The Impact of Cognitive Dissonance and Cognitive Flexibility on Belief Systems

A Research Paper

Presented to

The Faculty of the Adler Graduate School

In Partial Fulfillment of the Requirements for

The Degree of Masters of Arts in

Adlerian Counseling and Psychotherapy

By:

Andy Robinson

December 2013
Abstract

Assisting a client to change their belief system has shown to be positively correlated with one’s mental health. Therefore, many therapists might agree that one goal of therapy is for their client to change their own belief systems in order to experience positive change. So then why, when confronted with a new experience or new information, does one individual choose to change their belief system while another does not? To help answer this question, the relationship between cognitive dissonance, cognitive flexibility, and belief systems was investigated. A link between cognitive flexibility, cognitive dissonance, and belief systems was discovered and a model is proposed. Therapists may be interested in this model to gain insight into what might aid their client in the process of belief change.
Acknowledgements

I want to express my deepest thanks to my family for their love and support. To my wife Shannon, thank you for clearing a space in our lives that allowed me to work on this research project. To my children, thank you for your love and patience as I spent many hours away from home.

I also want to thank Dr. Premo for his guidance through this process. I appreciate you sharing your time, knowledge and expertise. Your ability to keep me on track with goals was greatly appreciated. I could not have finished without you.
**Table of Contents**

Abstract .................................................................................................................................................. 2  
Acknowledgements ............................................................................................................................... 3  
Introduction ........................................................................................................................................... 6  
Definition of Terms ............................................................................................................................... 7  
Figures ................................................................................................................................................... 9  
   Figure 1. Proposed Belief System Change Model .............................................................................. 9  
Assumptions and Limitations .............................................................................................................. 10  
Research Question .............................................................................................................................. 10  
Belief Systems ....................................................................................................................................... 10  
   Theories .......................................................................................................................................... 10  
   Goals .............................................................................................................................................. 12  
   Cognitive Processing ....................................................................................................................... 13  
   Summary ....................................................................................................................................... 16  
Cognitive Dissonance ............................................................................................................................ 17  
   Dissonance Elements ....................................................................................................................... 21  
   Categories for Inconsistencies .......................................................................................................... 22  
   Dissonance Magnitude ...................................................................................................................... 23  
   Cognitive Rigidity ............................................................................................................................ 26  
   Dissonance Reduction with Avoidance ............................................................................................. 26  
   Summary ....................................................................................................................................... 28  
Cognitive Flexibility ............................................................................................................................... 28  
   Dissonance Reduction through Confrontation Mechanisms .......................................................... 31
Summary .............................................................................................................................................. 31
Final Summary ................................................................................................................................ ...... 32
Conclusions ........................................................................................................................................... 34
Claims .................................................................................................................................................... 34

Figure 2. Updated Proposed Belief System Change Model ................................................................. 36
New Model vs. Old Model ..................................................................................................................... 36

How the model works ......................................................................................................................... 37
Final Conclusion ................................................................................................................................... 40
Future Research .................................................................................................................................. 46

References ............................................................................................................................................ 49
The Impact of Cognitive Dissonance and Cognitive Flexibility on Belief Systems

The idea that each human has a collection of beliefs that guides one’s behavior is one that has been well researched and reflected on over the years. A keyword search on PsycINFO database using the term “belief system” alone, returned over eight thousand results.

Belief systems have been found to be important in one’s mental health. Research on belief systems has been focused on correlations with psychopathologies. One study found that personal belief systems are correlated with one’s mental health (Thyer, Papsdorf, & Kilgore, 1983). In this study sixty-two undergraduate students completed the Rational Behavior Inventory (RBI) and the Symptom Checklist (SCL-90). RBI is a questionnaire that measures 11 subscales of irrational beliefs while the SCL-90 is a 90 item inventory that measures 9 symptom dimensions. The results confirmed the influence rational beliefs have on the mental health of an individual (Thyer et al., 1983). Yet another study found a correlation between beliefs and runaway adolescents (Denoff, 1987). In this study, 79 adolescents from a treatment program and 79 adolescents from a runaway shelter were both given a questionnaire that included the RBI as well as self-report measures for drug use and running away. The results identified two beliefs that predicted running away and three beliefs that predicted frequency of drug use (Denoff, 1987).

However it is important to note that irrational beliefs may not always be linked to psychopathologies. One study looked at the uniqueness of PTSD (Muran & Motta, 1993). In this study 95 adult men and women were selected for this study; 31 were Vietnam veterans (PTSD group), 24 were outpatients with either depression or anxiety disorder (clinical group) and 40 were a college student sample (nonclinical group). Participants were given the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), the Cognitive Error Questionnaire
(CEQ), and the Survey of Personal Beliefs (SFB). The results showed the PTSD group was just as depressed and anxious as the clinical group, yet they did not show any differences in irrational beliefs and cognitive distortions from the nonclinical group. The PTSD group scored higher on depression and anxiety compared to the nonclinical group, yet differences were not found in their cognitions. The PTSD group also had more self-worth and less catastrophizing thoughts than the clinical group. The authors point to evidence supporting the uniqueness of PTSD and that this disorder may be more driven by classically conditioned fear rather than irrational beliefs or cognitive distortions (Muran & Motta, 1993).

These research studies indicate that belief systems are an important part of one’s mental health but it is important to remember the information and model shown in this paper may not be applicable to all populations and psychopathologies. However, one might wonder for the psychopathologies that are associated with irrational beliefs, what might aid or inhibit the process of a person changing their beliefs? That question is at the heart of this research. More specifically, this review will look at the concepts of cognitive dissonance and cognitive flexibility and the impact they have on belief systems.

**Definition of Terms**

*Belief System* is defined as “all the beliefs, sets, expectancies, or hypotheses, conscious and unconscious, that a person at a given time accepts as true of the world he lives in” (Rokeach, 1960, p. 33). Rokeach (1960) furthered this concept and explained that a *disbelief system* is “composed of a series of subsystems rather than merely a single one, and contains all the disbeliefs, sets, expectancies, conscious and unconscious, that, to one degree or another, a person at a given time rejects as false” (p. 33).
Cognitive Dissonance is defined by Festinger (1957) as “the existence of nonfitting relations among cognitions” and cognition as any “knowledge, opinion, or belief about the environment, about oneself or about one’s behavior” (p. 3). Conversely, cognitive consonance exists when cognitions support each other (Festinger, 1957, p. 7).

Cognitive Arousal is defined as a "general and undifferentiated state of arousal" (Cooper & Fazio, 1984, p. 256).

Cognitive Distortions are defined as “systematic errors in reasoning, often stemming from early childhood errors in reasoning; an indication of inaccurate or ineffective information processing” (Sharf, 2012, p. 694). Another way to define cognitive distortions is when a person’s “perception is twisted” or they have “mental static” (Burns, 1980, p. 30).

Cognitive Flexibility is defined as “the ability to switch cognitive sets to adapt to changing environmental stimuli” (Dennis & & Vander Wal, 2010, p. 242). Conversely, someone who is showing an “all-or-none thinking” and has “problem solving deficits” is showing cognitive rigidity (Marzuk, Hartwell, Leon, & Portera, 2005, p. 295).

Avoidance Mechanisms are defined as “responses that imply ‘turning the back’ to the newly introduced inconsistency through distortion of reality or selective interpretation” (Kumpf & Gotz-Marchand, 1973, p. 256).

Confrontation Mechanisms are ways to reduce cognitive dissonance “through changes in one or more of the elements in the dissonant relation” (Kumpf & Gotz-Marchand, 1973, p. 256).
Figures

(Figure 1) is a proposed model of how these concepts might work together. This figure will be referenced throughout the literature review.

Figure 1. Proposed Belief System Change Model
Assumptions and Limitations

This review was limited to the articles found in the existing databases. There are several assumptions made during this review.

1. Change can eliminate friction or disbelief
2. Goals are created from one’s belief system
3. Goals are critical to human success
4. Beliefs can be changed
5. Behaviors can be altered by changing one’s beliefs

Research Question

What aids or inhibits the process of a person changing his or her beliefs? In order to help further research on concepts that may impact belief systems, this review examines cognitive dissonance, cognitive flexibility, and belief systems.

Belief Systems

Theories

Belief systems are referenced in several theories of psychotherapy. One of these theories, Adlerian therapy, is specifically interested in how people interpret their world and events rather than the world and events themselves (Corey, 2009). Therefore, from an Adlerian perspective, “we are what we think” and “faulty thinking” is at the center of our problems (Carlson, Watts, & Maniaci, 2006, p. 12). Also, according to Adlerian therapy, everyone has a lifestyle or a “style of dealing with life” which is “built on deeply established personal beliefs or constructs that are referred to as private logic” (Carlson et al., 2006, p. 11-12). Carlson et al. (2006) also explain this style of life as a group of beliefs that are separated into the following categories: (a) self-concept, (b) self-ideal, (c) worldview, and (d) ethics (p. 56). Therefore, a change in these
convictions could lead to a change in lifestyle. However, a change in beliefs may not come easy to some individuals. Adlerian therapists believe that people hold tight to their beliefs, because adjusting their beliefs might cause them to be seen by others as less than they already think themselves to be (Carlson et al., 2006). This is important to note as we look into the concept of cognitive dissonance and cognitive flexibility.

In belief systems theory, beliefs are prioritized by importance, with a person’s self-concept at the center and changing these more important beliefs will have more impact on the belief system and behavior (Grube, Mayton, & Ball-Rokeach, 1994). According to Rokeach (1960), the purpose of a belief-disbelief system is to both “know and understand” and “to ward off threatening aspects of reality” (p. 67). From a belief systems perspective, Rokeach (1985) explains that people are trying to keep and increase their view of themselves as “competent” and “moral” therefore, belief change can occur if they have done or said something that they feel brings this competence and morality into question (p. 166).

In cognitive therapy (CT), the term schema is used to describe the idea of “core beliefs” (Corey, 2009, p. 295). When these core beliefs are slanted or twisted, they can be reconstructed to have a positive effect on “dysfunctional behaviors” (Corey, 2009, p. 295). Rational-emotive behavior therapy (REBT) is one of the first cognitive behavior therapies. REBT was influenced by Alfred Adler and therefore shares many similar concepts with Adlerian therapy (Corey, 2009). In REBT, beliefs are seen as either “rational” or “irrational” (Corey, 2009, p. 276). According to REBT, a person’s irrational beliefs tend to be rigid and can get in the way of accomplishing one’s goal, whereas rational beliefs are more adaptable and do not get in the way of accomplishing goals (Ellis & Dryden, 2007). In REBT, the therapist can help the client reveal their irrational beliefs, which tend to be in the form of “shoulds”, “oughts”, and “musts” (Corey,
The belief that “I must be successful” would be an example of an irrational belief. Once the irrational beliefs have been revealed, the therapist can then begin to confront the client on these irrational beliefs, encourage him or her to confront the irrational beliefs on their own, and help them to turn these rigid beliefs into beliefs that are more adaptable (Corey, 2009).

Overall, these theories all share the idea that people have beliefs which are, in turn, organized into an individual belief system. They also present an emphasis on changing one’s belief system in order to improve one’s mental health. This review will now look at additional concepts to help expand the knowledge of belief systems as well as what might allow them to change or inhibit them from changing.

Goals

From an Adlerian perspective, “private logic” has both long-term and immediate goals (Mosak & Maniacci, 1999, p. 25). Lifestyle goals are long-term “final, fictional goals” where immediate goals are those “short-term goals that are more readily attainable” (Mosak & Maniacci, 1999, p. 26). Adlerians believe that people strive for a “universal goal” which is a “basic desire to belong (find one’s place in the group), attain a sense of significance, and be safe/secure” (Brokaw, Hedberg, & Wolf, 2010). A fictive goal on the other hand is “what one mistakenly believes he/she must BE to attain the Universal Goal” (Brokaw et al., 2010). The mistaken beliefs are therefore “what one mistakenly believes he/she must DO to attain the Fictive Goal” (Brokaw et al., 2010). For example, let’s say a graduate student might have a lifestyle goal “to be successful” and an immediate goal “to be competent”. This student’s lifestyle could be seen in the following statement, “In order to belong, achieve significance, be safe and secure, I must be successful therefore I must never fail” (Brokaw et al., 2010). Since lifestyles are built on beliefs, an Adlerian therapist might be interested in the student’s "mistaken
Cognitive Processing

Closed belief system. Rokeach (1960) studied the concept of belief systems and proposed that they can be measured on a scale by degree of open or closed. Rokeach (1960) defines the measurement for an open or closed system as “the extent to which a person can receive, evaluate, and act on relevant information received from the outside on its own intrinsic merits, unencumbered by irrelevant factors in the situation arising from within the person or from the outside” (p. 57). So according to this concept, irrelevant factors are obstacles that get in the way of obtaining and analyzing the true value of information coming from outside a person. The obstacles to obtaining information can be within a person such as “unrelated habits, beliefs, and perceptual cues, irrational ego motives, power needs, the need for self-aggrandizement, [and] the need to allay anxiety” (Rokeach, 1960 p. 57). The obstacles can also be outside a person such as “pressures of reward and punishment arising from external authority” (Rokeach, 1960, p. 57).
To use our graduate student example, the student might miss a deadline and see this as a threat of not being successful. In that case, perhaps an internal irrelevant factor might exist such as the beliefs “I must be seen as successful” and “I must always be competent”. Rokeach (1960) also references the concepts of “cognitive need to know” and the “need to fight off threatening aspects of reality” (p. 67). He states that “as the need to ward off threat becomes stronger, the cognitive need to know should become weaker, resulting in more closed belief systems” (Rokeach, 1960, p. 67-68). This similar concept was shown in children. Children with a high level of manifest anxiety showed more rigidity and, in many cases, guessed at the answer earlier in the process of certain tasks (Smock, 1958). To use our graduate student, he might have a high manifest anxiety. Therefore when he perceives the missing of a deadline as a threat, he might lose his “cognitive need to know”, jump to conclusions and use a more closed belief system.

Open belief system. An open belief system on the other hand is characterized by a high “cognitive need to know” and a low “need to ward off threat” (Rokeach, 1960, p. 67). Rokeach (1960) noted that in order to facilitate an individual’s “cognitive need to know”, “external pressures and irrational internal drives” need to be removed so that one can obtain and analyze the true value of information coming from outside a person (p. 67). For example, our graduate student might see the missed deadline as just information or feedback that he can incorporate into his action and goal planning.

Basic mistakes and irrational beliefs. So if a person has an irrational belief, and views new information as threatening, and therefore hangs onto their beliefs and creates and even more closed belief system, it would seem logical that a psychopathology could be the result. In Adlerian psychology, people are seen as holding “basic mistakes” or “mistaken ideas about life” (Corey, 2009, p. 107). These “basic mistakes” can be part of a person’s lifestyle that they use as
“rules for living” (Corey, 2009, p. 107). Shulman and Mosak (1995) explain how these basic mistakes are “usually outside of awareness” and can be broken down into the following categories: (a) distorted attitudes about the self, (b) distorted attitudes about the world and people, (c) distorted goals, (d) distorted methods of operation, and (e) distorted ideals (p. 21-23). These basic mistakes are “misperceptions, inappropriate expectations, wrong meanings assigned to life situations, misplaced priorities” and they lead to problems and “distorted approaches to life” (Shulman & Mosak, 1995, p. 21).

In REBT, irrational beliefs are similar to mistaken beliefs. As we saw earlier, irrational beliefs tend to be more rigid and can get in the way of accomplishing one’s goal (Ellis & Dryden, 2007). In REBT, a person is also seen as having “silent assumptions” which can be traced back to a core belief (Burns, 1980). These “silent assumptions” have also been thought to be the drive behind a closed belief system (Quackenbush, 2001). Burns (1980) describes an exercise that allows an individual to document their “silent assumptions” which allows them to determine what core beliefs are behind them (Burns, 1980, p. 264). The individual can then review these “silent assumptions” to determine if there are any errors in logic and then begin to change their core belief. Quackenbush (2001) also suggested that these irrational “silent assumptions” can make it “difficult for individuals to consider divergent aspects of themselves and their behavior, thereby leading to selective perception and use of the 10 cognitive distortions” (p. 324).

Based on the measurement for a closed belief system, basic mistakes or irrational beliefs could play a significant role in driving a person towards a closed belief system (Rokeach, 1960). If obstacles are getting in the way of one being able to contemplate different parts of themselves and their behavior, then it would make sense that therapy could be used to break down these
obstacles. This is exactly what Quackenbush (2001) proposed, that cognitive restructuring could be used to replace irrational “silent assumptions” with rational ones, which would then “allow for the interaction of conflicting feelings, beliefs, and behaviors, and thereby enabling growthful change to occur” (p. 325).

**Cognitive distortions.** Cognitive distortions are when a person’s “perceptions are twisted” or they have “mental static” (Burns, 1980, p. 30). Another way to look at cognitive distortions is when someone is using “errors in reasoning” that they learned in their childhood (Sharf, 2012, p. 694). Burns (1980) outlined the importance of eliminating 10 different cognitive distortions in order to deal with one’s moods more effectively. These distortions are as follows: (a) all-or-nothing thinking, (b) overgeneralization, (c) mental filter, (d) disqualifying the positive, (e) jumping to conclusions, (f) magnification and minimization, (g) emotional reasoning, (h) should statements, (i) labeling and mislabeling, and (j) personalization (Burns, 1980, p. 42-43). Depression and Anxiety has also shown to make one more susceptible to using cognitive distortions, “when individuals become depressed or anxious, they lose some capacity for clear thinking; they have trouble putting things into proper perspective and resort to many of these distortions when activating events impose on them” (Quackenbush, 2001, p. 319). So anxiety could resort in one using a cognitive distortion, which in turn might lead to a rigid or closed system. For example, our graduate student may be using the all-or-none cognitive distortion to filter outside information, thus only sees success or failure and nothing in between.

**Summary**

In summary, cognitive processing has many aspects, some of which were included here. Based on this research a few themes seem to emerge.
1. That personal beliefs can be considered un-resourceful and can negatively influence one’s mental health

2. That there are obstacles which get in the way of someone changing their beliefs. Some of which include; a closed belief system, silent assumptions, mistaken beliefs and cognitive distortions

3. That personal belief change may not help certain disorders such as PTSD

These findings indicate that although belief systems are common to all individuals, changes to these belief systems may not come easily to some.

**Cognitive Dissonance**

In order to help further our knowledge of belief systems, we will now look at cognitive dissonance. Cognitive dissonance is a condition that happens when an individual realizes they are holding two “inconsistent cognitions” (Festinger, 1957, p. 3). Festinger (1957) defines a cognition as “any knowledge, opinion, or belief about the environment, about oneself or about one's behavior” (p. 3). In example, a person could be thinking of two conflicting beliefs at the same time and experience cognitive dissonance. This cognitive dissonance then becomes a drive to reduce the dissonance and return to a state of harmony (Festinger, 1957). Festinger (1957) compares this to an individual feeling hunger and then becoming motivated to reduce their hunger. Cognitive dissonance can happen when a person experiences new events or information which doesn’t match with an existing “knowledge, opinion or cognition concerning a behavior” (Festinger, 1957, p. 4). This can happen in decision making as well. When an individual makes a decision, their thinking about the steps they took will often conflict, to some degree, with their existing opinions or beliefs (Festinger, 1957, p. 5).
A few years after Festinger created this theory of cognitive dissonance, he teamed up with Calsmith and conducted a study (Festinger & Carlsmith, 1959). Specifically they were interested in testing the theory by having a participant do or say something that was opposite of his or her private opinion. They predicted that there would be a motivation for the participant to change their opinion to match what was done or said. For this study they selected 71 male students from an introductory psychology course. The participants were placed in three groups. All three groups were asked to do a boring task. The control group subjects were not asked to tell the waiting participant anything about the task. The second group subjects were paid one dollar to tell a waiting participant that the task was enjoyable and lots of fun. The third group subjects were paid twenty dollars to the same thing as the second group. The private opinions about the experience were then recorded. The results for the second group showed a significant reduction in the amount of cognitive dissonance where the third group showed little. The authors point out that when participants were persuaded by a small reward to say something that conflicts with their opinion, the participants would change their opinion to match what was being said. The results confirmed the theory of cognitive dissonance (Festinger & Carlsmith, 1959).

Elliot Aronson, who was a student of Festinger, soon made some changes to the theory of cognitive dissonance (Aronson, 1999). One of the changes he made was adding the idea that a person’s self-concept was at the heart of the conflicting cognitions. Aronson writes, “dissonance theory makes its strongest predictions when an important element of the self-concept is threatened, typically when a person performs a behavior that is inconsistent with his or her sense of self” (Aronson, 1999, p. 110).

The concept of cognitive dissonance was also studied by Cooper and Fazio (1984). They proposed a different view of cognitive dissonance consisting of two parts; arousal and
motivation. They explained how dissonance arousal is a "general and undifferentiated state of arousal" and how it was separate from the motivation to reduce dissonance (Cooper & Fazio, 1984, p. 256). Cooper and Fazio (1984) proposed that the motivation to reduce the dissonance is not due to conflicting cognitions, but instead occurs when the “individual labels his state of arousal negatively and attributes that arousal to his having freely produced an aversive consequence” (p. 256). In other words, a person will only experience a tension to reduce cognitive dissonance if they determine that what they are feeling is negative and that they also feel responsible for their actions causing unwanted negative results or foresee that their actions will cause unwanted negative results. Aronson (1999) states that he could never get himself to accept the idea that these aversive consequences were needed for the presence of dissonance and felt that Cooper and Fazio were significantly reducing the “scope of the theory" (p. 120). Later Aronson showed a study where participants were experiencing cognitive dissonance and no aversive consequences existed, thereby revalidating the original theory of conflicting cognitions as the cause of cognitive dissonance (Aronson, 1999, p. 120).

Most recently, Gawronski (2012) helped to bring the focus back to Festinger’s original theory of cognitive dissonance, reminding us that “inconsistencies serve as an epistemic cue for errors in one’s system of beliefs” (p. 653) and that the inconsistent elements “have to be understood as propositional beliefs about states of affairs” (p. 654). He also explains how these propositional beliefs need to relate two concepts together (e.g. “smoking causes cancer”) and how one needs to have “the subjective belief that the proposition is true or false” (Gawronski, 2012, p. 654). Gawronski (2012) explains how Festinger was mostly concerned with two conflicting cognitions when really inconsistencies are “more often the result of more than two propositional beliefs” (p. 654). Gawronski (2012) also reminds us about dissonance and how it is
“a desire to reduce the underlying inconsistency and to maintain a state of consonance” (p. 652). Overall, there appears to be many theories on cognitive dissonance, but regardless of what theory you look at, they all seem to agree that cognitive dissonance does exist.

Elliot and Devine (1994) found that cognitive dissonance was felt as psychological discomfort and would eventually drive one to reduce dissonance. This supported Festinger’s (1957) original theory. In this study, several hundred undergraduate students were asked to complete a questionnaire. One of the statements in the questionnaire was should the university raise their tuition by 10% for the upcoming semester. Of the group that strongly opposed the tuition increase, 20 males and 20 females were selected. These 40 individuals were then randomly assigned to one of four conditions. All individuals were given a 24 item instrument with dissonance-relevant terms to measure affect. Individuals were also given a 1-item question to measure attitude-change. The four conditions collected the data in different orders. The results showed that cognitive dissonance was a motivational state. The study also concluded that individuals feel cognitive dissonance as psychological discomfort (Elliot & Devine, 1994).

In Adlerian psychology, a similar concept is seen in “inferiority feelings”. Inferiority feelings “evoke self-evaluation of the individual’s being worth less than others” (Clark, 1999, p. 75). Adler (1935) explains how people respond to these feelings of inferiority by “striving to overcome” (p. 356). Clark (1999) also explains how Alder saw people as using “safeguarding tendencies” as a way to “rid themselves of those feelings of inferiority which threaten their self-esteem” (p. 75). For example one might use “selective perception” as a way to ignore certain aspects of an event so that it doesn’t challenge their lifestyle (Shulman & Mosak, 1995, p. 19). These Adlerian concepts correlate well with cognitive dissonance.

We have seen how cognitive dissonance is felt as psychological discomfort (or
unpleasant emotion). Another study explains how defense mechanisms help to protect an individual from unpleasant emotions that are associated with threatening information. This study found that expressing one’s unpleasant emotions would actually bypass the need to use any defense mechanism as a way to reduce the amount of cognitive dissonance (Pyszczynski, Greenberg, Soloman, Sideris, & Stubing, 1993).

**Dissonance Elements**

Festinger (1957) saw dissonance and consonance as relationships between pairs of elements. He explained how “opinions” and “beliefs, values, or attitudes” are all examples of “knowledges” or "elements of cognition" (p. 10). These elements represent various different ideas. For example some elements represent "knowledge about oneself: what one does, what one feels, what one wants or desires, what one is, and the like", while other elements represent "knowledge concerning the world in which one lives: what is where, what leads to what, what things are satisfying or painful or inconsequential or important" (Festinger, 1957, p. 9). When comparing two elements, they need to be relevant to each other and the relationship between them is either “dissonant” or “consonant” (Festinger, 1957, p. 15). When looking at the dissonant relationship, Festinger explains that "two elements are in a dissonant relation if, considering these two alone, the obverse of one element would follow from the other" (Festinger, 1957, p. 5). To help explain this, Festinger (1957) uses the example of when someone is already in debt and then goes to purchases a new car. The cognitive element “I’m in debt” would then be in dissonance with the cognitive element “I purchased a car”.

In Adlerian psychology this is similar to the concept of one’s private world, which Mosak and Maniacci (1999) explains as including the following: (a) thoughts, (b) attitudes, (c) beliefs, and (d) convictions (p. 121). Therefore if any of these cognitions are in conflict with each other,
cognitive dissonance would occur. For example one could have a belief of self-conviction that “I am a failure” and also a belief of self-ideal that “I must never fail”. When these two cognitions held at the same time, cognitive dissonance and a drive to reduce the amount of dissonance would occur. Festinger (1957) also gave an example of a person choosing to continue playing a card game and losing money while knowing that the others at the table are professionals. In this case, the knowledge about the professionals would be dissonant with cognition about the person’s behavior. It is thought that all individuals carry around conflicting beliefs in their belief system (Rokeach, 1960). However, these cognitions need to be held at the same time in order to create cognitive dissonance (Festinger, 1957).

Categories for Inconsistencies

There are many categories of cognitions or elements that can be in conflict with each other. Rokeach (1968) expanded this idea when he documented additional categories of beliefs and showed all the possible interactions that could create cognitive dissonance. Rokeach (1968) referenced Festinger as being mostly focused on conflicts between attitude and cognitions about behavior (p. 21). Rokeach (1968) described his work as going above other consistency theories in that he was interested in all the different types of conflicting cognitions that a person might experience (p. 20). Rokeach (1968) describes seven different types of categories that could conflict with each other as follows: (a) Attitude, (b) Attitude system, (c) Instrumental value system, (d) Terminal value system, (e) Cognitions about own behavior, (f) Cognitions about significant others’ attitudes, values, motives, or behavior, and finally (g) Cognitions about behavior or non-social objects (p. 20).
Dissonance Magnitude

When cognitive dissonance does occur, there is a way to measure the amount or how much there is. Festinger (1957) explains that the amount of dissonance is related to how many elements there are as well as how valuable each one is to a person. To use our graduate student, if this student put less value on the cognitive element that “I should be successful” then the amount of dissonance would also be reduced. To use another example, let’s say that Bob is someone who values charity and runs into someone who has a dire financial need. If Bob gives this person a quarter, there would probably be a large discrepancy between the importance of the belief in charity and the value of his behavior. He would then experience a large amount of cognitive dissonance. However, if Bob decides to give this person one hundred dollars, this would reduce the discrepancy and the amount of cognitive dissonance would be lower.

Festinger (1957) notes that other cognitive elements also need to be taken into account when measuring amount of cognitive dissonance, such as "the total amount of dissonance that exists between two clusters of cognitive elements is a function of the weighted proportion of all relevant relations between the two clusters that are dissonant" (p. 18). Therefore, you would take into account all cognitive elements in a cluster when looking for the total amount of cognitive dissonance. The cognitive element that “I should be successful” on one side of the equation and the cognitive elements; “I am going to miss the deadline” and “I’m not going to graduate” might be on the other side. Then, accounting for the value placed on each element, one can calculate the amount of cognitive dissonance. This amount then determines the strength of the tension for an individual to reduce their dissonance (Festinger, 1957). Since cognitive dissonance can be from more than two conflicting cognitions, the amount of working memory could restrict the number of cognitions that can be held at one time (Gawronski, 2012). For example if you can
only hold two cognitions at the same time then adding additional consonant cognitions to one side of the equation would not be an option. This could have implications for individuals with cognitive impairments.

In one study, a higher amount of cognitive dissonance was shown to be correlated with one choosing to respond with “avoidance mechanisms” to reduce dissonance (Kumpf & Gotz-Marchand, 1973, p. 5). In this study 149 female college students were asked to take part in a test which would give information about chances of success in their planned marriages. Participants were given the Marriage Expectancy Test (MET), Group Embedded Figures Test (GEFT), Feelings of Inadequacy Scale, and other instruments to measure “confrontation” and “avoidance mechanisms”. They were told the results would give them the chances that their marriage will be happy and stable. To achieve various amounts of cognitive dissonance the results were altered by three, six, or nine points on each scale. After each participant reviewed their results another questionnaire was given to measure various “avoidance” and “confrontation” responses. The results showed that as the amount of cognitive dissonance increased, so did the use of “avoidance mechanisms” as a way to decrease the amount of cognitive dissonance (Kumpf & Gotz-Marchand., 1973, p. 5).

One might then wonder, since “avoidance mechanisms” are less likely to be selected when cognitive dissonance is low (compared to when cognitive dissonance is high), if this might leave room for “confrontation mechanisms” as a more available option. Freedman (1964) supported this concept when he studied the relationship between the amount of cognitive dissonance and the change of an individual’s opinion. More specifically, that when an individual placed a high value on an opinion, changing that opinion was easier at lower levels of cognitive dissonance than at higher levels (Freedman, 1964). In addition Freeman (1964) explained that
when cognitive dissonance increased, changing one’s opinion became more difficult and thus it was easier to reject new information (p. 294). The “confrontation mechanisms” measured in the Kumpf and Gotz-Marchand. (1973) study, were “changing one’s attitude (conformity)” and “devaluation of the importance of the issue” (p. 2). Kumpf and Gotz-Marchand (1973) explains other “confrontation mechanisms” as the following: (a) reduction of ego-involvement, (b) behavioral change, and (c) influence attempts (p. 256).

When the amount of cognitive dissonance increases, the use of “avoidance mechanisms” also increased. Kumpf and Gotz-Marchand. (1968) referenced Kelman and Baron (1968) in their discussion of avoidance versus confrontation mechanisms. Avoidance mechanisms are defined as “responses that imply ‘turning the back’ on the newly introduced inconsistency through distortion of reality or selective interpretation” (Kumpf & Gotz-Marchand, 1973, p. 256). This correlates well with the Adlerian idea that when events challenge a person’s lifestyle that they might use “selective perception” to “filter out, reconstruct, or reinterpret the events so that they do not threaten the cherished set of rules” (Shulman & Mosak, 1995, p. 19).

This study measured the avoidant mechanisms of “derogation of source” and “under recall (distortion of the result in a favorable direction)” (Kumpf & Gotz-Marchand, 1973, p. 259). Kumpf and Gotz-Marchand (1973) explain the other “avoidance mechanisms” as the following: (a) denial, (b) distortion, and (c) rationalization (p. 256). Individuals use “avoidance mechanism” to “distort reality” or “selectively interpret the new information” (Kumpf & Gotz-Marchand, 1973, p. 256). This idea of “avoidance mechanisms” fits well with the Adlerian perspective that people hold tight to their beliefs, because adjusting their beliefs might cause them to be seen by others as less than they already think themselves to be (Carlson et al., 2006, p. 90). This also correlates well with belief systems theory in that one of the purposes of belief-
disbelief systems is to fight off “threatening aspects of reality” (Rokeach, 1960, p. 67). In other words, when an individual is exposed to new information that conflicts with their existing beliefs it could be perceived as a threat and would then create cognitive dissonance. The more the amount of cognitive dissonance there is, the more psychological discomfort there would be (Elliot & Devine, 1994). If this individual had a high “need to ward off threat” they would then have a low “cognitive need to know” (Rokeach, 1960). As we now turn our attention to cognitive rigidity, it is important to note that cognitive dissonance or psychological discomfort has been correlated with state anxiety (Menasco & Hawkins, 1978). Anxiety in turn has been correlated with the cognitive distortion all-or-none thinking (Burns, 1980).

**Cognitive Rigidity**

Someone who is showing an all-or-none thinking and has a deficit in problem solving is showing cognitive rigidity (Marzuk et al., 2005). Research on cognitive rigidity has been focused on correlations with psychopathologies. One study found cognitive rigidity in depressed individuals contemplating suicide (Marzuk et al., 2005). Another study emphasized the importance of confronting cognitive rigidity in suicidal clients and suggested that a therapist help the client increase their ability to consider multiple solutions or choices (Rosenberg, 1999). A third study showed how the inability to consider multiple solutions and think differently about a negative situation made it difficult for a client to accept logical reason (Lam & Cheng, 1998). These studies show us that cognitive rigidity is an obstacle to mental health.

**Dissonance Reduction with Avoidance**

When someone has a high cognitive dissonance or anxiety, they are showing all-or-none thinking. This rigidity does not allow the client to think differently about their situation. We saw earlier how a higher amount of cognitive dissonance will predict how much an individual will try
to restore a state of harmony by using “avoidance mechanisms”, specifically trying to “distort reality” or “selectively interpret the information” (Kumpf & Gotz-Marchand, 1973, p. 256). When an individual is using “avoidance mechanisms” they are not changing beliefs. So if cognitive dissonance is not reduced through changing one’s belief then it can be restored through the following ways stated by Harmon-Jones (2002): (a) misperception, (b) rejection or refutation of the information, (c) seeking support from others with the same belief, or (d) attempting to persuade others (p. 101). A person might also decide to just stay away from the “persons producing dissonance” (Worchel & McCormick, 1963, p. 588).

Dissonance reduction can be seen in Adlerian psychology as well. Clark (1999) explains that inferiority feelings are “adverse feelings triggered by destabilizing challenges in the lives of individuals” (p. 75) and that “through safeguarding tendencies, persons attempt to rid themselves of those feelings of inferiority which threaten their self-esteem” (p. 75). Safeguarding tendencies include several categories. Clark (1999) explains the different categories of safeguarding as the following: (a) distancing complex, (b) hesitating attitude, (c) detouring around, (d) narrowed path of approach (p. 77-79). The first category “distancing complex” is where people “distance themselves and become detached from life’s challenges and problems” (Clark, 1999, p. 77). The second category “hesitating attitude” is where people “desire to be involved in life tasks and challenges but who then identify certain obstacles and misfortunes that prevent this involvement from occurring” (Clark, 1999, p. 78). The next category “detouring around” is when people “protect themselves from failure by focusing on diverting and less significant functions” (Clark, 1999, p. 78-79). Finally the category of “narrowed path of approach” is when people “avoid being held fully accountable by either not completing tasks or not totally committing to endeavors” (Clark, 1999, p. 79).
Summary

In summary, when looking at research on cognitive dissonance a few themes appear.

1. Cognitive dissonance happens when a person has conflicting cognitions.

2. There are many different types of cognitions that can conflict with each other. Beliefs are one type of cognition that can be in conflict with each other.

3. The amount of cognitive dissonance is based on the number of cognitions and the value that a person places on each one. The difference in value can also be referred to as “discrepancy”.

4. Cognitive dissonance can be reduced through “avoidant mechanisms” or “confrontation mechanisms”. This is similar to the Adlerian concept of safeguarding.

5. The amount of cognitive dissonance can impact whether a person will choose to use “avoidance mechanisms” or “confrontation mechanisms” to reduce the dissonance.

6. Expressing one’s emotions can help to reduce the amount of cognitive dissonance.

7. Cognitive rigidity can exist as a result of anxiety caused by cognitive dissonance.

Together these findings would indicate that cognitive dissonance does have an impact on belief systems.

Cognitive Flexibility

As we saw earlier, if an individual is experiencing lower levels of cognitive dissonance, “confrontation mechanisms” may become more available to an individual compared to when cognitive dissonance is high (Freedman, 1964; Kumpf & Gotz-Marchand, 1973). A smaller amount of cognitive dissonance or as we saw earlier, less anxiety, may allow an individual to experience other emotions such as curiosity. In one study, emotions or moods were shown to influence cognitive flexibility (Murray, Harish, Hirt, & Sujan, 1990). In this same study,
individuals with a positive mood were more able to access a creative and wider variation of information on certain tasks (Murray et al., 1990). The authors also point to the fact that this study supports the concept of positive mood and how it makes it easier for a person to access and use their creativity. Creativity, in turn, is an important part of cognitive flexibility. Cognitive flexibility is defined as “the ability to switch cognitive sets to adapt to changing environmental stimuli” (Dennis & Vander Wal, 2010, p. 242). Dennis and Vander Wal (2010) explains that cognitive flexibility has three parts, which are as follows: (a) the tendency to perceive difficult situations as controllable; (b) the ability to perceive multiple alternative explanations for life occurrences and human behavior; and (c) the ability to generate multiple alternative solutions to difficult situations (p. 243).

The idea of an individual’s cognitive flexibility has been studied extensively. Dennis and Vander Wal (2010) developed a 50 item scale and used it to show correlations with various symptoms. In this study, 196 undergraduates were given the 50-item cognitive flexibility inventory along with various other measures such as attributional styles, depression inventory, cognitive flexibility scale, and ways of coping. The results showed that a two-factor solution best described the Cognitive Flexibility Index (CFI) as opposed to the original three-factor solution. The two-factor solution included both an alternatives subscale and a control subscale. The alternatives included both “the ability to perceive multiple alternative explanations for life occurrences and human behavior” and “the ability to generate multiple alternative solutions to difficult situations” (p. 248). The control subscale included the “tendency to perceive difficult situations as controllable” (p. 248). The results also showed that a lower cognitive flexibility on the CFI was positively correlated with a greater depressive symptomatology. A higher cognitive
flexibility on the CFI was associated with an increased tendency to use adaptive coping strategies and a decreased tendency to use maladaptive coping strategies (Dennis & Vander Wal, 2010).

Another team of researchers were also interested in cognitive flexibility when they conducted a study to replicate previous data showing a cognitive flexibility and decision-making impairment in Patients with anorexia nervosa (Abbate-Daga, Buzzichelli, Amianto, Rocca, Marzola, McClintock, & Fassino, 2011). In this study 60 participants were given the Eating Disorder Inventory-2 (EDI-2) and Body Mass Index (BMI), Beck Depression Inventory (BDI) and the Global Assessment of Functioning scale (GAF). The results showed that individuals with Anorexia Nervosa had limitations in cognitive flexibility and decision making.

Research has also been focused on cognitive flexibility and better health. One study showed cognitive flexibility as positively correlated with forgiveness (Thompson, Snyder, Hoffman, Michael, Rasmussen, Billings, Heinze, Neufeld, Shorey, Roberts, & Roberts, 2005). Cognitive flexibility was also determined to be one of 5 traits that help protect against stress and trauma-related psychological and behavioral health problems (Johnson, Polusny, Erbes, King, King, Litz, Schnurr, Friedman, Pietrzak, & Southwick, 2011). These trends support the concept that cognitive flexibility aids in the prevention or treatment of behavioral health problems.

In REBT, a client needs to accept that they are causing their emotions and behaviors before they are able to start changing their beliefs (Ellis & Maclaren, 1998). If clients come to realize they are causing their own suffering, then perhaps this acceptance of responsibility would allow them to perceive difficult situations as controllable (one component of cognitive flexibility) (Dennis & Vander Wal, 2010), and be more able to consider different options. Individuals that are able to think of various possible ways of dealing with a circumstance are considered to have cognitive flexibility (Martin & Anderson, 1998).
Dissonance Reduction through Confrontation Mechanisms

We saw earlier that at lower levels of cognitive dissonance, “confrontation mechanisms” may be more available to an individual compared to when cognitive dissonance is high (Freedman, 1964; Kumpf & Gotz-Marchand, 1973). These mechanisms allow one to reduce the amount of cognitive dissonance “through changes in one or more of the elements in the dissonant relation” (Kumpf & Gotz-Marchand, 1973, p. 256). Festinger (1957) explains that there are several methods one can use to reduce the amount of cognitive dissonance which include: (a) changing one or more of the elements involved in dissonant relations (b) adding new cognitive elements that are consonant with already existing cognition or (c) decreasing the importance of the elements involved in the dissonant relations (p. 264). For example, our graduate student might decide to add a consonant element or belief that “There is no such thing as failure, only feedback”. After adding this belief to his cluster of consonant beliefs and then placing a lot of value on it, this student could reduce his overall amount of dissonance or anxiety. The feedback could then be used to make adjustments to his actions or planned actions on his way to achieving the goal of graduation.

Summary

In summary, when looking at research on cognitive flexibility a few conclusions can be made.

1. Cognitive flexibility plays an important part in one’s mental health.

2. Cognitive flexibility may allow for creative alternative solutions and therefore may be an important part of reducing the amount of cognitive dissonance through “confrontation mechanisms”.
Together these findings would indicate that cognitive dissonance does have an impact of belief systems.

**Final Summary**

In summary we have seen how cognitive processing can be a very complex process. However there are several concepts that can bring a little more clarity to the process. At the core of cognitive processing we have looked at belief systems. More specifically how people can interpret their world through their thinking and more specifically their belief and disbelief system. One can see how these systems can be categorized in different ways but they help us to comprehend reality. We have also seen how belief systems can be used to fight off “threatening aspects of reality” regardless of whether they contain rational or irrational beliefs (Rokeach, 1960, p. 67). The irrational or mistaken beliefs can result in “defensively distorted approaches to life” (Shulman & Mosak, p. 21). Changing these beliefs may not come easy because people choose to rely on these belief systems to feel safe from the possibility of being seen by others as less than they already think themselves to be (Carlson et al., 2006, p. 90). We also explored how a closed belief system is characterized by a low “need to know” and a high “need to fight off threatening aspects of reality” (Rokeach, 1960, p. 67). Conversely we have seen how an open system is having a high “need to know” and a low “need to fight off threatening aspects of reality” (Rokeach, 1960, p. 67). We have also seen how manifest anxiety has been correlated with rigidity (Smock, 1958).

When a person experiences new information and it conflicts with their existing beliefs, they will experience cognitive dissonance (Festinger, 1957) which is felt as psychological discomfort (Elliot & Devine, 1994). When this conflict is in the area of self-concept is when “dissonance theory makes its strongest predictions” (Aronson, 1999, p. 110). It was thought that
the possibility of “aversive consequences” was necessary to experience cognitive dissonance, but Aronson (1999) showed how this was incorrect (p. 110). Cognitive dissonance requires “propositional beliefs” that relate two concepts together (e.g. “smoking causes cancer”) and is “more often the result of more than two propositional beliefs” (Gawronski, 2012, p. 654). The Adlerian concept of “minus feelings” is similar to cognitive dissonance in that a person sees it as a “threat to their self-esteem” (Clark, 1999, p. 75). We have seen how expressing unpleasant emotions will bypass the need to use defense mechanisms as a way to reduce the amount of cognitive dissonance (Pyszczynski et al., 1993). People also carry around conflicting beliefs in their belief system, but they may not experience cognitive dissonance because two or more of these conflicting beliefs need to be held at the same time (Festinger, 1957). Working memory could restrict the number of cognitions that can be used when determining the amount of cognitive dissonance (Gawronski, 2012). Rockeach (1968) also explained all the different types of conflicting cognitions as follows: (a) Attitude, (b) Attitude system, (c) Instrumental values, (d) terminal values, (e) behavior, (f) cognitions about significant others, and (g) cognitions about non-social objects (p. 23). The amount of cognitive dissonance can be calculated based on the number of elements and how valuable each one is to a person (Festinger, 1957). This amount of cognitive dissonance then determines the strength of the tension for an individual to reduce the amount of cognitive dissonance (Festinger, 1957).

A greater amount of cognitive dissonance was found to be correlated with one choosing to use the “avoidance responses” of “derogation of the source” and “under recall (distortion of the result in a favorable direction)” (Kumpf & Gotz-Marchand, 1973, p. 256). At a lower level of cognitive dissonance “confrontation responses” may become more available to an individual compared to higher levels of cognitive dissonance (Freedman, 1964; Kumpf & Gotz-Marchand,
1973). These “confrontation responses” include responses such as “changing one’s attitude (conformity)” or “devaluation of the importance of the issue” (Kumpf & Gotz-Marchand, 1973, p. 256).

Cognitive dissonance or psychological discomfort has been shown to be correlated with state anxiety (Menasco & Hawkins, 1978). Anxiety has also been correlated with the cognitive distortion of all-or-none thinking (Burns, 1980). All-or-none thinking is a component of cognitive rigidity (Marzuk et al., 2005). This cognitive rigidity has been found in studies of depressed and suicidal clients (Marzuk et al., 2005; Rosenberg, 1999). It has also been found to be an obstacle to logical reasoning (Lam & Cheng, 1998). This rigidity and heightened anxiety will predict that the client will “distort reality” or “selectively interpret information” (Kumpf & Gotz-Marchand, 1973, p. 256). The Adlerian concept of “safeguarding” is similar to the concept of cognitive dissonance reduction in that a person attempts “to rid themselves of those feelings of inferiority which threaten their self-esteem” (Clark, 1999, p. 75). When the amount of cognitive dissonance is low an individual is experiencing less anxiety (Menasco & Hawkins, 1978).

Positive mood was shown to influence cognitive flexibility by making it easier for a person to access and use their creativity (Murray, 1990). Finally, cognitive flexibility has been shown to be an important part of mental health (Thompson et al., 2005; Johnson et al., 2011). All of this information that was reviewed now allows us to come to certain conclusions and claims.

Conclusions

Claims

The first claim is that cognitive dissonance is psychologically uncomfortable (Elliot & Devine, 1994) and creates tension for one to return to harmony (Festinger, 1957). The second claim is that conflicting beliefs about one’s self-concept is when cognitive dissonance will be the
The third claim is that psychologically uncomfortable feelings are synonymous with state anxiety (Menasco & Hawkins, 1978). The forth claim is that anxiety is correlated with the cognitive distortion of all-or-none thinking (Burns, 1980) and manifest anxiety is correlated with rigidity (Smock, 1958).

Since this study was in reference to children, additional research on adults is recommended. The fifth claim is that a greater amount of cognitive dissonance will cause one to choose to reduce the amount of dissonance using methods that do not involve changing one’s belief (Kumpf & Gotz-Marchand, 1973). A sixth claim, although weak, is that a high amount of cognitive dissonance is correlated with cognitive rigidity (Menasco & Hawkins, 1978; Burns, 1980; Marzuk et al., 2005). A seventh claim is that expressing emotion allows for dissonance reduction and therefore less likelihood that an individual will choose defense mechanisms (Pyszczynski et al., 1993). The eighth claim is that taking ownership for one’s beliefs, emotions and behaviors is necessary for a person to start changing their beliefs (Ellis & MacLaren, 1998). The ninth claim is that a closed belief system and specifically the “need to ward off threat” is an obstacle to an individual changing their beliefs (Rokeach, 1960). The tenth claim is that in order to assist a client in choosing “confrontation mechanisms” that would allow them to change a belief, their “need to ward off threat” needs to be low (open belief system) (Rokeach, 1960). The eleventh and final claim is that breaking down cognitive distortions would help a client to experience less anxiety when cognitive dissonance occurs (Burns, 1980). These claims all help to verify that cognitive flexibility and cognitive dissonance are important factors in the process of belief change. These findings indicate that cognitive flexibility and cognitive dissonance do have an impact on belief systems.
Figures

(Figure 2) is an updated model based on the literature review findings.

Figure 2. Updated Proposed Belief System Change Model

New Model vs. Old Model

Before starting the literature review, a model was created to show how the concepts might work together. During the course of the review, data was uncovered that changed this model. The following is what was changed from the old model to the new model. The first major change was that cognitive dissonance occurs regardless of whether or not a person is concerned about creating “aversive consequences” (Aronson, 1999). Therefore the corresponding boxes of
“label negative and take responsibility and acceptance” and “label positive or negative and attribute to external source” were removed. Although these may still be valid, evidence does not support that taking responsibility for “aversive consequences” is necessary for dissonance reduction to occur.

Another change was renaming the step of “compare belief systems” to the name “cognitive processing”. This was due to the additional concepts that were found relating to open and closed belief systems and cognitive distortions. The name cognitive processing was found to be more encompassing of other concepts.

Also steps were added for “action” and “cognitive consonance”. The action step represents a person’s behavior based on their lifestyle goals. The step of cognitive consonance was added for when a person finds no conflicts with the internal or external event. In this case there would be no cognitive dissonance as the person would feel they are in alignment with their lifestyle goals.

There was also much consideration into moving the cognitive flexibility and cognitive rigidity to be before cognitive dissonance. However in the end it was determined that there was some evidence to suggest that cognitive rigidity could be before and after. In other words, an individual may have a propensity toward cognitive rigidity and that the existence of cognitive dissonance may increase this cognitive rigidity. The same could also be said for cognitive flexibility. Therefore it was decided to keep these steps after cognitive dissonance with an explanation.

**How the Model Works**

Let us take our student example. Let’s say Mark has a belief system with all kinds of beliefs and disbeliefs. Mark has a universal goal of trying to belong, achieve significance, and be
safe and secure. He also has a fictive goal that he must be successful. This fictive goal is in place to attain the universal goal. He then also has a mistaken belief that he must never fail. This mistaken belief is used to attain the fictive goal of success. This all fits in our model under “belief systems” and “long and short term goals” (see figure 2).

Mark decided at some point to attend graduate school. His latest action was to sign up for a class at Adler Graduate School (refer to action in figure 2). During the course of this class, Mark missed a project deadline (refer to internal or external event in figure 2). In addition to his mistaken beliefs, Mark also has a more closed belief system along with the cognitive distortions of all-or-none thinking and catastrophizing (refer to cognitive processing in figure 2). When Mark realizes that he missed the deadline, he had the cognition “I’m going to fail this class and won’t graduate”. Mark also pulls into his working memory the belief “I must never fail” which conflicts with his cognition “I’m going to fail this class”. This creates cognitive dissonance and Mark begins to feel psychologically uncomfortable. These conflicting beliefs have to do with Mark’s self-concept and more specifically his lifestyle. Therefore this appears to Mark as a threat to his self-esteem and the amount of cognitive dissonance is high (see cognitive dissonance in figure 2). Mark’s “need to ward off threat” is amplified and his “cognitive need to know” is diminished. He then decides to use the “avoidance mechanism” of rationalization and thinks “that teacher had it in for me anyways”. This serves to reduce the cognitive dissonance without changing beliefs.

Now let’s say that Mark instead chose “confrontation mechanisms”. He decides that during the cognitive dissonance, he is going to express his emotions. Mark confides in a good friend and tells him that he is feeling anxious. After some probing Mark realizes that he has some shame around missing the deadline. Mark calms down and starts to evaluate his position. Mark
thinks maybe this happened for a reason and wonders what it could mean. He thinks, “perhaps it was so I can talk with my teacher and discuss my situation” or “maybe it was for me to reach out to others for help”. He soon concludes that this wasn’t really failure, but that it gave him some information to take a different action (see cognitive flexibility in figure 2). Mark chooses the “confrontation mechanisms” and devalues the importance of the issue. He soon modifies his belief from “I must never fail” to “sometimes I won’t meet my expectations”. Mark reduces cognitive dissonance by changing his belief.

Let’s look at another example. Bethany is a woman who is married with 3 children. She works outside the home as a corporate executive. Bethany has a universal goal of trying to belong, achieve significance, and be safe and secure. She also has a fictive goal that she must be special. This fictive goal is in place to attain the universal goal. She also has a mistaken belief that “I must always have others attention.” This mistaken belief is used to attain the fictive goal. This fits in our model under “belief systems” and “long and short term goals” (see figure 2).

At work it’s important for Bethany to be the center of attention. One day Bethany decides to be the moderator for a corporate function (refer to action in figure 2). However days before the big event, her boss tells her that another individual has been selected to moderate the event and that her services are no longer needed (refer to internal or external event in figure 2). In addition to her mistaken beliefs, Bethany also has a more closed belief system along with the cognitive distortion of all-or-none thinking (refer to cognitive processing in figure 2). When Bethany realizes that she will not be the center of attention, she has the cognition “I’m being ignored and therefore I’m rejected and not valuable to this organization.” Bethany also pulls into her working memory the belief “I must always have others attention” which conflicts with her cognitions “I’m being ignored”, “I’m rejected” and “I’m not valuable to this organization.” This creates
cognitive dissonance and Bethany begins to feel psychological discomfort. These conflicting beliefs have to do with Bethany’s self-concept and more specifically her lifestyle. Therefore this appears to Bethany as a threat to her self-esteem and the amount of cognitive dissonance is high (see cognitive dissonance in figure 2). Bethany’s “need to ward off threat” is amplified and her “cognitive need to know” is diminished. She then decides to use the “avoidance mechanism” of rationalization and think “the guy they picked is a total loser, anyways; this event will be a disaster”. This serves to reduce the cognitive dissonance without changing beliefs.

Let’s say Bethany chose “confrontation mechanisms” instead. She decides that during the cognitive dissonance, she is going to listen to music to alter her mood. She then starts to journal and remembers that preparing for these events are really stressful for her and her family. Bethany starts to add some cognitions that “not doing this event will allow me to spend more time with my family” and “attention is nice to have but not needed to feel ok”. She soon concludes that this was not really rejection, but more of a blessing to her and her family (see cognitive flexibility in figure 2). Bethany chooses the “confrontation mechanisms” and devalues the importance of the event. She soon modifies her belief from “I must always have others attention” to “attention is nice but not needed”. Bethany reduces the amount of cognitive dissonance by changing the importance of a belief and then modifies her belief.

Final Conclusion

What aids or inhibits the process of a person changing his or her beliefs? In order to better answer this question we now expand on the previous claims that were made. The first claim is that cognitive dissonance is psychologically uncomfortable (Elliot & Devine, 1994) and creates tension for one to return to harmony (Festinger, 1957). This is important because we need cognitive dissonance in order to create opportunities for growth. Growth is important because it
allows us to change our internal world to be more adaptable with the external world. According to REBT, rational beliefs are more adaptable (Ellis & Dryden., 2007). Therefore changing the internal world of belief systems to be more rational or adaptable would allow an individual to experience less cognitive dissonance or anxiety as they move through life.

The second claim is that conflicting beliefs about one’s self-concept is when cognitive dissonance will be the strongest (Aronson, 1999; Festinger, 1957; Grube et al., 1994). This is an important finding because the closer conflicting cognitions are to one’s self-concept, the more important the belief is to the person (Grube et al., 1994), therefore the greater the amount of cognitive dissonance (Festinger, 1957). So working with clients, one would expect to see stronger dissonance when a client has a conflicting cognition with their self-concept. As we saw earlier, changes to self-concept will also have a greater impact on the belief system and behavior (Grube et al., 1994). According to cognitive dissonance theory, new events or information can also induce cognitive dissonance. This then tells us that introducing new information during therapy may conflict with a client’s existing beliefs and therefore create cognitive dissonance. It would be important to then check in with the client to see how they are feeling and how they are processing the new information. Assisting them through this process could help to encourage the use of “confrontation mechanisms” instead of “avoidant mechanisms”.

The third claim is that psychologically uncomfortable feelings are synonymous with state anxiety (Menasco & Hawkins, 1978). The forth claim is that anxiety is correlated with the cognitive distortion of all-or-none thinking (Burns, 1980) and manifest anxiety is correlated with rigidity (Smock, 1958). These are all important because all-or-none thinking and rigidity are both components of a closed belief system (Rokeach, 1960). This could mean that when anxiety is high, a closed belief system helps to protect an individual from threats to their self-esteem.
Therefore helping a client to reduce anxiety would remove another obstacle in the way of belief change. Also it is important to note that all-or-none thinking is only one part of cognitive rigidity. The other part of cognitive rigidity is the inability to solve problems (Marzuk et al., 2005). This inability to solve problems may be due to a high state of anxiety, but literature was not reviewed to support this claim. In addition the subjects in the Smock (1958) study were children only. Therefore, additional research in this area is recommended.

The fifth claim is that a greater amount of cognitive dissonance will cause one to choose to reduce the amount of dissonance using methods that do not involve changing one’s belief (Kumpf & Gotz-Marchand, 1973). This is important in that one might feel ok by reducing their dissonance, but they have not really changed or grown. This cognitive dissonance then may keep re-occurring in the same or similar contexts. However, it is important to note that because there was only one research article reviewed on this concept and the subjects were only female, further research in this area is definitely recommended.

A sixth claim, although weak, is that a high amount of cognitive dissonance is correlated with cognitive rigidity (Menasco & Hawkins, 1978; Burns, 1980; Marzuk et al., 2005). There is some evidence that a high state of anxiety, which is correlated with psychological discomfort (Menasco & Hawkins, 1978), causes one to use certain cognitive distortions such as all-of-none thinking (Burns, 1980). This all-or-none thinking is one part of cognitive rigidity (Marzuk et al., 2005).

A seventh claim is that expressing emotion allows for dissonance reduction and therefore less likelihood that an individual will choose defense mechanisms (Pyszczynski et al., 1993). This is important because expressing emotions would reduce cognitive dissonance and a person might be more likely able to shift moods. It was already found that emotion and moods can
influence cognitive flexibility (Murray et al., 1990). It seems like a minor leap to expect that a low level of anxiety would allow a person to change moods more than a high state of anxiety. Therefore, a low level of cognitive dissonance might allow a person to move out of an un-resourceful emotional state. This, in turn, would influence cognitive flexibility. So it is, in this way, that a lower level of cognitive dissonance could allow for “confrontation mechanisms” to become more accessible to an individual as a way to reduce the amount of cognitive dissonance (Freedman, 1964; Kumpf & Gotz-Marchand, 1973). These “confrontation mechanisms”, as we saw earlier, are more likely to result in one changing their belief system. Therefore, it would be beneficial to help a client to develop the skill of expressing emotion during cognitive dissonance. It is important to note here that the study by Kumpf and Gotz-Marchand (1973) showed that “avoidance mechanisms” are less likely to be used when the amount of dissonance is low compared to when the amount of dissonance is high. In other words, both mechanisms were still available to the individual at lower levels, but at higher levels, the individual was more likely to select “avoidant mechanisms”. For this reason, future studies are recommended to determine what additional strategies might help an individual to choose “confrontation mechanisms” over “avoidant mechanisms” at lower levels of cognitive dissonance.

The eighth claim is that taking ownership for one’s beliefs, emotions and behaviors is necessary for a person to start changing their beliefs (Ellis & MacLaren, 1998). Perhaps by adding a belief, such as “I am responsible for my emotions”, one would then be allowed to draw upon it during cognitive dissonance. This could allow dissonance reduction to occur through “confrontation mechanisms” because an individual will experience less cognitive dissonance and will feel more in control of their situation. Feeling control over a situation, another part of cognitive flexibility (Dennis & Wal, 2010, p. 242), might allow one to take responsibility for
their feeling and thus search for change within themselves. Therefore helping a client add the belief that “I am responsible for my emotions” would be a great first step for a client to move towards belief change.

The ninth claim is that a closed belief system and specifically the “need to ward off threat” is an obstacle to an individual changing their beliefs (Rokeach, 1960). Therefore, assisting a client in breaking down any beliefs or distortions that are creating a closed belief system could be helpful (Quackenbush, 2001).

The tenth claim is that in order to assist a client in choosing “confrontation mechanisms” that would allow them to change a belief, their “need to ward off threat” needs to be low (open belief system) (Rokeach, 1960). This seems to be supported by Carlson et al. (2006) in that a deepened therapeutic relationship may affect a “client’s willingness to examine the potentially maladaptive aspects of their underlying schema” (Carlson et al., 2006, p. 77). This would make sense as a deepened relationship would be more trusting and less threatening. Conversely, if a client already struggles with anxiety then this would mean their “need to ward off threats” might be higher thus reinforcing a closed belief system. So helping a client to reduce anxiety would be another great step in helping them move towards a more open belief system.

The eleventh and final claim is that breaking down cognitive distortions would help a client to experience less anxiety when cognitive dissonance occurs (Burns, 1980). We have seen how cognitive distortions such as all-or-none and magnification are associated with cognitive rigidity. Therefore, helping a client to know when they are using these cognitive distortions could aid them to think differently during times of cognitive dissonance thus helping them to move toward belief change. Since a high level of dissonance is likely to produce dissonance reduction through “avoidant mechanisms” (Kumpf & Gotz-Marchand, 1973), helping a client to
reduce dissonance and learn to choose “confrontation mechanisms” instead may help to move them toward belief change. Perhaps this could be in the form of mantras such as “they are not the enemy”, “this is my stuff not theirs” or “I am responsible for this emotion”. If a client can pull these in during times of cognitive dissonance, they may be more apt to express their emotion and reduce the dissonance or anxiety enough to shift into the “cognitive need to know” (open belief system) rather than using the “need to ward off threat” (closed belief system) (Rokeach, 1960). Since this individual would know they are the source of their dissonance, they might be more likely to go internal as a way to solve their dissonance. Also, helping a client to foster curiosity and the need to know could be beneficial. For example, a client might encounter a situation where the context causes them to continually pull up two cognitions that create dissonance. In this case, giving them the homework of being a field researcher might help. Let’s say Mary has a friend that continually has to be the center of attention. Perhaps Mary has the conflicting cognitions during this time of, “I am not accepted”, “I should be accepted”, “I am mature” and “My friend is getting all the attention and acceptance by acting immature”. All of these may create a high level of cognitive dissonance since Mary wants to be accepted, but can’t because competing with her friend would be immature. Giving Mary the task of acting like a field researcher might help. The next time Mary’s friend acts immature, it is Mary’s job to observe her friend with a different lens. Mary could look at her friend to determine what emotional age she is when this is happening, or Mary could wonder what might have happened in her friend’s childhood where she would have brought on a belief that in order to be accepted one has to get attention. All of these are an attempt to get Mary to focus on the “cognitive need to know”, thus creating an open belief system. This could also help Mary to experience a lower level of dissonance because she would be focusing on another instead of herself.
In conclusion, these claims all help to verify that cognitive flexibility and cognitive dissonance are important factors in the process of belief change. These findings indicate that cognitive flexibility and cognitive dissonance do have an impact on belief systems.

**Future Research**

Since cognitive flexibility obviously plays a role in mental health, future researchers may want to look into concepts that impact cognitive flexibility. It was found during this research that mood has an effect on cognitive flexibility, but what other concepts and techniques could be used to foster cognitive flexibility? Also the abilities to “generate multiple explanations for occurrences and human behavior” and “create multiple alternative solutions to difficult situations” are both important parts of cognitive flexibility. This same creativity and generating multiple explanations may help in changing the importance of a dissonant elements or adding additional consonant elements; both of which are methods of reducing cognitive dissonance through “confrontation mechanisms”. However this current literature review did not support his claim. Additional research is also recommended around “confrontation mechanisms” and what other concepts could make them even more accessible to an individual when the amount of cognitive dissonance is low.

Another area for future research is working memory disorders such as ADHD and their impact on cognitive dissonance. Limitations in the number of cognitions one can bring into working memory could have an impact on the cognitive dissonance process (Gawronski, 2012).

Another possibility for future research is how beliefs are wired together and how they are pulled into working memory during new events or information. Could this be the Adlerian concept of “early recollections” or early memories? When a person experiences their first cognitive dissonance in a specific context and chooses “avoidance mechanisms”, that this
cognitive dissonance will continue to arise in similar contexts until the cognitive dissonance has been reduced through belief change? Does this explain why changing early memories can have an impact on current and future situations? Perhaps that by looking at the original dissonance through an early memory and then allowing the client to express emotion (reducing cognitive dissonance), they can then alter the importance or validity of the original belief. When an individual chooses to add or modify their beliefs to reduce their cognitive dissonance, their brain may now associate these new beliefs with the original context. Then going forward, when a similar context arises, these new beliefs are brought into working memory and used in the calculation of the amount, resulting in less cognitive dissonance, less anxiety and better psychological health. Further research is recommended in this area to better understand the process of how one selects the beliefs to pull into working memory.

There was one last question that arose during research. Where does cognitive rigidity occur? Does heightened anxiety create cognitive rigidity or does it increase a tendency that was already there? The current literature review may help shed some light on this question. When looking at beliefs systems, a closed belief system is characterized by a high “need to ward off threats” (Rokeach, 1960). Also the cognitive distortion of all-or-none thinking is a part of cognitive rigidity (Marzuk et al., 2005). The other part of cognitive rigidity is the inability to solve problems. So it may be possible that a person with a closed belief system and the cognitive distortion of all-or-none thinking might be fulfilling only half of the concept of cognitive rigidity. When cognitive dissonance occurs it seems that the resulting anxiety might interfere with rational thinking and prevent the individual from solving problems (Lam & Cheng, 1998). This would be the other half of cognitive rigidity. So in this way cognitive rigidity would be partly before and partly after cognitive dissonance. So one might wonder then, what would
happen if a person does not have the cognitive distortion of all-or-none thinking and they experience a high level of cognitive dissonance? Perhaps this same person even has a more open belief system which is characterized by a high “need to know”. So when cognitive dissonance occurs, this need to know may help to create a state of curiosity that offsets any perspective of threat and resulting anxiety. This person then may be able to reframe a potential threat into an opportunity for growth. So in this way, perhaps an existing open belief system would increase the chances of using cognitive flexibility and an existing closed belief system would increase the chances of using cognitive rigidity. From this perspective we can assist clients in helping them to eliminate any mistaken beliefs and cognitive distortions that are creating a closed belief system as well as help them develop skills to foster cognitive flexibility. These individuals may then choose to change their beliefs through “confrontation mechanisms” rather than continuing to hold onto mistaken beliefs using their “avoidance mechanisms”. Additional research in this area is recommended.
References


166-176.


Thompson, L., Snyder, C., Hoffman, L., Michael, S., Rasmussen, H., Billings, L., Heinze, L.,