

Folk psychology and criminal law: Why we need to replace folk psychology with behavioral science

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Much of what social scientists apply when addressing legal matters is based upon “folk psychology” as opposed to behavioral science. This article addresses how folk psychological notions arise and why they continue to exist, and then proposes an alternative view of criminal behavior with references to evidence-based stage theories—in particular, the Model of Hierarchical Complexity.

KEY WORDS: *Criminal responsibility, folk psychology, hierarchical complexity, stage theory.*

Criminal law, as it is currently practiced in the United States, is based on notions that are part of a folk psychology. These folk psychological notions are increasingly at odds with what the fields of behavioral sciences have discovered about behavior over the past 40 or 50 years.

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Many philosophers and cognitive scientists have argued that our everyday speculations about mental states constitute an informal theory of the causes of behavior, a so-called folk psychology. Folk psychology uses everyday terms such as “belief” and “desire,” “hunger,” “pain,” “will,” “intent,” “motive,” and so forth. Such accounts are based upon perceptions and explanations of behavior that humans, through experience, seem naturally to generate. As we will argue, some of the particular folk psychological beliefs upon which criminal law is based do not accurately reflect current psychological knowledge.

Although there are a number of practices within the criminal law system that are based on folk psychological theories, this article will focus on two: (a) the assumption within the law that people have free will and therefore when they make bad choices it makes sense to punish them; and (b) the assumption that people generally make rational choices. This article will first briefly discuss how folk psychologies arise, and why they continue to exist. It will then present evidence that the theories of free will and of rational choice are not supported by psychological research. Finally, it will propose an alternative view of criminal behavior. A major component of this alternative view is that crime may be much better explained by factors such as a low stage of development, high impulsivity, use of drugs, and poor attachment, suggesting that crime may be better addressed by intensive rehabilitation and supervision, not punishment.

Why do folk psychologies arise, and what do they consist of?

Research has shown that between the ages of three and four, in what Piaget (1954) calls the preoperational stage, children naturally develop a “belief-desire theory of mind” (Wellman, 1990). This theory (Gopnik & Wellman, 1992) is seen in the fact that children behave as if (and increasingly

talk as if) their beliefs and desires are what cause their behavior, as well as the behavior of others. It appears that the development of such theories of mind (or folk psychologies) are particularly encouraged in cultures where parents spend time discussing motives and intentions, as well as mental states, as they do in the United States (Sabbagh & Callahan, 1998). An important part of this theory of mind is a sense of free will. That is, one perceives the thoughts and feelings that occur before an action as the causes of that action. Even though this sense of free will persists into adulthood it is an illusion, as discussed below.

The tendency to attribute mental states to ourselves and to others is quite powerful, even in adults, as seen in a classic study done by Heider and Simmel (1944). The researchers showed a short film, which consisted of different simple shapes such as triangles or squares, moving about on the screen. When asked to report what they saw, the majority of the subjects attributed motives and intentions to the inanimate shapes. It seems highly likely that this tendency would be much stronger when people are observing animate subjects, including people. At the same time that people have a tendency to attribute psychological states to themselves and to others, related work has shown that they do not necessarily do so accurately.

In a review, Nisbett and Wilson (1977) reported that in a large number of studies conducted by many different investigators, people showed minimal capacity to provide an accurate report of their own cognitive processes. They instead may offer contrived or confabulated explanations of behavior. These two studies foreshadow the points to be made here: first, that it is people's natural tendency to try and explain the behavior of themselves and of others, and second, that the explanations that they come up with are not necessarily accurate.

Folk psychology as seen in adults is an explicit or implicit theory about the causes of behavior. One instantiation of

this theory is seen in everyday talk about mental states. We make statements that link sensory experiences to mental states; mental states to other mental states; and mental states to behavior. We might say that the smell of cookies baking made Jessie feel hungry. Because she was food deprived, Jessie wanted to eat a cookie. But she also felt bad about eating a cookie because Jessie thought she was overweight. Nevertheless, Jessie then went to the cookie jar and got a cookie because Jessie wanted a cookie. This example illustrates one key aspect of many of the folk psychological beliefs, which is that people freely plan their actions, and that their intention or wish to obtain something is in fact what leads to the action. This is the notion of free will.

Notions of free will and competency

Notions of free will were systematized very early on, for example, by Aristotle, and then incorporated into Christian theology and law by Thomas Aquinas (Keys, 2008). Aristotle held that virtue was the product of action and habit, and action was a result of free will (Sorabji, 2006). Pretty much all philosophers until the late twentieth century have agreed with this.

We all experience the sense of free will and so the idea that free will exists appears to be confirmed by our everyday experience. This sense seems to result from the fact that before we act we have the sense that we are about to act, and we usually even anticipate the action we are about to perform. Because of this, we think that these prior thoughts have caused our action. As we will discuss, this is an illusion, but one that is very hard to overcome.

Commons and Armstrong-Roche (1985) carried out an experiment on this topic. Participants were randomly presented with two kinds of stimuli. In the first condition, it was very easy for participants to tell which stimulus

duration was long and which was short. The participants were asked, "How much of a sense of free will did you have?" And they said, "Oh, a great deal." In fact, it was the stimulus conditions being easy that made it easy for them to make the right choice. The stimuli controlled their behavior. In the second condition, they were given two stimuli very close in duration, which was a hard choice. Following this condition, they reported having no experience of free will. In this latter case, their choice could, if such a thing existed, be under the control of a free will, since the stimuli were so difficult to tell apart that their choice was essentially random, and so relatively free from the stimulus conditions. Instead, they experienced themselves as helpless and as not being able to determine their actions. A related example may be seen when one asks people about when they are asleep and dreaming and there is nothing impinging on them that would determine their behavior, "How much of a sense do you have of free will controlling your dreams?" They say, "None" or "almost none." Whereas, if they are asked the same question when they are awake, they will answer that they experience a high degree of free will.

In both of these examples, the sense of free will seems to occur exactly when participants do identify the environmental events leading up to their own behavior. The report of the sensation of free will does not occur when they do not identify specific events related to their behavior. This is paradoxical, since in the situation in which there is less discriminable control, one should feel more free.

Neither the sense of free will nor the doctrine that flows from it can be disproved. Everyone, even the most empirical scientist, experiences the internal thoughts that precede their action and so could potentially have the sense that those thoughts cause their actions. The sense of free will is like an independent self—a "god" or homunculus within us. There is no way to collect evidence for or against such a homunculus. The only evidence that can be collected is in

terms of the actions themselves. Individuals' statements about why they engaged in those actions cannot provide empirical evidence that they are the causes in and of themselves. Their self-report cannot be detected by two independent paths but only by one path, the self-report itself (Commons, 2001).

Despite a pervasive illusion of free will, and the fact that this illusion has become an integral part of much Western philosophical, religious and legal thinking, it is not a view that is scientifically supported. Since the end of World War II, many different areas of behavioral science have shown the many ways in which behavior is controlled by factors such as past history, current environmental factors, and broader contextual factors. We will provide a number of examples.

Researchers in the field of learning, including Skinner (1971) have argued most strongly against the idea that free will exists. Skinner asserts that the fundamental mistake made by all those who choose weak methods of control is to assume that the balance of control is left to the individual, when in fact it is left to other unexamined factors. For an extensive review, see Wegner (2002).

In addition, there is considerable research on predicting psychopathology that shows that, if one knows enough about someone's background, one can often predict which people will end up in trouble. Garbarino (1999) for example, argues that we could predict with at least some degree of certainty for about 90% of boys who become violent. They would have a number of risk factors, such as a history of abuse and/or neglect, exposure to community violence, and a history of difficulties in social interactions. For the other 10% or so, it would be much more difficult to predict, although according to Garbarino, many of these individuals do have serious disorders at an early age.

There is a false-alarm rate with these predictions; that is, some of the time, one would predict that a child would become violent, and they would not. The history of this field suggests, however, that as researchers identify more of the risk factors, becoming violent or criminal seems less and less like a choice and more and more like a pattern of behavior that has been learned and reinforced in multiple contexts.

Despite increasing recognition that behavior is not a result of an individual's free will, the idea that people freely choose to act underlies much of what happens within the criminal justice system when people commit crimes. If people freely choose to carry out a crime, then they can be punished for their actions. The punishment, in this case, is meant to teach them that they do not in fact have a free choice in this matter, and in the future must think about their actions more carefully.

Early on, the Greeks understood the difference between appearance and reality, and we are suggesting that that is where we have to move for law. The appearance is that we are governed by free will, but the reality is we can predict behavior rather well, at least in certain situations. Although we cannot yet predict for many individuals on individual instances, we can predict in an overall statistical sense.

The competence of individuals to make decisions and judgments

Both folk psychology and the legal system seem to assume that most people not only have free will, but that due to being adults, they have the ability to make wholly rational choices. Within the law, it is recognized that only a few groups of people—for example juveniles, persons with mental retardation, or the legally insane—are, due to their assumed incapacities, unable to make a truly free choice or

one that is rational. These individuals, due to compromised “mental capacity” or “competence,” are usually judged in different ways. Modern behavioral science, however, shows that in addition to there being no free will, that people in general are not rational decision makers. It is especially important to note that the typical participant in such research is a relatively well-educated and well-adjusted college student. Two different strands of research are important in the new understanding of how individuals make decisions.

One of these is a response to the tradition of rational-choice theory, which originally came out of economics. The idea behind rational-choice theory was that people not only understood all the options that they had, but once presented with them, they would rationally make the choice that produced the best outcome for them. A great deal of research in recent years, as summarized by Schwartz (2000), has suggested that people’s choices are not rational.

There are a variety of reasons for this, only some of which are summarized by Schwartz. For example, sometimes the way information is presented influences people to make choices that are not rational (e.g., Kahneman & Tversky, 1984). People will often choose a lesser amount of reward presented sooner, than a larger amount presented later (Ainslie, 1991, 1992; Ainslie & Haslam, 1992; Ainslie, & Herrnstein, 1981). Presenting too many choices can also effect whether people make a rational choice or not. Finally, choices are also constrained by cultural and social factors; for example, one may choose a gender-stereotyped activity, even though that is not a good match for one’s interests and may lead to a less remunerative career. It almost seems as if the prevailing opinion in psychology at the present time is that people are rarely, if ever, rational decision makers.

In addition to the by now well-established research that people in general are rarely rational decision makers, we have written previously about limitations in competency of

many who commit criminal acts. These limitations in their competency, which greatly affect their tendency to make rational decisions, result from a number of factors. One major factor is a person's stage of development.

The Model of Hierarchical Complexity

It is a common, everyday observation that most adults are more competent than most children. The question is, why is this so? In order to give an up-to-date theory of the ways in which adults are more competent than children, this article must first give some brief history.

Piaget (Gruber & Voneche, 1977) had originally explained the difference between children and adults by saying that there were four stages of development: the Sensorimotor Stage (infants); the Preoperational Stage (children between ages two and five); the Concrete Stage (children between the ages of six and 11); and the Formal Stage (adolescents and beyond). Based on this theory, the brief answer as to why adults are more competent than children would be that, from the point of view of Piaget's theory, adults should be expected to reason using formal, logical operations. Children would either not use such reasoning at all (preoperations) or they would only use them in a very limited and concrete fashion (concrete operations).

There are several potential problems with this theory. One major problem is that development was seen in the growth of hypothetical mental structures that were assumed to govern all or most action of individuals. The implication of this is that an adult, for example, would be expected to show formal operational reasoning in all tasks. The Model of Hierarchical Complexity, or MHC (Commons et al., 2005; Commons & Pekker, 2008; Commons, Trudeau, Stein, Richards, & Krause, 1998), was originally proposed as a less mentalistic and more useful explanation of both differences between

children and adults and of the lack of consistency in performance across tasks. It proposes an explanation for the apparent stage differences in performance that can be seen.

The MHC starts with the idea that the environment in which we live is made up of a large number of tasks. Some of the tasks are cognitive (for example, tasks within mathematics, biology or other areas). Some of the tasks are interpersonal (for example, learning how to get other people to do what you want) or intrapersonal (understanding yourself better). Each of the different areas in which there are tasks to be acquired is called a domain. The MHC proposes that the tasks within each domain form a hierarchy, from less hierarchically complex to more hierarchically complex. The hierarchy is based on mathematical principles of how the information is organized (Coombs, Dawes, & Tversky, 1970), and on information science (Commons & Richards, 1984a, 1984b; Lindsay & Norman, 1977; Commons & Rodriguez, 1990, 1993). Specifically, hierarchical complexity refers to the mathematical complexity of the task presented to the participant, but not directly to the complexity of the participant's performance that will successfully complete the given task.

Every task contains a multitude of subtasks (Overton, 1990). When the subtasks are carried out by the participant in a required order, the task in question is successfully completed. Therefore, the model asserts that all tasks fit in some sequence of tasks, making it possible to precisely determine the hierarchical order of task complexity. Tasks vary in complexity in two ways: either horizontally (involving classical information); or vertically (involving hierarchical information).

Horizontal
(classical
information)
complexity

Classical information theory describes the number of yes-no questions it takes to do a task. For example, if one asked a person across the room whether a penny came up heads when they flipped it, their saying heads would transmit one

bit of horizontal information. If there were two pennies, one would have to ask at least two questions, one about each penny. Hence, each additional 1-bit question would add another bit. Let us say they had a four-faced top with the faces numbered 1, 2, 3, or 4. Instead of spinning it, they tossed it against a backboard as one does with dice in a game. Again, there would be two bits. One could ask them whether the face had an even number. If it did, one would then ask if it were a 2. Horizontal complexity, then, is the sum of bits required by just such tasks as this.

Vertical
(hierarchical)
complexity

Hierarchical complexity refers to the number of recursions that the coordinating actions must perform on a set of primary elements. Actions at a higher order of hierarchical complexity (a) are defined in terms of actions at the next lower order of hierarchical complexity; (b) organize and transform the lower-order actions; and (c) produce organizations of lower-order actions that are new and not arbitrary, and cannot be accomplished by those lower-order actions alone. Once these conditions have been met, we say the higher-order action coordinates the actions of the next lower order.

To illustrate how lower actions get organized into more hierarchically complex actions, let us turn to a simple example. Completing the entire operation $3 \times (4 + 1)$ constitutes a task requiring the distributive act. That act nonarbitrarily orders adding and multiplying to coordinate them. The distributive act is therefore one order more hierarchically complex than the acts of adding and multiplying alone and it indicates the singular proper sequence of the simpler actions. Although someone who simply adds can arrive at the same answer, people who can do both display a greater freedom of mental functioning. Therefore, the order of complexity of the task is determined through analyzing the demands of each task by breaking it down into its constituent parts.

The hierarchical complexity of a task refers to the number of concatenation operations it contains, that is, what is the number of recursions that the coordinating actions must perform? An order-three task has three concatenation operations. A task of order three operates on two or more tasks from order two and a task of order two operates on two or more tasks from order one (a simple task). The MHC specifies 15 orders of hierarchical complexity. The sequence is as follows: (0) computory, (1) sensory & motor, (2) circular sensory-motor, (3) sensory-motor, (4) nominal, (5) sentential, (6) preoperational, (7) primary, (8) concrete, (9) abstract, (10) formal, (11) systematic, (12) metasytematic, (13) paradigmatic, and (14) cross-paradigmatic.

When an individual solves a task at a particular order of complexity, we say that they have performed that task at that stage. The first four stages of MHC (0-3) correspond to Piaget's Sensorimotor Stage at which infants and very young children perform. Adolescents and adults can perform at any of the subsequent stages. MHC stages 4 through 6 correspond to Piaget's Preoperational Stage; 7 through 8 correspond to his Concrete Operational Stage; and 9 through 11 correspond to his Formal Operational Stage. The three highest stages in the MHC are not represented in Piaget's model. Because MHC stages are conceptualized in terms of the hierarchical complexity of tasks rather than in terms of mental representations (as were Piaget's stages), the highest stage represents successful performances on the most hierarchically complex tasks rather than intellectual maturity. Aspects of five stages most relevant to understanding criminal behavior in adolescents and adults will be described below.

The application of the MHC to explanations for criminal behavior

One major way in which we use the MHC to explain criminal behavior is by stating that in a number of related

domains, and for a variety of reasons, it is likely that the development of some individuals engaging in criminal behavior has become arrested. Two domains we might consider are the interpersonal domain, particularly the development of empathy and attachment (Commons & Wolfson, 2002; Commons & Miller, 2007), and the moral domain. A primary cause of arrested development, and the one that leads to the most serious outcomes, is exposure to traumatic events such as abuse, abandonment, or neglect. Problems in biology (increased or decreased sensitivity to others' emotions and preferences; brain damage that results in learning or processing disabilities) can also lead to a lack of development. In some cases, perhaps the less serious ones, individuals may not have been exposed to appropriate models, and so would not have learned the behaviors necessary to move up in stage.

The result of arrested development in these domains is that people who in other domains may understand how things work very well, are not as good at understanding what is going on in a given situation; that is, they fail to solve tasks that are as hierarchically complex in the domain of empathy, for example, or moral reasoning. Both folk psychology and the law assume that people develop evenly in all domains. They assume that if someone is an adult and shows some measure of competence in one area—for example, they are able to hold a job—that they will be equally competent in all areas. An essential feature of the MHC is that people's development within each task domain proceeds separately, so it is perfectly possible and even likely to have a person who solves tasks at more of an adult stage in some areas, but more like a child in other areas. These ideas can be most easily illustrated with some specific examples. In these examples, we will show how, when development in a task is arrested at a particular (lower) order of complexity, this might be related to criminal behavior.

Preoperational
Stage
behavior

Individuals who solve tasks such as empathy or moral reasoning at the preoperational order do not think about the implications of what they are doing, and how it might affect others. They do not differentiate between their fantasies and reality, and tend to provide magical explanations for occurrences. They have little reality-based understanding of the causality of behavior, especially interpersonal behavior. They have a propensity to see all behavior in terms of their own understanding and fantasies of the world, and second of all, to report that various occurrences contain messages specifically directed toward them and their behavior. It should be stressed that such a low stage of behavior in this domain is thought to reflect an extreme degree of abnormality in the adult individual. This would most likely be due to traumatic experiences during infancy or early childhood (e.g. Noam, Chandler, & LaLonde, 1995). Such experiences have generally been extensive and/or long-standing, not just single experiences. Due to the effects of these kinds of experiences on development in domains such as attachment, empathy and moral reasoning, behavior in these domains remains at a very low developmental stage. This kind of behavior would most likely be seen in criminals who have committed seemingly senseless crimes, with a great deal of brutality toward victims.

Primary
Stage
behavior

People at the Primary Stage might have an initial understanding of another person's perspective but not integrate it with their own. This makes it impossible to make deals that both parties feel are fair for an extended period of time. They would have a beginning understanding of reality so as not to be stuck in their own fantasies. They think about one perspective on that reality at a time. For example, they would see a relationship only in terms of their own needs or alternatively, in terms of the needs of the other. They may reject the needs of the other, or reject their own needs. Here, we would speculate that the trauma or negative interpersonal experience would also have arrested

development at this stage in the domains of attachment, empathy and moral reasoning. But such trauma may have happened somewhat later, maybe sometime after age two, but before age nine or ten. The effects of such traumatic or negative interpersonal events will have limited the kinds and extent of interactions that the individual has had with primary attachment figures. By limiting the possible learning experiences, therefore, learning about the other's perspective, and the resultant development, will not occur as readily. This stage of relating would not, again, be seen in what we would call normal adults. But the form of psychopathology would be less serious than those who relate at the preoperational stage. A psychopath would be likely to function at the primary stage in terms of empathy or morality, and would be likely to focus only on his/her own needs.

**Concrete
Stage
behavior**

Because the individuals integrate the perspective of another with their own, this allows for somewhat fair deals to be made and relationships formed. Many incarcerated persons perform at the concrete operational stage in domains such as empathy and morality. They know the deal, and how to make deals. They do not, however, know the social norms that operate beyond the realm of deals between two individuals. That is, their social behavior is based on deals with individuals but they do not think more generally of what others, even in their own social group, might think.

For example, a person who has sex with underage girls might be concrete in thinking about these occurrences because the girl might agree to the sexual encounter. But they are breaking the social norm against sex with underage people. This type of conception can also be seen in at least some people with narcissistic and antisocial personality disorders, especially on tasks with which they have problems. People with antisocial personalities fail to conform to social norms (a next-stage behavior), and they can be deceitful (Thorpe & Olson, 1997). Such deceit is

often caught by the social group. People with narcissistic personalities feel as if they are entitled to things to a much greater extent than others seem to feel. This shows the extent to which they are out of touch with social norms.

Normal people derive their sense of what behavior is reasonable and their sense of their own social standing from social norms at the abstract stage which is one stage further along. The people with antisocial personalities do not generate and hold onto these norms on their own; they generally need authority figures to enforce the norms.

Abstract
Stage
behavior

At the Abstract Stage, people know the social norms but some may be in the negative step of the transition from abstract to formal—the anti-norms. During transition (Commons & Richards, 2002) the first step of leaving the earlier stage adaptation is to negate the actions of that stage. People who are performing at this step of the transition may go against the social norms. Of course, this is to be expected in at least some adolescents. It is when this kind of thinking persists beyond adolescence that there can be a problem. For example, individuals who are in the negative step of the transition can do tremendous harm to others who belong to a perceived “out group.” Such out groups may include rival gangs. This is also seen in many national conflicts, in which the enemy is discounted and easily killed. The out-group individuals get pejorative names and this is seen as justifying being able to treat them badly. This is seen massively in cases of racial, religious, and national origin discrimination. Erikson (as summarized by Hoare, 2002) also argued that prejudice against others resulted from the tendency of humans to identify with groups.

The reasons for not progressing beyond the Abstract Stage are different from those for not progressing beyond the lower stages. For one thing, data suggest that a relatively large group of adults are reasoning at the Abstract Stage in at least some domains (e.g., Armon & Dawson, 1997).

Therefore, for the most part, we are not talking about individuals who have become stuck in their development due to traumatic events so much as we are talking about adults who have not progressed beyond a certain point in their development, particularly in interpersonal and moral domains. For a good number of adult individuals, having abstract-stage relationships would be expected at least normatively. They might have experiences with a primary attachment figure who reasons about attachment relationships at the abstract stage. They might have had experiences only with a relatively small, limited social group, something that also might limit their development in this regard.

Formal Stage behavior

At the Formal Stage, the limitation of understanding causality may lead each member in a relationship to blame the other for the problems in the relationship (Koplowitz, 1984). What is different from the Abstract Stage view, is that evidence and logic are brought to bear. During the transition to systematic, therefore, when failures in the relationship are discussed, the statements of blame do not consist of unsupported accusations, instead they are supported with evidence and with logic. The problem is that, with simple, one-variable causal models, the blame is perceived as belonging only to one party in the relationship. Individuals also formalize their roles as victim and perpetrator, following rules for what actions fit those roles.

Because the Formal Stage is also the stage in which social norms are captured in bureaucracies of formalized rules, people acting as part of a bureaucracy may be able to justify acting to destroy certain groups of people. Such formal operational bureaucrats could include people who work in the genocide machines of various states. They may put into place policies that result in the killing of a great number of people, not because they are angry, but because they are just fulfilling a societal role, as Kohlberg (1984) argued was shown by Milgram (1973). Such behavior may not be

associated with disordered attachment, empathy, or morality at the individual level.

Implications of this view for dealing with criminal behavior

At which of the above stages would criminals know right from wrong? At which stage could they be judged competent, versus incompetent? The law itself has no standard mental age for determining that someone is Not Guilty by Reason of Insanity. Our estimate is that they use a standard of the 5 year old. Around that age, children perform at the Preoperational Stage 6. When asked, children can say that some action is right or that it is wrong. Hence, we would assess the moral-stage development of the accused person as being at the Preoperational Stage at the time.

Going beyond just assessing this very basic level of knowing right and wrong, with the MHC we have the tools to determine how well people can understand what it means to be right or wrong, how far they have developed in the domain of empathy, attachment, social perspective taking, their moral development. Even if social-perspective-taking skills were reasonable, we might find, for example, that individuals solve moral-reasoning-type tasks (right from wrong) at a relatively high stage, but still show deficits in development in the domains of empathy or attachment. Another individual may be reasoning in these domains at the abstract stage and justify criminal actions because of an understanding that they apply to people in an out-group not his in-group.

The kinds of interventions that would be used for individuals with these different profiles would be very different. Because, thus far, the legal system uses very out-of-date notions of human behavior, and very limited notions of competency, we are very far from effective intervention

with people who have committed criminal acts. Essentially, the legal system uses a “one size fits all” model. If one applied a developmental model to the notion of competence to stand trial, the interventions would differ depending upon the developmental assessment of each individual. Being below Abstract Stage 9 in the social area means the person is incompetent to deal with social norms. So if society does not approve of a behavior, the person might not understand that. Criminals are often surprised that behaviors that are based on an agreement between two people could be illegal.

Traits associated with offending

In addition to a child-stage understanding of social relations, and of right and wrong, behavioral scientists have found offenders have a number of additional traits and behaviors that increase their likelihood of offending. Most of these are now thought to have a biological basis that interacts with poor child rearing, including abuse and abandonment. Two examples are reviewed next.

Substance abuse

Most psychotropic drugs either change the reinforcing value of events, as with uppers like methamphetamine, and cocaine or opiates like heroin, or increase impulsivity and decrease judgment, such as the hallucinogens like marijuana, peyote, LSD. Alcohol is also a strong psychotropic. Substance abuse is common as a comorbid condition in the mentally ill. It is also found in almost all those who commit illegal and destructive acts (whether they are caught and adjudicated or not).

Attention- deficit/ hyperactivity disorder (ADHD)

There are three aspects of ADHD that are associated with offending. First, people with ADHD are impulsive. They interrupt others, have trouble waiting for their turn (Preoperational Stage 6), and most importantly have trouble delaying reinforcement, which is again a Primary Stage 7 or Concrete Stage 8 characteristic. Second, they are more

likely to take a small immediate reward over a delayed, much larger reward. They tend to act without prior reflection of the consequences. Third, they also often have poor social-perspective-taking skills, which is associated with their low-stage social behavior.

Conclusion

There are a number of factors that are related to criminal behavior. These include arrested development in areas critical for behaving in a prosocial fashion, such as empathy and attachment, interpersonal perspective taking and moral development. Also important are substance abuse and partly biologically based conditions such as ADHD. This suggests that individuals' behavior, whether behaving in a criminal fashion or not, is largely determined, and not due to their "free will."

If individuals do not have free will, then punishing individuals because of their bad will does not make sense. But that does not mean that society should not do something about their behavior. If, in addition, it is understood that in many cases people offend because they have significant deficits in a number of areas of their development, again, punishment might not be the best course of action by the society. Instead, when an individual commits a crime, the legal system and the society need to come to an understanding of the specific deficits of this offender and what kinds of interventions would be most likely to result in a more productive member of society and protection of society.

What would benefit the society, including the victims of crimes, and the individual offender, given that the person did commit the crime? Ideally, solutions would come more from the systems perspective, with all the stakeholders involved in making a consensual decision. This assumes that a number of things would have to change.

First, it is important to change society's views about free will as the causes of bad behavior, and what works in bringing about change in people's behavior. Although we have concentrated on the general belief in free will, another topic would be to examine the failure of punishment to bring about change. The majority of individuals in this country and many others believe that punishment is an effective way to control behavior. This belief in the need for punishment is simply another folk psychological belief for which there is little empirical evidence. Behavioral scientists have a long way to go in order to convince people that this is not so.

Second, the legal system itself would have to move from being an adversarial system to being more of a mediation-based system. Mediation is used increasingly, for example in cases of divorce, or cases involving the rights of minor children or incapacitated individuals, such as persons with mental retardation. Mediation would have to move to being a much more central part of the legal system.

Finally, the nature of rehabilitation would have to change. Currently there is little to no rehabilitation. Rehabilitation would need to include: education, therapy, and drug treatment, as well as ways of protecting the public, like home incarceration and supervision of individuals who are undergoing rehabilitation. When we discuss education and therapy, we are not referring to the kinds of systems currently in place. It is clear that individuals who have been grievously injured due to the interactions between their biological systems and their early experiences will need extensive and intensive education and therapy combined. Such intervention would be designed to rehabilitate the individual in the specific areas in which they have been shown to have deficits. It would need to be tailored to the unique needs of each individual.

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