplot analysis as scores <65 and >92. Because these values were within two points from the maximum extreme values, they were not deleted from the final dataset nor was a transformation used to more closely approximate normality. Skewness was -.08 and kurtosis was -.60; a positive skew was visibly evident. The Kolmogorov-Smirnov hypothesis test for normality was significant at $p = .006$, indicating the null hypothesis that PROI scores were normally distributed in the population was rejected. Prior to use in analysis, PROI scores were centered, creating a mean of 0.

A Q-Q plot of the centered PROI variable are displayed in Appendix F as Figure 5.

Preparation of Moral Implementation / Empathic Index Variable

Coded empathy variables were combined to form an index score, Empathic Index (EMPTH). Criteria for inclusion were based on (1) theoretical and empirical links to empathic response and (2) item-total correlations, excluding items < .5 from the index. Variables included were: Empathic Concern (EMC), Self-Other perspective (SOTH), Likelihood of Eliciting Shame (SHM), and Likelihood of Eliciting Anger (ANG). Word count variables were excluded from the index score because of the degree of multicollinearity with the empathic response variables.

EMPTH scores were standardized in order to prepare them for use as a predictor variable in regression analysis. T-scores for EMPATH ranged from 36.43 to 74.40 ($M = 50.05$, $SD = 10.27$) (confidence intervals, 48.23 to 51.87, 95%). Normality of the resulting index score was examined; because of positive skew (.55) and kurtosis (-.56), a log transformation was

applied. The transformation reduced skewness to .21; kurtosis increased to .81. All values were centered. A histogram of the transformed EMPATH centered values is displayed in Appendix F as Figure 6.

Dependent Variables

Clinical Effectiveness, Scores from Professional Problem Solving (PPS)

The dependent variable examined in Hypothesis 1 represented a moral behavior outcome operationalized as clinical effectiveness. Scores are the sum of points from an assessment based on eight realistic cases involving ethical dilemmas. The assessment involved developing a plan of implementation and composing a written dialog depicting how they would conduct the clinical interaction. The level of measurement of the scores assigned to individual cases was ordinal, using a scale of “1” or Needs Work to “4” Excellent. A histogram of the PPS variable is displayed in Appendix F as Figure 2.

Because of some variation in grading from year to year, including a year when only six cases were used, scores were equated year to year using z-score transformations. The final score thus represents an index of clinical interaction effectiveness. The assumption of normality was checked. Skewness was -.276 and kurtosis was -.566, and a positive skew was evident. Kolmogorov-Smirnov was significant at $p = .006$, indicating the null hypothesis that PPS scores were normally distributed in the population was rejected. However, considering that multiple regression is a robust technique, some departures from normality will be tolerated (Howell, 2003). A P-P plot of the PPS variable is displayed in Appendix F as Figure 7. Descriptive statistics, showing raw scores, are shown in Table 13.

Table 13

Clinical Effectiveness as a Moral Behavior Outcome (PPS scores), Descriptive Statistics

PPS Scores	<i>N</i>	<i>M (SD)</i>	95% Confidence Intervals	Minimum and Maximum
	119	20.65 (6.54)	19.46 to 21.84	9.00 to 32.00

Descriptive Statistics, Likelihood Patient would Comply with Advice (COMP)

The likelihood that the patient would comply with the dentist's advice (COMP) was derived from the judgment by experts' ratings. COMP was prepared for analysis by dichotomizing scores using the following decision rule: Scores of 1 and 2 became "0," for "not likely to comply with the dentist's advice" and scores of 3 and 4 were changed to "1," for "likely to comply . . ." Descriptive analyses indicated that 86% of the responses were judged as "not likely to comply" ($n = 102$), and 14% were judged as "likely to comply" ($n = 17$). This difference was statistically significant, $\chi^2 (1, N = 119) = 60.71, p = .001$.

Acknowledged the Patient's Chief Complaint (APCC)

Whether or not the student acknowledged the patient's chief complaint (APCC), which involved a request that the dentist extract a tooth, was used to test hypothesis five.

The descriptive results indicated that 78 students addressed the patient's chief complaint, or 65.5%. A total of 41 students did not address the chief complaint, or 34.5%.

Zero-Order Correlations

Pearson correlations between COMP, APCC, and Four Component Model (FCM) measures (DIT, PROI, and EMPATH) were low to moderate. DIT-P score and COMP were positively correlated at $+0.41 (p = .001)$; DIT-P and APCC were also positively correlated ($+0.21, p = .01$), although the magnitude was moderate. Table 14 shows all correlations, with statistically significant correlations indicated by an asterisk.

Table 14
Correlations between Four Component Model Measures and Logistic Regression Response Variables (COMP and APCC)

	1	2	3	4	5
1. COMP	1.00				
2. APCC	.04	1.00			
3. DIT-P	.41**	.21*	1.00		
4. PROI	-.09	.07	.09	1.00	
5. EMPTH	.39**	-.12	.19	-.11	1.00

Significant at the $p < .01$ level, two-tailed.

Significant at the $p < .001$ level, two-tailed.

Research Question 1: To what extent do measures of FCM capacities (judgment, motivation, and implementation) at the beginning of a dental school program predict the level of competence on a performance assessment of clinical effectiveness?

The first research question examined the relationship between three of the four measures of FCM capacities (judgment, motivation/ role concepts, and implementation/ empathic response) in relation to performance on a simulated clinical effectiveness assessment (PPS).

Hypothesis 1. Rest stated the each of the four components of morality is necessary in order for moral behavior to occur. This hypothesis explores the relationship between assessments of moral judgment (DIT), moral motivation / role concepts (PROI index), and performance on a fourth year assessment of moral implementation (empathic response or EMPTH) with clinical effectiveness (PPS), as a proxy for a moral behavior outcome .

H_{01} : A model testing three moral capacity predictors (DIT, PROI, and EMPTH) of moral behavior outcomes (PPS) will not explain a statistically significant amount of variance in a multiple regression analysis.

H_{A1} : The DIT P-score, PROI score, empathic response (EMPTH) will account for a statistically significant amount of variance in a multiple regression model predicting moral behavior outcomes (PPS).

DIT-P scores as a single predictor. DIT-P scores were standardized, and entered into the regression model. The response variable was EMPTH, which was also standardized. Residuals were saved to a file and examined to check assumptions required of model testing (linearity, range restriction or truncation, homoscedasticity, and outliers). Normality was checked by plotting the unstandardized residuals. Homoscedasticity was checked by producing a scatterplot of the residuals against fitted values, displayed in Appendix F as Figure 8. Centered leverage values and Cook's distance values were examined for each case. Maximum leverage values were .11; Cook's distance maximum value was also low, at .07.

The single predictor model assumed to underlie the data is $Y_i = b^*_o + b^*_1 X_{\text{DIT-P Score}} + \varepsilon_i$.

The fitted model is: $\hat{Y}_i = b^*_o + b^*_1 X_{\text{DIT-P Score}}$

$$H_{o1 \text{ DIT}}: \rho_{\hat{y}y} = 0$$

$$H_{A1 \text{ DIT}}: \rho_{\hat{y}y} \neq 0$$

The critical value of $F_{.05} (1,117) = 3.94$; $F_{\text{obtained}} = .09$. The null hypothesis that moral judgment (DIT-P score) does not predict moral behavior outcomes (PPS) is retained.

DIT and PROI as predictors. DIT-P and PROI scores were entered into the regression model, and residuals were examined to check assumptions required for regression analysis. Collinearity diagnostics were within acceptable levels (Tolerance, .992; Variance Inflation Factor or VIF, 1.005). Maximum leverage values were .08; Cook's distance maximum value was also low, at .07. Case-by-case diagnostics were produced for all cases $> 2 SD$; cases # 19

had a standardized residual values of > -2.0 , but were not removed from the data because they did not exceed -3 , a general guideline for considering removal of outliers.

The two-factor model underlying the data is $Y_i = b^*_o + b^*_1X_{\text{DIT-P Score}} + b^*_2X_{\text{PROI}} + \epsilon_1$.

The fitted model is:

$$\hat{Y}_i = b^*_o + b^*_1X_{\text{DIT-P Score}} + b^*_2X_{\text{PROI}}$$

$$H_{o2\text{DIT\&PROI}}: \rho_{\hat{y}y} = 0$$

$$H_{A2\text{DIT \& PROI}}: \rho_{\hat{y}y} \neq 0$$

Critical value of $F_{05}(2,116) = 3.087$; $F_{\text{obtained}} = 3.22$ for the two-factor model of DIT and PROI scores as predictors, rejecting H_o . There is a statistically significant relationship between PPS scores in year three and four, and baseline assessments of moral judgment and moral motivation/ role concepts in year one of the dental ethics program.

For the two-predictor model, R^2 was .05, explaining approximately 5% of the variance in moral behavior outcome / PPS scores.

Standardized coefficients for each slope were tested in the two-factor model using t-tests against the constant. For the PROI, $\beta = 2.75$ ($p = .01$), indicating that for every standard deviation increase in PROI scores we could predict a 2.75 standard deviation increase in PPS scores. This suggests that the PROI, as a pretest of role concepts and orientation, may provide value in predicting later performance in simulated clinical effectiveness assessments such as PPS.

DIT, PROI, and EMPATH as predictors. DIT-P, PROI, and EMPATH scores were entered into the regression model, and residuals were examined to ensure assumptions were met. Collinearity diagnostics were within acceptable levels (Tolerance, .992; Variance Inflation Factor or VIF, 1.05). Centered leverage values were examined; maximum value was .06. Case-by-case diagnostics were produced for all cases $> 2 SD$; case # 19 had a standardized residual value of -2.179 , but was not removed from the data.

The three-factor model underlying the data is $Y_i = b^*_o + b^*_1X_{\text{DIT-P Score}} + b^*_2X_{\text{PROI}} + b^*_3X_{\text{EMPTH}} + \mathcal{E}_1$. The fitted model is:

$$\hat{Y}_i = b^*_o + b^*_1X_{\text{DIT-P Score}} + b^*_2X_{\text{PROI}} + b^*_3X_{\text{EMPTH}}$$

$$H_{03\text{DIT,PROI\&EMPTH}}: \rho_{\hat{y}y} = 0$$

$$H_{A3\text{DIT,PROI\&EMPTH}}: \rho_{\hat{y}y} \neq 0$$

The difference between the two- and three-factor model, in which EMPTH was added to the model, was not significant, $p = .10$. The empathic response variable (EMPTH) was also not significant as a single predictor in the multiple regression analysis $\beta = 1.68$ ($p = .07$). However, the critical value of $F_{05}(3,115) = 2.68$; $F_{\text{obtained}} = 3.30$ for the three-factor model of DIT, PROI, and EMPTH scores as predictors was significant, rejecting the null hypothesis. There is a significant relationship between PPS scores and a three factor predictive model of moral behavior outcomes. R squared for the three-predictor model was .08, explaining approximately 8% of the variance in moral implementation / empathic response scores.

Standardized coefficients for slopes were tested using t-tests against the constant. PROI was significant, $\beta = 2.77$ ($p = .01$), indicating that for every standard deviation increase in PROI scores, a 2.77 increase in PPS scores could be predicted, holding all other factors constant.

Hypothesis 2. This hypothesis tests the addition of interaction terms to a regression model predicting clinical effectiveness (PPS scores). The rationale is that Rest's Four Component Model is a dynamic process model, and the components are thought to contribute to moral behavior both as single factors and interaction terms.

H_{02} : Adding interaction terms to the prediction model will have no influence on the overall variance accounted for in the predictive model of moral behavior outcomes (PPS).

H_{A2}: The addition of interaction terms to the prediction model will account for more variance than single predictors in a model of moral behavior outcomes (PPS).

All two- and three-way interaction terms were produced and entered stepwise into the regression model. The two-factor model underlying the data is $Y_i = b^*_0 + b^*_1X_{DIT} + b^*_2X_{PROI} + b^*_3X_{EMPTH} + b^*_4X_{DIT\&PROI} + b^*_5X_{DIT\&EMPTH} + b^*_6X_{EMPTH\&PROI} + b^*_7X_{DIT, EMPTH, \& PROI} + \epsilon_1$. The fitted model is:

$$\hat{Y}_i = b^*_0 + b^*_1X_{DIT-P\ Score} + b^*_2X_{PROI} + b^*_3X_{EMPTH} + b^*_4X_{DIT\&PROI} + b^*_5X_{DIT-P, EMPTH} + b^*_6X_{EMPTH\&PROI} + b^*_7X_{DIT-P, EMPTH, \& PROI}$$

$$H_{04}: \rho_{\hat{y}y} = 0$$

$$H_{A4}: \rho_{\hat{y}y} \neq 0$$

The results yielded a total R squared of .13 for the full model, explaining approximately 13% of the variance in predicting PPS scores could be explained by moral capacity predictors and interactions. However, in testing the degree of change between models using an ANOVA *F* test, only the change from the single predictor (DIT-P score) to the two-predictor model of the DIT-P score and the PROI / Role Concepts scores showed a significant change in the total amount of variance accounted for, $F_{2,116} = 3.219$, $p = .044$.

Tests of individual slopes yielded results similar to the models including only single factors. For the Model 2, PROI predicted PPS scores at $b = .23$, $t(117) = 2.52$, $p = .01$, and this association remained significant in each model.

With respects to tests of slopes of interactions, the interaction of the DIT and PROI in Model 6 predicted PPS scores at $b = -.22$, $t(117) = -2.01$, $p = .04$.

The results may be due to a degree of multicollinearity between interaction terms, with Variance Inflation Factors reaching 1.26 for the EMPTH by PROI interaction term, and ranging

upward to 1.28 for the three-way interaction term. Table 15 summarizes tests of slopes and model fit.

Research Question 2: To what extent do measures of FCM capacities (PROI, DIT, and EMPTH scores) or interactions predict the perceived likelihood the patient would comply with the clinician's advice?

Hypothesis 3. Rest's Four Component Model (FCM) states that multiple moral capacities contribute to moral behavior, and that each capacity can be developed across the lifespan. This hypothesis tests whether three measures approximating Rest's Four Component Model capacities -- judgment (DIT-P), motivation (PROI), and implementation (EMPTH) -- would better predict the judged likelihood that a patient would comply with the dentist's advice (COMP) than would single factors. The response variable, COMP, was dichotomized as 0=would not comply with the dentist's advice, and 1=would comply, and served as a proxy for clinical effectiveness.

Table 15
 Summary of Multiple Regression Analysis, Clinical Effectiveness (PPS Scores) (N = 119)

	B	SE(B)	β	t	Sig. α .05	Model Fit (ANOVA F, df, p values, R ²)
<i>Model 1:</i>						
Constant:	.10					$F_{.05} = .09_{1, 117}$
DIT-P:	.03	.102	.03	.30	$p = .77$	$p = .77, R^2 = .001$
<i>Model 2:</i>						
DIT-P:	.001	.10	.007	.08	$p = .94$	$F_{.05} = 3.22_{2, 116}$
PROI:	.25	.10	.23	.26	$p = .01$	$p = .04, R^2 = .05$
<i>Model 3:</i>						
DIT-P:	-.002	.10	-.03	-.29	$p = .78$	
PROI:	.28	.10	.25	2.77	$p = .007$	$F_{.05} = 3.30_{3, 115}$
EMPTH:	.19	.10	.17	1.83	$p = .07$	$p = .02, R^2 = .08$
<i>Model 4:</i>						
DIT-P:	-.002	.10	-.02	-.17	$p = .86$	
PROI:	.28	.10	.25	2.77	$p = .007$	$F_{.05} = 2.59_{4, 114}$
EMPTH:	.20	.10	.18	1.9	$p = .06$	$p = .04, R^2 = .10$
EMPTH & PROI:	.007	.10	.06	.70	$p = .49$	
<i>Model 5:</i>						
DIT-P:	.001	.10	.007	.073	$p = .94$	
PROI:	.28	.10	.25	2.78	$p = .006$	$F_{.05} = 2.86_{5, 113}$
EMPTH:	.16	.10	.15	1.58	$p = .12$	$p = .02, R^2 = .11$
EMPTH & PROI:	.12	.10	.11	1.14	$p = .26$	
DIT & PROI	-.20	.10	-.18	-1.92	$p = .06$	
<i>Model 6:</i>						
DIT-P:	-.002	.10	-.02	-.20	$p = .84$	
PROI:	.25	.10	.22	2.48	$p = .02$	
EMPTH:	.18	.10	.13	1.70	$p = .09$	$F_{.05} = 2.72_{6, 112}$
EMPTH & PROI:	.14	.10	-.20	1.33	$p = .19$	$p = .02, R^2 = .13$
DIT & PROI	-.22	.10	-.13	-2.09	$p = .04$	
EMPTH & DIT:	-.17	.12		-1.39	$p = .17$	
<i>Model 7:</i>						
DIT-P:	-.03	.11	-.02	-.21	$p = .83$	
PROI:	.25	.11	.23	2.40	$p = .02$	
EMPTH:	.18	.11	.16	1.68	$p = .10$	$F_{.05} = 2.32_{7, 111}$
EMPTH & PROI:	.14	.11	-.20	-2.03	$p = .05$	$p = .03, R^2 = .13$
DIT & PROI	-.22	.11	.13	1.32	$p = .19$	
EMPTH & DIT:	-.17	.13	-.13	-1.36	$p = .18$	
EMPTH, DIT, & PROI:	-.01	.12	-.008	-.08	$p = .94$	

H₀₃: The likelihood of the patient complying with the dentist's advice (COMP) will have no association with Rest's Four Component Model predictor scores.

H_{A3}: A model including three of Rest's components (PROI, DIT-P and EMPTH) will better predict the log odds of the patient complying with the dentist's response (COMP) than any single predictor or subset of predictors.

Logistic Regression Analysis

Three predictor variables were regressed onto the response variable Likelihood of Complying With the Dentist's Advice (COMP) in hierarchical order; (1) DIT-P, (2) PROI, and (3) EMPTH. The rationale was that moral judgment (DIT-P) has been found to be positively related to nurses performance on internships (Duckett & Ryden, 1994), and is associated with the ability of auditors to detect fraud in financial statements and the likelihood of auditors reporting wrong-doing to superiors or law enforcement (Arnold & Ponemon, 1991; Ponemon & Gabhart, 1994).

The full model for the logistic regression equation is $\text{Log}(Y) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$. Table 16 shows the estimated log odds for each FCM component, beginning with moral judgment (DIT-P) and entering each additional moral capacity variable by steps.

Table 16
Four Component Model Variables (DIT-P, PROI, and EMPTH) Regressed on the Likelihood that the Patient Would Comply with Advice (COMP)

	Predictors and Log Odds Estimates		Model Fit
	Wald χ^2	Odds Ratio- Exp(B), and 95% C.I	-2 Log Likelihood (LL), χ^2 , and Nagelkerke R^2
<i>Step 1:</i>			
DIT-P:	14.95 ($p = .001$)	4.25 (C.I., 2.04 - 8.86)	-2 LL = 75.76, $\chi^2 = 22.86(1)$ ($p = .001$) $R^2 = .30$
<i>Step 2:</i>			
DIT-P:	15.71 ($p = .001$)	4.59 (C.I., 2.16 - 9.78)	-2 LL = 73.24,
PROI:	2.36 ($p = .12$)	.62 (C.I., .34 - 1.14)	$\chi^2 = 24.37(2)$, ($p = .001$), $R^2 = .33$
<i>Step 3:</i>			
DIT-P:	15.59 ($p = .001$)	4.79 (C.I., 2.20 - 10.42)	-2 LL = 72.90,
PROI:	2.40 ($p = .12$)	.62 (C.I., .33 - 1.14)	$\chi^2 = 24.70(3)$, ($p = .001$),
EMPTH:	.33. ($p = .56$)	1.22 (C.I., .63 - 2.37)	$R^2 = .34$

Tests of overall model fit of the full model compared to the single predictor model (DIT-P) were non-significant ($-2 \text{ Log } L_{\text{reduced}} - 2 \text{ Log } L_{\text{full}}$ or $75.76 - 72.90 = 2.86$). The critical value for $\chi^2_{.05,1}$ is 3.84, thus the null hypothesis is retained. The full model does not predict greater likelihood of the patient complying with the dentist's advice over the reduced model. Only the DIT-P score statistically significantly predicted the likelihood of the patient complying with the dentist's advice ($p = .001$). The odds ratio was 4.25, meaning that an increase in the DIT-P score was associated with a 4.25 increase in the odds of the patient complying with the dentist's advice, holding all other factors constant.

Hypothesis 4. This hypothesis tests whether adding interaction terms of significant or near significant predictors to the model would increase the overall log odds in the logistic predictive model. Interaction terms were created using the product of the DIT P-Score and PROI score. The rationale was to test whether the interaction of moral judgment and moral motivation / role concepts was related to the log odds of the response variable "Likelihood the Patient Would Comply" variable (COMP), a proxy for a clinical effectiveness as a moral behavior outcome.

H_{04} : The likelihood of the patient complying with the dentist's response (COMP) will have no association with Rest's Four Component Model predictor scores and interaction (DIT-P, PROI, and the interaction of DIT-P and PROI).

H_{A4} : A model including the DIT-P, PROI, and the interaction of DIT-P and PROI will better predict the log odds of the patient complying with the dentist's response than any single predictor.

The full model for the logistic regression equation is $\text{Log } (Y) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$. Table 17 shows the estimated log odds for each predictor.

Table 17

Four Component Model Variables (DIT-P, PROI, and DIT/PROI) Regressed on the Likelihood that the Patient Would Comply With Advice (COMP)

	Predictors and Log Odds Estimates		Model Fit
	Wald χ^2	Odds Ratio- $Exp(B)$, and 95% C.I	-2 Log Likelihood (LL), χ^2 , and Nagelkerke R^2
<i>Step 1:</i>			
DIT-P:	14.95 ($p = .001$)	4.25 (C.I., 2.04 - 8.86)	-2 LL = 75.76, $\chi^2 = 22.86(1)$ ($p = .001$) $R^2 = .30$
<i>Step 2:</i>			
DIT-P:	15.71 ($p = .001$)	4.60 (C.I., 2.16 - 9.78)	-2 LL = 75.76,
PROI:	2.11 ($p = .12$)	.62 (C.I., .34 - 1.14)	$\chi^2 = 24.37(2)$, ($p = .001$), $R^2 = .34$
<i>Step 3:</i>			
DIT-P:	14.93 ($p = .001$)	4.76 (C.I., 2.16 - 10.52)	-2 LL = 73.24,
PROI:	.16 ($p = .69$)	.66 (C.I., .344 - 2.09)	$\chi^2 = 25.17 (3)$, ($p = .001$),
DIT & PROI:	.70. ($p = .40$)	.09 (C.I., .504 - 1.76)	$R^2 = .34$

Tests of overall model fit of the full model were compared to the single predictor model (DIT-P) to obtain a difference score ($-2 \text{ Log } L_{\text{reduced}} - 2 \text{ Log } L_{\text{full}}$ or $75.76 - 73.24 = 2.52$). The critical value for $\chi^2_{.05,1}$ is 3.84, thus the null hypothesis that the full model and the reduced model fit the data equally well cannot be rejected. The null hypothesis is retained.

Research Question 3. To what extent do measures of FCM capacities predict whether student-dentists would acknowledge the chief complaint of a patient who cannot afford treatment?

Hypothesis 5. Moral capacities as predictors of a moral behavior outcome were tested. The response variable was “Acknowledged Patient’s Chief Complaint” (APCC) in a case involving a young man with limited financial resources. A model that includes three of four components (judgment, motivation, and implementation) was tested using logistic regression in analysis.

H_{05} : The likelihood of verbally acknowledging a patient’s chief complaint (APCC) will have no association with Rest’s Four Component Model predictor scores (PROI, DIT-P, and EMPH).

H_{A5}: A model including three of Rest’s components (PROI, DIT-P, and EMPTH) will better predict the log odds of verbally acknowledging a patient’s chief complaint (APCC) than any single predictor.

Three predictor variables (measures of moral judgment, motivation/role concepts, and moral implementation/empathic response) were regressed onto the response variable, Acknowledgment of the Patient’s Chief Complaint (APCC). The order was (1) DIT-P score (moral judgment), (2) PROI (moral motivation/ role concepts), and (3) EMPTH (moral implementation).

The full model for the logistic regression equation is $\text{Log}(Y) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$. Table 18 shows the estimated log odds for each FCM component, beginning with moral judgment (DIT-P Score) and entering each additional moral capacity variable by steps.

Table 18
Four Component Model Variables (DIT-P, PROI, and EMPTH) Regressed on the Acknowledgement of the Patient’s Chief Complaint (APCC)

	Predictors and Log Odds Estimates		Model Fit
	Wald χ^2	Odds Ratio- <i>Exp(B)</i> , and 95% C.I	-2 Log Likelihood (LL), χ^2 , and Nagelkerke R^2
<i>Step 1:</i>			
DIT-P:	5.39 ($p = .001$)	1.04 (C.I., 1.00 – 1.071)	-2 LL=148.13, $\chi^2 = 5.14$ (1) ($p = .03$) $R^2 = .06$
<i>Step 2:</i>			
DIT-P:	4.61 ($p = .03$)	1.04 (C.I., 1.00 – 1.071)	-2 LL=147.76,
PROI:	.36 ($p = .55$)	1.02 (C.I., .95 - 1.09)	$\chi^2 = 5.51$ (2), ($p = .06$), $R^2 = .06$
<i>Step 3:</i>			
DIT-P:	6.14 ($p = .01$)	1.05 (C.I., 1.01 – 1.08)	-2 LL = 144.22,
PROI:	.13 ($p = .72$)	1.01 (C.I., .95 – 1.09)	$\chi^2 = 9.05$ (3), ($p = .03$),
EMPTH:	3.44 ($p = .06$)	.86 (C.I., .74 – 1.01)	$R^2 = .10$

Tests of overall model fit of the full model compared to the single predictor model (DIT-P) were non-significant ($-2 \text{ Log } L_{\text{reduced}} - 2 \text{ Log } L_{\text{full}}$ or $148.13 - 144.22 = 3.95$). The critical value for $\chi^2_{.05,1}$ is 3.84, thus the null hypothesis is rejected. The full model predicts a significantly greater likelihood that the dentist acknowledged the patient’s chief complaint in the Lohman case than the reduced model. The strength of the association between the predictors

and whether or not the dentist acknowledged the patient's chief complaint in the full model, using Nagelkerke's R^2 , was .10, compared to .06 in the reduced models.

The strongest individual predictor was again the DIT-P score. The odds ratio was 1.04, suggesting that an increase in the DIT-P score was associated with a 1.04 increase in the odds of the dentist acknowledging the patient's chief complaint. Although the PROI and EMPH were not statistically significantly associated with the response variable as individual factors, their inclusion in the model did increase the strength of association with the response variable, providing evidence in support of Rest's Four Component Model.

Because logistic regression requires more cases per predictor than linear multiple regression, and because the full model was statistically different from the reduced model, yet no single predictor beyond the DIT-P score was significant, no further model testing with interaction terms was conducted.

DISCUSSION

Summary of Findings

The extent to which baseline assessments of moral capacities predicted dental students' performance on a series of cases depicting clinical interactions in an ethics course ($n = 119$) was examined using multiple and logistic regression. Rest's (1983) Four Component Model (FCM) of morality guided the inquiry. The FCM states that four moral capacities are related to moral behavior: sensitivity, judgment, motivation / role concepts, and implementation. Predictors included moral judgment, measured by the Defining Issues Test (DIT) (Rest, 1979); and moral motivation/ role concepts, measured by the Professional Role Orientation Inventory (PROI) (Bebeau, Born, & Ozar, 1994). Ratings of transcripts of verbal responses to a case assessment measured empathic response, an element of moral implementation, operationally defined as the degree the response was judged as empathic or empathic response (EMPTH).

The results indicate that multiple moral capacities have greater ability to predict moral behavior than single factors, within the context of professional education using proxies of clinical effectiveness as response variables. Moral judgment scores (DIT-P), predicted less than 1% of the variance in clinical effectiveness, when operationally defined as final grades in a Professional Problem Solving (PPS) course. Adding a second predictor, moral motivation / role concepts (PROI), the total amount of explained variance increased to 5%; the test of model fit was significant ($F_{.05} 3.22_{2, 116}, p = .04$). A third predictor, empathic response (EMPTH), increased the total amount of variance explained to 8%; however, the change from the two- to three-predictor model was not significant.

Adding interaction terms to the model yielded only one significant test of model fit, a five-predictor model that included two-way interaction terms of the PROI and EMPTH, and PROI and DIT. However, the seven-factor model yielded an R^2 of .13, explaining 13% of the variance, ($F_{.05} 2.72_{6, 112}, p = .02$).

Additional clinical effectiveness response variables were tested in two logistic regression analyses using derived variables from case responses in a third year assessment. First, the judged likelihood that a patient suffering with advanced symptoms of an eating disorder would comply with the advice of the student-dentist (COMP), was coded dichotomously as unlikely (0) or likely (1). The full model, including three predictors (DIT, PROI, and EMPTH), did not predict greater likelihood of the patient complying with the dentist's advice over the reduced model. As a single predictor, the DIT-P score significantly predicted the likelihood of the patient complying with the dentist's advice; Wald $\chi^2=14.52(1)$ ($p = .001$). The odds ratio was 4.25 (C.I._{.95}, 2.04 - 8.86), meaning that a one-unit increase in the DIT-P score was associated with a 4.25 increase in the log odds of the patient complying with the dentist's advice, holding all other factors constant.

Second, the likelihood that the student-dentist acknowledged the patient's chief complaint (APCC), which was a request by a patient with limited financial resources to have a tooth extracted, formed the dichotomous response variable in a logistic regression analysis (i.e., acknowledged or did not acknowledge the patient's chief complaint). The full model including three predictors (DIT-P, PROI, and EMPTH) was significant compared to the single predictor model, with an estimated effect size of .10 using Nagelkerke's R^2 . DIT-P scores predicted that the student would acknowledge the patient's chief complaint. A one-unit increase in DIT-P score was associated with a 1.04 log odds increase in the likelihood that the student acknowledged the patient's chief complaint (C.I._{.95}, 1.00 – 1.071); Wald $\chi^2=5.39(1)$ ($p = .03$).

In sum, the results yielded support for Rest's Four Component Model and for the increased explanatory power of multiple FCM capacities in predicting clinical effectiveness, and support the practical value of assessment of moral capacities in professions education. The differing results for PPS and the dichotomous clinical effectiveness variables, with respect to individual predictors, may relate to the nature of the assessments, which in PPS involved instruction and rehearsal, and with COMP and APCC was an extemporaneous response to an audio-taped case. In the unrehearsed condition, bedrock moral schemas may guide the behavior;

in the rehearsed condition, schemas for professional role concepts and more effortful cognitive-affective processing of motivational factors may instead shape behavior.

Implications of Findings

This study makes several contributions to moral psychology research. First, drawing on theories of empathy, an operational definition of empathic response as a dimension of moral implementation was introduced. Moral implementation, one of Rest's Four Component Model processes of moral behavior, has traditionally been defined as a set of virtues or personality traits. Generally associated with the ability to carry out a moral act against opposition, moral implementation was frequently equated with courage. Moral implementation in the present investigation was defined contextually as observed verbal patterns of student dentists in response to a case that required an empathic response. Within this context, the observations focused on experts' judgments of the likelihood that the student's response would be perceived as empathic.

Operationally defining empathic response as a dimension of moral implementation links Rest's FCM to social psychological and identity research that encompasses both person and situation variables in predicting or explaining moral behavior. Although this theoretical linkage has been somewhat obscured in the literature, both Rest's and Kohlberg's writings point to the importance of the social environment in shaping morality. In fact, in his later years, Kohlberg turned his attention primarily to the role of the social environment in shaping morality, as exemplified by his work with the Just Community schools (Kohlberg, 1975). Thus, the inclusion of empathic response in defining moral implementation—especially in clinical settings, joins unfinished strands in Kohlberg and Rest's work with a range of approaches from social psychology that renew relevance and utility of the FCM as a contributor to shaping ethics education.

Empirically, the empathic response (EMPTH) and moral judgment (DIT) variables were not significant as single predictors in the multiple regression analysis, but when the PROI was added to the model, the explained variance increased from $R^2 = .01$ to $.05$ ($p = .01$),

explaining approximately 5% of the variance in the model. The inclusion of EMPATH in the model increased *R* squared to .08; however, the change from model 2 to model 3 was not statistically significant ($p = .10$).

Second, a multiple moral capacity predictive model was partially supported, with three of the five models tested resulting in significant gains in the total amount of explained variance on a moral response variable. With interaction terms added to the predictive model, the total amount of explained variance rose to 13%, similar to moral judgment validation studies, which generally find between 5% and 20% of the variance associated with a moral behavior criterion associated with moral judgment ability (Rest et al., 1999a, p. 83). This finding provides additional criterion validity evidence for moral judgment and suggests that with valid measures of other components (e.g., moral motivation), the total amount of explained variance in predicting moral behavior may increase further.

Although the hypotheses tested were based on a common interpretation of Rest's theory, i.e., that higher capacities within each of the four components of morality would result in greater probabilities of a moral outcome, the relationship may be more complex. According to Bebeau (personal communication, December 10, 2008), Rest's Four Component Model is one that explains moral failures – that deficiencies in any of the moral capacities increase the likelihood of moral failure. Bebeau further clarifies that moral behavior can occur even in the absence of well developed moral capacities simply due to chance or to a reliance on heuristics in decision making. As well, depending on the characteristics of the situation, not all four components may be necessary (personal communication, Mark Davison, December 7, 2008) – i.e., not all moral judgments are tested within the social realm, requiring competence in managing the interpersonal implications of the decision.

Three, the finding that understanding of role concepts – the extent that the student-dentist endorsed views related to the professional committed to serving society, and as measured by the PROI – were related to performance in PPS was perhaps counterintuitive, as previous studies have linked moral judgment to job performance in nursing (Duckett & Ryden, 1994), the ability of auditors to detect fraud in financial statements (Arnold & Ponemon, 1991),

and the likelihood of auditors reporting wrong-doing to superiors or law enforcement (Ponemon & Gabhart, 1994). An explanation for this finding may relate to the nature of the PPS assessments, given over a two-year period, and guided by instruction. Students were given a two-day period to construct their dialogs in response to each case, permitting a deliberate and informed approach to creating the dialog response. Thus, it is plausible that PPS scores reflected more of the motivational, identity, or role concepts that drive deep, effortful cognitive processing than did moral judgment.

In support of this hypothesis, the results of the logistic regression analyses found that moral judgment, as measured by the DIT P score, was a more powerful predictor than the PROI, which directly counter the finding in Study 1 that the PROI predicted PPS scores. The nature of how the Patient Compliance (COMP) and the Acknowledgment of the Patient's Chief Complaint (APCC) variables were derived was distinctly different from PPS. Both the COMP and APCC variables were derived from DEST, which entailed students recording their verbal response to cases. Thus, the difference in findings between Study 1 and Study 2 may relate to the underlying moral cognitive process. The responses to the ethical issues embedded in the cases may have been driven more by heuristics or underlying moral schema preferences, the "default" moral cognitive system, rather than the more deliberate, motivation-based cognitive-affective processes thought to be elicited by the PROI.

The finding that PROI scores were more predictive of PPS performance than DIT-P scores would then be explained by the more instructive nature of the PPS assessment. In PPS, students were given guidelines on formulating a response, and two days to complete the assignment – which may have permitted role concepts and motivational processes to drive the response more than heuristics or moral schemas. This hypothesis should, of course, be tested through replication.

Five, this research expands the knowledge of how moral emotions intersect with FCM psychosocial processes. While the ratings of student responses recognized a wide range of moral emotions (i.e., shame and anger), the primary focus of this inquiry was on the overall degree of the response would be perceived as empathic by a patient. The potential to examine

the FCM and moral emotions has been largely untapped, and represents strong potential for a future research agenda.

Limitations

Four limitations of this study are noted. One, the measure of empathic response in this study was based on a single case, judged to have the most potential to elicit empathy. While it did serve the purpose of eliciting multiple dimensions associated with empathy, it also limited the extent that assessment data could be interpreted as a valid representation of the capacity for responding empathically of each student, as well as the extent that the resulting data could be used in formative assessment. Future measures of empathic responses should be based on multiple cases, using multiple methods to increase reliability and validity of resulting data.

Two, Professional Problem Solving (PPS) scores provided a meaningful measure of clinical effectiveness in case simulations across a two-year period. With additional methods and measures of assessment of clinical effectiveness such as observations of student dentists interacting with actual patients or standardized patients, the usefulness and validity could be further increased.

Three, videotape or live performances would expand inferences based on visual communication cues that convey empathy (e.g., eye contact or gestures with head or hands to indicate openness and acceptance).

Four, the sample size for logistic regression was somewhat low; a larger sample size with a larger number of moral behavior outcomes would be useful.

Future Directions: Empathy and Morality in Education in the Professions

Several areas of future studies should be addressed. First, the Rest's Four Component Model, in its 25th year, has influenced a generation of morality research and curriculum development. Continuing the investigation of how moral emotions interact with FCM capacities is an area that appears to have been overlooked, perhaps because of the predominance of moral cognition research, and the tendency for emotion and cognition to be compartmentalized.

Because of its centrality to clinical education, empathy presents a particularly rich area within the FCM to explore, but also, negatively valenced moral emotions such as shame and guilt may be increasingly relevant. In the ascendancy of a generation focused on ensuring adequate self esteem among children, albeit an important goal, perhaps shame and guilt have become unfashionable research topics to conduct among older children and adults. Yet, both are known to play an important role in moral self regulation. For the practical issues that relate to malfeasance and deviance in society – particularly where there is a chasm between public persona and private behavior – the study of morality and negative moral emotion is likely a critical area that could shed light on such issues as corporate fraud and white collar crime.

Second, ethics education in the professions, including law and medicine, has seen a surge in interest in assessment and definition of competencies (e.g., medical education and the Association of Colleges of Medical Education and the Carnegie Foundations' study of law school and professionalism, Sullivan, 2004). Perhaps this interest is running parallel with national trends towards educational assessment and accountability. But the goal of assessing complex psychosocial constructs such as ethics or empathy represent no mean challenge, and the tendency to deconstruct complex phenomenon and reduce it to a paper-and-pencil test or inventory may be a worthy effort. But it also may be perceived as another effort to “sort” students by ability or by characteristics, and thus may have unintended consequences. Thus it is critical that assessment provide meaningful, developmental feedback for a participant that is designed to enhance social skills, personal adjustment, and empathy – as opposed to limiting or “typing” individuals (Johnson & Johnson, 2005). The Four Component Model represents a holistic framework for a range of research-validated tests, as well as experiential education and assessment, such as with the course in Professional Problem Solving (PPS) that was part of this study. Although designing and measuring performance assessments is costly and time-consuming endeavor, at the foundation of these activities is the relationship with the student – that if kept foremost in mind, would likely result in the most meaningful and lasting change. Thus, future studies of the FCM must continue to knit together the pragmatic concerns of education in the professions with a solid agenda for basic research.

Professions education considering such assessment efforts need also to adhere to the gold standards of assessment and measurement. By combining some of the methods used in PPS with approaches such as the Objective Structured Clinical Exam (OSCE); with multiple raters across multiple methods, the “gold standard” of validity could be met, i.e., multiple methods and multiple measures across time (Campbell & Fiske, 1959).

Third, the consideration of examining negative moral emotion and the FCM lends itself particularly well to a new range of studies that take a hard look at bias and prejudice. Work such as that of Sirin and Brabeck, with the Racial Ethical Sensitivity Test (REST) (Brabeck & Sirin, 2001) represents a second-generation impact to which the FCM has much to contribute. But it should be viewed as an opportunity not only for raising awareness among students about bias and disparities in society, but as a research opportunity to investigate the intersections of morality and prejudice or bias. For example, in the opening of this paper, the story of Deamonte Driver was told. An experiment using a simple alternation of names and dialects could reveal whether medical personnel might hold unconscious bias that might influence the quality and timeliness of the response. A case-based assessment, using an experimental design, in which the protagonists’ age, race, or socioeconomic background are reversed and quality and timeliness of the response compared, would be of value – but examining the potential mediating function of moral reasoning or sensitivity or other FCM processes would be more important in that there is ample evidence that moral judgment can be enhanced through education (Rest et al., 1999).

A fourth area of future studies relates to how empathy may vary depending on the patient’s status (e.g., economic, social, immigrant, insurance). Considering an overburdened medical system where the poor struggle to find means to cover basic health care, empathic bias could arise simply due to compassion fatigue or burnout, as suggested by Hoffman (2001) and Myhrvold (2006). An experiment could be devised in which two or more versions of the case are created changing only a critical characteristic of the patient (e.g., reversing gender, ethnicity, or SES). With random assignment to groups, levels of empathy could be compared. A variation of this experiment would be to examine the interrelationships between ERC variables across two versions of the case (e.g., a female vs. male patient, or low- vs. high-socioeconomic status)

using multidimensional scaling analysis, potentially revealing different patterns that may relate to bias.

A fifth topic relates to the social climate of medical and dental schools, and the relationship between competition and empathy. In hundreds of studies on cooperation and competition in education and in business, a cooperative milieu has been found to increase promotive interaction and has positive effects on the psychological well being of students (Johnson, 2003). The capacity for social perspective taking and for empathy would likely also be enhanced, and may in turn influence interaction with patients. Medical school insiders note the intensely competitive and often isolating social environment in which students learn and work, speculating a relationship with decreased capacity for empathy (Spencer, 2004).

Last, exploring new indices for moral behavior outcomes may be a fruitful area for future studies. Dichotomous outcome variables are common in health and medical research (e.g., the patient lived or died). Other behavioral outcomes variables could be derived or identified within health education, serving as a proxy for moral behavior, to determine whether there might be a stronger relationship between moral judgment and moral behavior as is suggested by Rest's FCM theory. Evidence in support of this approach from social psychology indicates that the correlation between attitudes and behavior varies depends in part on whether the behavioral measure is based on a single- or multiple-act criterion. In a seminal study exploring predicting behaviors from attitudes, the correlation between a predictor and a single criterion was .29 and rose to .62 for multiple criteria (Weigel & Newman, 1976). Thus, multiple response variables could be developed for future studies in addition to the likelihood of the patient accepting the advice, and could include actual behavioral criteria (e.g., hours spent volunteering at a free clinic).

Conclusion

The utility and predictive ability of assessments of the four components of morality was supported by this study of dental students in a performance assessment of clinical effectiveness. Similar to previous findings that moral judgment is correlated with job performance, prosocial

behaviors, and the likelihood of accountants reporting malfeasance, this study found that moral judgment scores predicted positive clinical effectiveness on a case role-play. The context of an assessment was an audio-taped case, requiring that students listen closely to the audio recording quickly synthesize the issues, and record a verbal response

In contrast, professional role concepts / moral motivation more powerfully predicted clinical effectiveness using an assessment that involved instruction and guidance on the development of an implementation plan, as well as time to write and revise the response. This finding, which opposes the time-pressure condition, suggests that different moral capacities may be tapped depending on whether or not the situation involves a time pressure condition. More research is needed to replicate this finding and flesh out its full meaning.

Professional education considering amplifying the ethics, professionalism, and clinical effectiveness skills of students might consider the use of challenging cases that can serve as a stimulus for a role-play performance assessment. An investment in the development of an assessment plan and rating tools, including analysis of psychometric properties of the data yielded, can require a significant up-front investment in resources, the effort can be designed to both provide valid and reliable assessment data – and feedback that is seen as value added.

References

- Abreu, J.M. (1999). Conscious and nonconscious African American stereotypes: Impact on first impression and diagnostic ratings by therapists. *Journal of Consulting and Clinical Psychology, 67*(3), 387-93.
- Aring, C. D. (1958). Sympathy and empathy. *Journal of American Medical Association, 167*, 448-452.
- Accreditation Council of Graduate Medical Education (ACGME). (2008). *Educating Physicians for the 21st Century: A 4 module educational resource for teaching and learning the competencies*. Retrieved September 4 from www.acgme.org
- Arnold, D. & Ponemon, L. (1991). Internal auditors' perceptions of whistle-blowing and the influence of moral reasoning: An experiment. *Auditing: A Journal of Practice and Theory, 10*, 1-15.
- Bandura, A. (1991). Social cognitive theory of moral thought and action. In W.M. Kurtines & J.L. Gerwitz (Eds.), *Handbook of moral behavior and development, Vol. 1* (pp. 45-103). Hillsdale, NJ: Erlbaum.
- Barrett, P. (2001). *Assessing the reliability of rating data*. Retrieved January 23, 2008, from <http://www.pbarrett.net/>
- Bebeau, M.J. (1994). Influencing the moral dimensions of dental practice. In J. Rest & D. Narvaez (Eds.), *Moral development in the professions: Psychology and applied ethics*, (pp. 121-146). New York: Erlbaum Associates.
- Bebeau, M.J. (2001). Influencing the moral dimensions of professional practice: implications for teaching and assessing for research integrity, proceedings of the ORI Conference on Research on Research Integrity. Retrieved October 27, 2007 from <http://www-personal.umich.edu/~nsteneck/rcrri/index.html>.
- Bebeau, M.J. (2002). The Defining Issues Test and the Four Component Model: Contributions to professional education. *Journal of Moral Education 31*(3), 271-295.
- Bebeau, M.J. (2006). Evidence-based character development. In N. Kenny & W. Shelton (Eds.), *Lost virtue: Professional character development in medical education, Volume 10 (Advances in Bioethics)* (pp. 47-86). Oxford, UK: Elsevier Ltd.

- Bebeau, M.J., Born, D.O., & Ozar, D.T. (1993). The development of a professional role orientation inventory. *Journal of the American College of Dentists*, 60(2), 27-33.
- Bebeau, M.J., & Rest, J.R. (1983). *The dental ethical sensitivity test*. Center for the Study of Ethical Development, University of Minnesota.
- Bebeau, M., Rest, J.R., & Yamoore, C.M. (1985). Measuring dental students' ethical sensitivity. *Journal of Dental Education*, 49, 225-235.
- Bebeau, M.J., & Monson, V.E. (2008). Guided by theory, grounded in evidence: A way forward for professional ethics education. In D. Narvaez & L. Nucci (Eds.), *Handbook on moral and character education*. Hillsdale, NJ: Routledge.
- Bebeau, M. J., Rodriguez, M., & Maeda, Y. (2002, February). *Using DIT moral schema profiles to evaluate educational intervention effects*, paper presented at the annual meeting of the Association for Practical and Professional Ethics, Cincinnati, OH.
- Bebeau, M.J., & Thoma, S.J. (1994). The impact of a dental ethics curriculum on moral reasoning. *Journal of Dental Education*, 58(9), 684-692.
- Bebeau, M., & Thoma, S.J. (1999). "Intermediate" concepts and the connection to moral education. *Educational Psychology Review*, 11, 343-360.
- Beauchamp, T., & Childress, J. (1994). *Principles of biomedical ethics, fourth edition*. New York: Oxford University Press.
- Bellini, L.M., Baime, M., & Shea, J.A. (2002). Variation of mood and empathy during internship. *Journal of the American Medical Association*, 287, 3143-6.
- Bellini, L.M., & Shea, J.A. (2005). Mood change and empathy decline persist during three years of internal medicine training. *Academic Medicine*, 80, 164-167.
- Berenson, A. (2007, October 11). Boom times for U.S. dentists, but not for Americans' teeth. *New York Times National*, A1, 22.
- Bettinghouse, E.P., & Cody, M.J. (1987). *Persuasive communication*. New York: Holt, Rinehart, & Wilson.
- Blasi, A. (1984). Moral identity: Its role in moral functioning. In W. M. Kurtines & J. L. Gewirtz (Eds.), *Morality, moral behavior, and moral development* (pp. 129-139). New York: Wiley.

- Brabeck, M.M., & Sirin, S. (2001). *The racial ethical sensitivity test: Computer disk version (REST-CD)*. Chestnut Hill, MA: Boston College.
- Bruine de Bruin, W., Parker, A., & Fischhoff, B. (2007). Individual differences in adult decision-making competence. *Journal of Personality and Social Psychology, 92*(5), 938–956.
- Bylund, C. L., & Makoul, G. (2005). Examining empathy in medical encounters: An observational study using the empathic communication coding system. *Health Communication, 18*(2), 123-140.
- Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81-105.
- Center for the Study of Ethical Development. (2004). *Website*. Retrieved September 4, 2008 from <http://www.centerforthestudyofethicaldevelopment.net/>
- Centers for Disease Control and Prevention. (2008). *Preventing dental caries with community programs*. Retrieved September 11, 2008, from http://www.cdc.gov/oralhealth/publications/factsheets/dental_caries.htm
- Chen, D., Lew, R., Hershman, W., & Orlander, J. (2007). A cross-sectional measurement of medical student empathy. *Journal of General Internal Medicine, 22*(10), 1434–1438.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37-46.
- Colby, A., & Kohlberg, L. (1987). *The Measurement of Moral Judgment Vol. 2: Standard Issue Scoring Manual*. Cambridge University Press.
- Colliver, J.A., Willis, M.S., Robbs, R.S., Cohen, D.S., & Schartz, M.H. (1998). Assessment of empathy in a standardized-patient examination. *Teaching and Learning in Medicine, 10*, 8-11.
- Commission on Dental Accreditation. (2008). *Standards for dental education programs*. Retrieved September 10, 2008, from <http://www.ada.org/prof/ed/accred/standards/index.asp>
- Costa, P. T., Jr., & McCrae, R. B. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five Factor Inventory (NEO-FFI): Professional manual*. Odessa, FL: Psychological Assessment Resources.

- Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*, 113-126.
- Deladisma, A.M., Cohen, M., Stevens, A., Wagner, P., Lok, B., Bernard, T., et al. (2007). Do medical students respond empathetically to a virtual patient? *The American Journal of Surgery, 193*, 756–760.
- Deloney, L.A., & Graham, C.J. (2003). *Wit*: Using drama to teach first-year medical students about empathy and compassion. *Teaching and Learning in Medicine, 15*(4), 247–251.
- Derogatis, L. (1977). *The SCL-90-R: Administration, scoring and procedures manual 1*, Baltimore: Clinical Psychometric Research.
- Deutsch, M. (1971). *The resolution of conflict*. New Haven, CT: Yale University Press.
- Dewey, J. (1896). The reflex arc concept in psychology. *Psychological Review, 3*, 357-370.
- DiLalla, L.F., Hull, S.K., & Dorsey, J.K. (2004). Effect of gender, age, and relevant course work on attitudes of empathy, patient spirituality, and physician wellness. *Teaching and Learning in Medicine, 16*(2), 165-170.
- Diseker, R.A., & Michielutte, R. (1981). An analysis of empathy in medical students before and following clinical experience. *Journal of Medical Education, 56*, 1004–1010.
- Duckett, L.J., & Ryden, M. B. (1994). Education for ethical nursing practice. In J.R. Rest and D.F. Narvaez (Eds.), *Moral development in the professions*, (pp. 51-69). Hillsdale, NJ: Erlbaum Associates.
- Eagly, A.H., & Chaiken, S. (1993). *The psychology of attitudes*. Belmont, CA: Wadsworth Group.
- Eisenberg, N. (1986). *Altruistic cognition, emotion, and behavior*. Hillsdale, NJ: Erlbaum
- Eisenberg, N., & Miller, P.A. (1987). Empathy, sympathy, and altruism: empirical and conceptual links. In N. Eisenberg & J. Strayer (Eds.) *Empathy and Its Development*, pp. 292–316. New York: Cambridge Univ. Press.

- Eisenberg, N., Spinrad, T.L., & Sadovsky, A. (2006). Empathy-related responding in children. In M. Killen & J.G. Smetana (Eds.), *Handbook of Moral Development*, pp. 517–49. Hillsdale, NJ: Erlbaum.
- Fallowfield, L., Jenkins, V., Farewell, V., Saul, J., Duffy, A., & Eves, R. (2002). Efficacy of a Cancer Research UK communication skills training model for oncologists: a randomised controlled trial. *The Lancet*, 359, 650-656.
- Fazio, R.H. (1987). Self-perception theory: A current perspective. In M.P. Zanna, J.M. Olson, & C.P. Herman (Eds.), *Social influence: The Ontario Symposium* (Vol. 5, pp. 129-150), Hillsdale, NJ: Erlbaum.
- Feshbach, N.D. (1987). Parental empathy and child adjustment/maladjustment. In N. Eisenberg, J. Strayer, (Eds.), *Empathy and its development*, (pp. 271–91). New York: Cambridge Univ. Press.
- Festinger, L. & Carlsmith, J.M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology*, 58, 203-210.
- Figley, C.R. (Ed.) (1995). *Coping with secondary traumatic stress disorder in those who treat the traumatized*. New York: Brunner/Mazel.
- Fiske, S., & Taylor, S.T. (1991). *Social cognition* (second edition). New York: McGraw Hill.
- Fleiss, J.L. (1971). Measuring nominal scale agreement among many raters. *Psychological Bulletin*, 76(5), 378-382.
- Forsythe, G.B., Snook, S., Lewis P., & Bartone, P.T. (2002). Making sense of officership: Developing a professional identity for 21st century army officers. In D.M. Snider & G. L. Watkins, *The future of the army profession*, (pp. 357-378). Boston: McGraw-Hill.
- Gazda, G.M., Walters, R.P., & Childers, W.C. (1984). *Human relations development: A manual for health sciences*. Boston, MA: Allyn and Bacon, Inc.
- Gilligan, C. (1982). *In a different voice*. Boston: Harvard University Press.
- Gioia, D. (1992). Pinto fires and personal ethics: A script analysis of missed opportunities. *Journal of Business Ethics*, 11, 379-389.
- Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, 108, 814-834.

- Haidt, J. (2003). The moral emotions. In R.J. Davidson, K.R. Scherer, & H.H. Goldsmith (Eds.), *Handbook of affective sciences*. (pp. 852-870). Oxford: Oxford University Press.
- Hamilton, N. (2008). Assessing Professionalism: Measuring Progress in the Formation of an Ethical Professional Identity, *U. of St. Thomas Law Journal*, 5.
- Henry-Tilman, R., Deloney, L.A., Savidge, M., Graham, C.J., & Klimberg, S. (2002). The medical student as patient navigator as an approach to teaching empathy. *The American Journal of Surgery*, 183, 659–662.
- Hoffman, M.L. (1982). Development of prosocial motivation: Empathy and guilt. In N. Eisenberg (Ed.), *The development of prosocial behavior*. New York: Academic Press.
- Hoffman M.L. (2001). *Empathy and moral development: Implications for caring and justice*. Cambridge: Cambridge University Press.
- Hogan, R. (1969). Development of an empathy scale. *Journal of Consulting and Clinical Psychology*, 33, 307-316.
- Hojat, M., Mangione, S., Nasca, T.J., Cohen, M.J.M., Gonnella, J.S., Erdmann, J.B., Veloski, J.J. et al. (2001). The Jefferson Scale of Physician Empathy: development and preliminary psychometric data. *Educational and Psychological Measurement*, 61, 349-365.
- Hojat, M., Mangione, S., Nasca, T.J., Rattner, S., Erdmann, J.B., Gonnella J.S., & Magee, M. (2004). An empirical study of decline in empathy in medical school. *Medical Education*, 38, 934-941.
- Howell, D. (2003). *Fundamental statistics for the behavioral sciences*. Florence, KY: Wadsworth Publishing.
- Institute of Medicine. (2002). *Unequal treatment: What healthcare providers need to know about racial and ethnic disparities in healthcare*. Washington, DC: National Academies Press.
- Jahoda, G. (2005). Theodore Lipps and the shift from “sympathy” to “empathy.” *Journal of the History of Behavioral Science*, 41(2), 151-63.
- Johnson, D.W. (2003). Social interdependence: Interrelationships between theory, research, and practice. *American Psychologist*, 934-945.

- Johnson, D.W., & Johnson, R.T. (2005). *Meaningful assessment: A manageable and cooperative process*. Boston, MA: Allyn Bacon.
- Kang, Y., Bebeau, M.J., Born, D.O., & Thoma, S.J. (2006, July). *A validation study of the Professional Role Orientation Inventory (PROI)*. A paper presented at the Association of Moral Education Annual meeting in Fribourg, Switzerland.
- Kant, I. (1785/1994). *Critique of practical reason* (M.J. Gregor, Ed.). Cambridge, UK: Cambridge University Press.
- Kegan, R. (1982). *The evolving self*. Cambridge, MA: Harvard University Press.
- Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Cambridge, MA: Harvard University Press.
- Kline, P. (1994). *An easy guide to factor analysis*. Hillsdale, NJ: Routledge.
- Kohlberg, L. (1969). Stage and sequence. The cognitive- developmental approach to socialization. In Goslin (ed.) *Handbook of socialization theory and research*. Chicago: Rand McNally.
- Kohlberg, L. (1975, Oct). Moral education for a society in moral transition. *Educational Leadership*, 46-54.
- Krebs, D.L., & Denton, K. (2005). Toward a more pragmatic approach to morality: A critical evaluation of Kohlberg's model. *Psychological Review*, 112(3), 629-649.
- Kunst-Wilson, W. R., & Zajonc, R. B. (1980, February). Affective discrimination of stimuli that cannot be recognized. *Science*, 207, 557-558.
- La Monica, E. (1981). Construct validity of an empathy instrument. *Research in Nursing Healthcare*, 4, 389-400.
- Lapsley, D.K., & Narvaez, D. (2004). A social-cognitive approach to the moral personality. In D. K. Lapsley & D. Narvaez (Eds.), *Moral development, self and identity* (pp. 189-212). Mahwah, NJ: Erlbaum.
- Levinson, W., Roter, D., Mullooly, J., Dull, V., & Frankel, R. (1997). The relationship with malpractice claims among primary care physicians and surgeons. *Journal of the American Medical Association*, 277, 553-559.

- Lewin, K. (1951/1997) *Resolving social conflicts and field theory in social science; selected theoretical papers*. D. Cartwright (Ed.). Washington, DC: American Psychological Association.
- Library of Congress. (2008). The Deamonte Driver Dental Care Access Improvement Act of 2008. *110th Congress 2nd Session, H.R. 569*. Retrieved September 8, 2008 from <http://thomas.loc.gov/cgi-bin/query/C?c110:./temp/~c110qkdMbV>
- Marvel, M., Epstein, R., Flowers, K., & Beckman, H. (1999). Soliciting the patient agenda. Have we improved? *Journal of the American Medical Association*, *281*, 283–287.
- McClellan, B., & Elkind, P. (2003). *The smartest guys in the room: The amazing rise & scandalous fall of Enron*. New York: Penguin Group.
- McDonagh, J., & Ljungkvist, V. (1999). Learning empathy: Medical school and the care of the dying patient. *Journal of Palliative Medicine*, *2*(4), 383-389.
- McGuire, W.J. (1981). The probabilistic model of cognitive structure and attitude change. In R.E. Petty, T.M. Ostrom, & T.C. Brock (Eds.), *Cognitive responses in persuasion* (pp. 291-307). Hillsdale, NJ: Erlbaum.
- Mead, G. H. (1934). *Mind, self, and society*. Chicago: University of Chicago Press.
- Mischel, W. (1968). *Personality and assessment*. New York: Wiley.
- Mehrabian, A. & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality*, *40*, 525-543.
- Monson, V.E., Roehrich, S.A., & Bebeau, M.J. (2008, March). *Developing civic capacity of professionals: A methodology for assessing identity*. A paper presented at the American Educational Research Association Annual Meeting, New York.
- Myhrvold, T. (2006). The different other – towards an including ethics of care, *Nursing Philosophy*, *7*, 125-136.
- National Coalition on Healthcare (2008). *Health insurance costs*. Retrieved September 11, 2008, from <http://www.nchc.org/facts/cost.shtml>

- Norton, T.R., Bogart, L.M., Cecil, H., & Pinkerton, S.D. (2005). Primacy of affect over cognition in determining adult men's condom-use behavior: A review. *Journal of Applied Social Psychology, 35*(12), 2493-2534.
- Otto, M. (2007, February 28). For want of a dentist: Prince George's boy dies after bacteria from tooth spread to the brain. *Washington Post, B01*. Retrieved October 30, 2007, from <http://www.washingtonpost.com/wp-dyn/content/article/2007/02/27/AR2007022702116.html>
- Otto, M. (2007, February 28). For want of a dentist: Prince George's boy dies after bacteria from tooth spread to the brain. *Washington Post, B01*. Retrieved October 30, 2007, from <http://www.washingtonpost.com/wp-dyn/content/article/2007/02/27/AR2007022702116.html>
- Pascarella, E., & Terenzini, P. (2005). *How college affects students*. San Francisco: Jossey-Bass Publishers.
- Peabody, F.W. (1927). The care of the patient. *Journal of the American Medical Association, 88*, 877-882.
- Petty, R.E., & Cacioppo, J.T. (1984). The effects of involvement on responses to argument quantity and quality: Central and peripheral routes to persuasion. *Journal of Personality and Social Psychology, 46*, 69-81.
- Piaget, J. (1965/1932). *The moral judgment of the child* (M. Gabain, Trans.). New York: Free Press. (Original work published 1932).
- Pizarro, D.A., Detweiler-Bedell, B., & Bloom, P. (2006). The creativity of everyday moral reasoning: Empathy, disgust and moral persuasion. In J. Kaufman & J. Baer (Eds.) *Creativity and reason in cognitive development*. Cambridge University Press.
- Ponemon, L.A. & Gabhart, D.R.L. (1994). Ethical reasoning research in the accounting and auditing professions. In J. Rest and D. F. Narváez (Eds.), *Moral development in the professions*. (pp. 101-118). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Rest, J. (1979). *Development in judging moral issues*. Minneapolis: University of Minnesota Press.
- Rest, J.R. (1982). A psychologist looks at the teaching of ethics, *The Hastings Center Report, 12*(1), 29-36.

- Rest, J.R. (1983). Morality. In P.H. Mussen, J. Flavell, & E. Markman (Eds.), *Handbook of child psychology (Vol 3): Cognitive development (4th edition)* (pp. 556-629). New York: John Wiley.
- Rest, J. (1986). *Moral development: Advances in research and theory*. New York, NY: Praeger.
- Rest, J., & Narvaez, D. (1994). *Moral development in the professions*, Hillsdale, NJ: Erlbaum.
- Rest, J., Narvaez, D., Bebeau, M.J., & Thoma, S. (1999a). *Postconventional moral thinking: a neo-Kohlbergian approach*. Hillsdale, NJ: Erlbaum.
- Rest, J., Narvaez, D., Bebeau, M.J., & Thoma, S. (1999b). A neo-Kohlbergian approach: The DIT and schema theory. *Educational Psychology Review*, 11(4), 291-324.
- Rest, J., Thoma, S., Narvaez, D., & Bebeau, M.J. (1997). Alchemy and beyond: Indexing the Defining Issues Test. *Journal of Educational Psychology*, 89(3), 498-507.
- Rogers, C. R. (1980). The foundations of a person-centered approach. In Carl Rogers, *A Way of Being*. Boston: Houghton Mifflin.
- Rosenfeld, P.J., & Jones, L. (2004). Striking a balance: Training medical students to provide empathetic care. *Medical Education*, 38, 927-933.
- Rosenberg, M. (1957). *Occupations and value*. Glencoe, IL: The Free Press.
- Rule, J., & Bebeau, M.J. (2005). *Dentists who care: Inspiring stories of professional commitment*. Hanover Park, IL: Quintessence Publishing.
- Shapiro, J., Rucker, L., & Beck, J. (2006). Training the clinical eye and mind: using the arts to develop medical students' observational and pattern recognition skills. *Medical Education*, 40, 263-268.
- Shapiro, J., Rucker, L., Boker, J., & Lie, D. (2006). Point-of-View Writing: A method for increasing medical students' empathy, identification and expression of emotion, and insight. *Education for Health*, 19(1), 96-105.
- Shapiro, S.L., Schwartz, G.E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, 21(6), 581-599.

- Sherman, J.J., & Cramer, A. (2005). Measurement of changes in empathy during dental school. *Journal of Dental Education, 69*(3), 338-345.
- Silfver, M. (2007). Coping with shame and guilt: A narrative approach. *Journal of Moral Education, 36*(2), 169-183.
- Sirin, S.R., Brabeck, M.M., Satiani, A., & Rogers-Serin, L. (2003). Validation of a measure of Ethical sensitivity and examination of the effects of previous multicultural and ethics courses on ethical sensitivity. *Ethics and Behavior, 13*(3), 221-235.
- Snook, S., Forsythe, G.B., & Lewis P. (2007). *Teaching leadership in business schools: A case study*. Unpublished presentation.
- Sonenshein, S. (2007). The role of construction, intuition, and justification in responding to ethical issues at work: The sensemaking-intuition model. *Academy of Management Review, 32*(4), 1022-1040.
- Spencer, J. (2004). Decline in empathy in medical education: How can we stop the rot? *Medical Education, 38*, 916-920.
- Squier, R.W. (1990). A mode of empathic understanding and adherence to treatment regimens in practitioner-patient relationships. *Social Science in Medicine, 30*, 325-39.
- Suchman, A.L., Markakis, K., Beckman, H. B., & Frankel, R. (1997). A model of empathic communication in the medical interview. *Journal of the American Medical Association, 277*, 678-682.
- Sullivan, W.M., Colby, A. Wegner, J.W., Bond, L., & Shulman, L.S. (2007). Educating lawyers: Preparation for the profession of law. *The Carnegie Foundation for the Advancement of Teaching*. San Francisco: Jossey-Bass.
- Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology, 33*, 1-39.
- Tangney, J.P., & Dearing, R.L. (2002). *Shame and guilt*. New York: The Guilford Press.
- Tangney, J.P., Stuewig, J., & Mashek, D.J. (2007). Moral emotions and moral behavior. *Annual Review of Psychology, 58*, 345-372.

- Thoma, S.J., Bebeau, M.J., & Born, D.O. (1998). Further analysis of the Professional Role Orientation Inventory. *Journal of Dental Research*, 77, *Special Issues*, Abstract, 116-120.
- van Ryn, M., & Burke, J. (2000). The effect of patient race and socio-economic status on physician's perceptions of patients. *Social Science and Medicine* 50, 813-828.
- van Zanten, M., Boulet, J.R., Norcini, J., & McKinley, D., (2005). Using a standardised patient assessment to measure professional attributes. *Medical Education*, 39, 20–29.
- You, D. (2007). *Interrelationships and gender differences among components of morality for dental students*. Unpublished dissertation, University of Minnesota.
- You, D., & Bebeau, M.J. (2005, November). *Moral sensitivity: A review*. A paper presented at that Annual Meeting of the Association for Moral Education, Cambridge, MA.
- Walker, L.J. (2006). Gender and morality. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development*. Mahwah, NJ: Erlbaum Associates. pp. 67-92.
- Wason, P.C. (1960). On the failure to eliminate hypotheses in a conceptual task. *Quarterly Journal of Experimental Psychology*, 12, 129-140.
- Weigel, R.H., & Newman, L.S. (1976). Increasing attitude-behavior correspondence by broadening the scope of the behavioral measure. *Journal of Personality and Social Psychology*, 33(6), 793-802.
- Winefield, H., & Chur-Hansen, A. (2000). Evaluating the outcome of communication skill teaching for entry-level medical students: does knowledge of empathy increase? *Medical Education*, 34, 90–94.

Appendix A

Excerpt from THE JOE FITZGERALD CASE, one of eight cases used in Professional Problem Solving.

- Dr. Cummings:** Nice to see you again, Joe. Last time you came in we spent some time checking, looking at records, etc. Today, I'd like to expand upon what we talked about last time—talk about the options.
You do have fairly extensive dental disease for a person your age, but it's not beyond redemption. It's the kind of thing that, maybe, with some major efforts you can be turned around and there's a chance we can maintain your teeth for the rest of your natural life.
- Joe:** Well, yeah, okay, that's probably so. But, doc, I've pretty well decided I just want to get these things out—get me a set of dentures. These things have just been a lot of trouble and I can't spend a whole bunch of money on this.
- Dr. Cummings:** Well, I know, Joe, that your experience has not been good, and you've probably heard from a lot of people—other members of your family.
- Joe:** Yeah, sure have. Ma, she got her dentures when she was my age, and she said it was the best thing she ever did.
- Dr. Cummings:** Well, I know it's not unusual for people to say that, but there are also a lot of other people in the world who have a different kind of experience and I'd like to share with you their experience.
- Joe:** Ah, no, all my people think dentures is best. We just got soft teeth in our family. We had fillings when we was kids, but they all fell out.
- Dr. Cummings:** Joe, let me try to talk about your case and try to relate it to some others. It's true there are people who have had that kind of experience, and it's true there are people whose teeth are less good quality from the standpoint of natural resistance to disease. But it's also true that people who have access to good dental care and take advantage of it have been able to salvage what nature gave them by using some of the materials that are available.
In your case, you have enough teeth left that if they were properly cared for and if we replace the missing teeth, you should be able to keep those teeth for a long, long time.
- Joe:** What's it going to cost? How long will it take?
- Dr. Cummings:** Well, it's true that it will cost, and it's going to take some time. I can't say exactly how much; it depends on the extent of the decay and how many root canals you need. But, it could be a couple thousand dollars, as high as even three, if we need to do root canals and if it's as bad as it could possibly be.

- Joe:** \$3,000.00! Why, I can get a set of dentures for four or five hundred, can't I? Why, that's ten times as much!
- Dr. Cummings:** Well, you can look at it from a short-term basis and say that it's certainly sort of a large investment. But look at it from a standpoint of value received. If you have these teeth for the rest of your life, what you are doing is sort of prorating the investment today across a lifetime of functioning natural, almost natural, dentition which is certainly more satisfactory than a denture would be. Plus the fact that if you get a denture at your age, probably you'll get resorption of the ridges, which occurs naturally, and by the time you're fifty, maybe sixty years old, you're going to have to have so much resorption that there's no way to make a satisfactory denture you can wear except with an awful lot of denture powder.
- Joe:** I didn't understand a word you said. What's that resorption?
- Dr. Cummings:** If you get a denture at your age, your gums are going to shrink. They're going to shrink so that by the time you're fifty or sixty years old there won't be any gums left. There's no way we can make a denture you can wear without an awful lot of powder.
- Joe:** Oh, I don't know about that. I know a lot of old people who got dentures; they get along just fine.
- Dr. Cummings:** Yes, but how old were they when they got them? Were they twenty-six, with twenty-six more years of resorption? Or were they fifty with only five years of shrinkage?
- Joe:** Well, I don't know. I know other dentists, if I go down they'll just take my teeth out and give me the denture. I just kind of wanted to come to you because you're a new dentist, a young dentist in town. Old Doc Nelson, he hadn't been that good, his practice is, well, I guess he's just a different kind of guy. I just wanted to switch. But if I go back to him I know he'll just take out my teeth and give me the denture anyway. I know he can do it, because he's the one that did it for my Mom and Dad, and they get along okay.

TAKE THE ROLE OF DR. CUMMINGS. WHAT WOULD YOU SAY TO THE PATIENT?

Appendix B

The Dental Ethical Sensitivity Test (DEST)
(Bebeau & Rest, 1983)

The Sandy Johnson Case

- Receptionist:** Here's the file on Sandy Johnson, you remember, the real thin girl. She's due in at 9:30. From the looks of the x-rays, she's going to need a lot of work.
- Dentist:** That's for sure. There seems to be some degeneration of the tissue, a lot more than I would have expected in a woman her age.
 (short pause, unobtrusive shuffling of papers in background)
- Dentist:** Are these all the charts then for this morning's patients?
- Receptionist:** Yes, and Mr. Allison was just taken into operatory two to have a crown placed.
- Dentist:** Thanks, Karen.
 (Longer pause, time passes)
- Dentist:** Well, good morning, Ms. Johnson. How are we doing today?
- Patient:** Hello, Doctor. (pauses) Well, I'm certainly a lot better now that I'm here. I'm really anxious to get started on this dental work; appearance is awfully important you know and I am probably going to be getting a new job any day now, and I really want to look nice. You know, at work, well, it's okay, but the women who work there, they're all like my mother, always fussing over everybody. So nosy, always sticking their noses into other people's business. I just can't stand all those people telling me what to do all the time. You know, doctor, you're really lucky. You're the boss here and no one tells you what to do, and I'll bet you don't live with your mother and probably you just run your own life. Must be nice to be a doctor and all. I don't know, though, your receptionist, that woman out front, I notice she's a lot older than you. She isn't your mother, by any chance? No, I'm sure she's not. You wouldn't have your mother working here, would you? No, I'm sure you wouldn't. I sure wouldn't want to be working with my mother. No, those other women are bad enough! Do you know that they . . .

<p>Development of this material was sponsored by the American Fund for Dental Health for the project entitled Faculty and Course Development for a Problem Oriented Course in Professional Responsibility. University of Minnesota School of Dentistry. Muriel J. Bebeau, Ph.D. and T. Michael Speidel, D.D.S., M.S.D. - Project Directors.</p>

The Sandy Johnson Case
Page 2

- Dentist:** (interrupts) Here now, let's get started. No, no, the receptionist isn't my mother. She's just a woman who's had a lot of experience with dental offices. I'm really lucky to have someone with her experience. (brief pause) Now, let's get started. Funny you should mention mothers. Just the other day I was reading a new book, My Mother, Myself. Have you read that book by any chance?
- Patient:** No! I almost never read books, especially books about mothers. I heard people talk about it on TV, but I didn't read it. That woman who wrote it, boy, I could tell her a thing or two. I don't think she has any idea about how awful mothers can be!
- Dentist:** But, I thought you said you live at home. You and your mother must get along okay.
- Patient:** Ha! She's always after me to eat, always putting food in front of me. She's always been that way. You should have seen my father. The sweetest man in the world and she killed him with her food . . . he got so fat, obese really, and his heart couldn't take it, all the food and her nagging all the time. He was a good man and she just kept at him.
- Dentist:** (changing the subject) You know, your teeth are really going to need quite a bit of dental care to restore your dentition. Some of your teeth are pretty badly deteriorated. You're going to need restorations in several teeth, and unless the teeth can be saved, you will need a bridge. We need to assess your current oral hygiene habits; maybe improvements can be made in brushing or flossing.
- Patient:** Yes, doctor, I know they are bad. That's why I came in here. I suppose you're worried about the bill. Well, I have dental insurance now, and my job is good, and I have the money to pay for it. Like I said, my teeth are important to me and I really want to make my mouth look better. I suppose it's late for me, since I'm in my twenties, but I do care and I want good care for my mouth.
- Dentist:** No, it's not too late. Twenty-five isn't old. Your dental work from childhood is sound. I'm most surprised at the tissue problems that are developing. The tissues that support your teeth are weak and unhealthy. I will do everything I can to take care of your teeth and gums. I know how important your teeth are to you. You seem really concerned about them.

The Sandy Johnson Case**Page 3**

- Patient:** Yes, I am. My mother's teeth are just horrid, awful. I don't want mine to look like that. (absently) I suppose it's because she eats all the time. Always eating cake . . . so much food, it's disgusting. I just can't stand living with that woman.
- Dentist:** Why don't you move out?
- Patient:** She needs me; mothers her age need someone.
- Dentist:** How old is she?
- Patient:** Fifty-seven.
- Dentist:** That's not so old.
- Patient:** Well, she just needs me.
- Dentist:** And you say she's always after you to eat . . . does she think you don't eat enough or what?
- Patient:** Yeah, she's always on my case. I eat plenty. I'm just a thin person by nature. Slender.
- Dentist:** Well, let's get started with the cleaning.
(time passes)
- Receptionist:** Good-bye, Ms. Johnson. See you next time.
- Patient:** Good-bye.
(Dentist talking with receptionist; musing to himself as much as talking to her.)
- Dentist:** Boy, that patient, she's nothing but skin and bones. The tissue around the teeth, the gums, it's in horrible condition.
- Receptionist:** Why is that, Doctor?
- Dentist:** I'm not sure. I believe it's her diet. From the looks of her, she's underfed, possible she's even anorexic.
- Receptionist:** I thought that was a teenage problem.
- Dentist:** No, people any age can develop it, but it usually starts in children. In her case, I think it may be a part of a psychological problem. I think I'll call Bill Terence, my psychiatrist friend. If so, her whole body is in bad shape and she could be headed for some awfully serious health problems. All this dental work won't help a bit.
(time passes)

The Sandy Johnson Case**Page 4**

- Receptionist:** Well, nice to see you again, Ms. Johnson.
Patient: Oh, thank you.
Receptionist: Doctor's ready now. He's going to finish cleaning your teeth today.
Patient: Okay.
 (time passes)
Dentist: There you go now, Ms. Johnson. Done for today.
Patient: Thank you doctor, how much more is there to do?
Dentist: Quite a bit, I'm afraid. All I've been able to do so far is clean your teeth and do some curretage of your gums. I've had to clean below the gumline, to clean out some of the infected tissue.
Patient: I see. Well, I'm anxious to get this work done. See you next week?
Dentist: Yes, see the receptionist for an appointment. (pauses briefly) Sandy, before you go, could I ask a question?
Patient: Sure, doctor.
Dentist: I'm concerned about your mouth, Sandy. The tissue there is not in very good shape. I was wondering about your diet. What sorts of food do you eat? (A leading question, since he suspects she eats very little and very seldom.)
Patient: I eat just fine, doctor.
Dentist: Do you really? Tell me the truth now, Sandy.
Patient: Well, like I said before, I'm a thin person. I only eat when I need to.
Dentist: But have you ever seen a physician? About your weight, I mean.
Patient: There you go, sounding like my mother. Just don't talk to me about my weight, okay? I'm fine, just thin. I just want you to take care of my teeth. My weight is fine and I'm not going to see a physician or anyone else. I'm just slender.

The Sandy Johnson Case
Probe Questions*

Take on the role of the dentist and respond to Sandy.

1. Explain why you said what you did.
2. Tell how you would expect the patient to understand and react to what you said.
3. What would you say are the issues in this situation?[]
4. What arguments could be made against the position you took?

Appendix C

The Dental Ethical Sensitivity Test (DEST)
(Bebeau & Rest, 1983)

The Jim Lohman Case

- Dentist:** Hello Jim. How are you doing?
Jim: Well Doc, I got a real pain in this tooth. I'd like you to pull it out.
Dentist: How long has it been bothering you?
Jim: Oh, off and on for about a month, but it's really been bad the last couple of days.
Dentist: Let's see. (pause) Jim, is it sensitive to hot or cold?
Jim: No.
Dentist: How about if I tap on it like this?
Jim: Uhhh! Yeah, that hurts.
Dentist: Looks like you had a crown on this tooth at one time.
Jim: Yeah, well, old Doc Childress made me a partial when I was a junior in high school and he ground this down for a crown. I was supposed to go back, but pa took off and we didn't have no money, so I didn't go back, and it didn't hurt none till now.
Dentist: I see. How did you lose your front teeth, Jim?
Jim: Well, I fell on the ice and they was knocked out and Doc Childress - well, he made me this partial. This other tooth was cracked off, so Doc ground her down.
Dentist: You don't wear your partial, Jim?
Jim: Nah, it hurts.
Dentist: Well, would you like to get it fixed so it doesn't hurt?
Jim: Yeah, it don't look too good, no teeth and all. It's kind of embarrassin'. My girl, Becky, she says I should get it fixed. But I don't like that thing in my mouth.
Dentist: Well, Jim, I could save this tooth by doing what we call a root canal - take out the nerve and make a crown. It would look good and eventually you might want to have a bridge made across the front. A root canal would save this tooth for you. You know, you are only 20. It's nice to be able to save as many of your teeth as possible. You have a long life ahead of you.
Jim: Well, how much would it cost?

The Jim Lohman Case**Page 2**

- Dentist:** The root canal is \$125 and the crown would be \$250. We could fix up your partial now, or you could go ahead with a bridge across the front right now. To do the bridge now would cost about \$1,200 to \$1,500, depending how we decide to do it.
- Jim:** Whew! How much to pull the tooth?
- Dentist:** Well, that would be \$20.
- Jim:** Well, I don't know . . .
- Dentist:** Are you worried about the money?
- Jim:** Yeah. I only make \$200 a week and ma, she don't have no money, least not for this.
- Dentist:** Well, you could pay for it over time. You do have your whole life to think about and you are studying to be a mechanic. You won't always be making only \$200 a week. One of these days you'll be charging me big prices to fix my car.
- Jim:** Yeah, but me and Becky was plannin' to get married, and I don't know . . .
- Dentist:** Well, why don't you sit here and think about it for awhile.
(time passes)
- Dentist:** Well, Jim, what did you decide?
- Jim:** How was that again? I could have the teeth all fixed in, so they wouldn't come out?
- Dentist:** Yes, we could make a bridge. This tooth that hurts . . . it is really very strong. We could attach teeth to it to fill in the empty space. We'd also grind down these teeth on the other side, so it would be attached on both sides. It would not come out.
- Jim:** How much would that cost again?
- Dentist:** About \$1,200 to \$1,500.
- Jim:** Nope, I know I can't do that.
- Dentist:** We could do the root canal on this tooth and cap just this tooth. That would cost \$375.
- Jim:** But, I still got no teeth . . .
- Dentist:** We'd fix up your partial.
- Jim:** But I don't like that thing in my mouth.

The Jim Lohman Case**Page 3**

- Dentist:** It may be that it's just not fitting properly. It may only need adjustment. It wouldn't cost much to fix that.
- Jim:** I don't know. Maybe I'll just leave them out.
- Dentist:** Well, it's really not a good idea to leave that space open. Your teeth tend to shift around.
- Jim:** Well, maybe you should just pull it.
- Dentist:** We could do that. Then, we would attach another tooth to the partial to fill up the space.
- Jim:** But that would cost too.
- Dentist:** Yes, the extraction and adding a tooth to the partial would cost \$45.00.
- Jim:** I don't know. I don't like that thing in my mouth.
- Dentist:** Well, why don't you think it over a little longer. I have a little work to finish on another patient, then I'll be back.
(time passes)
- Dentist:** Well, Jim, what did you decide?
- Jim:** I don't know. Everything costs so much these days. I just don't know. I can't always be spending money on my teeth. There are other things. I just don't know.
- Dentist:** Take a little more time. I'll be back.(time passes)
- Dentist:** Well, Jim?
- Jim:** I don't know.

TAKE ON THE ROLE OF THE DENTIST. RESPOND TO JIM.

The Jim Lohman Case -- Probe Questions*

Take the role of the dentist and respond to Jim.

1. Explain why you said what you did.
2. Tell how you would expect the patient to understand and react to what you said.
3. What would you say are the issues in this situation?
4. What arguments could be made against the position you took?
5. What is in the best interest of the patient, all things considered? Why?
6. What information about the patient influenced your decision?
7. What do you think a dentist should do in a case like this?
8. Practically speaking, what would you do?

Appendix D

The Professional Role Orientation Inventory (PROI) (Bebeau, Born, & Ozar, 1993)

Example of items on the PROI. The scale is 1 – 6, strongly disagree to strongly agree.

1. Once a patient decides to use my service he / she should follow my advice without questioning my authority.
2. My first professional obligation is to myself.
3. My profession should be the sole custodian of its skills, knowledge, and practices.
4. I feel I have an obligation to use my knowledge and skills to help those who cannot pay for my services.
5. I believe the dental profession should be more involved in providing dental care for all those who need it.
6. The public should have more control over health related policy and regulatory agencies.
7. Given the sacrifices I've made to enter the profession, I feel I'm entitled to whatever fees the public is willing to pay.
8. A patient who questions my recommendations should feel comfortable asking another colleague for his / her interpretation.
9. I believe third party administration should have no role in reviewing dentists' treatment plans.
10. My profession should not be viewed any differently than other occupations (carpentry, real estate, retail management, etc.).

Appendix E

EMPATHIC RESPONSE CODING GUIDE

This guide details a coding scheme for analyzing verbal responses to clinical cases on dimensions of empathy and effectiveness. Several objective and judgment measures are included. Background and theoretical framework for the coding scheme is described in Section 1. Empathy variables, codes, criteria, and examples are detailed in Section 2. Effectiveness variables are described in Section 3. Section 4 includes 10 sample responses, annotated by phrases or sentences to illustrate various aspects reflected in coding.

SECTION 1 – BACKGROUND AND THEORETICAL FRAMEWORK

Empathy involves deeply understanding another person's state of mind and being, the ability to "read" their emotional state, and experience that emotion vicariously without losing the self or one's identity (Hoffman, 2001). In the clinical interaction, patient's statements related to emotional or physical distress represent *empathic opportunities* (EO) (Suchman, Markakis, Beckman, & Frankel, 1997). Physicians' responses to empathic opportunities can be classified broadly as (a) empathic response, (b) compliment, (c) missed empathic opportunity, or (d) empathic communication terminator. This study examines the empathic responses of student-dentists to a simulated patient in a case, ordering them from high- to low-levels of empathic content.

Criteria for this coding scheme was guided by grading criteria used in a dental ethics course that focused on moral implementation (Bebeau, 1994); literature from psychology and health communication on (Bylund & Makoul, 2005; Davis, 1983; Suchman, Markakis, Beckman, & Frankel, 1997); and interviews from experts in health psychology and educational psychology who have first-hand knowledge of eating disorders and clinical interviewing protocols. Ratings are based on a first-round coding by two experts in health psychology and educational psychology.

The Case

The patient in the case is Sandy Johnson, a young woman who presents in the dentist's office requesting restorative treatment to improve the appearance of her teeth. The dentist observes unhealthy gum tissue and convinces the patient to undergo

periodontal treatment as a first step to addressing her dental health goals. Following the first visit for periodontal treatment, the dentist expresses (to his dental auxiliary) his concerns about Sandy's general health—observing that she is extremely thin and commenting on the condition of her oral tissue. Dentists would be expected to recognize that poor periodontal health would interfere with the long-term viability of restorative treatments. The condition of the oral tissues suggests an underlying medical condition, possibly consistent with anorexia, bulimia, or malnutrition. At the end of a second visit--to complete the periodontal treatment--the dentist engages the patient in a discussion of her diet and asks whether she has seen a physician. The patient responds rather defensively, and at this point, the dental student is asked to take on the role of the dentist and carry on the conversation with Sandy about his concerns. The expectation is that the student will have interpreted the various clues to the ethical problems the case presents and address them effectively.

Transcripts of dental students' responses to the Sandy Johnson case are the data source for this analysis. Responses vary length from a short paragraph to over a page in length.

Codes / Variable Names

There are a total 8 codes for each response, displayed in Table 1, with the corresponding variable name.

Table 1
Empathy and Effectiveness Variables

EMPATHY	
<i>Dimension / Code</i>	<i>Type of Measurement</i>
Valence of Opening Response (VOR)	Rating
Length to Empathic Terminator (LET)	Word Count
Total Length of Response (TOT)	Word Count
Empathic Concern (EMC)	Rating
Self-Other Orientation (SOTH)	Rating
Shame or Embarrassment (SHM)	Rating
Fear or Anxiety (FR)	Rating
Anger (ANG)	Rating
EFFECTIVENESS	
Concrete Information (CRT)	Rating
Patient would Comply with the Dentist's Advice (COMP)	Rating

SECTION 2 -- EMPATHY CODES -- CRITERIA AND EXAMPLES

1. Valence of opening response (VOR). This codes the overall valence or tone of the opening phrase:
 - a. **E** or an empathic response or positive valence in opening line(s). Coded as “1.”
 - b. **UE** or an un-empathic response or negative valence in opening line(s). Coded as “2.”

The purpose of this code acknowledges the importance of the opening response in the clinical interview, and the observation that the responses varied in terms of overall empathic content. Some responses begin empathically, and shift valence or tone. Others begin unempathically (e.g., focusing on a diagnosis or judgment), but shift to more empathic language as the response continues.

An example of a positively valenced opening response is:

“Well Sandy, I just want you to know that I’m concerned about you.”

A response with a negative valence is:

“Sandy, I really don’t think you’re just fine. Some of the things that I have seen in your mouth have led me to believe that you have an eating disorder.”

2. Length to Empathic Terminator” (LET) (word count).

The LET code (or symbol, ⊗) indicates the point at which the dentist mentions “hot button” issues (e.g., nutrition, weight, dieting). At this point in the conversation, the patient would be most likely to reject or discount the student-dentist’s advice, or simply “tune out.” The number of words in the response before words or phrases appeared that would tend to elicit fear, anger, or shame. Aligns to Suchman et al. “empathic communication terminator.”

Examples of phrases or key words classified as empathic communication terminators (in boldface type) include:

*“I know your teeth mean a lot to you and I know appearance means a lot to you as well. **However, if you are not eating correctly . . .**”*

*“I know that you want me to take care of your teeth and I would be more than happy to do that, but I think that your **weight** . . .”*

3. Total Length of Response (TOT) (word count).

This code is a simple word count of the response as an indicator of the degree that the student-dentist engaged in the assessment exercise, an approximation of the degree that the student could imagine his or herself in the role and engaging with the patient. This code aligns to Davis’ (1983) “fantasy” dimension of empathy.

4. Empathic Concern (EMC) (rating, 1-un-empathic; 4-empathic).

This is an overall, summative rating of the level of empathy with the response. This aligns to Davis’ (1983) “empathic concern” dimension of empathy.

4a. Based on the total response, how would you rate the overall level of empathic concern reflected in the language of the student-dentist’s response?

1	2	3	4
<i>None or minimal</i>	<i>Somewhat un-empathic</i>	<i>Somewhat empathic</i>	<i>Empathic</i>

Examples of specific criteria in the summative rating and sample responses are shown in Table 2.

Table 2
Empathic Concern, Codes and Criteria

Code	Criteria	Examples
4	<p>Validates patient's concerns, indicates an understanding or shared feeling and unconditional regard and acceptance.</p> <p>Focuses describing the clinical findings in a neutral way – avoids making a clinical diagnosis on the spot or in a didactic tone.</p> <p>Avoids blaming or shaming the patient.</p> <p>Normalizes the situation for the patient, setting the patient at ease, and establishing rapport.</p> <p>Uses active listening to probe for deeper understanding.</p> <p>Engages and empowers the patient as a partner in the decision of how to proceed with treatments.</p>	<p><i>Sandy, I'm glad you care so much about your oral health – I really want to help you achieve your goal of improving your smile.</i></p> <p><i>What I observed in my exam was that the tissues that support your teeth appear to have been exposed to a lot of acid – which can come from your diet or a digestive problem. I see this from time to time with my patients, and we can stop it from progressing.</i></p> <p><i>Too much acid in our mouth allows bacteria to thrive; normally, your system can fight this. Sandy, have there been any changes to your health or your diet recently? I really want to better understand what's happening, so that I can better help you.</i></p> <p><i>It sounds like you're really frustrated with your situation at home.</i></p> <p><i>Sandy, sometimes when patients of mine request some major procedures and their mouth seems to be compromised by some other health condition, I like to consult with a colleague of mine -- a physician who's helped several of my patients before -- she's really approachable and understands health factors that affect your mouth. Other patients have found her really supportive and helpful. Would you be OK with our calling her today for an appointment for you?</i></p>
3	<p>Acknowledges patient's concerns, focuses on issues that relate to the concern, but may miss underlying or hidden factors</p> <p>Makes explicit statements of concern for the patient's overall health and well being.</p>	<p><i>Sandy, I'm concerned about not only your oral health, but your overall health. It seems like there might be a problem with your diet – maybe you're not getting the right kinds of foods, or that there's a vitamin missing in your diet.</i></p> <p><i>As a dentist I care about your overall health and well being. So before we go forward with the restorations you'd like, I would recommend that you see a physician who could help us make sure everything is Ok.</i></p>
2	<p>Acknowledges the patient's concerns, but focuses on tangential issues that may or may not be related to the primary issue.</p> <p>Minimal explicit statements indicating concern for the patient – may be limited and specific.</p>	<p><i>I'm concerned about your oral health and I want to fix your mouth for you, but in order to improve the condition of the tissues in your mouth, we need to look at your diet. It might be really helpful if we would do a dietary analysis – keep track of everything you eat for a week, and then we can see what might be lacking.</i></p> <p><i>I care about your teeth, Sandy, but I need you to see your physician before we can complete any of the work that you want.</i></p>
1	<p>Ignores or is oblivious to the patient's primary concerns,</p> <p>Is primarily cold and clinical in the acknowledgement;</p> <p>Lacks statements indicating concern or acceptance, or limits them to clinical procedures.</p>	<p><i>Sandy, from the condition of your gingival tissues, I think that you might not be eating the right kinds of foods. Your tissues are not getting the proper kind of nourishment, which will cause them to slough off and loosen. Now I don't mean that you should eat more, but maybe you need more fruits and vegetables in your diet.</i></p> <p><i>There might be nutrients that are missing in your diet. Sometimes this happens when people are malnourished or have an eating disorder, or anorexia nervosa.</i></p>

5. Empathic Self-Other Focus (SOTH) (rating, 1-self-focused; 4-other-focused).

This dimension aligns to Davis' (1983) "perspective taking" dimension of empathy. The question used to guide raters is:

5a. *What phrase best describes the use of language focused on **self** (e.g., "I") as opposed to language that focused on the patient in the student-dentist's response?*

1	2	3	4
<i>Self-focused</i>	<i>Somewhat self-focused</i>	<i>Somewhat other-focused</i>	<i>Other-focused</i>

The questions used to guide ratings are:

6. *Based on the response of the student-dentist, what would you say the likelihood is that the response would elicit **shame or embarrassment** from the patient?*

1	2	3	4
<i>Likely</i>	<i>Somewhat likely</i>	<i>Somewhat unlikely</i>	<i>Unlikely</i>

7. *What would you say the likelihood is that it would elicit more **anger or hostility** from the patient?*

1	2	3	4
<i>Likely</i>	<i>Somewhat likely</i>	<i>Somewhat unlikely</i>	<i>Unlikely</i>

8. *Based on the response of the student-dentist, what would you say the likelihood is that it would elicit further **fear or anxiety** from the patient?*

1	2	3	4
<i>Likely</i>	<i>Somewhat likely</i>	<i>Somewhat unlikely</i>	<i>Unlikely</i>

SECTION 2 – CLINICAL EFFECTIVENESS

Two criteria were used to classify overall effectiveness. Criteria included: (1) concreteness of information, and (2) the likelihood that the patient would have complied with the advice of the dentist. The rationale for these ratings was to allow for the possibility of differentiating responses which conveyed empathy, but ultimately, were judged as ineffective. Content validation checks were conducted with experts in counseling and health psychology to verify the ratings followed general guidelines for effective clinical or counseling communication.

1. *To what extent did the student-dentist use **concrete information** in their response, avoiding jargon, or medical diagnostic terms?*

1	2	3	4
<i>None or minimal</i>	<i>Little</i>	<i>Some</i>	<i>Much</i>

2. *Based on the initial response of the student-dentist, rate the likelihood that the patient would **reject the advice** / not follow-through?*

1	2	3	4
<i>Likely to reject</i>	<i>Somewhat likely</i>	<i>Somewhat unlikely</i>	<i>Unlikely to reject</i>

SECTION 3 – RESPONSES AND REVIEWER COMMENTS

Participant #194029	
Student Response	Reviewer's Comments
<p><i>Sandy, I'm sorry. I do not mean to upset you and nag you like your mother does about your weight. □ However, I do need to inform you of your dental health. For being young like you are, you do have more problems than the normal 25-year old. Sometimes, this can be caused from people that don't eat healthy. Their whole dentition can become carious lesion and bone loss can happen, and I need to inform you what's currently the state of your mouth. You seem rather upset with your mother and I can understand that. I too had a nagging mother. I was wondering though, if you would be interested in seeing a professional friend of mind, a psychologist. By talking with him, he may be able to get you through these rough times while you have to live at home with your mother. Would you be interested if I could set up an appointment with you to meet with him?</i></p>	<p>Although the dentist is attempting to not sound like her mother, the fact that he or she mentioned “weight” would make it more likely for her to reject the remainder of the response or “tune out.”</p> <p>“However” is officious in tone, and would tend to negate the previous tone of empathy, humility.</p> <p>Comparing Sandy to a “normal 25-year old” would be very likely to elicit shame or anger.</p> <p>Both “dentition” and “carious lesion” could be discussed in lay language. Using such technical terms would be more likely to elicit fear and shame.</p> <p>Referring to the psychologist as a friend may be overextending the boundary between personal and professional. May raise suspicion that there is some type of collusion or scheme between the dentist and his / her friend.</p> <p>Empathic, offering help for her personal difficulties. Discloses personal information towards normalizing the situation, reducing her anxiety.</p> <p>Invites her to buy-in to the idea before giving her a directive to see a physician.</p>

Participant #192075	
Student Response	Reviewer's Comments
<p><i>I know that you want me to take care of your teeth and I would be more than happy to do that, but I think that your weight has something to do with the fact that your gum tissues are in such poor condition. Have you ever heard of anorexia? Do you know what anorexia is? I really feel strongly that perhaps you should see a physician and make sure that you don't have it. There's a possibility that you don't have it and if you don't, that's great. But I'd really like him to see if we can find some kind of underlying cause for this poor gingival condition because before we start to make any sort of restorations that are actually going to help you function better and are compatible with your oral cavity, we need to get to the cause of this problem.</i></p>	<p>Empathic and validating of her desire to improve her mouth's appearance.</p> <p>Topics related to weight or diet would tend to elicit shame or anger.</p> <p>After the word "weight," Sandy would be likely to discount or reject the remainder of the response. Could elicit fear.</p> <p>It can also elicit shame/embarrassment Presumes that the problem is due to an eating disorder, and not a condition such as leukemia.</p> <p>Also uses "anorexia," rather than eating disorder. Could be more concrete.</p> <p>Could elicit anger, because the way it was presented, if I were the patient, I would feel that the doctor is already making a judgment.</p> <p>Rather than neutrally conveying the information, this implies that the dentist is not optimistic. Self-focused – "I'd really like. . ."</p> <p>Could be stated more neutrally – focusing on a description of the gums, avoiding term "gingival." Would tend to elicit fear or anger.</p> <p>Could refer more concretely to "the mouth" instead of the "oral cavity."</p>

Participant #195008	
<p>Student Response</p> <p><i>Well Sandy, I know your teeth mean a lot to you and I know appearance means a lot to you as well. However, if you are not eating correctly and you are not getting your proper nutrition, I can do all the work in the world on your mouth to make your teeth look nice and your gums look nice, and it is not going to do any good because eventually it is going to get bad again because you are not getting your proper nutrition. I think you should see a physician on maybe just being re-educated on what is nutritious and what isn't nutritious and what is the four food groups and how many servings you need per day. That doesn't mean you have to be eating all the time. I just means you need a certain amount of certain kinds of foods, so that you do not become malnourished. I know for you it is very important that you maintain the state of health in your mouth. And it is important to me that we start with the right steps, so that we can do that. And, I think the first step we need to take is just to find out how many nutritious things you are eating a day. So if you would like to tell me what you would eat in a particular day, maybe you and I could sit down and figure out what it is that you are going to need to add to your diet to become more nutritious. Then maybe after you feel more comfortable talking to me about it, you wouldn't protest so much about going to a physician. No one is trying to be like your mother and in making you eat all the time. We're just trying to help you out and make sure that you are keeping very healthy and that the work that we do and the money that you spend in your mouth is able to stay in your mouth.</i></p>	<p>Reviewer's Comments</p> <p>The opening phrase compliments Sandy and in a sense validates her concern over her appearance – overall an empathic statement.</p> <p>Notice how the phrase is immediately followed by “however,” which would tend to negate the positive effect of the previous statement.</p> <p>Topics related to weight or diet would tend to elicit shame or anger.</p> <p>After the word “weight,” Sandy would be likely to discount or reject the remainder of the response.</p> <p>Notice this is phrased from the perspective of the dentist and uses a hyperbolic phrase “all the work in the world.” Would warrant a lower self-other rating (i.e., more self-focused). The hyperbole would tend to either anger or irritate the patient. Both phrases reduce the effectiveness of the response.</p> <p>The phrase “it is going to get bad again” would be likely to elicit fear.</p> <p>The statement “I think you should” may demonstrate self-focus, and a lack of respect for the patient's autonomy. Would likely elicit defiance or anger.</p> <p>The dentist's response telling Sandy she needs to be “re-educated” would be perceived as condescending and presumptuous, and would likely to elicit anger.</p> <p>At the end of the dialog, the dentist is “trying to do all the work with out getting a psychologist or psychiatrist involved. . .which is very dangerous,” according to one expert. The dentist is overstepping the boundaries of his role, which is also unethical, according to a health psychologist.</p>

Participant #193017	
<p>Student Response</p> <p><i>Sandy, what I'm seeing in your mouth is typically seen in people who aren't eating properly. When you don't have the nutrition and the vitamins that your body needs it shows up in many different ways. And one of these ways is what we're seeing in your gum tissues. It's just, at your age, we don't see this typically and I'm a little concerned with, with the way you're eating and if you're getting enough of the nutrition that your body needs. I realize that you don't feel you have a problem and maybe you don't. Maybe I'm, maybe I'm mistaken. Maybe this is more of a genetic type of a problem. But I really would like your help in trying to solve this dilemma. I don't want to provide treatment that isn't going to last. I don't want you to get any worse. I don't want your teeth to be affected in the long run. And if we don't solve the problem or the cause of this problem that's what's going to happen. I'm not accusing you of anything. I want you to trust me. I want you to feel open and talk with me and we'll work on this together. Quite honestly, I think that the best thing that we could do to solve this problem is to have you write down what you eat every day for the next week. And bring that back to me and we can review it together and kind of make a more objective decision as to your nutritional status. At that point if we, if we can come to an agreement, I would really I would be a lot more comfortable if you would just go one time to a physician and see what they have to say. There might be another cause for this, this manifestation that we're seeing here. You may have some sort of systemic disorder, a hyper-thyroid problem that's causing you to be thinner than you should be and causing you not to get the nutritional value from foods that you might need.</i></p>	<p>Reviewer's Comments</p> <p>Topics related to weight or diet would tend to elicit shame or anger.</p> <p>After the word "weight," Sandy would be likely to discount or reject the remainder of the response.</p> <p>Presumes that it is an eating disorder, and not something systemic like leukemia, that is causing her oral problems. The immediate focus on her eating habits would likely to elicit shame or anger. The dentist announces her condition is "atypical," which would likely elicit shame or anger. Being compared to a group norm would likely fuel the self-hatred and perfectionism that is characteristic of someone with an eating disorder.</p> <p>Empathic, but limited to the mouth.</p> <p>"And if we don't solve the problem . . ." – this statement would be likely to elicit fear or anxiety -- stating unequivocally "that's what's going to happen" doesn't allow for Sandy to gradually accept the realities and consequences of her condition.</p> <p>I'm not trying to accuse you. . ." would likely elicit some anger – if the previous tone were more neutral or compassionate, there would be no need to defend one's approach.</p> <p>Stating "I want you to trust me" would not likely be effective, and may seem hypocritical or manipulative. Here the dentist acknowledges that there might be a systemic cause of the oral health problem. It likely comes too late in the overall response to negate the effects of earlier statements.</p> <p>Using lay language, rather than "systemic disorder" and "hyper-thyroid problem" would reduce the likelihood of eliciting fear.</p>

Participant #193054	
Student Response	Reviewer's Comments
<p><i>Sandy, I really don't think you're just fine. Some of the things that I have seen in your mouth have led me to believe that you have an eating disorder. Some things that just don't show up with anything else. Such as the extreme wear on these teeth here. And because of, of the health of your gum tissues. The fact that I could see these effects in your mouth proved to me that something's going on with your body and your life. I think that we have caught this early enough in order for you to be able to go and get some type of treatment for this eating disorder that you might have. I would really like it if you would go and see your physician and possibly get treatment for this problem you have. And then we could take care of your dental needs once that problem is taken care of. Sandy, eating disorders are very critical and sometimes life threatening. And I think it's in your best interest to go see a doctor and get help for any condition if you might have one.</i></p>	<p>Opening statement is un-empathic, could alarm her or elicit fear. Presumptive, and premature in the response. Would likely elicit a range of negative emotions and strengthen her defensiveness.</p> <p>Topics related to weight or diet would tend to elicit shame or anger.</p> <p>After the word "weight," Sandy would be likely to discount or reject the remainder of the response. By talking about her "life," the dentist is stepping over the boundary.</p> <p>Focusing on description of the condition of her mouth, in a neutral way, is a good strategy. On the other hand, it likely does not "prove" that something is going on -- so this could provoke some anger or shame, particularly if she's defended against admitting problems in her personal life.</p> <p>Talking about the life threatening nature of her condition would be alarming, would elicit fear, possibly shame. Although it's likely true, it's not the role of the dentist to give this diagnosis.</p>

Participant #195090	
<p>Student Response</p> <p><i>Sandy, as you know I'll be happy to fix your teeth for you. However there are a couple of other things that I need for you to know. I can do all sorts of work in your mouth on your teeth and your gums, however, if we're not getting the proper, if we're not getting the proper nutrition . . . it, things aren't going to get any better. In fact, all different kinds of things can go wrong you're your body if you don't have the proper nutrition, not only in your in your mouth with your teeth and your gums but all different kinds of systems can have problems. I realize that you don't think that there's a problem with your, eating or nutrition, however I do think it would be best for you to be seen by your physician just to make sure that everything is, is, um, working properly, just like you come to me to have me check on your teeth and your gums. I do think it's very necessary for you to go to your physician at this time just to have things looked at.</i></p>	<p>Reviewer's Comments</p> <p>Opening statement validates her concern about her teeth. Mildly empathic in that it conveys a positive attitude toward the work.</p> <p>“However” would tend to negate the positive tone in the previous sentence.</p> <p>“If we're not getting proper . . .nutrition” -- might elicit anger or shame. The dentist also uses “we” in a condescending way –even if it was meant to imply a team effort, it will be up to Sandy to eat a healthier diet.</p> <p>Topics related to weight or diet would tend to elicit shame or anger.</p> <p>After the word “weight,” Sandy would be likely to discount or reject the remainder of the response.</p> <p>The dentist does not presume she has an eating disorder, but points to the fact there could be other problems that are causing the poor condition in her mouth.</p> <p>In the last statement, the dentist issues a mild directive to Sandy, which might elicit some anger. It also indicates that the dentist may not be aware of the potentially life-threatening nature of her condition. The suggestion that Sandy make the appointment with a physician immediately will probably not result in her getting help.</p>

Participant #195053	
<p>Student Response</p> <p><i>I would say Ms. Johnson, it seems like you and I are both concerned about the same things. I am concerned about your oral health. Just as you have expressed to me that you're concerned about your oral health and your appearance and you would like to improve that . . . and from my standpoint, I think in order to improve that from what I see, your oral tissues need to be healthier. And in order for your oral tissues to be healthier, I think that we should look at ways at addressing, addressing the problem of improving your oral tissues and I think one way might be to provide more nutrition to these tissues. The gingival tissues are essential to providing optimal oral health and to providing a good stable foundation for healthy gums, healthy teeth. I think that we need to look at this very closely. I would make it very easy for you.</i></p>	<p>Reviewer's Comments</p> <p>Opening statement is empathic statement, attempts build trust, identify mutual interests. Overly formal language – depending on context.</p> <p>Paraphrasing what the patient has said is a very good technique that validates her request / concern.</p> <p>Saying “oral tissues” seems awkward – may elicit shame.</p> <p>The dentist assumes that nutrition is the problem -- rather than another physical problem that could cause problems with her oral tissues.</p> <p>Using the term “gingival tissues” might be difficult for some individuals to grasp. This would reduce the level of concreteness of the response.</p> <p>Here the dentist states his or her opinion (i.e., “I think. . .”) and negates her autonomy by saying “we need to . . .”</p> <p>“I would make it very easy for you” – empathic.</p>

Appendix F

Histograms and scatterplots of variables measuring clinical effectiveness (PPS), empathy (EMPTH), and moral capacities

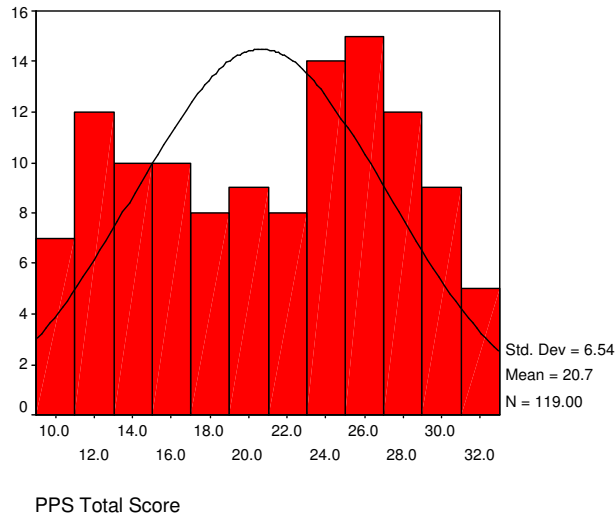


Figure 2. Histogram of grades from the Professional Problem Solving (PPS) course, which assessed student moral implementation skill in clinical interviewing, communication, and interpersonal skills.

Table 19 Eigenvalues and Extracted Sums of Squared Loadings from Components Analysis, ERC Codes

		Total Variance Explained					
		Initial Eigenvalues ^a			Extraction Sums of Squared Loadings		
	Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Raw	1	2.003	55.977	55.977	2.003	55.977	55.977
	2	.592	16.536	72.514			
	3	.517	14.449	86.963			
	4	.254	7.092	94.055			
	5	.213	5.945	100.000			
Rescaled	1	2.003	55.977	55.977	2.789	55.782	55.782
	2	.592	16.536	72.514			
	3	.517	14.449	86.963			
	4	.254	7.092	94.055			
	5	.213	5.945	100.000			

Extraction Method: Principal Component Analysis.

a. When analyzing a covariance matrix, the initial eigenvalues are the same across the raw and rescaled solution.

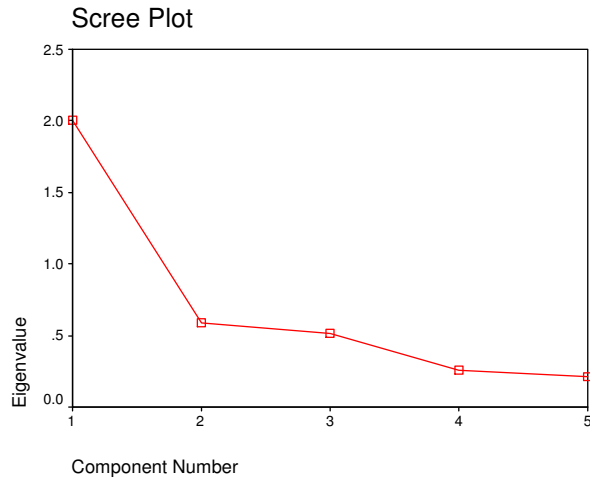


Figure 3. Scree Plot, Eigenvalues of ERC Variables

Table 20
Raw and Rescaled Component Scale Values

Component Matrix^a

	Raw	Rescaled
	Component	Component
	1	1
Likelihood PX Reject (EFREJ)	.569	.769
Anger Induction (EFANG)	.668	.820
Shame Induction (EFSHM)	.773	.804
Self-Other Dynamic (EMSO)	.538	.645
Empathic Concern (EMC)	.589	.681

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

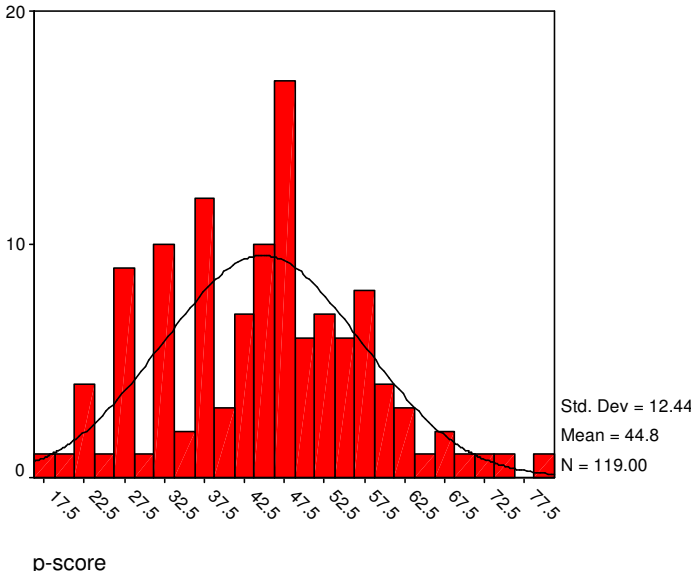


Figure 4. Histogram of DIT P-Score

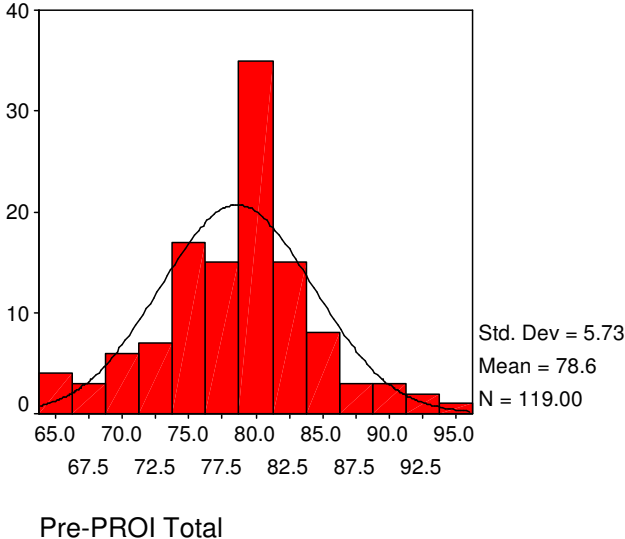


Figure 5. Histogram, PROI (unstandardized)

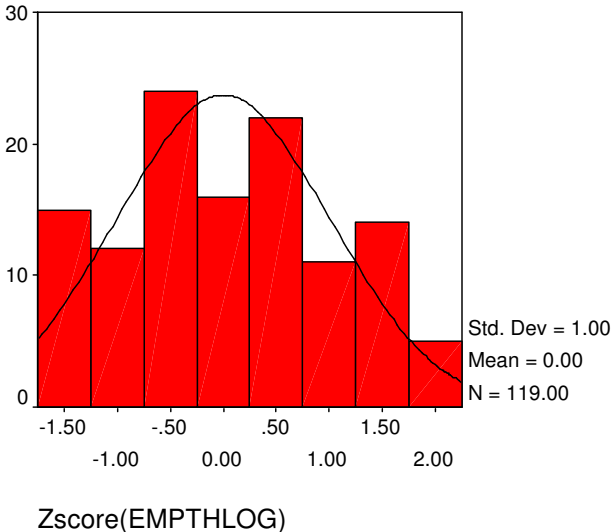


Figure 6. Histogram, EMPTHLOG (standardized)

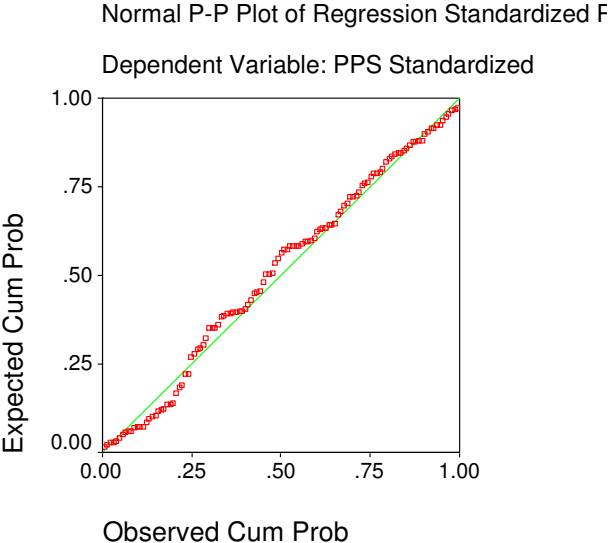


Figure 7. Histogram, P-P Plot of PPS Standardized Residuals, Expected by Observed

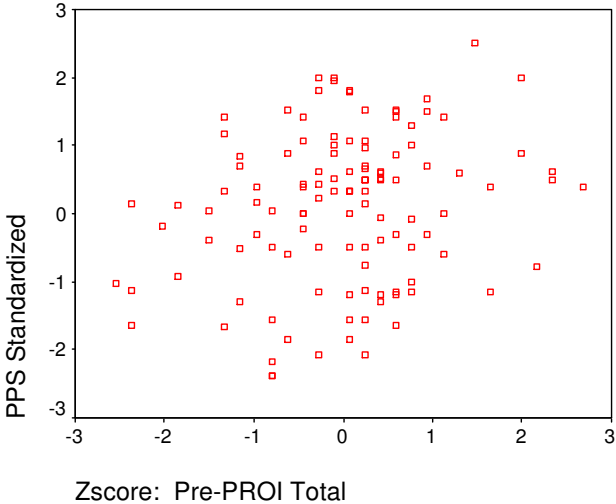


Figure 8. Scatterplot, Standardized Residuals, PPS and Pre-PROI