The Psychology of 'Ought'

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Abstract - **As educators, we would like to believe that we can influence the ethical growth of our students. If we are to do this, it seems worthwhile to first understand what ethical decision-making is and how it happens. For millennia, ethical decision-making has fallen within the domain of philosophy. However, recent evidence suggests that the average person does not consider ethical dilemmas in the abstract. Instead, ethical decision-making appears to be a complex dance between an individual's rational calculus of the ethical dilemma and their emotional response to the context of the dilemma. I will present an argument that in the trenches of daily life, psychology has a better grasp on the workings of ethical decision-making, while philosophy helps to provide direction. I will also present a number of historical and current psychological theories about ethical decision-making, from behaviorist to post-modern feminist. Throughout this discussion I will build on a psychological framework for ethical decision-making and moral development, and present implications for engineering education.**

Index Terms – Ethics, philosophy, psychology.

One of the most fundamental and universal aspects of being human, is seeking knowledge of what it means to be human – specifically a 'good' human. In this paper, I hope to engage in a discussion of the historical debate between the philosophical and psychological perspectives of human morality and moral growth. In doing so, I will borrow heavily from the work of Darcia Narvaez [1,2,3], a leading moral development theorist. It is my intent to provide the reader with a brief synopsis of contemporary work in moral development, and through this new research, to challenge the current paradigm in engineering education and propose a new way of thinking about engineering ethics education.

IN THE BEGINNING: EARLY PHILOSOPHY AND CHARACTER EDUCATION

Morality is an inherent aspect of all human beings that is simultaneously necessary to maintain a functioning social system and an integral part of an individual's process of self-realization [4]. In Western societies our ideas about morality are most heavily influenced by the philosophical traditions passed down to us by the ancient Greeks. The Greeks emphasized the improvement of the self (as opposed to the elimination of the self in Eastern traditions) and

knowledge of the Good. Aristotle is among those that have most deeply influenced modern thought on morality and character development. Aristotle, however, took a more pragmatic, contextualized view, believing that all humans sought to develop into happy and flourishing beings [4]. Aristotle's theory of human flourishing contains two fundamental aspects: first, that all humans ought to live in conformity to reason, and second, that humans develop character through the formation of habits. Though there has been considerable debate on the subject of reason in his writings, Aristotle believed that moral reasoning involved merging contextual information with practical wisdom to arrive at moral decisions.

However, it is the second aspect of the Aristotelian theory of virtue that has gained the most attention, particularly within the character education movement. Here scholars saw Aristotle's description of habituation as a form of learning through non-cognitive processes – through repetition of virtuous acts. We shall see later that Aristotle may have meant something entirely different.

Early character education in the United States can be traced directly back to 18th century practice in Great Britain and medieval Christian morality (e.g. Aquinas), both of which are direct descendents of the Aristotelian idea of virtue formation through habituation. By the late 19th century, character education had begun to move away from its Christian roots; however, it was overwhelmingly the dominant form of moral education in both public and private schools. This would change dramatically with the publication of *The Character Education Enquiry* in 1930, the first major study on the role of character education in the U.S. by Hartshorne and May [5]. This landmark study showed that traditional methods failed to produce a link between character training and moral behavior, and that moral behavior appeared to be situational, not virtue-based. It provided the empirical evidence needed to challenge traditional and behaviorist approaches to moral education. The horrors of the Holocaust, perpetrated within a nation that espoused strong character education, would subsequently provide much of the motivation to create a new theory of moral development.

A DIFFERENT OUTLOOK: THE DEVELOPMENTAL COGNITIVE REVOLUTION

The Enlightenment saw a resurgence of philosophical progress led most notably by the likes of John Locke, David

Hume, and of particular importance for our discussion, Immanuel Kant. Kant took a dramatically different position from that of the character development tradition. He approached human development not as one dictated by a broader *telos* or even one crafted by experience or exposure to moral exemplars, but rather development that arose out of personal autonomy. Kant believed that individuals attain true moral perfection when they act in accordance with moral rules that they themselves created and are self-imposed. This led Kant to develop the notion of the *Categorical Imperative* as a rational means of crafting the moral rules by which an individual was to govern their own actions.

In one of the truly revolutionary moments in modern psychology, Lawrence Kohlberg would combine Kant's *deontological* (or duty driven) philosophy with the new cognitive developmental approach of Jean Piaget to create his now famous stage analysis of cognitive moral development. Kohlberg divested from contemporary thinking that it was society that determined what was morally right and wrong. Instead, he believed fervently in the Kantian mold that it was the individual who constructed their own knowledge of the good. He went a step further than Kant, however, by arguing that individuals are not born with advanced moral judgment capability, but rather advance along a common sequence of developmental stages based on acquired cognitive skills and processes.

Kohlberg had successfully married the Kantian notion of the individual construction of morality and the Piagetian notion of cognitive development from early childhood to adulthood. His theory was as much an affirmation of Kant's philosophy as it was a rejection of the Aristotelian approach taken by character education. Kohlberg viewed the habitualized virtue approach of character education as intellectually devoid, and of no use when one faces real-life dilemmas which have no antecedent in the actor's prior training [6].

Kohlberg's theory of moral development laid out six developmental stages of moral judgment in which persons construct increasingly complex understandings of moral cooperation within complex social structures [7,8]. His six stages of development were later grouped into three levels of reasoning: pre-conventional, conventional, and post-conventional. In pre-conventional reasoning (Stages 1 & 2), moral judgment is based on the formation of practical agreements between interested parties to meet the individualistic, ego-centric goals without regard to the norms or expectations of the larger social group [9]. This is the level typically seen in pre-adolescent children. In conventional reasoning (Stages 3 & 4), the actor's needs and desires are subordinated to the norms and conventions of society. The value of equality before the law, even for unknown citizens, becomes uppermost in the individual's moral thinking, and so this level is often seen as the 'law and order' level. In the final level of development, post-

conventional reasoning (Stages 5 & 6), the individual recognizes that laws and conventions are to be defended only to the extent that they serve a morally justifiable end. In Kohlberg's view, it is at this level (specifically stage 6) that one develops justice-based reasoning that transcends convention, and a universal sense of moral obligation emerges.

The net effect of Kohlberg's theoretical innovation was to create two camps for moral development research: those that held the Aristotelian view that moral growth involved acquisition of those virtues that allowed one to live the good life, versus the Kohlbergian view that growth occurs as we develop sophisticated cognitive abilities to apply internally derived moral principles. From the Vietnam War era until the last decade, Kohlberg's theory of cognitive moral development has held sway and influenced the majority of work in this area. That would change as new research began to identify weaknesses in the theory.

CLOSE BUT NO CIGAR: DECISION-MAKING IN DAILY LIFE

Despite the tremendous impact that Kohlberg's theory has had on research in cognitive development and moral education [10,11], it has lost much of its splendor in recent years. Modern researchers have identified several weaknesses in Kohlberg's theory, all of which point to a failure of the theory to predict how individuals grapple with moral decisions in every day life.

Perhaps most importantly is the fact that, when interviewed, most adults cannot articulate their own decision-making processes [1]. This suggests that moral decision-making is not exclusively rational as both Kant and Kohlberg would argue, for if it were, individual's cognitive processes would be highly salient and thus easily described by the interviewee. Instead there are non-cognitive, perhaps even habitual, aspects that people call on to deal with every day decisions.

Another fundamental weakness in Kohlberg's model is its reliance on the idea that at earlier stages of development, morality is based on social norms and the dictates of authority (Stages 3 & 4 in particular), it is only at the most advanced stages that individuals reason autonomously from social conventions and normative influences. However, in the work of Nucci [12] it has been made clear that both young children and adults, across cultures, maintain a separation between moral principles and social norms. In Nucci's study of children living in conservative religious communities (Amish, Dutch reform Calvinist, Orthodox Jews, etc.) most children said it was acceptable for people to act in ways considered wrong in their religion (e.g. for women to lead worship or not wearing head covering during worship) if there were no prescription against such acts in scripture. However, nearly 80% of children still thought it would be wrong for an individual to violate such basic moral

principles as telling the truth and avoiding harm to others even if the scriptures said nothing on the subject. From this research it was concluded that despite Kohlberg's insistence to the contrary, human beings do distinguish between social conventions and moral principles even at points in their life when they are at Kohlberg's lowest developmental stages.

There are, of course, other weaknesses of the model. Blasi for instance noted that numerous studies of moral and immoral behavior showed weak links between moral judgment stage and moral behavior; implying that while moral judgment may be a key determinant to the formation of a moral intention, it is certainly not the only determinant [13-15]. Subsequent research has also shown that individuals do not progress through Kohlberg's stages in a perfectly uniform manner as was initially predicted, but rather wax and wane between stages as they transition from one general cognitive framework to another [16]. And lastly, significant research has shown in recent years that moral emotions, such as empathy and sympathy, can play as important a role as reason in moral decision-making [17,18]. In short, Kohlberg's theory, while crucially important in moving psychology from the behaviorist mind-set of character education to a developmental perspective, is now a fading model for understanding how human's grow in the moral domain.

ONCE MORE INTO THE BREECH: SCHEMA THEORY AND MORAL EXPERTISE

As was noted earlier, a key criticism of Kohlberg's theory is that most of our cognitive activity is not conscious and deliberate, but is rather "tacit, implicit, and automatic" [19]. In light of this reality, a new moral psychology has recently emerged based on schema theory.

Schema theory, which is derived from social-cognitive psychology, is an attempt to view daily human interactions from the perspective of information-processing. Schemas are knowledge structures that reside in our long-term memory, ready to be invoked should the necessary stimuli be presented. They are developed through our experiences and interactions with others, and modified based on our recognition of the consequences of invoking certain schema in certain situations. In short, schema are the mental instruction pamphlets we use for every day interactions.

Recently, Narvaez [1,2] has argued from the schema theory position that moral decision-making involves both the "deliberative mind", which relies on conscious reasoning, and the "intuitive mind", which involves unconscious invocation of mental schema. The intuitive mind in this framework is aligned with empirical evidence of moral decision-making in every day life, while the deliberative mind plays the role of challenging our pre-conceptions and guides development of the intuitive mind. The deliberative mind represents the sort of rational cognitive effort emphasized by the Kohlbergian tradition. The intuitive mind, however, is more akin to the Aristotelian notion of "habit". It seems that perhaps what Aristotle meant by habituation was not behavioral modification through rote repetition, but rather engagement in regular moral acts followed by reflection such that we have the opportunity to modify our moral schema and enhance their automaticity.

And so through schema theory we seem to have united the two competing views of moral education: reasoning-based vs. virtue-based. Schema theory argues that a person lacking either the intuitive mind of daily decision-making or the deliberative mind of rational thought is an incomplete moral person. If in fact we use schema to intuitively address moral decisions in daily life, and in the longer term use our reasoning to challenge these intuitions, then it seems there ought to be some people that are better prepared for moral decision-making. We might say there are individuals that have the attribute of moral expertise. In the general sense, experts have more content and process knowledge, and their knowledge is better organized than novices. They have more developed intuitive senses of a problem and how and when to apply reasoning to the problem.

Given this depiction, Narvaez [2] has argued that moral ability can also be treated as a form of expertise. She suggests that moral exemplars contain expertise in one or more processes essential to moral behavior: ethical sensitivity, ethical judgment, ethical focus, and ethical action. Experts in ethical sensitivity are better able to recognize a moral situation, to understand their role in the situation, and to take the perspective of others involved in the situation. Experts in ethical judgment "reason about duty and consequences, and apply personal and religious codes to solve complex problems" [2], and we might add to this 'professional codes'. Experts in ethical focus are better able to regulate their priorities over the long-term in a way that reflects a deep commitment to moral and ethical values. Finally, an expert in ethical action demonstrates the ability to focus on the end goal of carrying out a moral intention and has the courage to do so.

The concept of moral expertise is of little value if we do not use it to help us envision ways of moving individuals from the novice to the expert state. From the schema theory perspective we would argue that novices require study both in the intuitive aspects of expertise and the deliberative aspects. The student of moral expertise would require simultaneous exposure to highly contextualized moral situations for the intuitive mind and focused reflection on moral theory for the deliberative mind.

SEEKING ANSWERS WITH MODERN SCIENCE: EVOLUTIONARY PSYCHOLOGY AND NEUROBIOLOGY

Our understanding of how the human mind processes moral situations based on schema theory and moral expertise may provide us with great insight. However, it fails to explain

the source of our moral being. Nor does it explain why people should have such differing perspectives on what constitutes moral (or immoral) behavior. For this we must turn to evolutionary psychology and neurobiology.

Nucci's discovery of universal notions of basic moral concepts among young children suggests that morality is based on our evolutionary history as a species [20]. Evolution seems to have prepared us with the ability to recognize distress in others and to respond with empathy. Even infants have the ability to express anguish and to recognize it in the face of their mothers. Evolution seems to form our earliest moral schema, which are subsequently modified by incorporation of early experiences and feelings [21]. These emotional tags become the motivational triggers for accessing appropriate moral schema in later life. As cognitive skills develop, we regulate the role of emotions in our moral schema and intuitively apply reason to decision-making, though emotions continue to play an essential part in the intuitive aspects of moral decision-making. Thus, moral education must incorporate both affective and cognitive aspects of development.

Evolutionary psychology and neurobiology also give us direction in understanding why individuals should have different motivations for moral decision-making and behavior. Once again, Narvaez is at the forefront in proposing a new model of ethics called Triune Ethics Theory in which she argues that it is the limbic system within the brain that governs use of moral schema and information processing [2].

The central argument of this theory is that rather than rejecting some self-identities as moral and others as immoral, Triune Ethics Theory sees all self-identities as inherently moral – it assumes that all humans strive to be good and at some inherent level are. Differences in individual's moral perspectives, therefore, are based more on the type of moral identity that people form for themselves, rather than on the degree of its moral validity. Narvaez, inspired by the work of MacLean [22], has identified three evolutionary ethics that help us to define different moral identity types: the ethic of security, the ethic of engagement, and the ethic of imagination. The ethic of security is based on the most primitive aspects of the limbic system and is the dominant mental structure in reptiles. It is associated with emotions of survival and thriving including fear, anger, and sexuality. In humans it manifests itself in qualities of self-protection, autonomy, status enhancement, and in-group loyalty. Individuals ensconced in this ethic often take a 'might-makes-right' orientation toward moral decision-making, emphasize control of the emotions, and see out-group members as weak and less deserving. We might equate this ethic with Kohlberg's pre-conventional reasoning levels; however, here the ethic is unconscious and based on tacit and automatic information processing rather than rational thought. As all humans contain this most fundamental neural structure, its influence can only be minimized when we sense that our emotional and physical security is intact within a given environment. If we feel at all threatened, this ethic will present itself.

The second ethic, the ethic of engagement, is based on emotional systems that encourage us to interact with one another, procreate, and care for the young, ill, and elderly. An individual who creates for herself a moral identity of engagement will have more affinity and capacity for meaningful relationships and a stronger commitment to help those in need.

The final ethic is that of the imagination, based on the more recently evolved prefrontal cortex. Within this structure the mind integrates the self-preservation identity of the ethic of security and the relatedness of the ethic of engagement. On the one hand it seeks to subdue the instinctual need for safety and security [23], while simultaneously assigning attributions to the intentions and actions of others [24]. It serves the role of making sense of the external actions of others without awareness of their internal motives or decision-making processes. But it does not act alone. If our identity is strongly influenced by the ethic of security we are likely to attribute the actions of others as aggressive attempts to threaten our status. If, however, we identify with the ethic of engagement we may see these same actions as attempts to form relationships and/or seek help. The ways in which these three ethics interact within our brain play a fundamental role in our moral outlook.

It is important to recognize that the ethic of security is our default identity as self-preservation comes before all other needs. Only through proper attention and nurturing during our development can we attain the proper neuro-circuitry to allow us to operate within the ethic of engagement and imagination [24,25]. This would explain why children who are raised in emotionally and/or physically abusive homes struggle to move beyond an ethic of security – their identity is bound up within their own self-preservation for good reason. And so we as educators have a responsibility to create safe environments and caring relationships for our students if we are to see them achieve their full human capability.

A HOLISTIC FRAMEWORK: CARE AND REASON UNITE

Humans have a more complete understanding of their moral functioning and development than ever. This understanding would be of little practical value if it were not put to the task of better educating people to be ethical. To this end Narvaez has proposed a series of steps for ethical education referred to as Integrative Ethical Education (IEE) [3].

Step 1: Establish caring relationships with each student
As discussed previously, the human brain is evolutionarily primed for emotional engagement. Without this sort of

interaction, our ethic of security becomes dominant and our moral outlook is one of self-preservation and might-makes-right. With the appropriate affection from caregivers and teachers, and a safe environment in which to learn, children can develop the ethic of engagement. It is no surprise then that when students report having caring relationships with their teachers, they exhibit higher motivation and achievement. Focusing on the importance of respectful, caring relationships between student and teacher is at the heart of current thinking in feminist pedagogy [26]. Truly caring relationships strip away power differentials, meaning that all actors in a classroom are learners – there is no individual source of authority. Engineering education has made some moves in this direction with student-centered learning pedagogies, but there is much more to be done in this arena.

Step 2: Establish a climate of achievement and character
Caring classrooms are not simply places of emotional support. They additionally promote high achievement among students and support their moral identity formation. This requires that students be involved in the social life of the classroom and/or school. This can be accomplished by providing students with greater autonomy, using student-centered pedagogy that promotes self-directed learning, and allowing students to influence teacher decisions. It also means allowing students to interact with one another and to discuss course content and policies. For teachers it means providing a safe environment in which students can occasionally falter in their moral growth.

Step 3: Teach ethical skills across the curriculum using a novice-to-expert pedagogy
To become expert, individuals must develop both deliberative and intuitive capacities in each of the four ethical skills sets described previously: ethical sensitivity, ethical judgment, ethical focus, and ethical action. Narvaez has identified specific sub-skills within each of these four areas [18], all of which are inherent to either the ethic of engagement or the ethic of imagination, or both. To activate the intuitive mind around these skills, students need exposure to deeply contextual ethical situations, as well as, intentional role modeling by teachers. The deliberative mind is cultivated by providing theoretical explanation and opportunities for dialogue between novices and with experts. Recent moves to incorporate service-learning into engineering curricula is a promising move in the right direction. We must also provide students with opportunities to informally and safely discuss professional ethical issues with faculty and moral experts.

Step 4: Foster self-authorship and self-regulation
Despite our best efforts as educators, at some point the decision to become a moral expert rests with the student. Those students who have developed the necessary skills of self-regulation will be better prepared to enlist the deliberate mind in identifying activities and environments in which the

moral schema implicit in the intuitive mind are most enhanced. It is this self-regulation that provides experts with the ability to direct their own learning within their domain of expertise. As educators we can work with students to recognize the value of these specialized skills and practice their implementation. We can also strive to make self-regulation an explicit educational objective within our curricula and assessment strategies.

Step 5: Building communities and coordinating development systems
It would be unwise to think that our responsibility to prepare students for a life of moral expertise ends at the door of our classrooms. The purpose of moral education, after all, is to prepare students to live a moral life within their communities. If we truly believe in preparing students to participate in, nurture, and strengthen democratic values within society, then it would seem that the school community within which they learn these values must also reflect and engage in these same values. This means empowering all members of a community – students, teachers/faculty, and administrators. Our leaders must model ethical decision-making, encourage students to openly challenge their decisions, and carefully nurture this delicate process. This will be a particularly difficult task in engineering education with its culture of convergent, homogenous thinking as compared to the liberal arts where more divergent thought is encouraged.

PHILOSOPHY STRIKES BACK: IMPLICATIONS FOR ENGINEERING EDUCATION

Over the years, numerous changes to engineering curricula and pedagogy have been suggested as paths to improved engineering ethics education. We could spend many pages here discussing these and proposing yet new approaches. We could take all the psychological theories posited within this paper and others, and derive new, innovative approaches to helping our students become better ethical decision-makers. And yet as I conclude this paper on the psychology of human morality, it occurs to me that what is really needed in engineering education is first a re-examination of our moral identity as a discipline. No amount of pedagogical innovation is going to change the ethical capacity of our students if we do not first address the question at the core of all human growth: "Who am I and who am I going to be?"

College is a time when identity formation is particularly strong, and the signals that we send will have long-lasting effects on our students. College communities have a responsibility to help guide students as they struggle with these questions. And so the most fundamentally important task that we as educators must undertake is to seriously question who we are, and what we have become as a discipline. If we can do this, and model that sort of moral identity, we will go a long way to improving the ethics education of our students.

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What I have suggested here is no simple task. Engineering and engineering education hold deeply entrenched views of the world, and there is little real diversity of thought within the discipline. The overwhelmingly masculine orientation of the engineering profession has meant that only certain voices within the discipline are heard. The culture of engineering has driven our sense of what is ethically valued. A quick look at typical codes of ethics makes clear their prescriptive nature and their strong orientation toward "rights" and justice-based reasoning. Engineers perceive themselves as objective and separated from the context of the decision. It is non-relational, and we act in accordance with those actions which avoid harm to others – employers, clients, and to a somewhat lesser extent, society.

Students receive the same views of the world that their faculty received when they were students. The dominance of certain ethics within engineering, therefore, is a result of reinforced social schema that support certain models of a good human life (rights and fairness) at the expense of others (e.g. feminine caring-based ethics). Engineering faculty, for the most part, do not place an emphasis on a pro-social ethos for engineering. Imagine a discipline in which engineering students saw it as their responsibility to serve humanity much as doctors do. Imagine a discipline in which the code of ethics stated not that the first duty of engineers was to protect the public welfare, but to proactively improve it. Imagine a discipline in which the world recognized engineers not as cogs within the corporate machine, but rather as leaders of non-governmental organizations that sought to alleviate human suffering throughout the world.

Such a view of engineering is a possibility, but it is not our current reality. We have become a vocationally oriented discipline. We tell prospective students about the great jobs and salaries they can receive, not about the great problems they can solve. We focus on the needs of industry, and not on the needs of real people – look at our advisory boards. We are as much to blame for this as anyone. The various psychological theories we have discussed in this paper tell us that as educators we exhibit traits that students assume to be 'good' and thus inculcate them. But what if our own traits do not support a good, flourishing human life? We must ask ourselves what it means to be a 'good' engineer and how we exhibit these traits.

Are we prepared to look at ourselves deeply? If not, little will change and we will miss the opportunity to help the human species survive into the 22nd century.

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