"Intermediate" Concepts and the Connection to Moral Education

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This paper provides a brief overview of Rest's (1983) conception of the important processes that contribute to effective moral decision making, summarizes efforts to design and assess moral education programs based on Rest's Four-Component Model, and describes new directions in the assessment of moral judgment development that are specifically directed toward professional ethics education. Based on preliminary studies, we recommend that, in addition to measuring each of the processes in Rest's model, educators design profession-specific measures of moral concepts that better reflect the content of professional ethics education. Labeled intermediate concepts measures, these assessments attend to concepts that are more specific than the abstract moral schemas tested by Kohlbergian measures of moral judgment and more general than concrete codes of professional ethics.

KEY WORDS: moral judgment; professional ethics; assessing ethical development; DIT; Four-Component Model.

INTRODUCTION

In "A Neo-Kohlbergian Approach" (this issue), we sketch out our latest thinking about a theory of moral judgment development that is not grounded in a particularistic moral theory, but is grounded in empirical evidence illustrating that as individuals develop, so do the basic understandings they bring to resolving complex moral problems. Such findings are of

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importance to moral education in general, as the goal of moral education is, simply put, to promote moral development. But we think our findings will be of particular importance to professional ethics educators because of their interest in promoting advanced moral thinking. In the past, ethicists working in the professions questioned the usefulness of a moral development theory (and related measures) that favored a particular moral theory, observing that practitioners working on real problems often developed well-reasoned solutions without regard to a particular theory or even to principlism (see Beauchamp and Childress, 1994) as a way of arriving at moral judgments.

By amending a theory of moral judgment development to make it congruent with advances in moral philosophy, we hope to counter current views of the obsolescence of moral psychology and support more interdisciplinary collaboration in the design and evaluation of moral education programs. It is also our hope that a more enlightened view of the role of tests of moral judgment development will also enable educators to put such tests to more appropriate use.

Besides drawing attention to a broader conception of postconventional moral thinking, which is the topic of our earlier paper, we want to direct the reader's attention to a broader conception of morality, one that encompasses moral judgment but that also addresses other aspects of moral functioning, including moral sensitivity, character, and competence. The Four Component Model of Morality has been a centerpiece for research activities at the Center for the Study of Ethical Development and, in the case of the first author, a primary focus for nearly 20 years. In this paper, we provide a very brief description of the model, then show how it has guided the development of moral education programs. After providing a brief review of the usefulness of the model, particularly for assessing the outcomes of moral education programs, we devote most of the article to a new venture that has particular application for assessing moral judgment development in professional ethics education.

**THE FOUR COMPONENT MODEL OF MORALITY**

Early in the cognitive developmental research program Kohlberg noted that, in addition to moral judgments, other processes were important to the production of moral behavior (e.g., Kohlberg, 1969). Rest (1983) made these processes more explicit in what he called the Four Component Model of Morality. Starting from the question, How does moral behavior come about? Rest suggested that the literature supports at least four component
processes, all of which must be activated in order for moral behavior to occur. These include the following.

1. **Moral sensitivity (interpreting the situation as moral)**. This process highlights the idea that moral behavior can occur only if the individual codes the situation as moral. Specifically, Component 1 focuses on the various actions that are available and how each action might affect the self and others.

2. **Moral judgment (judging which of the available actions are most justified)**. This is the process that Kohlberg emphasized. Here the focus is on judging which of the various options are the most ethically justified. Further, the job of a psychologist and educator is in sketching out how the justification process develops and under what conditions these processes inform real-world choices.

3. **Moral motivation (prioritizing the moral over other significant concerns)**. Less understood than the other processes, the main concern of Component 3 is, Why be moral? The model acknowledges that individuals have a number of legitimate concerns that may not be compatible with the moral choice: for instance, career pressures, established relationships, and idiosyncratic personal concerns, among many others. Some of the most notable lapses of ethical behavior in the professions can be attributed to the low priority placed on the moral, even when the moral choice is very well understood.

4. **Moral character (being able to construct and implement actions that service the moral choice)**. Component 4 represents the processes by which one constructs an appropriate course of action, avoids distractions, and maintains the courage to continue.

It is important to note that the model is not conceived as a linear problem-solving model. For example, moral motivation may impact moral sensitivity, and moral character may constrain moral motivation. In fact, Rest (1983) makes clear the interactive nature of the components. Further, and in contrast to other models of moral function that focus on the traditional three domains—cognitions, affect, and behavior (e.g., Eisenberg, 1996; Lickona, 1991)—the Four Component Model assumes that cognition and affect cooccur in all areas of moral functioning. Thus, to Rest, moral action is not simply the result of separate affective and cognitive processes operating in interaction. Instead, each component consists of a mix of affective and cognitive processes, a mix that contributes to the component’s primary function (e.g., identifying a situation as moral). That is, Rest suggests that we should focus our attention on identifying processes as they contribute to moral action, rather than attempting to understand moral actions from a starting point defined by arbitrarily dividing moral functioning into affect, cognitions, and behavior.
EDUCATIONAL INTERVENTIONS ASSESSED IN TERMS OF THE FOUR COMPONENTS

The Four-Component Model offers some unique information and direction for educational development. First, it suggests profitable areas for measurement development. To claim that a program is effective in a broad sense, it seems reasonable to expect changes within each of the four components. Measures of each component ought to be considered in the assessment process. There are currently measurement models for each of the components (see Bebeau, 1994; Bebeau et al., 1999), and these existing methods can be used as templates for assessment in various contexts.

Second, the model provides direction for instructional design. The importance of attending to multiple components in the educational process is demonstrated by Bebeau (1994, 1997). In her research program, she developed and validated measures for each component and then demonstrated how deficiencies in various components were associated with particular moral weaknesses. In addition, targeting specific deficiencies in each participant proved to be an effective intervention strategy.

An additional use of the Four Component Model is in characterizing existing programs. That is, Rest’s model is helpful in identifying the various emphases of different programs and suggesting which of the different evaluation strategies might be most appropriate. For example, Kohlbergian inspired programs (e.g., Schlaefli et al., 1984) emphasize Component 2. Similarly, traditional character education programs emphasize Component 4. Some programs have attended to multiple components (e.g., Battistich et al., 1991; Gibbs et al., 1995; Bebeau, 1994). For an extended discussion of the heuristic value of the Four Component Model, see Bebeau et al. (1999).

EXPANDING COMPONENTS WITHIN THE FOUR COMPONENT MODEL

Just as the Four-Component Model has expanded our understanding of moral functioning, research and thinking in professional education has expanded our thinking about ways to capture Component 2: the moral judgment process. It is now well known that traditional measures of moral judgment development describe abstract markers of life-span development, which are typically defined in terms of Kohlberg’s stages. According to theory and supported by 30 years of empirical research, Kohlbergian stages function as default schema, which help to define and suggest appropriate actions within situations that present conflicting moral claims (e.g., Rest, et al., this issue). Instructional methods that promote development of the
more adequate schemas for resolving dilemmas have been shown to be effective in a wide range of educational settings (Schlaefli et al., 1985), including dentistry (Bebeau and Thoma, 1994). Performance on measures [e.g., Rest’s Defining Issues Test (DIT)] appears to predict to a wide range of prosocial behaviors, including clinical performance (Thoma, 1994). Yet not all ethics courses consistently result in enhanced reasoning as measured by these tests (e.g., Self and Baldwin, 1994; Self et al., 1994), nor are the effects consistently large. Such findings would argue for measures that are more closely targeted to the goals of the program.

Second, researchers who fail to find an effect on moral judgment for their ethics courses sometimes question the face validity of the test, arguing that the problems are not “current” problems and therefore are not a valid measure of their course. We agree that the DIT may not be the best outcome measure for ethics courses, but not because the test uses unfamiliar problems. In fact, Westbrook (1994) showed that unfamiliar problems were better for assessing the “bedrock concepts” of the profession. In his study, journalists appeared to have learned responses to the familiar problems of their discipline without being able to apply the concepts to unfamiliar (or new) problems. Understanding of the “bedrock concepts” is assumed to facilitate this transfer. A central question for any instructional program is whether instruction enables students to transfer learning to novel situations and whether “bedrock concepts” [the more general philosophical ideals or moral schemas (Rest et al., 1999)] are a necessary condition for transfer of learning.

The Need for Intermediate Constructs

There are different levels of abstraction in describing moral cognition. Kohlbergian stages are gross, highly abstract markers of life-span development that deal with the overall justification of a moral system. Kohlberg’s Six Stages are like describing general epochs in history (e.g., stone age, bronze age, middle ages, industrial age, information age) but are not fine-grained descriptions (like month–day–year). The highly abstract nature of Kohlbergian stages has been stated in a particularly succinct way by Kenneth Strike (1982, p. 213) with regard to the moral decision making of teachers:

Even if these views [Kohlberg’s] are essentially correct, they do not provide an adequate basis for teaching teachers about ethics. The essential problem is that the emphasis is on the development of abstract principles of moral reasoning instead of instruction in the more concrete ethical principles that should inform the daily activities of the practicing teacher. It is no doubt desirable that teachers acquire sophisticated and abstract principles of moral reasoning. . . . But a teacher who
has a good grasp of abstract moral principles may nevertheless lack an adequate grasp of specific moral concepts, such as due process.

Compare the abstractness of Kohlberg's theory to the abstractness of Piaget's theory of cognitive development. In Piaget's theory, reaching the highest stage of formal operations is not sufficient for carrying out the daily activities of the practicing scientist. Having formal operations does not provide knowledge for building a bridge or operating a computer. In addition to formal operations, the practitioner needs intermediate-level concepts. This is not to deny the possibility of abstract markers of life-span development (such as Piaget's stages or Kohlberg's stages); rather, we are saying that abstract markers are not sufficient.

In the teaching of ethics to health care professionals, for example, ethics courses are often organized around "intermediate-level" concepts, such as "professional autonomy," "competence," "informed consent," "paternalism," "confidentiality," "surrogate decision-making," "veracity," and "allocation or rationing of scarce resources." (e.g., Callahan, 1988; Beauchamp and Childress, 1994). In health care, such concepts are the subject of instruction, whereas concepts like "due process," "rule of law," "punishment," "zealous advocacy," or concepts like "whistle-blowing," "intellectual freedom," "collegiality," and "intellectual property"—central to other professions—are not emphasized as much in health professions. Intermediate-level concepts (and their related principles) provide more concrete guides for actions than the general concepts (like justice or utility) and their related principles (e.g., "equals must be treated equally, and unequals must be treated unequally" or "we must always produce the maximal balance of positive value over disvalue"). We think that measures of moral judgment assess understanding of the more general concepts and principles that are at the heart of theories of social cooperation.

At a third level, even more concrete than intermediate-level concepts are codes of ethics. Various professional groups [lawyers, physicians, nurses, dentists, psychologists, engineers, etc. (see Callahan, 1988, pp. 439-464)] have adopted professional codes of ethics, which are essentially brief lists of specific prescriptions and prohibitions designed to serve as action guides in particular circumstances. Codes seldom provide a rationale or explanation from moral theory, yet the adequacy of a prescription is often judged by its coherence with the more general intermediate concepts and principles. In turn, intermediate concepts and principles may be judged for coherence with more general principles, like justice or utility.

Professions differ in the extent to which they focus on teaching the code. In law, for example, a great deal of time is devoted to instruction on the code as licensing examinations assess knowledge of the code, whereas in health professions, less emphasis is placed on learning the profession's
code. Thus to conceptualize the teaching of professional ethics, we suppose three levels of abstraction: the justification for a moral system in society (e.g., Kohlberg stages), intermediate-level concepts and related principles which provide the rationale for certain kinds of decision-making (e.g., informed consent, paternalism), and specific codes of ethics (e.g., dentists shouldn’t announce their HIV-negative health status in professional advertisements).

In sum, three levels of abstraction represent our current thinking about ways to conceptualize the teaching and assessment of moral judgment (Component 2) in the professions. With respect to the more abstract level of reasoning, however, we propose three basic schemas (rather than Kohlberg’s Six Stages) because the empirical findings from DIT research (especially with adult learners) clearly support only three. See Rest et al. (this issue) for a description of the schemas, a rationale for the shift from a stage theory to schema theory, and a summary of the empirical support for the theory. As with Kohlberg’s stages, the three schemas are not proposed to represent a full decision-making model of moral judgment. In other words, we don’t suppose that either stages or the schemas portray all the cognition that is necessary for a practitioner to make decisions about actual moral dilemmas (a full model would include the intermediate concepts used by a person, plus specific codes in addition to the schemas). The schemas, however, enable us to describe the developmental aspect of moral judgment (for adult learners), movement from conventional to postconventional. We do not know whether or not intermediate concepts, the second level of representation, follow a general developmental sequence, nor do we make the claim that the most concrete level (knowledge about professional codes) follows a developmental sequence. In the next section, we describe our initial efforts to explore the role of intermediate-level ethical concepts and principles in professional decision making.

Recent Research on Intermediate Concepts

Working in the context of a well-validated professional ethics curriculum that had been in place for 15 years (Bebeau, 1994), we (Bebeau and Thoma, 1998a) designed a prototype measure of intermediate level ethical concepts for assessing the outcomes of dental ethics instruction. Our approach to measurement validation focused on (a) strategies to ensure the integrity of the cases and realism of the items for practicing dentists, (b) achieving consensus judgments among ethicists regarding better and worse actions and justifications, (c) exploring differences among groups expected to differ in dental ethics expertise, and (d) exploring relationships with
other measures of expertise. Because the Intermediate Concept Measure (ICM) was designed in the context of an ethics curriculum that has consistently been shown to enhance moral judgment development (Bebeau and Thoma, 1994), a cross-sectional comparison between senior dental students and entering freshmen (Bebeau and Thoma, 1998b) enabled a first look at the educational effects of the ethics curriculum on intermediate concepts. Because the ICM included problems that were familiar to seniors, as well as problems that were novel, it was also possible to examine the role that acquisition of more general philosophical ideals (i.e., the abstract moral schemas measured by a test of moral judgment) plays in a student’s ability to select appropriate actions and justifications for unfamiliar problems (Bebeau and Thoma, 1998c). Following is a synopsis of procedures and findings detailed in the above-cited reports.

Strategies to Ensure the Integrity of the Measure

To explore the possible usefulness of a prototype measure, five topics, representing intermediate concepts taught during the curriculum, were selected for case development. In collaboration with dental practitioners, cases were written and then checked for authenticity with other practitioners. Because we wished to illustrate differences among groups related to intermediate-level ethical concepts governing professional decision making, rather than technical knowledge of dental techniques or procedures, we avoided technical language, opting either to describe dental problems in lay terms or to include footnotes describing techniques or procedures. Following case development, a group of 12 dental residents and 4 dental faculty were asked to study each case and independently to write out (1) what should be done and (2) why the proposed action choice was justified. These written responses were used to generate acceptable and unacceptable (though plausible from the perspective of some residents) action choice items and justification items for each case. The same group then evaluated the newly created action items, rating each on a 4-point scale (highly defensible, defensible, questionable, not at all defensible), then ranking the two

4Justifications for the cases represented rationales offered by faculty and residents. These rationales were expressed as action guides (i.e., intermediate principles). No effort was made to pattern justifications after any moral framework like Kohlbergian stage descriptions, general principles of biomedical ethics (autonomy, nonmaleficence, beneficence, justice), or general distillates of intermediate principles taught in ethics courses. When we attempted to classify the rationales, we noticed that some seemed to appeal to personal interests or to maintaining the norms expressed in codes, whereas others seemed either to appeal to intermediate concepts or to be grounded in theoretical approaches (e.g., utilitarianism, casuistry, etc.). For example, in the John Block Case, a rationale applying a casuist approach appealed to some.
best and two worst action choices. Following the rating and ranking of action choices, respondents rated the importance of each reason in coming to a decision using a 5-point scale (great, much, some, little, no), then ranked the three best and the two worst justifications. Each case was discussed by the group, and items were added or modified. In a second-level tryout, a new group (two faculty and three advanced residents) rated and ranked the actions and justifications, then discussed the cases and their responses in an effort to achieve consensus on the best and worst action choices and justifications. Again, modifications were made to clarify the cases and the items. For each of the cases, this group was able to achieve consensus on best and worst actions and justifications.

Sample Case. John Block, a patient of record, presents to his dentist, Dr. Meyer, asking to have a lower second molar (back tooth) extracted. In examining the dental record, Dr. Meyer notices that 2 years earlier he had performed root canal therapy (using standard procedures) on the tooth. Shortly thereafter (again following standard recommendations and procedures), the tooth was crowned to prevent fracture of a devitalized tooth. When the dentist asks if the tooth is bothering him, John says it isn’t, but he wants the tooth removed nonetheless. When asked why, John shows Dr. Meyer a brochure from a health club that discusses the toxic nature of material used in root canal therapy and advises against the procedure. Dr. Meyer states that the information in the brochure is not true, but the patient is adamant. He asserts that the tooth is his; he paid for the treatment, and if he now wants it out, he thinks the dentist should honor his request. What should Dr. Meyer do?

Sample Action Choices. Accompanying the Block case are seven action choices: (1) suggest that the patient see another dentist for a second opinion; (2) try to educate the patient further; (3) refuse to pull the tooth; (4) respect the patient’s wishes and pull the tooth; (5) have the patient sign a consent form indicating that he has been informed of the consequences of pulling the tooth, then pull the tooth; (6) tell the patient you respect his right to do whatever he chooses, but you won’t pull the tooth; and (7) tell the patient that you took an oath not to cause harm, and removing the tooth would do more harm than good. After rating and ranking the actions, the respondent is told to turn the page and consider the reasons that best justify the action chosen.

Sample justification choices. The actions in the Block Case are followed by 12 statements offering justification. For the Block Case, four justifications appeal to aspects of professional authority or autonomy (e.g., doing work that is not required cannot be justified, dentists needs to be open-minded about alternative therapies, the dentist is responsible for judging the scientific merit of a treatment decision, the dentist shouldn’t let the patient
control the treatment decisions). Four others appeal to \textit{patient autonomy} (e.g., The patient’s right to decide what will happen to their bodies needs to be respected; you need to be respectful of the patient’s viewpoints when asserting your professional judgment; if the patient is adamant about a decision, and has been properly educated and warned of the consequences, the dentist should do what the patient wants; if the patient wants to do something that isn’t a big health risk, then why not do it?). Three reasons appeal to \textit{personal interests} (e.g., if you don’t do what the patient wants, you are likely to lose business; in the long run, it’s better to give up a little authority than to lose this patient from your practice; Dr. Meyer’s colleagues will not approve of the removal of the tooth). One item offers a casuist approach: If you wouldn’t remove a patient’s finger because he felt it led to a healthier lifestyle, you shouldn’t take out a tooth because of a patient’s belief that it led to a healthier lifestyle. No justifications appealed to the ADA Code of Ethics, as the code is silent on this point.

\textit{Exploring Consensus Among Ethicists}

To establish that better and worse action choices and justifications were not just a matter of personal preference, or the result of regional consensus following discussion, we asked 14 teachers of dental ethics from around the country to respond to the cases. We keyed each item as either appropriate, neutral, or inappropriate, then calculated the overall percentage of times experts agreed with item classifications. Eighty-eight percent of the experts rated the action choice items keyed as appropriate as reasonable choices. Similarly, 88% of the experts rated the inappropriate actions as unreasonable action choices. For the justification data, the corresponding agreement was 95% for appropriate justifications and 93% for inappropriate justifications. Based on the item rating data, we were able to establish a rank order of action choices and of justifications against which to check agreement as to a single best action or justification. Whereas there was a high level of agreement as to what constituted a good or bad choice, and no misclassifications (i.e., rating a good choice as bad, and visa versa), there was only moderate agreement as to what constituted the single best action or justification (range, 32 to 46% agreement).

\textit{Scoring Procedures}. To summarize ICM performance, four indices are computed for each case. Because it is possible for a respondent to rank an appropriate action or justification as inappropriate (or visa versa), negative numbers are possible. Indices for each case include (1) the number of ranked items that matched expert consensus on appropriate action choices (potential range = −3 to +3); (2) justifications (potential range = −6
to +6); (3) the number of ranked items that matched items considered inappropriate actions (potential range = −3 to +3); and (4) justifications (potential range = −3 to +3). Summed across cases, scores range from −15 to +15 for best and worst actions and worst justifications and from −30 to +30 for best justifications. In order to compare performance across indices and across performance on familiar (two cases) and unfamiliar cases (three cases), scores are reported as the percentage of actions or justifications that match the judgments of the experts.

**Exploring Differences Among Groups**

To build the case for construct validity, groups expected to differ in moral judgment development (based on DIT data) and dental ethics expertise were tested with the new measure (Bebeau and Thoma, 1998c). Group 1 consisted of 68 college freshmen attending a local liberal arts college. A mean DIT P score for freshmen attending this liberal arts college is 33.4; for seniors, 42.9 (McNeel, 1994). Groups 2 and 3 were 86 freshmen and 74 seniors from the University of Minnesota School of Dentistry. The mean DIT P score for Minnesota dental freshmen (averaged over 13 years) is 46.02; for seniors, 51.13 (Bebeau and Thoma, 1994). All dental students completed the DIT\(^5\) and the newly devised test of intermediate ethical concepts (ICM) as part of either a baseline assessment (freshmen) or final assessment (seniors) for the School’s ethics curriculum.

Figure 1 (developed from Bebeau and Thoma, 1998c, Table 1) illustrates how well the exam discriminated among groups having different levels of dental ethics interest and education. Senior dental students scored significantly higher than dental freshmen (effect size = 1.08), who in turn scored significantly higher than college freshmen (effect size = .88). Novice groups not only scored lower on the measure as a whole, but also misclassified items, ranking best choices as worst, and worst choices as best. Such findings are central to a claim of measurement validity for a test of ethics expertise.

\(^5\)The DIT (Rest, 1979) is the most extensively validated and most widely used measure of moral judgment. The DIT assesses the proportion of time a person selects arguments representing Kohlbergian developmental frameworks when presented with six problems that represent a range of moral issues. Persons in professions, like medicine, dentistry, and law, select moral arguments that appeal to philosophical ideas (the more adequate conceptual frameworks—represented by the P score) about 50% of the time, whereas graduate students in moral philosophy select such arguments about 65% of the time (on average). Recent updates (Rest et al., 1997a, b) of the extensive literature on the validity and reliability of the measure confirm earlier reports (Rest, 1979).
Exploring the Relationship with Other Measures of Expertise

Bebeau and Thoma (1998c) describe the relationship among ICM scores, DIT scores, and GPAs for senior students. Construct validity was demonstrated by the findings that DIT scores were consistently and significantly related to ICM scores. In contrast, GPA, a measure of academic aptitude and achievement, was unrelated to ICM scores. Taken together, these data are consistent with the description of the ICM, as a measure of ethical reasoning and not simply as a measure of the dental curriculum. Furthermore, the magnitude of the correlations with DIT scores \((r = .26\) for dental freshmen and \(.33\) for seniors) suggests that the ICM is offering nonredundant information on the reasoning process.

Acquisition of Intermediate Concepts and the Role of Moral Judgment in Transfer to Novel Cases

To explore the role of ethics education and moral judgment development on acquisition of intermediate ethical concepts and transfer to novel problems, we tested the measurement strategy in the context of a well-validated ethics curriculum, reasoning that if the method is judged useful for our context—dental ethics education—it would have application in other professional education settings. During the design phase of our studies, we selected two cases that were familiar and three that were unfamiliar to our “more expert” dental student group and compared their responses to those
of novice groups. Familiar cases were nearly identical to cases extensively discussed during the third year of a 4-year ethics curriculum. Unfamiliar cases were cases not used during the curriculum, though they embodied concepts taught during the curriculum. See Bebeau and Thoma (1998b) for a complete description of the cases and intermediate concepts represented by each case.

Figure 2 (developed from Bebeau and Thoma, 1998b, Table 2) shows between-group differences on familiar and unfamiliar cases. As you can see, seniors were consistently better at resolving familiar and novel problems than freshmen, though the differences are more marked for familiar problems. Each of the differences reflected in Fig. 2 is significant, with effect sizes ranging from .23 for an unfamiliar action choice to 1.24 for a familiar action choice. Because it could be argued that ICM scores offer little beyond what can be obtained by more general moral schema measures, we treated DIT P scores as a cohort in a repeated measures ANOVA. All the significant effects obtained in the earlier analyses remained statistically significant after controlling for DIT P scores.

It still may be that P scores independently contributed to performance on intermediate concept measures. Particularly interesting is the potential joint contribution of training and moral schema on unfamiliar situations. Figure 3 depicts the results from a hierarchical linear regression analysis, designed to assess the unique contribution of DIT P scores on ICM indices after entering the expert–novice grouping. As you can see, the grouping factor accounted for a substantial amount of variance (about 40%) in ICM
scores for the familiar situation but for only a small amount of variance (less than 5% on average) for the unfamiliar cases studies.

The question of interest, though, is whether DIT scores accounted for variance above and beyond what is contributed by the expert-novice groups. In Fig. 4, you see that DIT P scores did account for additional variance on two of the four indices (i.e., identifying worst action and best justifications). These differences are statistically reliable ($p < .05$). A third finding (identifying worst justifications) reached a statistical tendency ($p < .10$). Overall, therefore, there is evidence that moral schema, as measured by DIT scores, may contribute to performance on intermediate concept measures concerning unfamiliar situations.

**Linking Intermediate Concepts and the Components**

Rest's model assumes the independence and interdependence of the component processes. In fact, one of the first applications of the model (Bebeau et al., 1985) explored the possibility of designing a measure of ethical sensitivity and, once the assessment method had been validated, exploring the relationship between ethical sensitivity and moral judgment. Studies since then [see Bebeau (1994) for a review of studies relating ethical sensitivity and moral judgment] have consistently supported Rest's
contention that the processes [e.g., moral sensitivity and moral judgment, moral judgment and moral motivation (Thoma et al., 1998)] are independent of one another, even though adequate moral functioning would require competence in each. One finding of interest in the ICM studies deserves further mention. Consistent with the view that ethical training strengthens the connection between various aspects of moral functioning, Bebeau and Thoma (1998c) noted that seniors were the only group to evidence strong relationships between justifications and action choices within both familiar \((r = .72)\) and unfamiliar \((r = .75)\) cases on the ICM, showing a clear link between aspects of Component 2 and Component 4 processes.

**IMPLICATIONS FOR THEORY AND PRACTICE**

Findings from preliminary studies support a continued focus on intermediate concepts as a new approach for understanding ethical reasoning. We have observed surprisingly clear evidence of expert/novice differences on our measure of intermediate concepts, though we have not established that intermediate concepts form a developmental hierarchy as do moral schemas. The current evidence supports attention to both intermediate concepts and moral schemas in the development and assessment of moral thinking, but it does not clarify a role for teaching and assessing the most concrete level of
knowledge—a profession’s code of ethics. Future studies might explore the relationship among abstract schemas, intermediate concepts and principles, and knowledge of the specific prescriptions of the profession’s code. For example, assuming coherence between the specific prescriptions of a profession’s code of ethics and the more abstract intermediate concepts and principles taught in ethics courses, it would be interesting to see whether professionals who exhibit knowledge of the code could develop (or select) appropriate actions and justifications for novel cases that invoke intermediate concepts and principles. Likewise, it would be of interest to ethics educators to see whether knowledge of intermediate concepts and principles would enable professionals to project actions and justifications consistent with the prescriptions of the code, without directly teaching the code.

Despite the remaining theoretical questions, the focus on intermediate concepts has particular appeal in professional ethics education. First, assessment strategies that use cases that are real, with items and scoring systems grounded in the thinking and judgment of respected experts in the field, are more likely to be used to evaluate professional ethics programs. Second, finding marked differences between expert/novice groups not only offers convincing evidence for the need for instruction, but enables the educator to judge individual performance against a valid standard. Further, finding that schemas are necessary to transfer to novel situations helps educators and researchers see the appropriate place for developmental measures in the assessment process, the relative importance of grounding ethics instruction in moral theory, and a way to better define roles for moral philosophers and practitioners in professional ethics education.

To date, the focus of our studies has been in dentistry, though we think it is easy to see the transportability of the measurement design process to other professional settings. The measure for dentistry was designed to test the possibility of achieving consensus among experts, to provide preliminary evidence about expert/novice differences, and to test the role of moral schemas in transfer to novel problems. To design a measure that has wide-scale applicability to the field of dentistry, further consensus development steps are required. It may be necessary first to survey the discipline to determine (1) the concepts currently taught, (2) the concepts ethicists and practitioners in the discipline think are essential, and (3) the kinds of problems that frequently occur. Further design of such a measure holds promise for the future of professional ethics assessment.

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