



Lessons Learned from Teaching with an Ethics Toolkit

Dr. Martin S. High, Oklahoma State University

Dr. Marty High is an associate professor of Chemical Engineering at Oklahoma State University. His academic interests include teaching in all areas and at all levels of chemical engineering with a focus on instruction in thermodynamics and mass transfer. His research interests are in the areas of mass transfer in polymeric systems, corrosion modeling, equation of state development and refinery catalysis. Marty also writes in the area of sustainability and on the intersection of law, science and society. He received his engineering education at Penn State (B.S., M.S., and Ph.D.) and earned his law degree (J.D.) from the University of Tulsa.

Dr. Scott D Gelfand, Oklahoma State University, Department of Philosophy

Dr. Scott Gelfand is an associate professor of Philosophy at Oklahoma State University and founding director of the Ethics Center at OSU. His teaching and research interests are in the areas of theoretical ethics, research ethics, biomedical ethics, political philosophy and philosophy of law. He received his Ph.D. in Philosophy from the University of Maryland and his J.D. from Georgetown University.

Dr. Ronald Steve Harrist Ph.D., Oklahoma State University

Dr. Steve Harrist is the Hyle Endowed professor in K-20 Leadership and associate school head in the School of Applied Health and Educational Psychology at Oklahoma State University. His interests include theoretical and philosophical psychology and ethical leadership.

Dr. Shelia M. Kennison, Oklahoma State University

Dr. Kennison is an associate professor of Psychology at Oklahoma State University. She is also the IRB chair. Her research focuses on human cognition, language comprehension, and memory.

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Abstract

In this paper, we illustrate what we have learned in the process of implementing a new approach to ethics education for engineering students. The premise of our approach is that engineering education provides students with a wide variety of tools and skills: mathematics, chemistry, physics, computer programming, and discipline specific knowledge. However, one area in which our students tend to be underprepared and tend to be lacking in analogous “tools” to solve problems is in ethics. The approach to ethics education that we advocate stresses the psychological variables that influence people with good intentions to act unethically. We have designed a class that uses video clips containing re-enactments of published empirical studies that demonstrate why people act unethically. After a discussion of each video, each individual student is guided through a two-part exercise. The first part, developing a Personal Inventory Report, helps the student engage in self-reflection in order to determine what sorts of situations the student might find ethically challenging. In the second part of the exercise, the student develops a personal plan (Adaptive-Strategies Report) addressing what strategies they might use in order to increase the likelihood that they will act ethically in challenging situations (that is, the situations arrived at while developing the Personal Inventory Report).

Engineering education provides students with a wide variety of tools and skills: mathematics, chemistry, physics, computer programming, and discipline specific knowledge. All of these tools are designed to be multipurpose and adaptable to whatever problem the student will face in *practice*. Engineering *ethics* classes are different. These classes, typically begin with an introduction to ethical theory, usually covering consequentialism (in most cases utilitarianism), deontology (in most cases Kantian deontology) and virtue ethics (in most cases Aristotelian or neo-Aristotelian virtue ethics). Students, after learning about ethical theory, often read about and discuss past ethical failures (e.g. cases studies), and they use ethical theory to analyze the behavior of the agents involved in these failures.

Significantly, most of the case studies discussed in engineering ethics classes and textbooks, e.g., the Challenger case, the Hyatt Case and the Deepwater Horizon Oil Spill Case, do not present students with difficult situations. That is, most students (and non-students alike) could read the fact patterns associated with the cases and recognize where the agents went wrong and what the agents should have done without appealing to ethical theory. Similarly, a perusal of the disciplinary proceedings at the state Level (e.g., state engineering licensing boards) reveals that almost none of these proceedings surround difficult ethical issues or situations. Like the ethical failures discussed in ethics textbooks, it is not at all difficult to recognize that an ethical violation occurred and to determine what was ethically required of the agent in the situation. Put differently, one need not be ethically sophisticated in order to determine what went wrong in most of these cases.

Yet, something clearly went wrong. We suggest that engineering ethics education is missing a crucial piece; namely, students are not provided with the tools, analogous to the tools they are provided in other engineering classes, necessary to increase the likelihood that they will

act ethically as professional engineers when confronted with common, everyday ethical challenges. We suggest that students would profit immensely from learning why (otherwise) well-intentioned people fail to live up to their own moral commitments and/or the ethical requirements of their professions. And after teaching students about this last, we believe students should be provided a set of tools, an ethical toolbox if you will, they can use to decrease the likelihood that they will make ethical errors in the future. Most (perhaps all) professional ethics classes and textbooks neglect to provide students with these tools.^{1#} (Note: We do not claim that learning ethical theory is unnecessary or ought to be eliminated. In fact, we believe ethical theory is important. However, learning about ethical theory does not amount to providing students the tools they will likely need in order to avoid or lessen the likelihood that they will violate ethical requirements in the future.)

In order to determine what tools might be helpful, we must first attempt to determine why (otherwise) moral people act immorally or unethically. Put differently, we must attempt to discover what factors might lead one to violate one's own ethical commitments.^{2&} We can then develop a toolbox students can use to address these factors. Hence, we begin by examining some of the literature associated with moral psychology. One of the more interesting and relevant developments in moral psychology is scholarship concerned with a theory known as *situationism*. Advocates of situationism, including John Doris^{1,2} and Gilbert Harman^{3,4}, claim that situation plays a *far* greater role in ethical decision-making than was here-to-fore believed

This set of tools is a set of strategies students (and professionals) can use to begin the process of developing habits that, we believe, will decrease the likelihood that they will inadvertently make bad ethical judgments or choices. Hence, students must work with these tools before they find themselves in ethically dangerous terrain.

& It's important to recognize that we do not claim that our course will positively affect the ethical judgment/behavior of those who are not committed to act ethically. Rather, our course is focused on those who want to act ethically but are in danger of inadvertently or unintentionally violating their own ethical commitments (including the commitment to abide by the ethical code of one's own profession).

and that character plays a less important role in ethical decision-making than previously believed. If situationists are correct, the implications for the teaching of professional ethics are far reaching. Let us explain.

In one of the many empirical studies supporting situationism, a confederate of the researcher was standing outside an occupied phone booth. When the person making a call hung up the telephone and exited the phone booth, the confederate of the researcher (who did not know the caller) dropped a file of papers. Ninety-seven percent of those exiting the phone booth *did not* offer to help the stranger pick up the papers. Then the organizers of the study rigged the phone booth so that when the caller finished the call and hung up the phone, the phone seemed to malfunction and the caller's coin was returned. Under this latter condition, eighty-seven percent of those exiting the phone booth *did* offer to help pick up the papers. We see that when the caller's coin was not returned, almost no callers helped the stranger pick up the dropped papers, yet when the phone malfunctioned and caller's coin was returned, almost all callers helped the stranger pick up the dropped papers. Presumably, the only difference between the two situations was whether the caller's coin was returned.

This study is instructive in that it demonstrates that factors other than character, seemingly irrelevant situational factors, affect people's moral judgment/behavior. Presumably the same or similar factors may affect the moral judgment/behavior of future engineers. Situationists point to many other studies, including the well-known Milgram electric-shock study and the Zimbardo Prison study (as well as numerous less-known studies), to back up their claims concerning the role of situation in decision-making.

In addition to situational factors, other factors affect ethical judgment and behavior. For example organizational structure affects employees' judgment concerning whether to oppose or

call into question the behavior of their supervisors. And, as might be predicted, an agent's current emotions affect moral judgment.

Our ethics course focuses on moral psychology and the issue of why good people inadvertently or unintentionally act unethically. After learning about this last, students are provided with a set of tools they can use to decrease the likelihood that they will inadvertently (or unintentionally) act unethically in the future.

The course has been developed, that exposes students to a variety of empirical studies, like the telephone booth study discussed above, demonstrating that many different factors affect moral judgment. Some of the most important/relevant factors include: fatigue, mood, and environmental surroundings. Fatigue induced by concentrating or focusing on a project for a significant period of time without a break (e.g. plotting results from a materials study or writing a paper summarizing one's experimental results), good or elevated mood (induced by watching a funny video), and environment (such as a dirty office with a messy desk) all appear to influence ethical behavior.

The class makes use of video clips containing re-enactments of published empirical studies that demonstrate why people act unethically. The videos serve as the means to deliver clear moral psychology lessons based on previously published case studies involving real or hypothetical scenarios. For example, one of the videos is a combination lecture and story based on the Challenger space shuttle disaster. Another video, currently using the PI's as actors, shows how the "dirty desk" scenario can affect ethical behavior. Once the topic and script is finalized, trained student actors will be used in the videos for a polish product. The videos contained topics that are accessible to a wide level of audiences. However, the topics are geared towards advanced undergraduate and graduate student levels. The students are assessed by surveying

their understanding of the relationship of moral psychology to ethical behavior using terms that does not require even a passing knowledge of moral psychology. The students are assessed before the instruction and after the tutorial is completed.

After each video, each individual student is guided through a two-part exercise. The first part, developing a Personal Inventory Report, helps the student engage in self-reflection in order to determine what sorts of situations the student might find ethically challenging. In the second part of the exercise, the student develops a personal plan (Adaptive-Strategies Report) addressing what strategies they might use in order to increase the likelihood that they will act ethically in challenging situations (that is, the situations arrived at while developing the Personal Inventory Report).

In addition to teaching students about situational factors that affect ethical judgment, the course will teach students about other factors that affect ethical judgment, including an agent's personal psychological predispositions (e.g., Is the person a people pleaser?) and structural management factors (e.g., whether the company's management structure hierarchical or egalitarian).

Learning about factors that affect ethical judgment is not enough to help students (and professionals) avoid inadvertent/unintentional unethical behavior. In addition, students must learn how we make ethical judgments and how we might harness this knowledge in order to affect future ethical thinking. Hence, after teaching students about factors that affect ethical judgment, the course will introduce students to a two-level model of moral decision-making.

We embrace a two-level model of decision-making, which is consistent with (and may help to explain) empirical studies like the phone booth study.^{4, 5, 6, 7} At the first Level – Level 1 – people's decisions (including the ways in which they respond to questions) are intuitive,

habitual or unreflective. At the second Level – Level 2 – people’s decisions (including the ways in which they respond to questions) are analytic, creative, contemplative or reflective. (Although this model is committed to two Levels, these Levels may not be entirely distinct. Hence, it may be more accurate or clear to conceive of Level-1 and Level-2 as endpoints on a continuum. Most decisions are made at a point somewhere between the two endpoints.) When operating at Level-1, people are not consciously thinking about what they are doing, and their decisions may be driven by emotions. For example, when driving to work, one may be operating at Level-1 thinking. When driving a familiar route one may not think about when to turn or what to do when a traffic light changes color; it’s like being on automatic pilot. However, if the road is unexpectedly closed, one *may* shift to Level-2 (or move away from Level-1 and closer to Level-2). One can then be creative or analytic and think about an alternate route. Similarly, when talking in casual conversation, one usually does not think about carefully choosing one’s word; the words just flow in a way that reflects Level 1 thinking. If, however, a person is being interviewed by a prospective employer, the person is likely to be cautious, carefully choosing words appropriate to the situation in a way that reflects level-2 thinking (or one might say this person has moved closer to Level-2 and away from Level-1). Finally, as stated above, emotions often drive Level-1 behavior. We are not surprised to hear someone say: “I didn’t mean what I said. It slipped out when I was angry. I wasn’t thinking; I spoke before I thought.” Comments like these indicate that the speaker was operating at Level 1.

This two-level model of decision-making is applicable to ethics. Throughout the day, people are confronted, even bombarded, with situations that have an ethical component. Most of the time, people do not even recognize that this ethical component is present (unless they are reminded). At some point in the past, they figured out what to do in these situations. They act out

of habit and respond based on emotion and stay at Level-1 thinking much like when taking the same route to school or work every day. Similarly, most of us do not engage in Level-2 thinking when we go shopping for a toothbrush. If, however, someone points out that many toothbrushes are made in sweatshops employing children, we may move to Level-2 thinking and analyze whether buying the toothbrush is consistent with our basic ethical commitments. (In fact, one of the co-authors, Gelfand, experienced this last year when he learned about the labor conditions in plants where workers assemble Apple products.)

As stated above, we suggest that students will benefit from a set of tools, not so different from their technical engineering tools, which will help them learn to engage in Level -2 thinking when they face potential ethical challenges. And, importantly, these tools can be used before students confront ethical challenges. Students can engage in Level-2 thinking in order to be prepared for ethical challenges that they anticipate they may face in the future.

For example, as we explain in our course, people are prone to ethical errors when they deplete self-restraint resources (e.g., when people focus on a difficult task for several hours without a break, their ability to make correct ethical judgments is compromised). As we know, many students (and professionals) sometimes work late into the night in order to meet deadlines. If students recognize when they are entering or are in situations that deplete self-restraint resources – say working late in the laboratory, becoming hungry and sleep deprived – they can do what is necessary to rejuvenate themselves, or, failing that become cautious and move to level-2 thinking when making ethical choices in situations in which self-restraint resources are depleted.

More generally, we provide students with tools that they can use to help them engage in Level-2 thinking when doing so may be helpful. Logic/philosophy professors have been teaching

students this error-avoidance technique for years. Studies reveal that most people are good at making deductive inferences, and people regularly do so automatically – Level-1. If we tell a person, “If the train is late, John won’t make the lecture,” and then tell the person “The train was late,” the person will, without hesitation, reflection or analysis, invariably conclude: “John will not make the lecture.” But there are some situations in which people’s Level-1 thinking fails. For example, if someone states an *abstract* conditional – if X, then Y – people often conclude that this statement implies if not X, then not Y (Wason and Evans, 1975). Philosophy/logic professors know about this common fallacy, and they warn/inform their students accordingly. Students armed with this knowledge learn to slow down when they see a conditional statement; they move to Level-2 (or closer to Level-2) and are more likely, as a consequence, to avoid this fallacy.

Presumably the same effect will be realized when students (and professionals) realize that they are in an ethically challenging situation. That is, students will slow down or postpone making ethical decisions when they recognize that they are in ethically dangerous or risky situations (e.g., they have been grading papers or inputting data for several hours without taking a break).

We have developed a list of tools that we distribute to students who take our course. We want to reiterate that the primary objective associated with these tools is to help students recognize that they are in a situation in which they ought to move to Level-2 thinking.

Tool One: Be mindful of emotions. Studies reveal that ethical judgment is affected by one’s emotional state. We’ve all been told to try to avoid making important decisions when we are angry. We may over-react. But many of us do not realize that many emotional states, both positive and negative, affect ethical judgment and behavior. One study reveals that positive

mood induced by watching a funny video affected participants' judgments so that they tended to approve (or not disapprove) of behavior that they would normally consider wrong. And being in a sad or angry mood may have the opposite affect. Hence, we suggest that students (and professionals) be aware of their moods and the effect that mood has on moral judgment and behavior. And we suggest that students remember engage in Level-2 thinking when making (important) moral judgments. They should ask themselves whether their mood is affecting their judgments. Ideally, checking one's mood will become automatic before making judgments or taking actions that have ethical implications.

Tool Two: Take regular breaks. We provide students with several tools to help them when they are in situations in which their self-control resources are depleted. Empirical evidence demonstrates that the longer people focus on a difficult or demanding activity, say writing an essay, grading exams or plotting data, the more likely their ethical judgment will be affected. Specifically, as one's self-control resources become depleted, one becomes less likely to engage in Level-2 thinking and more likely to violate one's own ethical commitments or external ethical requirements. Taking breaks may be morally praiseworthy and that not doing so may be morally criticizable. After all, not taking a break may increase the likelihood that an otherwise morally competent agent will make a bad judgment. Hence, students should learn that if they are in an ethically challenging situation, say a superior has asked them to disregard some data that undermines their research results, they should ensure that they engage in Level-2 thinking in order to best analyze how to respond to the situation. And this last may involve taking a break from the activity in which they are engaged or putting off making some decisions if they are involved in work that requires significant focus.

Tool Three: Get adequate sleep and rest. Again, this seems obvious, but many students (and professionals) work long hours and believe that doing so is praiseworthy. Students and professionals should get the rest necessary to replenish self-restraint resources. In opposition to the stoic, self-denying ethos of some professions—think of the grueling schedules medical students training in hospitals have traditionally faced—we want students to learn that adequate sleep and rest can be important for engaging in Level-2 thinking. If students recognize that working long hours without a break may lead them to violate their own ethical commitments or the ethical requirements of their profession, they may recognize the importance of rest.

Tool Four: Get adequate nutrition and exercise. This tool is similar to Tools Two and Three in that nutrition and exercise are important for replenishing self-restraint resources. What students (and professionals) may not realize is the effects that lack of exercise and poor nutrition have on ethical judgment and behavior. Students should learn that eating and exercising regularly are particularly important if they are in an ethically challenging situation, say contemplating whistle blowing. When facing ethically challenging situations students and professionals should make every effort to continue to plenty of exercise and nutrition. Doing so may reduce mental fatigue and positively affect mood in ways that that support engaging in Level-2 thinking.

Tool Five: Develop meaningful relationships. Social support systems are composed of meaningful relationships with a variety of people and such support systems have a variety of benefits including providing outsider perspectives that support Level-2 thinking and good ethical analysis. Of course it is difficult to establish meaningful relationships in the midst of a crisis. Therefore, it is crucial to develop relationships with a variety of supportive friends and mentors before finding oneself in an ethically challenging situation. In our class we ask students to think about what they might do in an ethically challenging situation and then listen to what other

students think is appropriate in the situation. Students quickly learn that their colleagues have good ideas, ideas that didn't occur to them. They learn that the best ideas usually come out of discussion or are a combination of the ideas of several members of their class. Social support networks are composed of people who can provide important input into one's ethical deliberations.

In addition, we teach students that studies reveal that those involved in ethical situations often evaluate the situation in a way that is different from the way those who aren't involved evaluate it. Such outsider perspectives on ethical challenges can be crucial for ethical decision-making. For example, those involved in a situation are more likely to underestimate or ignore possible bad outcomes associated with different options available to them. Hence, it's important for those in the middle of an ethically challenging situation to talk it over with people not involved in the project. In our class, we suggest that students immediately begin developing a network of people who can help them in ethically challenging or difficult situations they will face in the future. This network may include other students, ethics professors/advisors, family members, friends, mentors and others.

The next set of tools focuses on personality tendencies. Personality traits are tendencies to act in a consistent way over time. Two personality traits—agreeableness, conscientiousness, and openness—from the Five Factor Model of Personality⁸—may influence ethical behavior. We discuss these traits briefly and outline strategies for compensating for them in ethically challenging situations. We teach students that, for example, some people are highly agreeable or conflict averse. Others may be less agreeable or less open to novel experiences. These different personality types may influence agents' ethical judgment.

Tool Six: Resist social pressure to act unethically. Social support network can help people follow through with behavior that is consistent with their beliefs by countering social pressure to act unethically. This tool is similar to Tool Five, but as we will see they are not the same. Tool Five helps students (and professionals) discover what is the good or right behavior in an ethically challenging situation. Tool Six assumes that the agent knows what is right or good, but may be inclined to bow to pressure and act in a way that she or he believes is incorrect. This pressure may flow from one's boss/supervisor, an organizational climate (we'll have more to say about this later) or budget/time constraints. If one is aware of being highly agreeable or conflict averse, it would behoove that person to develop (before a difficult situation presents itself) a social support network that can be relied upon when feeling pressured to do something that wrong or unethical or ethically questionable. As is the case with Tool Five, such a social network might be comprised of professional colleagues, friends, family, mentors or ethics advisors.

Tool Seven: Develop external supports; e.g., check lists or work review protocols. People differ in the degree to which they tend to be conscientious. Some people tend to be very conscientious while others tend to be less careful or cautious about their behavior. Tool Seven is especially relevant to those who are not highly conscientious or who are prone to making errors. By reflecting on one's tendencies in advance a student (or professional) may become aware of a tendency to forget to provide citations for other people's ideas. In this case, it might be helpful to create a list of references to consult during the writing process to avoid inadvertent plagiarism. Another strategy might be to ask a friend or colleague to check over one's work. This is another example of how doing some work at Level-2 before one finds oneself in an ethically challenging situation may prevent an ethical lapse in the future.

Tool Eight: Value feedback. It is important to remember to listen to feedback from others and to incorporate feedback into one's work product. Recall that Tool Six is especially relevant to those who tend to be highly agreeable. Highly agreeable people, while pleasant to work with, may also tend to be conflict averse or people-pleasers. Tool Eight is especially relevant to those who tend not to be open to constructive feedback. Such people may also not be open to outside perspectives or outside assistance. It can be especially hard for many people to accept feedback if it is not given in an adept or diplomatic way by a colleague or supervisor. If a student or professional is aware of being disinclined to seek assistance from others or listen to what others have to say, that person may be setting the stage for unforced errors. As we stated earlier in this essay, when several people consult with each other concerning challenging moral situations, they are more likely to arrive at a creative/good solution than if one person works alone. Armed with this knowledge, students (and professionals) who are disinclined to seek the help of others might want to do some work at Level-Two in order to determine what means might help them seek the input of others in situations that are potentially ethically dangerous.

The last two tools are focused on how to respond to organizational structures that pose ethical risks. We've known for a long time that some organizational structures (e.g. hierarchical) may be more conducive to ethical lapses than others (e.g. egalitarian).

Tool Nine: Seek out persons with integrity, both inside and outside one's job. Organizations with rigid hierarchies pose special ethical risks for those at the low end and middle of the hierarchy. One risk stems from pressure from the top to act unquestioningly in accordance with the wishes of authority figures. A second risk comes from the tendency of communication to flow from top to bottom, but not from bottom to top in rigid hierarchies. This means that in organizations with rigid hierarchies there is a tendency to ignore crucial information from the

bottom and sometimes this poses an additional ethical risk for members of the organization. Organizational climate—whether the organization tends to value over profit over ethics or whether high ethical standards are valued--also matters because organizational climate influences the actions of members of the organization.

Establishing relationships with persons of integrity, both within and outside one's organization can help one mitigate the risk posed by organizational structures that are not conducive to ethical judgment and action. Such individuals can be a source of ideas and emotional support to those facing ethical challenges in organizations with climates or structures that pose ethical risks. Level-2 analysis and reflection during the job-hunting process might lead one to avoid taking a job with an ethically risky organizations in the first place.

Tool Ten: Be Familiar with Formal Channels of Help. Many organizations provide resources and formal channels of help for employees such as ombudspersons, ethics/compliance officers, human resources staff, and employee training programs (e.g., proper hiring practices, procedures for dealing with personnel conflicts). Corporations frequently hire ethics officers to help their employees make ethically challenging judgments. However, it may be difficult to identify, understand, and properly utilize these resources in the midst of an ethical crisis. Therefore, we recommend that students and professionals become aware of available resources before becoming involved in an ethically challenging situation. Formal resources should be utilized when a student or professional first becomes aware that they are experiencing an ethical crisis. Taking advantage of training about correct procedures and ethical guidelines provided by organizations ahead of ethical challenges can do much to lower ethical risks and unethical behavior.

Initial data concerning the efficacy of this course are promising, and during the course of the next year, we hope to obtain data we can use to evaluate more fully the efficacy of an ethics course that teaches students about psychological factors that affect ethical judgment and exposes students to a cognitive model that explains how we make ethical judgments. If this course is efficacious, we suggest that philosophers and those responsible for teaching ethics in a variety of disciplines ought to change the way professional ethics is taught. We are not suggesting that we discontinue teaching ethical theory or utilizing case studies. Rather, we suggest that traditional professional ethics classes should be supplemented with material that helps students avoid inadvertent unethical behavior.

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References

- ¹ Doris, John, "Persons, Situations, and Virtue Ethics," *Nous*, Vol. 32, No. 4, (1998), pp. 504-30.
- ² Doris, John, "*Lack of Character: Personality and Moral Behavior*, New York: Cambridge University Press, 2002.
- ³ Harmon, Gilbert, "Moral Philosophy Meets Social Psychology: Virtue Ethics and the Fundamental Attribution Error," *Proceedings of the Aristotelian Society* (1999), pp. 315-31.
- ⁴ Harmon, Gilbert, "No Character or Personality," *Business Ethics Quarterly*, Vol. 13 (2003), pp. 87-94.
- ⁴ Haidt, Jonathan, "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment," *Psychological Review*, Vol. 108, No. 4, (October 2001), pp. 814-834.
- ⁵ Recker, Doren, "How to Confuse Organisms with Mousetraps: Machine Metaphors and Intelligent Design," *Zygon*, Vol. 45, No. 3 (September 2010), pp. 647-64.
- ⁶ Sloman, Steven A., "The Empirical Case for Two Systems of Reasoning," *Psychological Bulletin*, Vol. 119, No. 1 (January 1996), pp. 3-22.
- ⁷ Wason, P. C. & Evans, J.St.B.T., "Dual Processes in Reasoning?" *Cognition* Vol. 3, No. 2, (1975), pp. 141-54.

⁸ McCrae, Robert R., & Costa, Paul T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of personality and social psychology*, 52(1), 81-90. doi: 10.1037/0022-3514.52.1.81