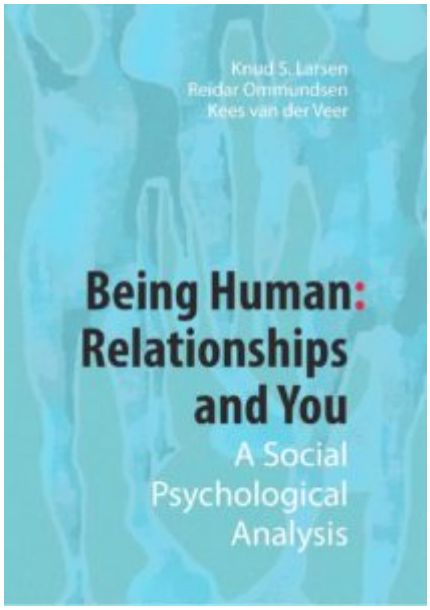
Being Human. Chapter 4: Social Cognition: How We Think About The Social World



Every day we are confronted with situations requiring judgment and decisions. At times, in emergencies, rapid decisions are required allowing little time for reflection. In other situations, the outcome matters greatly and motivates us to carefully evaluate the judgment and consequences of our decision. Social cognition is a fundamental area of social psychology, and refers to how people utilize information in making decisions. Specifically, we will attend to how we select the information, how we interpret the information, and how we organize it to respond to the decision making demand.

In situations involving police or other emergency teams there is little time to evaluate. The police may have fractions of seconds to decide if a suspect is holding a gun or some harmless object and to subsequently decide either to fire to kill, or to pursue another line of action. How does a police officer make such decisions? There are those who would argue that in the case of suspects the police use race to determine whether a suspect is dangerous or not (Singer, 2002). For example, in Cincinnati, USA the police killed 16 black suspects in six years, while no whites were killed in similar circumstances. It seems reasonable to assume that prejudice played a role in these life or death situations in the United States. In other words, faulty decision-making is often a result of rapid response requirements based on often false social stereotypes. We have more to say about stereotypes or cognitive schemas later in this chapter.

On the more positive side, automatic thinking can also save lives. One of the authors recently had an accident, which caused 5 broken ribs, a punctured lung, and the loss of his spleen. He can recall every detail of what happened during the accident, and the efforts made to save his life. The emergency crew went on automatic thinking as soon as they saw his injuries, belting his body in several

places, providing oxygen, and after questions about any allergies they started pain medication. In the emergency room there were similar very crisp questions as the surgeon ruled out other problems and directed attention to the needed surgery. This surgeon had a well-established memory of similar injuries and proceeded rapidly to address the injuries, and stabilized patient's vital signs. As time was of the essence, these professionals were on automatic pilot, as they took steps to administer needed medical services. Automatic decision is rapid and carried to conclusion without a great deal of extended thought and reflection. In this type of social cognition people act as if without thinking, responding to internalized memory and experiences (Bargh & Ferguson, 2000; Sloman, 1996).

There are other occasions when the situation demands a longer and more deliberate evaluation process. How to choose a life partner, what occupation to adopt, what philosophy or ideology to believe in, are best decided on thorough and very careful evaluation. By thinking through all the issues, evaluating potential consequences of our decisions, we can make better decisions, resulting in more contentment over the long run. Although automatic thinking seems to dominate so much of social behavior, we do have the capacity to override the process, and analyze the situation slowly and deliberately.

However, neither type of thinking is error free as important information is often missing. Even powerful nations like the US make basic errors despite heavy investments in intelligence. We can observe that it is not information alone that determines inferences, but also ideology. Ideology allows the individual or group to incorporate and accept information. What comes to mind is the obvious fiasco of going to war in Iraq based on the assumption that Iraq possessed weapons of mass destruction. The intelligence services provided accurate information, that there were no weapons of mass destruction program in Iraq. However, since the decision to go to war had already been made, this inconvenient information was not incorporated in the decision-making. At other times, of course, the information we have is not only inconvenient, but also incomplete, ambiguous or contradictory. How we make decisions given the incompleteness of information is the basic question addressed in social cognition.

1. The process of making inferences from our own experiences

If our inference processes were in fact unbiased, we could all arrive at judgments that reflect reality. Unfortunately, drawing inferences is not such an even handed process, but rather one that is often dominated by errors and biases where we

depart from logic and accuracy. To arrive at any inference is a process containing several interrelated cognitions. First, to make any judgment we must gather information. If you are trying to decide whether to work for a certain company you may want to know something about the company's outlook on their workers, on pay and benefits, on vacation allowances, and in the long term, retirement plans. Some of this information will be more important than other knowledge about the company. For example, if you really need a job now, and you are young, retirement may seem a topic of little interest or concern. Part of drawing an inference therefore is to decide what information is useful, and then try to integrate that information into some judgment or decision.

1.1 Some sources of bias

Actual information gathering is, however, subject to several sources of bias that may affect your judgment. All of us have incorporated expectations into our knowledge base. You have learned from friends or others you trust that this company is very good to its workers. Yet, during your job interview you get the impression that the company has little concern for the well being of its employees, but you refrain from checking the truth of your impression. Prior expectations may cause us to draw wrong inferences (Nisbett & Ross, 1980). We tend to gather and attend to information that is consistent with our expectations. We are less likely to gather information that is inconsistent with what we expect, and because of that bias are therefore more likely to draw inaccurate inferences. Since a person is less likely to gather inconsistent information, prior expectations will bias the information gathering. Prior expectations may cause the individual to completely ignore any contradictory information, or at least to be skeptical of the accuracy of inconsistent information. People favor information that supports what they expect and what they want to believe (Ditto, Scepansky, Munro, Apanovitch, & Lockhardt, 1998).

Often our inferences are based on samples that are small or not representative. It is of course not possible to talk to everyone in the company where you seek employment, but if you talk to only a couple of people it is not likely that useful information will be obtained. In many cases that does not prevent people from making inferences anyway. We utilize what we know, even if that knowledge may be misleading. (Nisbett & Kunda, 1985). Today we live in a world in which statistics can describe just about any aspect of human life. The young person looking for employment can probably look up the company on the Internet and

learn much that is useful. For example how profitable is the company, how stable is the management, are jobs secure or not. Here again we can observe a bias that seems characteristic of humans. Although statistics tend to be objectively based on averages or totals (and therefore more accurate), this information is frequently discarded in favor of anecdotal stories that emphasize information about specific persons or happenings. For example, the statistics about the company may show that they pay very low average salaries, but you have learned that an individual hired by the company managed to get himself promoted to a high position in just three years. Which source will be more powerful in your inferences about the company? Research suggests that the anecdotal information has more influence on judgments (Beckett & Park, 1995).

Another source of bias is the differential weighing given to negative information. More significance is placed on negative as compared to positive information, and it weighs more heavily when decisions are made (Taylor, 1991;Pratto & John, 1991). Illusionary correlations may also produce a bias in inferences. If our prior expectations suggest that two variables should go together they are often seen as correlating, whether that is factual or not. We have stereotypes about minority groups and violence for example. While there may be a little truth to some social stereotypes they never help us understand individual behavior. A minority individual may or may not fit the stereotype, hence illusionary correlations produce inaccurate inferences.

How decisions are framed may also influence judgments. Here the research points to the most basic factor in social cognition; i.e., are the decisions framed in terms of potential losses or gains? People become very cautious if alternatives are framed in terms of potential losses, but far more likely to take risks if framed in terms of potential gains (Kahnema & Tversky, 1982). If you are in charge of hiring our imaginary prospective employee you would emphasize the stability of the company, and a career that can only produce gains, not the fact that a third of the employees leaves the company each year. (Rothman & Salovey, 1997). In other words emphasizing the positive will make it more likely that the employee will take a risk on the company and accept employment.

1.2 Mood and emotion

Many of the errors we make derive from our commitment to evaluative beliefs. If we have a commitment to a particular idea, ideology or religion, then that emotional commitment may override factual information that is contrary to these

evaluative beliefs. Emotion overrides rational decision making many times, particularly if the evaluative beliefs are of great significance and serve as a source of psychological balance. Of course emotions have also a very important role to play in accurate decision-making. Emotions may produce warning signals when a risky decision contains potential disaster. More and more researchers are coming to the conclusion that emotion and cognition go hand in hand, and provide complementary information (Gray, 2004).

Moods are more temporary, but can still have great influence on the decisions. When we are in a good mood we tend to get along better with others, and our inferences are affected. Even though moods may not last long, we can still make decisions in these temporary conditions, which have long lasting effects (Forgas & Ciarrochi, 2002). When people are depressed they tend to be accurate in making pessimistic predictions about the future, but less accurate in anticipating positive events (Shrauger, Mariano, & Walter, 1998). A mood of sadness may impair accuracy since it slows and promotes a more deliberate information processing when the situation requires a more immediate response (Ambady & Gray, 2002).

2. Biases in information presented firsthand and secondhand

We receive information from different sources, which provide bases for social judgment. Some of our information comes directly from our own interaction in society and our own experiences. Our culture, educational system, prevalent ideologies provide filters for direct experience. The discussion so far has already shown that there is unfortunately no one-to-one relationship between our experiences and accuracy in social cognition. What distortion occurs in memory that derives from our own firsthand experiences, and what distortions derive from others in society?

*2.1 Believing everyone else is better informe*d

Most students will have attended a class in which the professor asked, after a particular difficult lecture, if anyone had any questions. Probably some students had questions, but since no one raised his hand they falsely assumed that they were deficient in knowledge since all the other students had understood the material. Afraid to show their ignorance the individual student along with everyone else therefore, did not ask any questions. This scenario is called “pluralistic ignorance” (Miller & McFarland, 1991).

It seems clear that underlying this distortion of information is the fear of rejection by teacher or classmates or not fitting into prevalent classroom social norms. Other researchers (Klofas & Toch, 1982) found similar results for prison guards who typically operate in a macho tough culture and therefore falsely assume that the other guards have no sympathy for the prisoners. Another study demonstrated pluralistic ignorance in drinking behavior (Prentice & Miller, 1993). One university had a culture of abusing alcohol, and the students generally assumed that this met with universal approval, when in fact their private opinions often clashed with this norm.

2.2 Biases in memory

Memory is not just a register of past events. In fact memory is an active process of cognition, which often changes what is remembered in significant ways. Again our wishes and desires predominate so what is remembered is what we want to remember more than what actually happened. For one, we never remember everything about an event so memory is an underestimate of what happened. More significantly, however, we sometimes remember things that never happened (Conway & Ross, 1984). These phenomena seriously distort judgment based on memory. In recent years there has been a great upheaval in psychology over the phenomena known as “false memories”. Typically these memories are about traumatic events, which happened early in life, are then forgotten, and later retrieved under therapy. In one very famous case a young woman, Eileen Franklin, accused her father of sexually abusing and murdering her best friend. Her father was sentenced to prison and served 6 years before it was established beyond any doubt that Eileen’s “recovered” memory was false. Still it remained her firm belief that her father was guilty. Many other cases of falsely accusing someone of sexual abuse are now part of the legal case history in the United States, and show convincingly the fallibility of human memory (Loftus, 1993).

Some memories are of events that occurred under dramatic circumstances. For example many people remember where they were exactly when significant events occurred in national or world history. Often even these apparently vivid memories show significant discrepancies from earlier memories of the actual event (Neisser & Harsch, 1992).

We all have ideas of how things should be, beliefs consistent with our beliefs and ethics. Research has shown that ideas about how things should be often change memories of how things were (Ross, 1989). In the US we have seen dramatic

shifts in racial attitudes over the past decades. For example, the educational system used busing of students from minority neighborhoods to more integrated schools as a means of overcoming the negative effects of racism. In the early years, there was a great deal of resistance to busing among white students. However, over time their opinions changed and when they were asked to recall their earlier attitudes results showed considerable distortions in their memory in favor of the new modified opinions (Goethals & Reckman, 1973).

2.3 Information we obtain from other

On most of the large-scale issues of life we have little first-hand information, but rather must rely on others for our opinions. This information too is filtered through our belief systems, and through those who are the sources of information. How accurate is this information? Obviously we can never get a complete picture since describing an event in detail takes too much time. Therefore shortcuts are employed in order to convey that which in the eyes of the communicator is most important. This process of conveying information of the more important or relevant elements is called sharpening. At the same time irrelevant or less interesting information is left out, a process referred to as leveling.

Most of us have never met the president, the queen or the king of our country, or other famous or notorious people. Yet, that does not prevent us from having opinions about these public personalities. We develop our opinions from the views of those we respect, members of our family, television, and other news media. Again, we engage in a process of sharpening and leveling of information in the interest of a consistent image of the other person. Research shows, however, that such second hand derived opinions tend to the extreme. We are stronger in our dislike, and more flattering in our positive evaluations, than supported by our information. For example the opinion polls on president Bush show that currently he is the most unpopular president in the history of the US. Not so long ago (in historical terms) he was very popular. However, ratings not based on personal experience like opinion polls tend toward more extreme views. This tendency toward extreme views based on second hand information has been found in a number of studies (Gilovich, 1987; Inman, Reichl, & Baron, 1993).

2.4 Slanted views provided by the media

One of the major reasons for distortions is the role played by the media. To a large extent television in the western world is primarily mindless entertainment. Therefore the more exaggerated the story the more likely it will be included in the

evening news. The news focuses especially on the negative and on catastrophic events. These happenings should of course be included in the overall picture of the world, but other news such as heroic efforts to help others or stories depicting goodwill are often excluded in favor of these distortions. In short the need to entertain a population, which is thought to have a very short attention span, supports the emphasis on dramatic and scary events, which reflects only a small portion of behavior or events in a country.

This has an effect on how people view the world. When you are bombarded every day with bad news, wars, murders, rapes, is it any wonder that many people become scared and believe that the world is a very dangerous place? The bias toward bad news in fact creates a world that is not realistic. For example, research shows that in television 80 percent of all crime is violent, whereas in the real world only 20 percent can be categorized as such (Windhauser, Seiter, & Winfree, 1991). Going to the movies presents an even more distorted view of the world as the emphasis is again on the violent, dramatic, and negative (Gerbner, Gross, Morgan, & Signorielli, 1980).

One consequence is that many people believe the world is more dangerous than it really is. A distorted picture of crime produces in people a heightened fear of victimization and insecurity. Although the murder rate dropped a little in the United States in the period from 1990-1998, television shows focusing on homicide increased during the same period by 473 percent (Center for Media and Public Affairs, 2000). Some studies show a relationship between the number of hours a person watches distorted television, and the fear of victimization (Doob & McDonald, 1979), especially by those who live in neighborhoods where crime is present.

2.5 Distortions based on ideology

There are those in society who have a vested interest in providing a slanted story. The objective is not so much in telling the truth as it is about persuading a target population of the justice of a cause. Social ideologies often lead the media and educational system to accentuate certain features of a story while excluding other important aspects. By suppressing inconvenient information an attempt is made to support certain beliefs about reality in the world. All societies in the world have such ideologies operating. Although many would proclaim the presence of press freedom in the Western world, there is much information that never sees the light of day. For example, few people in the US have any information about Cuba,

except the very predictable condemnations one hears from time to time from the government. There is no information on Cuba's achievements such as eradicating illiteracy, providing medical care, and other systems of social security. These ideological distortions are not carried out innocently, but are the consequences of deliberate policy and the news media conform to these expectations.

A fundamental question is why do people consume so much negative information? Why is there a preference (which we can observe by the popularity of television programming) for the catastrophic and negative news and shows? Does it make the individual feel better when he sees violence, but can say, "thank god it is not me"? Of course negative information may have some survival value. If we are presented with real dangers we are more likely to survive if we attend to these aspects of our environment. Perhaps such survival needs makes people more vigilant to potential threats (Rozin & Royzman, 2001).

Is information equally useful regardless of how or when we obtain the intelligence? Research by social psychologists shows that it matters greatly in what order the information is received. Also, even slight variation in the actual wording can have a great impact on people's responses. The cold war produced mindless conformity in Western countries during which one's own side was considered the repository of all that was good and praiseworthy, and the other side was just evil. Should it surprise us therefore that US respondents had very different views on whether reporters from socialist countries should be admitted to the US to report on the news, or whether US reporters should be admitted to socialist countries to do the same. In fact only 36 percent of US respondents thought that reporters from socialist countries should be admitted to the US, whereas 66 percent thought the socialist countries should admit western reporters. Later, very different results were obtained by merely changing the order of the questions. If the respondents were asked if US reporters should be given free access in socialist countries 90 percent said yes. Since that question was asked first it put some pressure on the respondents to be consistent and 73 percent agreed that reporters from socialist countries should have similar privileges. Still a lower number, but higher than the 36 percent who responded favorably when asked first for press freedom for socialist reporters in the US (Hyman & Sheatsley, 1950). This, and other studies (Haberstroh, Oyserman, Schwarz, Kuhnen, & Li, 2002) show that the order in which information or questions are presented can have a powerful effect on the respondent's judgment.

Some research has shown a primacy effect; i.e., the information that is presented first is most influential. Other studies have demonstrated a recency effect; i.e., the information presented last is most powerful. The studies do not permit any overall conclusion other than it matters what order information and questions are presented. For an overview of which (primacy or recency) is most effective see Fiske & Taylor (1991).

Consequently, it is important to keep this in mind if one is developing a survey. Even if all precautions are taken by, for example, guaranteeing anonymity, the results can still vary widely. Those who have a vested interest in manipulating public opinion know that if the contents of the question are varied slightly, there will be a different result. Opponents in a political debate know how to spin the questions in order to obtain a desired result. One man's terrorist is another man's freedom fighter.

Some descriptions are key to an overall stereotype. In another classical investigation Asch (1946) showed that just including the words warm or cold in a person description containing many other trait words as well would completely alter the perception of the person described. Obviously we must be very careful in framing questions, knowing that the order asked, and even slight variations in the content can influence the outcome in significant ways.

2.6 Does motivation effect inferences?

We have seen that people often produce information that is largely self-serving, and develop inferences where the relationship of beliefs is coincidental to the truth. We want to believe in what we think will produce personal happiness, and we will take whatever steps necessary to keep incongruent information out. For example even though divorce rates are approaching 50 percent, most of those who marry do not believe these statistics are applicable to their relationship. In general we persist in believing that only good things will happen, and that bad situations can be avoided (Kunda, 1987).

We might think that if we were highly motivated we would make more careful decisions (Pelham & Neter, 1995). In general the results show that motivation is only of benefit if the decision is easy. If the judgment required is difficult, accuracy in decision-making decreases.

Studies have shown the ability to suppress feelings in various circumstances. You

want to forget about a painful relationship, or some traumatic circumstance. As soon as the mind becomes aware of the unpleasant thoughts it can reduce the impact on consciousness by thinking of something else more pleasant (Foster & Liberman, 2001). Some studies also show that suppressing thoughts has a cost attached. Thought suppression requires a very hard effort that not only involves cognition, but indeed physiology as well. Some studies have shown a negative effect on the immune system through chronic thought suppression (Harris, 2001).

In general social inference is at best an imperfect process where we often make errors in favor of what we desire and want, rather than incorporating some standard of objective reality. Still, without the stereotypes and schemas that moderate social cognition, the complexity of information processing would overcome the average person. It is necessary that we remain aware of the cognitive pitfalls.

3. Automatic thinking and our use of schemas

As we have already noted not all social cognition involves careful evaluation. Often we react rather automatically to social stimulus as if we have ready-made responses stored in our memory. Automatic thinking is largely unconscious, and occurs without intentional effort (Bargh & Ferguson, 2000). The ready-made responses are called schemas; referring to mental structures we possess which function to organize our knowledge about social stimuli. These mental structures influence what information we attend to, what we think about, and what we store in long-term memory (Taylor & Crocker, 1981). Schema is a generic term for knowledge structures (e.g. assumptions or preconceptions) that define other people, what we are ourselves, and our social roles in society. What is a student like, what are the characteristics of a teacher or professor? Do students desire knowledge, and are professors those who like to help?

In each case a schema includes all our knowledge about the social category, as well as situations that are common. What is your schema for attending a football match in The Netherlands? Does it include noisy behavior by fans, and perhaps acting out by young people when the national team wins an important game? How do fans behave when The Netherlands wins an important match over archrivals? Are certain expectations in your mind part of your schema about football and fan behavior? What is your schema about the opposite sex? Does it include gender specific behavior, for example expecting more emotionality by females? Are males expected in your schema to be more assertive? In these and all cases we have

stored schemas based on our past experience and what we have learned from others.

If we did not have schemas our lives would require evaluation of each new situation. Can you imagine the confusion of going shopping to buy products without schemas? Perhaps there are a variety of toothpastes. How can you choose one? If you have a schema your thinking would automatically be oriented based on previous trials or perhaps by advertisement. Without these mental structures not only would shopping be a long and painful experience, but also very confusing as a person has to examine all alternatives. Schemas therefore direct our attention in specific ways, and structure our memory for future use (Brewer & Nakasmura, 1984).

3.1 The function of schemas

Schemas are used to complete information that may be lacking in a specific situation. How do you expect people to behave who are members of specific national or racial groups? If you lived in the US you might have schemas of Black people that include your beliefs about their propensity for violent behavior. If you lived in The Netherlands, Norway or some other European country you may have schemas about immigrants that also include potential violence. Hence when you meet someone of a minority background research suggest that you selectively attend to cues suggesting hostile behavior. All cultures have deeply rooted stereotypes not based on personal experience.

The reason we have schemas is that they allow us to complete needed information prior to interaction. Having schemas gives you some clue on how to behave toward a given social group, or how to behave in a given role (like that of a student). Our schemas may of course be prejudicial, and have little to do with social reality. Still schemas are enduring because we want to believe what we want to believe, the truth be damned. However, without schemas our world would be a giant buzzing beehive with no order or direction. Schemas are important because when we are confronted with a new situation we can understand it better – or so we feel – from our stored knowledge of similar situations. They help us process information more efficiently, and help us understand what part of the situation we must attend to, and what is of less or little importance.

Schemas influence memory, what and how we remember a particular situation. In one study the participants were asked to watch a videotape of a husband and wife

having dinner together (Cohen, 1981). Half of the students were told that the woman in the videotape was a librarian, the other half that she was a waitress. Subsequently the participants were asked to list what they remembered of the interaction. Interestingly, when the woman was described as a librarian the participants in the study "remembered" her drinking wine, whereas when she was described as a waitress she was seen drinking beer. In other words memories were influenced by the participant's stereotypes of people in these two roles. What this and other studies show is that behavior consistent with a preexisting schema is remembered better and enjoys an advantage when it comes to recall (Carli, 1999; Zadny & Gerard, 1974).

3.2 Social stimuli and preexisting schemas

Based on our own experience and that of others we all carry schemas as part of our interpretive mental arsenal. How can these schemas be activated by social stimuli allowing for more efficient judgment and decision-making? One of the significant factors, which determine schema activation, is the person's expectation in a given situation. If a police officer encounters a Black person in a dark alley is it his expectation that he is confronting a criminal? If so that will activate schemas already existing in the mind of the police officer, and any abrupt or threatening movement by the minority person could lead to an unjustified shooting. Such events have occurred repeatedly (Bargh & Ferguson, 2000; Sloman, 1996). These are all examples of automatic thinking where the minority person was perceived as threatening and the officers opened fire based on their preexisting schemas. As we have seen, some situations require rapid response, and in the US this frequently means shoot first and ask questions later.

Schemas are frequently applied in gender relations to help interpret what to expect from the other gender. For insecure people perceived threat may be part of their schemas. If a threat is perceived the individual will be less likely to take the risk necessary to build intimate relationships. One consequence of this schema is the greater likelihood of living a lonely life. Many studies have demonstrated the ability of expectations to elicit specific schemas which then serve to guide subsequent information processing (Hirt, MacDonald, & Erikson, 1995; Stangor, & McMillan, 1992).

Another critical factor leading to schema activation is similarity between the social stimulus and the preexisting schema. You turn on the television and see a football match in progress. If you are a fan you have seen many matches before,

perhaps even by the teams featured. Consequently you possess schemas about the teams, the individual players, and the likely outcome of the encounter. In other words the features of a particular situation, a sporting event, a family gathering, or some other social happening will advise you on what schemas to enlist, and how to interpret what you are observing (Holyoak & Thagard, 1995; Spellman & Holyoak, 1992). The recency of schemas also leads to activation. If a schema has been employed recently it is more readily available, and therefore more likely to be activated given minimal stimuli. The importance of recent activation has been demonstrated in several studies (Ford & Kruglanski, 1995; Herr, 1986; Todorov & Bargh, 2002).

The importance of a schema determines to some extent activation. Probably every situation is capable of eliciting a number of schemas. Sometimes misapplication occurs as the same situation may elicit different schemas. War related schemas have affected US policies over the past several generations. One schema derived from the surrender to Nazi provocation prior to the Second World War. That schema leads people and decision makers to say, “We must stand up to dictators”. Another schema is the quagmire that the American war in Vietnam brought to US forces, and the desire not to repeat that experience. Politicians are constantly evoking schemas of both events in order to support or oppose a particular war related policy. Which of these two schemas do you think American decision makers employed with respect to the Iraq war? It seems clear that the war in Iraq took place regardless of contrary evidence that there were no weapons of mass destruction being produced. Recent reviews of the pretexts for the war showed without doubt that the reasons given for going to war were false. The only rationale left for that war was based on “we must stand up to dictators”, the schema of World War II. Thus the past has long arms that affect much of what happens today and in the future. Research has shown that it is not difficult to elicit either of the two war schemas with consequences for decision making (Gilovich, 1981).

When the situation is important it is more likely that several schemas are brought into play, and the individual may evaluate longer and make more careful and complex decisions. Research shows that when the outcome is important, and when some individual’s accountability is at stake the inferences produced are more complex and based on several schemas (Chaiken, 1980; Tetlock & Boettger, 1989).

Of course we do not all respond in the same manner to stimuli. There are always individual differences present, and the same stimuli may elicit different schemas. Some people are quite comfortable with ambiguity whereas others become very anxious unless situations are clearly defined. Differences in need for structure affects the need to create schemas. Intolerance of ambiguity requires that the person has in hand more or less ready-made responses. In short, those who do not tolerate ambiguity are more likely to rely on cognitive structures, whereas those with high tolerance deal with complicated situations with less reliance on schemas (Bar-Tal, Kishon-Rabin, & Tabak, 1997; Neuberg, Judice, & West, 1997; Chui, Morris, Hong, & Menon, 2000).

Is consciousness of stimuli necessary for activation of the schema? Can schemas get primed for action even if the individual is unconscious of the presence of the stimuli? A pioneering study (Bargh & Pietromonaco, 1982) showed that even when stimulus words were presented too rapidly to register, they still could affect the elicitation of specific schemas. Even when the stimulus is subliminal, below the threshold of awareness, the stimulus still functions to prime specific mental structures. This finding has been supported by many other studies (Debner & Jacoby, 1994; Draine & Greenwald, 1998; Ferguson, Bargh, & Nayak, 2005; Klinger, Burton, & Pitts, 2000).

3.3 Cultural differences

We shall in this book continuously apply the cultural concept of interdependent and independent societies outlined in chapter 2, as they have applications in a variety of situations and play a role in many social psychological constructs. Westerners and East Asians vary in how much they depend on the situation and on contextual information to come to conclusions. In general East Asians are more likely to rely on situational cues and environmental factors to explain behavior. Westerners are more likely to attribute behavior to dispositional causes; i.e., behavior is largely a function of the individual's personality and mental structures. East Asians explain events by pointing to the context and the importance of the situation. The individualistic culture in the West predisposes people to attribute blame or success to the individual and thus ignore the social context. The thinking of East Asians seems more complete as attention is paid to the whole social environment, whereas Westerners focus on the acting individual (Ji, Peng & Nisbett, 2000).

Our schemas are to a large extent a reflection of our culture. What is important or

significant in a culture is committed to memory, and the resulting schemas are ready for use in daily life. In western cultures there are new schemas related to developments in technology. In rural regions of Africa existing schemas may have to do with the local culture, and farming or cattle transactions. In one early study an interviewer compared what a Scottish settler and a local Bantu herdsman remembered from a complicated cattle sale (Bartlett, 1932). The Scottish settler remembered little and had to consult his records for specifics, whereas the Bantu herdsman could produce from memory a variety of data such as how many cattle were sold and for how much. One would draw the conclusion that since cattle transactions are a central part of Bantu economy they have developed excellent schemas for these cultural relevant data. In all cultures people are faced with a vast amount of information. Our schemas help us reduce this complexity to manageable proportions, to allow for efficient cognition and decision-making. Schemas are therefore a form of automatic thinking.

Schemas are based on the past but are used to predict the future. In the west prediction of the future is based on continuity. In general the world is seen to continue to move in the same direction it currently moves. East Asians on the other hand emphasize change. The Tao (the way) is an Asian symbol that views the world as being in one of two states at any given moment, always changing. The yin and yang getting better or worse, and stronger or weaker, are dualities that emerge from Taoist thinking. These ideas should predispose East Asians to think that current events are likely to change course, rather than staying on track in the current direction. For example if asked whether a dating couple will continue to date, Americans are likely to say yes (continue course), East Asians thought is less likely. In estimating economic growth rates for the world economy or likely cancer rates, Americans overwhelming believe that current trends will continue whereas Chinese are more likely to think they will reverse course (Ji, Nisbet, & Su, 2001).

3.4 The use of racial stereotypes and schemas

We have mentioned racial stereotypes before. A number of studies have demonstrated the presence of racial stereotypes and how they affect perception. In one study participants would repeatedly see a gun in the hand of a minority person when the individual was just holding a tool (Payne, 2001). In a study of video games the participants were asked to press a button saying shoot if the individual in the video had a gun, and do not shoot if he did not. The results

showed that the participants were more likely to pull the trigger when the stimulus person in the video was Black, and whether or not a gun was present (Correll, Park, Judd, & Wittenbrink, 2002).These errors in perception are obviously based on schemas that Black people are violent. Our culture contains very persuasive schemas that link race and violence. These are examples of automatic thinking derived from society. Another example of the cultural direction of thinking were the different reactions to the publishing of cartoons of Mohammed in Denmark in 2006. In a variety of Muslim societies there was an automatic call for death for those who were deemed guilty of offense, which from a different cultural perspective seemed absurd.

In summary, schemas provide certain advantages in the psychological economy of the individual. They help us process enormous amounts of information. Otherwise we would be overwhelmed by the sheer complexity of our world. Schemas also help us recall information, information that is consistent with the schema as well as inconsistent information (Corneille, Huart, Becquart, & Bredart, 2004). We have already seen what might happen to delay shopping if we did not have schemas about products in the supermarket. One function of these mental structures therefore is to speed up processing. Often, schemas assist us in making automatic inferences. Having gender related schemas means that we have a starting point for interaction, and do not need to start over each time we meet someone of the opposite sex. On the whole therefore schemas assist us in interpreting situations and people, and may especially be helpful with ambiguous situations where information is limited.

There are obviously also disadvantages in the use of schemas. Many errors occur as we saw in the case of racial stereotypes. In general schemas lead to simplification resulting at times in wrong interpretations. To that we may add that once present schemas are difficult to change. Since they serve psychological security by making thinking automatic and efficient, we are reluctant to get rid of these ideas, even when they are misleading. People will believe what they are prepared to believe and what they want to believe.

3.5 The self-fulfilling prophecy

We have many schemas, some of which actually become true, because our behavior elicits the expected responses from others. Rosenthal and Jacobson completed the most famous study on what was called the self-fulfilling prophecy in 1968. They initially administered an IQ test to students in an elementary

school. Subsequently they returned and identified some of the students as "bloomers", i.e., some of the students were identified to the teachers as scoring so high that they were sure to "bloom" over the following academic year. In actual fact those identified as "bloomers" were just a random sub-sample, and therefore in no way different from the other students. The only way they differed had to be in the minds of the teachers who were told of their intellectual, but bogus academic gifts. Keep in mind that the students were not given any feedback, nor were the parents told of the results of the test. In other words an expectation schema was created in the teachers minds about this subgroup, which in actual fact was randomly chosen and had no particular gift. Could the mere fact that the teachers now had new and higher expectations (schemas) affect the students in some way to actually improve their IQ scores? That is what happened. The students labeled "bloomers" showed significantly greater gains in IQ scores when compared to the rest of the students. Similar results have been replicated in other studies (Blank, 1993; Jussim, 1991; Smith, Jussim, & Eccles, 1999).

What happened? Did the teachers just decide to give all their efforts to helping "bloomers" while disregarding the other students? That was clearly not the case in any conscious way. Rather the teachers had incorporated a schema about the "bloomers" abilities, and thus any differential treatment was a consequence of automatic thinking. Is it not amazing? There was no conscious attempt to treat the selected students differently, but that is what happened. This differential, but unconscious treatment was also found in other studies (Brophy, 1983; Rosenthal, 1994; Snyder, 1984). It appeared from analysis that the differential treatment included a warmer emotional atmosphere, more personal attention, and support. The teachers also challenged the "bloomers" to a greater extent with more difficult material, and provided better feedback. The teachers also included more opportunities for bloomers to participate in class. The self fulfilling prophecy operates by first creating an expectation schema, i.e. what is another person like, which in turn influences how the person is treated, which causes the person to act consistently with the original expectation.

Such self-fulfilling prophecies may have very negative consequences. Although girls initially perform better than boys in grade school, as time goes by girls begin to fall behind boys on standard tests (Reis & Park, 2001; Stumpf & Stanley, 1998). There are those who would argue that this change is due to different information processing by male and female brains (Geary, 1996; Witelson, 1992). However, it

seems more likely that the change occurs as a result of lower expectations for girls by teachers, and perhaps also in the home, thus establishing a self fulfilling prophecy (Feingold, 1996; Hyde, 1997). If teachers are asked who are their most gifted students they mention boys much more frequently, and parents too believe their boys are brighter (Jussim & Eccles, 1992; Raety, Vaenskae, Kasanen, & Kaerkkaeinen, 2002). Are the significant people in the lives of girls treating them differently in ways that affect the self-concept, thus leading to lower levels of achievement? Yes, although it is not a conscious process, but a matter of expectations built into automatic thinking with long-range consequences.

Perhaps we also damage boys by having unfounded expectations, which nevertheless produce negative outcomes? Kindlon & Thomson, (2000) suggested that our schemas might well stunt the emotional development of males by expecting macho (violent and forceful) behavior, rather than supporting more healthy ways to express emotions. Violence in our society is at least partially due to such self-fulfilling prophecies. Since the self-fulfilling prophecy occurs automatically we reflect little on the consequences. Most people would be completely unaware that they practiced such discriminatory gender based behavior, as were the teachers in the aforementioned studies. Social psychologists may help by bringing to greater consciousness how schemas operate, and which expectations are thought significant in our culture.

4. Heuristics: mental shortcuts for rapid response

Often we possess mental shortcuts that allow us to make efficient decisions. Heuristics are not always accurate, but still provide for good decisions in a relatively short period of time (Gigerenzer, 2000; Gilovich & Griffin, 2002; Nisbet & Ross, 1980). Schemas often serve such a purpose based on our experience and that of others. There are situations, however, where we have no schemas. In other cases we may have too many, and we would need to try to select which is appropriate. Therefore, at times there are no ready-made schemas to employ. What to do? In these situations people use a mental shortcut called a heuristic in order to make judgments quickly and efficiently.

4.1 The availability heuristic: what comes easily to your mind?

In the case of the availability heuristic your judgment is based on what comes most easily to your mind; i.e., what is available (Schwarz & Vaughn, 2002; Tversky & Kahneman, 1973). If you have just read about something having to do with the situation, this recent information may be employed. At times what comes

quickly to mind is the right solution. At other times it may lead to an inaccurate judgment. We sometimes use short cuts to describe ourselves. In the experiment by Schwarz et al., the participants were asked to find six examples of assertive behavior in one experimental condition, and another group was asked to find twelve examples in another condition. Those who were asked to think of 12 examples had difficulty in coming up with so many examples and consequently judged themselves as not assertive. Those who were only asked for six, since these examples came more readily for this group, concluded that they were in fact assertive. The ease by which people could bring examples to mind did determine self-judgment as predicted by the availability heuristic.

When something comes readily to mind it is because there are probably many such examples. Therefore the availability heuristic is often a good estimate of frequency. If you were asked to estimate the number of psychology majors at your university, how would you make an estimate? If you have among your friends or acquaintances many who are psychology majors you may conclude that there are also many enrolled at the university. If you do not know any, and none come to mind, you may conclude that there are only a few students who major in psychology.

The availability heuristic then enables a person to respond to questions about quantity or frequency based on how quickly such information is retrieved from memory (MacLeod & Campbell, 1992; Manis, Shedler, Jonides, & Nelson, 1993). If examples can be brought to mind quickly it must be because there are many of them. We can think of many more male presidents of countries than female, so we can come to the conclusion that there are more male presidents. We see in the news that most large companies have male CEO's; that also comes easy to mind and we draw similar conclusions. The rapidness and ease by which these examples come to mind, i.e. are available, therefore become a relatively accurate guide to overall frequency or probability.

Of course people do make errors with the availability heuristic. Some events make deeper impressions and therefore are more readily available. If you had experienced a hurricane at the Black sea, you might conclude that this inland ocean is stormy. Others, who have only enjoyed sunny days at the beach, may think of the Black Sea as very tranquil. In the Kahneman and Tversky (1973) study the participants were asked if there were more words that began with the letter "r", or more words with the letter "r" in third position. It was easier for the

participants to think of words beginning with “r”, and they therefore estimated a higher frequency. In actual fact there are more words with the letter “r” in third position in English, but since they do not come readily to mind, the availability heuristic produced the wrong estimate.

We have also seen that when violence is over-reported in the news it leads to many people becoming fearful, a state of mind not justified by real statistics. The violence of video games may lead a young person to see a world of violence in which you strike first to avoid being a victim. In each case there is a misleading emphasis on the frequency of violence that is not reflected in the real world, but nevertheless affects behavior. In the western media reports of murder occur every day. In actual fact the US is the murder capital of the world with tens of thousands of victims each year. On the other hand we seldom hear about suicides in our society as they seem less dramatic, and therefore less newsworthy. This leads people to estimate that the murder rate of murder is higher that that of suicides, when in actual fact suicides outnumber murder by a 3 to 2 margin. Dramatic deaths get more press coverage and are therefore more available. Research shows an overestimation of deaths from accidents and other dramatic death and an underestimate of more silent deaths due to disease (Slovic, Fischoff, & Lichenstein, 1982).

Likewise, we tend to overestimate our own contribution to ongoing projects. Why? Because we are familiar with what we have done, and it comes readily to mind. In general people overestimate their own contributions, and underestimate that of others (Ross & Sicoly, 1979). Often people feel they are under-appreciated for the work they do, and likely this is because of misapplication of the availability heuristic. Essentially then, the availability heuristic helps us judge the frequency of some situations, the probability that certain outcomes will occur, or the size of some category by how readily examples come to mind (Schwarz & Vaughn, 2002). The ease of generating examples seems to guide our judgment.

4.2 The representativeness heuristic

Suppose you are asked if a specific person belongs to or is a representative of the national category Dutch. If you have limited information you might look for characteristics that match or are similar to a prototype you carry in your mind of the typical Dutch. With little information to go on people often use the representative heuristic or trying to judge based on degree of similarity. It is as if this mental short-cut tells you that a member of any population group ought to

look similar to the prototype you carry in your mind. Does the person look Vietnamese, or Chinese, or Japanese? What category is the person judged to similar to?

If you think the typical values of psychology are pursuit of truth and the helping relationship, and you observe these traits in a person you might wrongly predict that the person becomes a psychology major in University. The function of the representativeness heuristic is to look for matching or similar behavior. Do murderers have features in common? If you are faced with such a person could you judge the person a member of that category? Obviously it depends on the accuracy of the prototype you carry in your mind. Many times people are surprised by the clean-cut appearance of serial or mass murderers in the western world. On the other hand we may have a good handle on other categories, such as members of racial or ethnic groups.

The representativeness heuristic also encourages specific correlated assessments between cause and effects. If “like” goes with “like”, we would expect that large causes would have large effects. A small earthquake would cause less damage, a large earthquake more. In other words small goes with small, large with large. However, that is not always true. We know that very small organisms can be deadly as in the case of the AIDS virus (Gilovich & Savitsky, 2002). Again, we must use caution when making such estimates or judgments. The symptoms of an illness do not always resemble the cause or cure, although the representativeness heuristic has influenced traditional medicine in that direction. For example in traditional Chinese medicine those who had vision problems were often fed chopped bats because bats were assumed to have excellent vision (Deutsch, 1977). Even today the representativeness heuristic continues to influence thinking about body and health. People are told to avoid milk if they have colds, because milk resembles the phlegm typical of cold suffers. In fact there is no relationship. Many of us have heard the term “you are what you eat”. Of course that is sensible to some degree. Eating too many calories will produce fat in the body. However, just because you eat only pork does not mean you will look like a pig or be piggish in your behavior.

Even in the pseudoscience of astrology we can observe a resemblance between the supposed sign and personality. Those born under the sign of Virgo (virgin) are supposed to be modest and retiring; whereas those born under Leo, the lion, are supposed to be forceful leaders of men. Obviously there is no validity to these

pseudo beliefs, but that does not prevent people from believing sincerely. Even a powerful person like Reagan, the former president of the US, was a "true" believer (Abell, 1981; Zusne & Jones, 1982). It is kind of scary to think that the leader of the most powerful nation applied the representativeness heuristic and believed in such nonsense. Himmler, the exterminator in the Nazi empire, and other ranking members of the regime also believed in astrology. History is showed the foolhardiness and stupidity of these beliefs.

Other fields are also influenced by the representativeness heuristic e.g. graphology, the analysis of handwriting. It is a field of continued investigation, in which some reliable relationships have been found between handwriting and behavior (Nevo, 1986). If your handwriting is shaky perhaps it is a clue to a nervous personality or some neurological disorder. Doctor's handwriting in the western world is generally considered unreadable. Does that say something about doctor's personality, or is readability not a priority for busy and hardworking medical experts? If handwriting slants does that reveal anything about the person? Is the person who slants to the left more likely to be a good socialist, and those who slant to the right pro-capitalist? We may all see that these are absurd conclusions that reflect the representativeness heuristic. In short, the representativeness heuristic is a mental shortcut where we categorize something if it is similar to what is believed to be a typical or representative schema.

4.3 The problem of illusionary correlations

At times we may observe the availability and the representativeness heuristics operating together. When events occur together we are often led to believe they are correlated when in fact it is only coincidence we are observing. An illusionary correlation occurs when two variables are believed correlated, but in fact are not related (Chapman & Chapman, 1967). This is an issue of no small importance to psychology. For example clinical psychologists often rely on projective tests like the Rorschach and Draw-a- person tests to make clinical diagnosis of the mentally ill. Other research has demonstrated that these projective techniques fail most standards for reliability. For example in the Draw-a-person test the client is asked to draw a picture which the psychologist then interprets for signs of underlying mental illness. Clinicians report many connections between drawings and specific pathological categories. The drawings and the pathologies seemed to go together in the mind of the clinicians. For example people who suffer from paranoia are thought to draw very large or small eyes on the person depicted.

These illusionary correlations were investigated in the Chapman study. The investigators randomly presented 45 Draw-a-person pictures, 35 reportedly from mentally ill clients, and 10 from graduate students. Each of the pictures had a random description attached. There was no clinical relationship between the description and the pictures; the descriptions were applied randomly and not connected to the picture in any way. In one case the description was "is very suspicious of others", or another "is easily frightened". The results showed that although no relationship between description and picture was emphasized the participants observed the same clinical relationships as those of the clinicians. Large eyes, for example, indicated also to the participants' paranoia. The participants observed the same illusionary correlations as the clinicians by the mere fact that they (the pictures) presented a joint operation of the availability and representativeness heuristics. In another part of the experiment the investigators asked which different body parts were related to which mental disease category. Again the respondents responded in similar ways as the clinicians employing the same heuristics.

*4.4 Other cognitive short-cut*s

We can also imagine "what could have been in a possible event, if only the conditions had been different". Kahneman and Tversky (1973) called this the simulation heuristic. This heuristic helps us understand the psychology of near misses, or "if only something were slightly different". If the couple driving had arrived at the railroad crossing only five seconds later the passing train would not have killed them. We use this heuristic for a variety of mental tasks, to help us understand regret or grief (Seta, McElroy, & Seta, 2001). For example if you go to the airport at the same time as another traveler, but both of you are delayed by traffic jams. The other traveler is told his plane left 30 minutes ago, whereas you are told that your plane left only minutes ago. Who would be the most frustrated? Undoubtedly you who barely missed the plane and who through the simulation heuristic can imagine a different outcome, like, "if you had only left ten minutes earlier".

Counter factual reasoning is where some negative event leads people to think of more desirable outcomes given different circumstances. You did poorly on a test. You might tell yourself "if I had only studied more I would have passed" (Markman & Tetlock, 2000). Counter factual reasoning involves trying to imagine alternative versions of real events. What if this happened? When something

unpleasant takes place does it help us to imagine how things could have been, with a different version of the event? We can in fact feel better if we imagine how much worse the event could have been. The couple was killed at the railroad crossing, but thankfully no one on the train was injured, we might reason (Taylor, Wood, & Lichtman, 1983). The simulation heuristic might also help you to prepare for future unpleasant events. Consider the following experience of one of the authors. On two separate years I fell from high ladders, and the second time I injured myself seriously, like mentioned before. I have often gone over what happened in my mind. I am standing at the top rung, my chain saw in my right hand, reaching out for a few remaining branches, taking a terrible chance that the ladder being insecure would give way. Well it did. It would have been so easy to avoid, like not standing on the highest rung, waiting until someone could support the ladder, or letting someone younger take charge. Simulating it I also realize I could have easily died as I lay injured on the ground. That from my perspective would be a worse outcome so I am lucky. I can also imagine that I will not find myself in the same position again. That is preparing for the future. I was highly motivated to change, one of the important functions of counter factual reasoning and the simulation heuristic (McMullen & Markman, 2000).

4.5 The anchoring heuristic

When we are asked to judge some event we need some reference point based on previous experience. How far will the Amsterdam Football Club AJAX reach in the coming Champions League? Since we really do not know, how can we come to some assessment? We can start by thinking of past Champions League, whether the AJAX-players this year are the same as last year, and the nature of the other teams in the league. The previous international competition becomes an “anchor” around which points can be added or deducted based on the other variables. The anchoring heuristic is simply a departure point for coming up with some reasonable estimate of some future event. Like in the case of other heuristics, the anchoring heuristic is a device for stimulating our memory, and eliciting the appropriate schema.

The anchoring heuristic may be also used to estimate the average number of supporters who will attend the home matches of Ajax in the Amsterdam Arena. Again you can reference the numbers from the previous competition, let us say 40,000 spectators. This time around you think there will be 56,000 spectators (fully booked stadium), the team is improved, and there is a new coach. The

previous event again served as the anchor for estimating the current competition.

5. Intuitive versus controlled thinking

So far we have taken note of the evidence for two types of thinking. The first type is the automatic thinking represented by schemas and heuristic. The second more controlled thinking is represented by counter factual thinking and thought suppression. The difference between the two forms of thinking is the difference between intuition, which is automatic, and reasoning that is controlled. We seem to have two minds when addressing a problem, or two systems of thought. The presence of these two systems has been reported in many studies (Epstein, 1991; Kahneman & Frederick, 2002; Sloman, 2002). The intuitive system responds quickly to situations that require immediate decisions. Our past experience or cultural influence helps a speedy process via the aforementioned schemas and heuristics. The second reasoning system is controlled by nature and hence slower in processing information. Perhaps the decision is of great significance to the individual, or is perceived to have long term or broad effects, and hence requires a more deliberate process.

Whatever the problem one will always be able to provide an answer through the rapid process of schemas and heuristics. When the answer is not appropriate or useful, it may then be overridden by the more deliberate rational system. The rational reasoning process serves as a censor, or final check, in order to avoid the common pitfalls discussed previously. Tversky and Kahneman's work on heuristics has had a profound influence in several areas including psychology, but also economics, management, political science and other fields (Gilovich, Griffin, &Kahneman, 2002; Tversky & Kahneman, 1974). The fact that so many fields have found the concepts of heuristics and schemas useful adds a great deal of face validity to the paradigm. Controlled thinking is defined as conscious cognition, where the evaluations are intentional, and as a consequence voluntary whereas automatic thinking occurs without any conscious effort. The second mode of controlled thinking serves as a check or balance for automatic thinking. If a decision from automatic thinking is not functional or contains problems, and if the issue is important, the individual will be motivated to reevaluate.

Think of the commercials that are played on television. Often these advertisements are on the screen for only a few seconds. The objective is not to have the viewer go through a process of the pros and cons of the product. In selling a particular kind of toothpaste the manufacturer does not want to engage

in controlled thinking, or have you go through a serious process of evaluation as to which is best from the point of dental hygiene. All they want is to engage your automatic system to create schemas and name familiarity. Next time you go to the supermarket you will not engage in some dialog with your inner self, “yes, this product is better, I know the research”. No, rather than such a deliberate process the advertiser manipulates the unconscious mind associating the product with simple slogans “will make your teeth brighter”, or “9 out of 10 dentists recommend this toothpaste”. Neither assertion has to be true, but if they are implanted it may affect your purchasing behavior (Chaiken, 1987; Petty & Cacioppo, 1986; Petty, Priester, & Brinol, 2002). In many ways political campaigns are based on similar automatic manipulations.

Suppose however, that the message on television is sufficiently significant to encourage you to turn off your internal automatic pilot and listen carefully. Some studies do show that when people face significant tasks and decisions they will make more complex and accurate decisions (Kruglanski &Webster, 1996). On the other hand, when it does not really matter what the outcome is, your life will not change regardless of the brand of toothpaste you buy, the automatic pilot will dominate (Kruglanski, 1989; Trope & Lieberman, 1996). Even when people make efforts to understand the world they will still make many errors. We are still influenced by wishful thinking, and our belief systems will still override any evidence to the contrary. Training in the scientific mode of thinking, sufficient skepticism, are important defenses against illusionary thinking. We can observe in any culture very intelligent people who still will maintain absurd thoughts and beliefs. Intelligence alone is not a sufficient defense against deluded beliefs and behavior. Rather, we must be skeptical of ourselves, and repeatedly revisit decisions to see if they conform to some objective standard of truth (Wilson & Brekke, 1994).

5.1 Automatic thinking governs much of our behavior

The amount of research on heuristics and schemas should also suggest that these forms of thinking are of great importance to the psychological economy of the individual. In our busy and complex world we could not exist unless we had rapid response systems that might be more or less accurate. There is also a strong need for more complex reasoning as noted above. For example, we have seen how false minority stereotypes can have very negative consequences for individuals and society.

Automatic thinking is so persuasive in all areas of life, and yet we by and large remain unaware of its presence. Technology has brought us to the point that machines mimic the human condition. Just like people modern jetliners manage very complex operations including takeoff and landing by automatic pilot, a computer based response system. Only in emergencies is the automatic response system is inadequate, and the pilot must take over and save the plane. It is also important to remember that we might think we are controlling our thinking, and our behavior is therefore rational, when in fact we are just rationalizing decisions made previously by automatic pilot. Beliefs in our rational behavior can be just another illusion (Wegner, 2002). In fact despite our beliefs in our rational thinking it might still be controlled automatically or by the environment, we have just placed a more desirable label on it. Even when we believe, sincerely, that our behavior is based on rational thought it may in fact be quite automatic. To develop rational human behavior is perhaps more a goal than a reality for most people.

5.2 Is the development of rational thinking a hopeless project?

Shall we give up or are there some things we can do in education that might improve controlled and deliberate thinking? Many of the problems we have discussed in social cognition could be ameliorated by training in statistics and research methodology (Nisbet, Fong, Lehman, & Cheng, 1987). Training in economics and other forms of logical education may also help (Larrick, Morgan, & Nisbett, 1990). Teaching people basic statistical skills would help the reasoning process as statistics is a system of logic that is the foundation of all scientific enterprise. Such courses would involve the ideas of probability, how to generalize from a small sample to a population, and the nature of random sampling. In fact studies have demonstrated that our reasoning powers may be improved through such courses (Crandall & Greenfield, 1986; Malloy, 2001; Nisbet, Fong, Lehman, & Cheng, 1987). This aforementioned research shows also that students in psychology and medicine improved more than those enrolled in law and chemistry. Among psychology graduate students the improvements were especially impressive. This finding should be an encouragement to all engaged in the psychological enterprise. Perhaps at some point all students at a given university should take statistical courses to reason better, become better scientists, and more informed citizens of the world. If our students are trained well in the sciences, and develop the appropriate skeptical attitude toward all knowledge, there is some hope that mystical, stereotypic thinking might be

reduced in favor of better decision making.

We might also ask people to consider whether they might be wrong .In one study people were asked to consider the opposite point of view. When asked to do this they often realized that there were different ways of construing the world (Lord, Lepper, & Preston, 1984; Hirt & Markman, 1995; Mussweiler, Strack, & Pfeiffer, 2000). People can be trained to use their minds and avoid simplistic and automatic responses. It obviously is a major responsibility of the educational system to inculcate skeptical attitudes in young students from the earliest. Instead in most nations early school is used primarily as a socialization tool to encourage conformity to social ideology and standards. Of course all nations have the right to socialize children and young people. In doing so, however, they create schemas that permit automatic thinking. The call by people in the streets of Afghanistan for death against those who are believed to defame the Prophet are results of such schemas, as is most of the international violence in the world.

6. Social cognition and clinical psychology

All human beings make judgments about others, and as we have seen psychologists are subject to similar errors. We all walk around with "implicit" personality theories in judging other people, yet remain completely unaware of what influences our judgments. Our stereotypes are examples of such theories. We might say "women are emotional" or "athletes are aggressive" or "sales people are extroverted". These are all examples of implicit personality theories that serve as the aforementioned schemas in easing our interaction with others. We often do not have a good handle on what influenced such thinking (Nisbett & Wilson, 1977). We also judge ourselves. In general we tend to believe what is said about us, as long as it is positive (Shavit & Shouval, 1980). What guides acceptance of self-descriptions is the degree of positive traits included in the assessment. Up to a point the more favorable the description, the more it is accepted as factual. This low level of cognition can also be observed in cases where people accept fake self-description as equally valid, or in some cases even more valid, than those based on objective testing. People are not able to distinguish between the validity of real descriptions or those that are pure inventions. We seem to have endless capacity for self-delusion.

Professional clinical psychologists are subject to similar errors. Often clinical judgments are based on projective techniques that have little reliability or validity. But the patient is impressed by the clinicians and believes in the

diagnosis. The consequence of the diagnosis takes the route of the self-fulfilling prophecy. The clinician believes in the presence of certain pathology. He then treats the patient accordingly. Pretty soon the patient behaves consistent with these expectations. Professional judgment is subject to illusionary correlations seeing relationships where really there are none. Psychologists often become over confident by searching only for confirming information of the diagnosis rather than keeping an open mind. Followers of Freud will visit and revisit childhood, and will soon enough come up with a host of events which by themselves may have had little effect, but in confirming a diagnosis are seen as evidence for pathology. In believing there is a relationship, we all, including clinicians, are more likely to see confirming than disconfirming evidence. This is true not only for psychologists, but for all those who contemplate human behavior whether economists or political scientists. Even physical scientists who were convinced the earth was flat used considerable energy to maintain that illusion, including sanction by religion.

Hindsight is always right. As we say hindsight is 20/20, meaning that in looking back we have perfect vision. In one famous study Rosenhan (1973) and a number of his associates got themselves admitted to mental hospitals complaining that they heard “voices”. The claims were bogus, but were offered in an attempt to assess the judgment of clinicians. Otherwise the “patients” reported truthfully their life histories and exhibited no further symptoms. Most were classified as schizophrenics. The clinicians, who found “evidence” in the life story told, when in fact the patients had no pathology, then confirmed the mental illness diagnoses of the bogus patients. When Rosenhan later told the mental health workers about the experiment, he also advised them that more bogus patients would seek admittance. During the following three months 193 patients were admitted. Now the mental health staff accused up to 41 of being bogus patients who were in fact in need of treatment. In reality, Rosenhan sent no further bogus patients during the period. These results cast serious doubts on clinical judgment in the case of abnormal behavior.

Clinical psychology often has its findings confounded by diagnoses that are confirmed by looking only for supporting evidence. Snyder (1984) found evidence that clinicians look primarily for information that will confirm the traits they have diagnosed. Our beliefs about what is true generate information that confirms it, based on the process of selective perception (Dallas & Baron, 1985; Snyder &

Thomsen, 1988). In several experiments it was shown that people will first look for confirming evidence before seeking disconfirmation. This bias is not at a conscious level. Our questions are biased by our desire to have the diagnosis confirmed. People who undergo therapy therefore become the persons that their therapists believe they are, having searched and found evidence for their pathology. We can see that intuitive reasoning is very flawed, and may at times do actual harm to the client seeking help.

6.1 Intuition versus statistics

Although most clinicians continue to have confidence in their clinical insights, intuition is a poor second best when compared to more objective methods. For example admission to university or graduate school is often based on a combination of statistical measures. Such objective measures consistently outperform any subjective judgments in predicting student success (Dawes, Faust, and Meehl, 1989; Meehl, 1954; Meehl,1986). We have already noted the superiority of logical and statistical reasoning, although we recognize that clinicians work in very difficult conditions and often in unchartered waters where intuition must play some role. It is important, however, to remember that patients and clinicians are subject to the same errors as other human beings.

In summary, we are often unaware of what particular influences, past or present, which influence our judgment of others. Selective perception may encourage inaccurate assessments. This is particularly true if we rely, as most of us do, on the stereotypes of society. All societies inculcate stereotypes about categories of people, gender, professions, ethnic groups and so forth. While there are elements of truth in stereotypes they are for the most part gross exaggerations. Our self-perceptions are particularly unreliable. Every time people go to eat Chinese food they are given a fortune cookie as dessert. Inevitably the fortune cookie encloses a written fortune. Equally inevitably the fortune is written in such a way as to be applicably to everyone. Some people however, see particular meanings in what is after all random messages. Positive assessments are nearly always accepted, whether justified or not.

Mental health workers are subject to similar problems in social judgment. They may through intuition provide worthless diagnosis, and their clients being convinced of the therapist’s professional competence readily accept the judgment. After making the diagnosis the process is essentially one of confirming the decision. In psychoanalysis, for example, the “child is the father of the man”,

therefore the therapist examines early childhood for clues to current problems. Since all people have experienced some issues in growing up it is not difficult to find the supporting data. Once the judgment is made, these erroneous diagnoses can easily be confirmed leading to the self-fulfilling prophecy. Again, the proper attitude is always having an open mind. By being skeptical of ourselves we can avoid some of the many errors described in this chapter.

6.2 Social cognition and mental health

Correlated cognitive processes that affirm the patient's maladaptive life perspective accompany mental ill health. We can ask what are the thought patterns of the troubled personality. Some patients withdraw from social interaction, feel unworthy, and lose interest in family or the social environment. Having a very pessimistic outlook on life may therefore affect perception of experiences. What are just normal struggles for a healthy person can become insurmountable obstacles for the troubled person. Cognition plays an important role in perpetuating ill health, and therefore improvement may come about from reassessing how we think about ourselves.

6.2.1 Anxiety and cognition

The most fundamental problems in mental health are related to anxiety, and especially excessive anxiety. Some people are so anxious in social situations that they are unable to converse, effectively meet others, or apply for a job. Such anxiety can have sad consequences for the individual. An anxious person is less likely to lead a successful life, less likely to find a happy relationship, or master possible employment opportunities.

Why are we anxious? In many cases anxiety derives from our desire to make good and acceptable impressions on others. Fearing rejection is a primary cause of social anxiety (Leary,1984; Maddux, Norton, & Leary 1988). The aforementioned research indicated several significant social situations that produce anxiety. Applying for a job where we meet a powerful person who has the power to hire and fire is one cause. Other powerful persons include teachers, police, and other sources of authority. Any situation where we are likely to be evaluated is a primary cause for anxiety. Perhaps when you meet the family of your boy or girlfriend the first time, and you have a high desire to be accepted, perhaps as a student if you make a presentation in class and want to make a good impression on fellow students as well as the professor. Anxiety is also likely if we find ourselves in some new situation for the first time, and are unsure of correct or

proper responses.

Shyness is a personality trait since we all vary in that dimension from others who are very adapted and extroverted to those who are extremely self-conscious. Some people spend all their lives worrying what others think of them (Anderson & Harvey, 1988; Carver & Scheier, 1986). The social cognition of extremely shy people tends toward overestimating events as having personal consequences, and where they feel without evidence that people are evaluating them in some negative direction. Alcoholism is often a consequence for those who are anxious. Sadly it just reinforces feelings of worthlessness, and of course also provides an alibi for failure (Snyder & Smith, 1986). Our lives become what we think they should become.

6.2.2 Cognition and depression

Some form of negative thinking is central to depression. Depressed people view their experiences in very negative terms, and minimize what is good in their lives. Cognition is therefore distorted. Does the distortion antedate the depression, or follow the depressed feelings? Either way social cognition leaves the person in a trap of thinking worthless thoughts which in turn are expressed in lower work output and troubled relations with others. That social inadequacy in turn reinforces the feelings of hopelessness and of being inadequate. More importantly the depressed person's behavior is likely to elicit rejection by others. If your work suffers from depressed feelings and thinking, is that likely to lead to a promotion or demotion? Depressed thinking is very self-defeating because it elicits in others the rejection that the anxiously depressed person wants to avoid in the first place.

Is depression a consequence of having unrealistic views of oneself and others? In severe depressions distortion in thinking is present. However, mildly depressed people often make more realistic judgments than non-depressed people (Alloy & Abramson, 1979). On the other hand non-depressed people are more self-serving and exaggerate their sense of control in life (Dobson & Franche, 1989). Perhaps optimism, even when not warranted helps the individual to cope more effectively.

Among very depressed people thinking is dominated by self-blame, and self-attributions of personal responsibility. Sweeney, Anderson, and Bailey (1986) showed that depressed people compared to others are more likely to develop a negative attributional style, where they attribute failure to internal causes and faults. They tend to think depressing outcomes are going to last and are

permanent, and will affect everything in life. Such self-blame leads to a sense of hopelessness (Abramson, Metalsky, & Alloy, 1989). So perhaps it is useful to be a little delusional, to emphasize the positive in self-presentation. Such distortion in thinking may help us be happier and lead more productive lives. Of course self-delusion can also have negative consequences when we ignore real problems that need correction, or take unnecessary risks.

Is it negative thinking that causes depression, or does depression cause negative thinking? There is little doubt that our mood effects how we think. If we are depressed the feeling permeates everything in our lives, and the world is a gray and unfriendly place. Depressed people have views of their parents as punitive and rejecting. Once brought out of their depression they tend to view their parents in positive ways as do people who have never been depressed (Lewinsohn & Rosenbaum, 1987). With depression our memory is affected as we recollect childhood events or relationships. Our relations with others are negative, our hopes diminish, and the world seems more sinister (Mayer & Salovey, 1987). Forgas, Bower, and Krantz (1984) used hypnosis to create depressive or positive moods. The participants were then asked to view the same tape under the two conditions of happy or depressed mood. The results demonstrated how mood affects our perceptions and our cognitive judgment, with the same tape being judged differently depending on the induced mood.

One major problem for depressed people is that they often elicit negative reactions from others, and sadly they can also contribute to reciprocal depression in family and those who associate with the depressed person. Depressed people produce depression in those with whom they associate. Hence it is no surprise that they are more likely to be divorced or fired from their jobs. All such rejection of course intensifies the depression (Coyne, Burchill & Stiles, 1991; Sacco & Dunn, 1990). From these findings we can answer our question, yes depression has an effect on cognition and perception.

6.2.3 Can negative cognition produce depression?

Now we come to the second part of the issue. Does negative thinking come before depression, and therefore be a cause? Some research supports this contention (Sacks & Bugenthal, 1987). When we adopt a negative attributional style depression is likely to follow. Lewinsohn, Hoberman, Teri, and Hautziner (1985) describe the process as one of a vicious cycle. The negative attributions and expectations contribute to rejecting experiences that leads to unrealistic self-

blame which in turn reinforces the depressed mood (Seligman, 1989). We can see now that depression can be both a cause as well as a consequence of self-blaming cognitions.

7. We live in a lonely world

Loneliness is also related to self-defeating cognitive styles. Lonely people like the depressed are locked into a self-defeating vicious cycle where they blame themselves for their social inadequacy, and generally feel a lack of control in their lives (Anderson & Riger, 1991). Another distorted cognition is a negative view that lonely people have toward other people. You are not likely to establish relationships with others if you somehow convey your general negative views. People will seek company that is reinforcing of their self-perceptions and whose relationship is experienced as rewarding. Lonely people therefore create negative impressions in others that few are likely to test in long term relationships.

7.1 Negative social cognition and our health

Do negative cognitions that are accompanied by negative emotions contribute to poor physical health? Health psychology is a relative new field as the Division of American Psychological Association was formed in 1979. It has long been viewed likely that stressful events, if not handled well by appropriate cognition, may impact a variety of physical diseases. Some diseases thought implicated include heart disease, suppression of the immune system (making the individual more vulnerable to a variety of disorders), and effects on the autonomic nervous system (leading to head aches, and eventually to hypertension).

Heart disease has been linked to the anger prone personality (Friedman, 1991). Under stress it is believed that hormones contribute to the building up of plaque in the arteries bringing on serious heart disease if prolonged. Long-term stress may also compromise the immune system producing vulnerability to a variety of diseases (Cohen & Wiliamson, 1991).

7.2 Optimism: taking control of our lives

Living in the western world today is living in the midst of multiple demands and stress. As globalization proceeds, so unfortunately will also the associated stress of our fast paced lives. In the last couple of decades people have become more aware of the negative health effects of common stress reduction means employed by millions of people throughout the world. These include drinking to excess, smoking, and the pervading drug culture. All these means of escape have very

negative consequences and claim each year millions of victims to cancer, heart disease and strokes.

A new health culture has emerged in response to these statistics. More people today walk or ride bicycles than in the previous decades. Many people have opted for a better life style, trying to maintain vitality as the human lifespan allows. Health clubs have emerged where people in sedentary jobs can get the exercise needed and reduce stress at the same time. Since stress is such a major culprit in health issues there is also more awareness of the need to relax, and in developing supportive relationships to overcome loneliness. Even tobacco companies have become so defensive with their health robbing products that they now also advise on how to cease smoking. These activities are for the most part hypocritical given the highly addictive nature of nicotine. Once they get a young person to smoke they often have a costumer for life.

Over-eating is another attempt to escape stress and associated anxiety. When people feel their lives are not satisfying they often escape into the fast food culture of today. In the Western world many believe that fast food restaurants like McDonalds are mainly responsible for the fat epidemic among children and adults. Currently there is a movement to reduce access of these unhealthy foods in the school system.

However, despite such logical efforts to improve health, many suffer ill health from the self-defeating cognition previously discussed. Negative attributional styles lead to self-defeating behaviors, and a vicious cycle of self-recriminations. Just like pessimism may lead to ill health so too can rethinking and developing a more optimistic assessment help defeat hopelessness.

Early researchers (Visintainer & Seligman, 1983) showed in an animal experiment how one could induce learned helplessness. Rats were given electric shocks in two conditions. One group was given shocks, but with the possibility to escape from the painful stimuli. Another group, however, was tied to the electric grid and not allowed to escape. The latter group developed what the experimenters called learned helplessness. Since it did not matter how much they struggled, the rats could not escape the noxious stimuli, the rats became passive and listless. The experimenters noted many negative health effects of learned helplessness including cancers from compromised immune systems. Stress is a culprit in disease (Dixon, 1986). Peterson & Seligman(1987) suggested that if pessimism

brings ill health then perhaps optimism could help reverse these effects. In the study optimists outlived pessimists. In another study on terminal cancer, patients who developed an optimistic cognitive style outlived those who were pessimistic (Levy, Lee, Bagley, & Lippman, 1988). Hopelessness and pessimism compromise the immune system leading to early death (Kamen, Seligman, Dwyer, & Rodin,1988).

Social psychology has made a contribution to better health by emphasizing that we are what we do, our behavior often produces attitudes and emotions. If we can change behavior perhaps the thinking and emotional consequences will also change. Behavior therapists maintain that inner dispositions simply follow behavior. If a person is shy the behavior requires assertiveness training and the shyness will change or disappear. Rational-emotive therapy states that emotions are the consequence of our thinking. If we consistently and chronically say negative things about ourselves, our emotions will be consistent with this negativity. If we change how we think, it should have positive consequences for how we feel (Mirels & McPeek, 1977).

7.3 Reversing negative attribution

The aforementioned negative attributions are maintained by our negative cognitive styles leading to self-defeating behavior. However, it should be possible to reverse the negativity by reversing negative thinking, and engaging in therapy like assertiveness training that directly confronts the problem. Since the negative attributions are not supported by who the person is, but may be the consequence of negative life experiences, it is possible to reverse these attributions through therapy as suggested by Abramson, (1988). Changing attributions (taking credit for the positive and more realistic assessments of the negative) helps depressed people in achieve higher self-esteem, and lower depression. By changing how we think we can improve our emotional health.

Summary

This chapter reviews some of the research on social cognition. How do people utilize information in making decisions? How do they interpret, and organize responses to stimulation in the social environment? Part of the debate concerns two types of thinking, automatic and controlled thinking. Automatic thinking requires no evaluation, like responses during a crisis. Other decisions, such as choosing a life partner, require more careful evaluation that is controlled thinking. Neither type is error free, as we are influenced in many ways. Still we

have to make decisions in spite of this often very incomplete information, errors, and biases.

Information derived from our own experiences reflects many sources of bias. Our expectations determine what information we gather, and what information we attend to. People favor information that lends support to their expectations. At the same time, we tend to give excessive weight to negative information that leads to illusionary correlations and stereotypes. Furthermore, decisions are often based on very small samples that are highly inadequate. Finally, anecdotal information appears to be a powerful but unreliable influence.

There is also a tendency to believe that other people have information not possessed by the individual leading to a state of pluralistic ignorance. Another bias influencing cognition and decision-making is bias in memory. What we remember corresponds with what we desire and wish at this moment. Memory can also be manipulated by therapists who implant “false memories” and encourage the patient remembers abuse for example that never happened. Even our memories of dramatic events from the past changes with the passage of time. So nothing is permanent in memory, all memory is malleable and how things should be changes to how things are in current memory.

However, many of our memories do not come from our own experience. Most of us will have no personal experience with the powerful people or events that shape the world we live in. Rather we obtain information from significant others, and from the media and use this as reference in our decision-making. Unfortunately the media is not an unbiased source of information. The term yellow journalism comes from the tendency to manipulate the news, and the emphasis on the dramatic and the negative. The media reports more violence and produces more fright than justified by objective statistics. In addition to the media the ideology of society or of powerful groups in society, provide their own unique slant. Often they are not providing information as such but try to persuade the individual.

Motivation and mood also play a role. People believe that what is real in the world is the information that is congruent with their vision of happiness. Being motivated, however, does not necessarily lead to more accurate judgments. Of course we have some ability to regulate our thoughts and feelings. In experiments on thought suppression such exercises often come at a high cost. Moreover, a commitment to powerful evaluative beliefs overrides any appeal to rationality and

decisions made under temporary moods, may yet have long-term effects.

Not all thinking involves careful evaluation. In fact we have mental structures called schemas, which organizes our knowledge in preparation for automatic thinking. If we did not have these mental structures we would have to evaluate each new situation. By directing our attention in specific ways, and by completing lacking information, schemas provide an immediate basis for interaction. How else would we know how to behave when approached by a member of the opposite sex or other social category?

What activates these mental structures? Research point to three factors in activating schemas. First, the expectation of a certain situation or interaction will elicit schemas from our mental, storehouse (e.g. females are more emotional). Secondly, the similarity between the schema and a social situation may trigger the schema (e.g. last year's national cup final, and estimation of the results of this year). Thirdly, how recently the memory was used in cognition may also lead to activation of schemas. Finally, a conscious process does not necessarily elicit some cognitive structures of the mind as subconscious stimuli have been shown to produce schemas.

If the situation is important a more deliberate controlled process may overrule the automatic process of schemas. Individual differences in need for schemas are significant. Those who have little tolerance for ambiguity also have high need for automatic structures.

Research has also demonstrated important cultural differences between Western and East Asian respondents. East Asians are more cognizant of the broader environment of behaviors and their schemas reflect this understanding. Western respondents view behavior more as a function of the individual. These differences can also be observed in the prediction of the future. Western respondents have an expectation of continuity; i.e. the future will be a continuation of the current situation. On the other hand East Asians are more likely to expect discontinuity or change in the future.

Mental structures like schemas have great influence on memory. What we remember is largely a result of what our schemas direct us to attend to in the situation. Prejudice finds easy support by attending only to events that support our stereotypes. The purpose of schemas is to make interaction more efficient,

but when predicated on error they obviously cause problems. Sometimes schemas result in actual behavior. The reason is that we often behave consistently with our expectations toward others, and therefore others fulfill our expectations. This self-fulfilling prophecy is a problem in education, with respect to gender issues, and in the diagnostic process in clinical psychology.

Besides schemas we also have heuristics at our disposal. Heuristics are mental shortcuts that assist in efficient evaluation and judgment. The Availability Heuristic refers to concepts that come most easily to mind. If something comes readily to mind it must be because there are many such examples, and hence is a good estimate of frequency. However, an error in estimation is possible using the availability heuristic. For example, there is a great deal of violence in the media leading people to overestimate the real violence in the world.

The Representative Heuristic allows for judgment of how similar A is to B. For example it is possible to compare a person to the typical representative existing in our minds. How similar is the target person to a Dutchman? If similar, we may interact on that basis. The Representative Heuristic is also demonstrated in the expected correlation between cause and effect. If the earthquake is large we expect the damages to be large. This heuristic can, however, also yield errors. For example, very small organisms like HIV, can cause very large damage.

A possible effect of the Representative Heuristic is illusionary correlations. This is the case when two variables are thought to be correlated, but the association is only a coincidence. Such correlations occur in clinical psychology. For example in projective tests it was thought that large eyes drawn by the client were a sign of paranoia. Illusionary correlations occur at times through selective perception. Other mental shortcuts include simulation and counter factual reasoning, where we imagine some alternative events than that which happened, and thus prepare for similar future events.

Schemes and heuristics are examples of intuitive or automatic thinking. When the issue is of great importance, controlled thinking may override the automatic. Or perhaps the automatic thinking is not working. You are using toothpaste that promises whiter teeth, but it does not happen. You might eventually think about other alternatives, a different toothpaste or some other whitening procedure. Automatic thinking governs most of our behavior although we are not aware of the influence of schemas or heuristics. However, it is possible to encourage

rational thinking. In particular courses in statistics and logic may be helpful in overcoming mindless automatic thinking. Inculcating a scientific mode of thinking is very helpful on the road to rational thinking and behavior.

In clinical psychology we see that human beings, including clinicians, have an endless capacity for self-delusions. Often theory guides expectations, which in turn function as a self-fulfilling prophecy. Selective attention plays an important role in this as the clinician will frequently look for confirming evidence, and ignore that which is not congruent. When we take as evidence of pathology illusionary correlations, and search only for confirming evidence, clinical judgment may lead to a false diagnosis.

Cognition plays an important role in mental illness. Consequently, reassessing what we think may serve to improve mental health. We have seen that excessive anxiety has negative consequences for many. The major reason for anxiety is our desire to make a good impression on others, and our fear of rejection. Negative thinking is related to depression. Depressed people emphasize the negative in their lives, and undervalue the positive. This distortion has both emotional and behavioral consequences. This works both ways. Negative feelings lead to depressed thinking, and negative cognition leads to depressed feelings. We often engage in self-defeating cognitive styles that work like vicious cycles producing self-blame, social inadequacy, and feelings of lack of control. On the other hand, optimism allows us to take control of our lives and helps us reverse the effects of negative thinking. Optimism helps improve both physical and mental health.