I Could Have Been You: Core-Self Differentiation as It Relates to Empathy and Aggression

Nazmi Cem Turker
Eastern Illinois University
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I Could Have Been You: Core-Self Differentiation as It Relates to Empathy and Aggression

Nazmi Cem Turker

Eastern Illinois University

Department of Psychology
Core-self differentiation and its correlates

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I like to use this opportunity thank

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Abstract

Previous research showed that the more one feels similar to a specific other, the less aggressive and the more empathic one behaves toward the other. Some people might have a self-concept that makes them prone to feel similar to others in general. Those people, despite being aware of the differences between them and others, may feel that their differences do not make them inherently or essentially different from others -they may feel their core-self is similar to others despite outer differences, while some may not feel as much so. This tendency was conceptualized as a trait related to one’s self-concept and named “Core-Self Differentiation” (CSD) in this study. A scale to capture the extent of CSD was also developed for the study: CSD-Scale. If degree of core-self differentiation really makes one feel more or less similar to others, it could be expected to affect empathy and aggression. Participants completed questionnaires measuring CSD, empathy, aggression, and self-esteem. CSD was found to be negatively correlated with empathy and positively correlated with verbal aggression as expected: The more participants differentiated themselves from others, the less empathic and the more verbally aggressive they were. Pattern of differences between the ethnicities, found by t-tests, also supported this. Those with higher CSD scores (more differentiation) had higher scores on aggression and lower scores on empathy. However, CSD did not correlate with total aggression scores and individual subscales of empathy. Self-esteem positively correlated with CSD, and negatively correlated with empathy. This finding joins the studies that remind us of the unclear role of self-esteem. Despite the low correlations and methodological imperfections, this study indicates that the conceptualization of “Core-Self Differentiation” along with the scale that was developed to capture it (i.e. CSD-S) can be useful. More research on the concept and the scale was suggested.
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During the 20th century, an estimated 191 million people died due to human conflict, and more than half of those were civilians (World Health Organization, 2002). Looking at a more recent statistic will not give us an optimistic picture either. More than 1.6 million people die due to violence every year, making violence one of the leading causes of death internationally for people between the ages 15 to 44 (Krug et al., 2002).

People intentionally cause harm to others. It is not only a historical fact but also a part of present social reality. The extent of the harm can vary from a sarcastic insult in a casual conversation to cold-blooded genocide. Likewise, one’s role in an aggressive act may vary from conducting a suicide bomb attack to politically supporting racism, or even just staying indifferent to violence when one has power to stop it.

It is certain that almost all people prefer society to have less aggression. Even though the terms used to describe, or the morals used to justify this direction may vary, most societies clearly want to head in a more peaceful direction. However, the question of how to get there does not seem to have an easy answer, nor one everybody agrees on. Considering the obvious relevance of such knowledge for the society, the topic has gotten quite a bit of attention.

Aggression can be defined as a behavior with the purpose of harming another who does not want to receive this harm (Baron & Richardson, 1994). A number of major psychology approaches have proposed varying explanations for aggressive behavior. Still our understanding of the concept seems far from perfect; we have no complete explanation for how biological, psychological, and social factors lead to individual and contextual differences in aggression.
An overview of major theories of aggression suggests that the construct has a multi-faceted nature. Looking at Krahe’s (2013) overview of theories of aggression, aggression can be seen as: a discharged internal energy (ethology), an evolutionary heritage as a result of natural selection (sociobiology), a heritable genetic trait (behavior genetics), as a reaction controlled by certain sex hormones and cortisol (hormonal explanations), an instinct towards destruction (Freudian Psychoanalysis), a possible reaction to frustration (Frustration-Aggression Hypothesis), an outcome caused by an emotion processed as anger resulting from aversive stimuli (Excitation transfer theory, and cognitive neo-associationist model), a behavior reinforced directly or by observation (Learning theory), a presentation of learned scripts (Social information processing models), and a variety of responses caused by individual and contextual factors (General Aggression Model).

The goal of this study is to contribute to our understanding of aggression through exploration of a certain psychological construct that is hypothesized to make individuals more or less prone to aggression. More specifically, a particular aspect of one’s self-concept will be addressed as a possible candidate to explain individual differences in aggression. Biological and environmental factors, along with psychological factors that are not related to self-concept, even though they are very important aspects of the aggression equation, will not be the focus of the study. The central focus of this study will now be briefly introduced. Then, relevant literature on aggression, empathy, self-esteem and their intersections will be reviewed in support of the idea. After that, research questions will be asked and the methodology used in the study will be described. Lastly, results will be presented and discussed.
The Kind of Person Who Runs into Tables

Production of emotions that lead to aggression and placement of such emotions seems to be impacted by various cognitive processes. Imagine you are sitting outside of a café and enjoying a lovely summer day, and suddenly a person passing by runs into your table and spills your coffee all over you. Now you are burnt, it hurts, your clothes are spoiled, and your coffee is gone. The negative arousal caused by the loss and pain can be transformed into different emotions and those emotions can be attached to different objects.

You may feel an annoyance toward the person for not being careful enough. You may feel resentment toward the person for trying to hurt you on purpose. You may feel anger toward the owner of the café for having a cheap unstable table. You may blame yourself for not being alert enough, or feel sad that life is unfair, or feel irritated towards liberals for allowing children to be too free. You may hate your mother-in-law even more for making you inattentive - possibilities are endless. So, simply the type, the object, and the extent of the emotion can be regulated by how the situation is perceived and processed by the subject.

This processing obviously involves a lot of different cognitive mechanisms: attributions, interpretations, pre-existing schemas, narratives and scripts. The current study focuses on a very specific aspect of this processing, which is hypothesized to be a significant predictor of the aggression. Let us add a small detail to the story to introduce and clarify the concept.

Now imagine that five minutes before this unfortunate coffee incident happened to you, you had run into someone else’s table in the very same way and caused a similar outcome. Could this change how you react? We tend to think yes, it is very likely that most people would be less aggressive towards “the table crasher” - but why? How exactly does the
information that you did the same thing impact your aggressiveness? Different explanations can be offered, but common intuition points in a similar direction. You react less aggressively towards the person if you did the same thing, because you realize that you are not that different. Aggression is more likely to occur when there is a clear separation between aggressor and target. Being aggressive when “this could have been me” would appear to be more troublesome as it may create a negative emotional consequence involving a negative self-evaluation. It is easier to be angry at or aggressive towards someone who you can clearly differentiate from yourself.

Simply, the answer to the question “Am I the kind of person who runs into tables?” seems to play a role in determining the aggressiveness of your response. More general forms of this question can be “Could I have been this person?” or “Am I similar to this person?” People are likely to differ in their tendencies of how they respond to this question. Putting the potential impact of different contexts aside, some people may be more prone to say yes while others may be more prone to say no across situations -indicating a trait rather than state aspect. In sum, to what extent one differentiates him or her-self from others may play a part in regulating aggressive behavior. Now the literature that supports or parallels this notion will be addressed.

**Self and Anger: Keeping Them away from Each Other**

One assumption we made in coming to the conclusion above was that being angry at one’s self must have negative emotional consequences which are driving people away from it. The negative impact of being angry towards one’s self is not only common sense and conventional wisdom but also has been present in the psychological literature in different forms and contexts. Freud (1917) described depression as “anger-turned-inward”. According
Core-self differentiation and its correlates... to various cognitive theories of depression, distorted cognitions about the self -particularly negative ones- can lead to negative emotions and depression (e.g. Beck et al, 1979). There are also many empirical studies showing various negative impacts (anxiety, poor performance, distress etc.) of self-defeating thoughts, negative self-talk, negative self-concept and the like (e.g. Bradley & Mathews, 1983; Giesler, Josephs, & Swann, 1996; Higgins & Strauman, 1985; Hollon & Kendall, 1980; Treadwell & Kendall, 1996).

The discomfort when one is angry towards one’s self can be explained by Festinger’s (1957) well-known theory of cognitive dissonance. The theory asserts that when people hold inconsistent beliefs, they feel discomfort -they experience tension. As a result of this tension, people are driven to resolve inconsistencies. Anger towards one’s self is likely to co-occur with negative self-evaluation, such as “I dislike myself because of my awkwardness”. Such evaluation would be inconsistent with a person’s positive self-concept, and this inconsistency leads to tension. To resolve the inconsistency one may need to adjust their self-concept or their self-evaluation.

Clearly people have reasons to minimize anger towards self. When they do not they may suffer emotional consequences, such as depression. This is compatible with the presented idea above: people who are less prone to be aggressive towards themselves, would also be less prone to be aggressive towards people with whom they feel they are alike. However, people still easily distinguish between self and others, so rules for self may not apply to rules for other people. Therefore, we will now focus on what narrows this gap between people’s perception of self and perception of others.
Empathy

Despite the prevalence of aggression and violence in the world, prosocial behavior and altruism also seems to be present in human interaction. There are countless documented examples of selfless action. People often try to help others despite costs, they risk and sometimes lose their lives in attempt to save others. Similarly, people sometimes choose to act in peaceful ways despite reasons for them to respond with aggression. There might be different ways to explain such behavior but one concept that is very often used for understanding such behavior in the psychology literature is empathy (Davis, 2004).

Before the appearance of the word “empathy” in the English language, sympathy was used by several writers (e.g. McDougall, 1908) to refer to the phenomena of people’s synchronizing their emotions to others. The word “empathy” was invented by Titchener (1909) as a translation from a German word that literally means “on contact/in touch”. The new word, empathy, had a connotation of a more active process in which perceiver takes a conscious role in achieving this emotional synchronization, as opposed to sympathy which was thought to be more of a passive or automatic response (Davis, 1996). However, eventually the term empathy has taken the place of most similar concepts (sympathy, sympathetic concern, perspective taking etc.), and is used in the literature as an umbrella term for the connection of one’s experience with another’s.

Those who theorize about empathy have not been quite consistent in their ideas of what empathy is. Empathy is a complicated process involving interaction of various biopsychosocial factors so it should not come as a surprise to find very different views (Westbury, Neuman & Waters, 2011). In early discussions, differences centered around emphasizing either cognitive or affective components of empathy. To some (e.g. Kohler,
1929), the ability to understand what is going on in another mind was considered empathy, while to others (e.g. Barnett, 1987) vicariously feeling what the other mind feels was empathy. Such different thoughts on empathy—whether it is active or passive, cognitive or affective, or whether it is parallel or reactive feeling—have led to integrative approaches. Incorporating different ideas about empathy shed light on the different aspects of the construct. Seeing empathy as a purely cognitive process, for example, makes it hard to understand strong human empathy towards animals since our idea of animal cognition is relatively limited (Westbury, Neuman & Waters, 2011). Seeing empathy as a process that requires conscious intent cannot explain our automatic mimicking response, which seems to be present since infancy. So the integration has been helpful in explaining a broader range of reactions. Although the above-mentioned distinctions are still present, they are seen by the integrative view as different aspects of empathy and not different ideas of what empathy is.

An attempt to integrate different perspectives on empathy was made by Davis (1996). He revised and updated his model over the years of his research (Davis, 2006). There may not be a simple way to define empathy when we try to capture every aspect of the construct but examining this model (Figure 1) can offer a comprehensive perspective.

![Figure 1. “Organizational Model of Empathy-Related Constructs” (Davis, 2006)](image_url)
Davis (2006) separates an empathy episode into four different constructs (Figure 1) and defines empathy as those constructs that are related to one’s responses to experiences of others. Antecedents are related to qualities of the subject of empathy (person) and the context of empathy (the situation). Processes are related to the mechanisms forming empathic reactions. Intrapersonal outcomes are emotional and cognitive reactions of the person engaged in being empathic. Interpersonal outcomes are overt behavioral reactions toward the target of empathy. Certain parts of this model will be referred to when we discuss the role of empathy in aggression and self-perception below.

**Empathy and Aggression**

In the above model (Davis, 2006) level of aggression is an interpersonal outcome of empathy, indicating that empathic processes impact aggressiveness. Empathy has quite a solid place in the literature as a construct inhibiting aggression, established by both considerable empirical evidence (e.g. Miller & Eisenberg, 1988; Richardson et al., 1994; Mehrabian, 1997) and various theoretical frameworks (e.g. Zillmann, 1988; Baron-Cohen & Wheelwright, 2004). Moreover, there are a lot of research and theories indicating that empathy leads to altruistic or pro-social behavior (e.g. Eisenberg & Miller, 1987; Davis, 2006). The empathy-altruism hypothesis is a widely regarded theory claiming that empathy leads to altruism (Batson, 2011). In a study by Kreb (1975) subjects who had a greater physical response to other’s pleasure and pain (a measure of empathic engagement) reacted more altruistically towards that other than the subjects who reacted less to other’s pain and pleasure. So basically, the more one’s empathic engagement (measured by physical response), the more likely they were to help the other. Similarly, Batson et al. (1997), in their series of experiments, found consistently that more empathy led to more helping.
Considering the contrast between altruism (helping others) and aggression (harming others), the empathy-altruism relationship may also indicate that empathy can reduce aggression.

Admittedly, there are studies that find a modest or even nonexistent relationship between empathy and aggression (for a meta-analysis of numerous studies look at Vachon, Lynam & Johnson, 2014). The relationship between aggression and empathy may be more complicated. Different aspects of empathy may have different relationships with different aspects of aggression. Besides, the relationships may not even be linear. Still, inconsistent results may be due to methodological difficulties in measuring empathy and aggression. Looking at most of the empirical evidence and theories, it appears that empathy has a relationship with aggression, and probably a negative one. So, with this in mind, let us look at another construct that relates to empathy.

**Empathy and Perceived Similarity: You are kind of a me**

Infants cry when they are exposed to the crying of other infants. This well-known phenomenon might be because the distinction between self and other is not fully developed in the early developmental stages (Hoffman, 1975). So, the source of such emotional synchrony may be the result of not being able to separate self from other (Wegner, 1989). This seems to be a developmentally primitive source of empathy, yet the basic mechanism behind it may be present throughout the whole life span. Although, we eventually learn that self is separate from other, our social nature and culture may not let us completely give up on the idea that we are connected to others.

We feel “closer” to some people than others. Research shows that we process others who we feel closer to, like a spouse or a mother, more similarly to the way we process the self. Aron et al. (1991) showed this by comparing performance in cognitive tasks involving
self, people who are close to self, and complete strangers. Subjects’ performance in memory tasks showed a pattern. Similarities were found for self and close others, but there were significant differences for tasks involving strangers. As this process is built into our cognitive performance, it may be that we are not differentiating the self from some people as we do from the others. So maybe just like infants’ inability to differentiate themselves from others, we may not be differentiating ourselves from close others to some extent, leading to a degree of emotional synchrony.

**Perceived similarity leads to empathy.**

Davis’ model (2006) lists observer/target similarity as an antecedent of empathy process, which parallels the idea above. Perceived similarity is how similarly one perceives him or herself to another. Consistent with the model (Davis, 2006), there is research showing that perceived similarity has a relationship with empathic processes. In the study by Kreb (1975), when subjects were told they were similar to another, their physiological reactions to the other’s pleasure or pain were stronger than subjects who were told they were dissimilar. So, it seems like when one believes the other is similar, he or she is likely to have a greater empathic response for the other.

**Empathy leads to perceived similarity.**

Moreover, the relationship between perceived similarity and empathy does not seem to be one directional. There is reason to believe empathy increases perceived similarity. This idea is not at all unusual to what people think of empathy and what kind of processes empathy involves. Empathy can be seen as an activity of mind that somehow connects self and other (Davis, 2004). Connection of experience between self and other can be reached through perspective taking, which is an essential aspect of empathy (Laurent & Myers,
Core-self differentiation and its correlates

2011). It is also one of the advanced cognitive processes of empathy in Davis' (2006) model. Perspective taking can be described as trying to perceive things from another’s perspective. Merging identities of self and other as a result of perspective taking is likely to impact how one sees the self and the other (Laurent and Myers, 2011). Davis et al. (1996) found evidence for that when people take the perspective of another, they tend to view the other more like themselves. After they were instructed to take the perspective of the other, subjects attributed more of self-endorsed qualities to the other, compared to the control group who were not directed for perspective taking. Furthermore, there is also more recent evidence supporting that perspective taking does not only affect how one sees the other but also how one sees the self: in addition to perceiving targets more like themselves, subjects also perceived themselves more like targets who they took the perspectives of (Laurent & Myers, 2011).

One interpretation of such findings is that cognitive representations of self and other seem to get closer through empathy (Davis et al., 1996). So basically, empathy makes people feel like they are more similar to each other, and feeling similar to each other makes people more prone to empathic engagement. In sum, empathy and perceived similarity seemed to have a bidirectional positive relationship, and possible a causal one.

**Perceived Similarity and Aggression**

We presented findings for the relationship between empathy and aggression, also between empathy and perceived similarity. What about perceived similarity and aggression? Apart from their possible indirect relationship (through empathy), could there be a direct relationship between the two? In a study by Shuntich (1976), college students who partook in the experiment were less aggressive towards a person if this person had similar attitudes with subjects, than those who had different attitudes. Lange and Verhallen (1978) found consistent
results with policemen subjects: They were more aggressive towards a partner with dissimilar attitudes than one with similar attitudes. Moreover, as with empathy, perceived similarity seemed to have a relation with altruistic behavior. Maner et al. (2002) manipulated “perceived oneness” by informing subjects that their brain waves were similar to or different from a target, and not surprisingly those who are told their target is more similar to them signed up to help the targets more. This motivation to help seems in contrast with motivation to harm (aggression).

**Possible Relationships among the Constructs**

We presented findings from the literature indicating: Empathy and perceived similarity positively impact each other, and also each one of them leads to less aggression and more helping. It seems like both perceived similarity and empathy directly and indirectly –mediated by each other- has a potential to inhibit aggression and increase altruistic behaviors (Figure 2).

![Figure 2. Possible causal relationship among empathy, perceived similarity, and aggression](image)

Considering the probable direct and indirect impact of perceived similarity on aggression, it is worth focusing our attention on state vs. trait aspects of perceived similarity. There are several conceptualizations and scales intended to capture perceived similarity or
related concepts in the literature (e.g. perceived oneness, self-other overlap, inclusion of
other in self), but they focus on one’s particular relationship with a specific other at certain
time, and therefore are more “state” measures. One’s perceived similarity will naturally vary
depending on who a person feels similar to, depending on how well one knows this person,
depending on the context of the relationship and so on. Some people, however, may score
generally higher or lower than others across relationships and contexts in these scales. Some
people may differentiate themselves from other people, more than others do. One question is
what could be the difference between a person who feels one with others more and a person
who feels one with others less. Is there a “trait” that makes one tend to feel similar to others
more?

**A Trait Related to Self-Concept: Core-Self Differentiation (CSD)**

People can vary in the extent of differentiating themselves from others.
Contextual/situational and target/person related factors undoubtedly has an impact on this
process, but some people may be more prone to differentiating themselves generally, while
some may not, across different situations and different “others”. Some people may tend to
feel towards others that “You are different, you cannot be me, I could not have been you” as
opposed to feeling “You are not that different, I might have been you”. In other words,
people might have kind of a trait that is making them more or less likely to say “yes” to the
question “Might I have been you?” I will name this trait “Core-Self Differentiation”, CSD in
short, and will conceptualize it below in more detail.

An important nuance to underline is that observing or acknowledging a difference
may not lead to feeling different. People have a lot of differences one can point out, however,
importance given to these differences (to what extent one identifies with these differences)
Core-self differentiation and its correlates

may vary across individuals and contexts. One may realize they are very different than others in many domains; however, they may not identify themselves with those domains and they may not differentiate themselves from others because of those. One may think “he or she” is very different in one aspect (“I” am very rich/intelligent), but if they do not identify with that aspect of self, they may feel that they are in fact are not different from others in “essence” (This richness/intelligence does not define “me”, does not come from “me”, does not have to stick with “me”, “I” am not identified with being rich/intelligent, it is not a quality that differentiates “me” from others, “I” just happened to be around money/“I” happened to have lucky genetics). Or vice versa (Richness/intelligence is an important part of who “I” am. “I” am, therefore rich/intelligent. “I” am the cause of my wealth/intelligence, it would not be “me” without these qualities). So, when there is a perception of difference, one may or may not attribute this difference to one’s “selfness”, give credit to his or her “selfness” for this difference, or simply does not match the quality with the self ultimately. The difference may be attributed to context or temporary conditions rather than self. Simply, some people, despite being aware of the differences, may feel that their differences overall are not making them inherently or essentially different from others, while some may feel the opposite.

One’s feeling similar to others despite acknowledging differences may only be possible with a self-concept that has multiple aspects or layers – simply because a single aspect cannot be similar and not similar at the same time. Regarding a difference in one aspect but regarding a similarity in another makes such experience – feeling different but similar- possible. Also, different aspects of self-concept are likely to vary in their importance in defining self, which can form a personal hierarchy in one’s self-concept (my moral values make me more me than my loving of lasagna). Considering this, I would like to imagine self-
concept as a structure with layers. Such metaphor can capture how one may feel similar to others in his or her “core” –inner layer(s)- despite acknowledging outer layer differences, or vice versa. In that sense, “I could have been you” means “My core is similar to your core even though we have differences in our outer layers” or “I can never be you” means “Our cores are different, the similarities in our outer layers will never makes us similar”.

Accordingly, the trait “core-self differentiation” (CSD) can be conceptualized in these terms in various ways: How exclusive or inclusive, how rigid or flexible, how certain or imprecise, how permanent or transient, how defined or permeable one’s core layer self-concept is. The core self-concepts that are more inclusive/flexible (low core-self differentiation) would be more compatible with feeling similar to others in “essence”. Therefore, people with low CSD may tend to be less aggressive and more empathic whereas people with high CSD may tend to be more aggressive and less empathic -given the direction of relationships among perceived similarity, empathy, and aggression.

Despite not finding a relation between overall perceived similarity and punitivity (a measure of aggression), Kaufmann and Marcus (1965) found a relationship between perceived similarity on certain important qualities and punitivity. When subjects felt that they differed from others on important (perceived) attributes, they were more aggressive towards those others. This can indicate the necessity of a measure that takes “layers of self-concept” into consideration. If a self-quality is perceived to be important –if that quality is a part of one’s core self-concept- that may have a greater impact on behavior.

A literature gap we recognized in conducting this study was a conceptualization and operationalization of the mentioned trait. The concepts “perceived similarity”, “self-other overlap”, and “perceived oneness” seemed to overlook layered identification aspect
Core-self differentiation and its correlates

mentioned—which refers to a deeper sense of self-concept than perceived similarity alone. Also these concepts only capture a “state” of feeling similar, as mentioned. Therefore, unlike in previous literature, the concept of trait core-self differentiation is the focus of this study. As mentioned, this trait may have an impact on our tendencies towards empathy and aggression. The Core-Self Differentiation Scale (CSD-S) was developed to capture this trait for the study. CSD-S will be described in depth in the method section.

Self-Esteem: Self-Concept Evaluated

How one sees him or her self comprises one’s self-concept. Self-concept is clearly relevant in the process of perceiving how others are similar or different, simply because for one to perceive another as similar or different, self and other must somehow be compared, and information about self comes from one’s self-concept. A person interacts with many other people, but the “self side” of this comparison is -relatively- stable, so is an essential element in one’s tendency to perceive him or her self as similar or different.

A person’s self-concept involves a lot of knowledge about the self, and it is probably a very complicated and large schema. However, it would seem that what is known about one’s self can make a bigger difference when this information has been evaluated as positive or negative. Wearing glasses may be a part of one’s self-concept, but if this information is not evaluated, it is unlikely to be used in self-other comparison. If a person does not evaluate wearing glasses as good or bad, he or she may not differentiate him or herself from others as much because of wearing glasses. However, if a person feels insecure about their looks because of wearing glasses, this part of their self-concept may make them differentiate themselves from others. Thus, evaluations one makes about self can be critical in perceiving others’ similarity.
A global evaluation of self, reflects on one's self-esteem. Actually, self-esteem can be considered as an evaluation of self-concept. So self-esteem is likely to relate one's tendency to perceive others as similar or different. Therefore, self-esteem probably has a relationship with empathy and aggression, through its potential to have an impact on perceived similarity.

The literature on the relationship between self-esteem and aggression has been very polarized. According to various theoretical conceptualizations, aggression is related to low self-esteem (e.g. Tracy & Robins, 2003) whilst according to numerous others it is related to high self-esteem (e.g. Baumeister & Boden, 1998). Likewise, correlational studies and experiments both have yielded conflicting results. Donellan et al. (2005) found that low self-esteem relates to aggression even after controlling for several variables including narcissism. Parallel to that, in their experiment Thomaes et al. (2009), tried to manipulate self-esteem by instructing the experimental group to write self-affirmation statements. The subjects whose self-esteem was “buttressed” by this experimental intervention showed less narcissistic aggression compared to a control group. However, Baumeister at al. (1996), after reviewing the literature for evidence about the issue, reported that highly favorable and inflated self-views are more likely to lead to aggression. Similarly, Bushman et al. (2009) reported that high self-esteem and high-narcissism was related to the most aggressive responses in their study.

Papps and O’Carroll (1998) suggested the reason for conflicting results in the literature could be due to overlooking a possible third variable. Correspondingly, more recent studies questioned the assumption of a direct relationship between aggression and self-esteem, and they emphasized other factors, offering mediators and moderators that regulate the relationship between the two. Baumeister et al. (2000) suggested that more recent
conceptualizations like narcissism, threatened egotism, and unstable self-esteem have been more successful in predicting aggressive responses. In a study by Papps and O’Carroll (1998), narcissism seemed to determine whether self-esteem would increase or decrease aggression. High self-esteem was related to more aggression in subjects with high narcissism scores. On the other hand, high self-esteem was related to less aggression in subjects with lower narcissism. In another study by Bushman and Baumeister (1998), high narcissism led to significantly higher levels of aggression, while self-esteem seemed irrelevant. Locke (2009) showed that self-esteem is negatively but narcissism is positively correlated with aggression when the shared variance of self-esteem and narcissism was controlled. So it seems like a third variable has offered new perspectives in explaining the relationship. Core-self differentiation may be another candidate for regulating this relationship. Maybe for people who have very strong self-differentiation, the self-esteem/aggression relationship is stronger. High identification with self along with feelings of entitlement for their self-qualities might possibly lead to devaluation of others.

Salmivalli (2001) pointed out another possible explanation for controversial findings. She suggests that self-esteem may be a more complicated structure than a simple two-dimensional continuum. There might be different qualities of self-esteem which may relate to different classes of aggression in different ways.

Considering the impact of perceived similarity on aggression and empathy, and CSD’s theorized effect on perceived similarity, self-esteem may have a curvilinear relationship with aggression, empathy, and CSD. Extreme scores of self-esteem, either low or high, may relate to feeling different from others (CSD), which may decrease empathy and increase aggression. “I am very good” or “I am very bad” are very likely to mean “I am
different", because those evaluations usually result from social comparison. If these assumptions are true, very high or very low scores of self-esteem should relate to high CSD, low empathy, and high aggression.

**Present Study**

As mentioned in previous literature, the literature regarding relationships among self-esteem, empathy, and aggression, along with the concept of core-self differentiation appears inconclusive and inconsistent in places (e.g. the self-esteem aggression relationship; empathy aggression relationship), or simply lacking in others (conceptualization of core-self differentiation). The main goal of this study is to investigate the relationships among mentioned constructs. Additionally, certain psychometric properties of the Core-Self Differentiation Scale (CSD-S) will be tested.

Presence, absence, and various directions of relationships seem possible considering the generally inconclusive literature and the fact that there does not seem to be any studies with a focus on a concept similar to CSD. Therefore, I have chosen not to come up with specific hypotheses but to ask questions to explore the possible relationships, in order to avoid overlooking unanticipated relations among the constructs. So the nature of this study, in this sense, is exploratory.

There are two broad questions that this study aims to respond to:

1. Are there relations among empathy, aggression, self-esteem, and core-self differentiation? If so, what is/are the direction of correlation(s)?

2. What are the psychometric properties of the Core-Self Differentiation Scale?
Here is the list of specific research questions the study will address:

- Is CSD related to aggression? If so what is the direction of the correlation?
- Is CSD related to empathy? If so what is the direction of the correlation?
- Is CSD related to self-esteem? If so what is the direction of the correlation?
- Is self-esteem related to aggression? If so what is the direction of the correlation?
- Is self-esteem related to empathy? If so what is the direction of the correlation?
- Is aggression related to empathy? If so what is the direction of the correlation?
- Do the items of CSD-S correlate with each other? If so what is the Cronbach’s alpha value that indicates internal consistency?
- Are there gender differences for aggression, empathy, self-esteem, and CSD scores?
- Are there ethnicity-based differences for aggression, empathy, self-esteem, and CSD scores?
Method

Participants

Participants consisted of psychology major undergraduate students from Eastern Illinois University. The participation in the study was rewarded with credit for a course, and 160 students participated in the study. One criterion for including a participant’s data for the study was the time participant took to finish the scales. Participants who took less than 5 seconds on average to answer one item were excluded to eliminate likely random responding participants. Another criterion was responding to the majority of items in the study; participants who did not respond to more than 80 percent of items were excluded from study. Data were pro-rated to make up for the missing items. Responses of 38 students did not fit one or neither of the criteria. After this exclusion, the sample was composed of 122 participants. Of the remaining sample 92 (74.4%) were female and 30 (24.6%) were male, and none of the participants in the sample chose the option “Other, please explain”. With regard to ethnicity, 36 (29.5%) identified as African-American, 79 (64.8%) as Caucasian, 5 (4.1%) as Hispanic, 1 (.8%) as Asian, and 1 (.8%) participant declined to answer. None of the participants in the sample reported to identify as “Native American Indian” or chose the option “Other, please describe”.

Procedure

Recruitment of the participants was conducted through the SONA research participation management system. Participants were provided a link to the online questionnaires through the Qualtrics system. They were asked to agree the consent form online to participate to the study. After agreeing to the consent, they had access to the online
questionnaires. The order of the questionnaires was randomly counterbalanced, as were the 17 individual items of CSD-S. Participants of the study were awarded course credit.

**Measures**

**Demographic Form.**

The form was designed by examining several demographic forms used in other studies. Questions that were thought to be relevant to constructs measured in this study were selected. Questions include age, gender, ethnic-racial background, marital status, and level of education (which year of the program).

**Empathy Scale: Interpersonal Reactivity Index (IRI).**

Davis (1980) developed the Interpersonal Reactivity Index (IRI) to measure individual differences in empathy, taking multi-dimensionality of the construct into account. He offered four different aspects of empathy - two cognitive dimensions - fantasy and perspective taking: and two emotional dimensions - empathic concern and personal distress. Davis (1983) defined the subscales as:

*Perspective Taking* – the tendency to spontaneously adopt the psychological point of view of others

*Fantasy* – taps respondents' tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters mostly in books, movies, and plays

*Empathic Concern* – assesses "other-oriented" feelings of sympathy and concern for unfortunate others

*Personal Distress* – measures "self-oriented" feelings of personal anxiety and unease in tense interpersonal settings
Core-self differentiation and its correlates

The scale is a 28-item self-report questionnaire in which participants are asked to respond to each item on a 5-point Likert scale from 1 -does not describe me well- to 5 -describes me well. Here are sample items for each subscale:

Fantasy: “I daydream and fantasize, with some regularity, about things that might happen to me.”

Empathic Concern: “I often have tender, concerned feelings for people less fortunate than me.”

Perspective Taking: “I sometimes find it difficult to see things from the "other guy's" point of view.”

Personal Distress: “When I see someone get hurt, I tend to remain calm.” (reverse coded)

Davis (1980) reported that the psychometric properties of the scale were excellent; the internal consistency coefficients for each subscales were calculated separately for males and females, and all standardized alpha scores were between .70 to .78, indicating an acceptable level of internal consistency. Test-retest reliability coefficients for each scale – again for each gender- varied from .61 to .81, also considered to be in the satisfactory range.

In this study, both the score for total scale and scores for each subscale were used. We used the total scores of mentioned four subscales measuring four different dimensions of empathy to get an idea of one’s general empathic tendency.

Brief Aggression Questionnaire (BAQ).

The scale is designed by Webster et al. (2014) by selecting high loading items of a very commonly used Aggression Questionnaire of Buss and Perry (1992). The scale has still four subscales tapping on different aspects of aggression: physical aggression, verbal
aggression, anger, and hostility. It is a self-reported 12-item measure in which participants are asked to rate how characteristic of the given statements are in describing them, from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me).

Each aspect of aggression has three items related to them in the scale. Here are some examples for each subscale of the measure:

Physical aggression: “Given enough provocation, I may hit another person.“

Verbal aggression: “When people annoy me, I may tell them what I think of them.“

Anger: “Sometimes I fly off the handle for no good reason.”

Hostility: “When people are especially nice, I wonder what they want.”

Regarding to psychometric properties of the scale, Webster et al. (2014) reported that the scale showed consistent discriminant and convergent validity, and strong test-retest reliability. The total scores of mentioned four subscales were used to represent one’s general tendency for aggression in the study.

**Single-item self esteem scale (SISE).**

The scale is developed by Robins et al. (2001) as an easy and quick way to measure self-esteem. The measure is a self-report one-item questionnaire involving reacting to the statement “I have high self-esteem.” Participants are asked to rate their reaction in a Likert-type scale from 1 (not very true of me) to 5 (very true of me). After a very thorough examination of the psychometric properties of the scale Robins et al. (2001) reported that their findings indicate adequate validity and reliability for the use of scale with adult samples. As reported by them, the mean reliability measure calculated with The Heise procedure (Heise, 1969) was .75.
Core-self differentiation and its correlates

Core-Self Differentiation Scale (CSD-S).

This scale was designed to capture the extent of core-self differentiation (CSD), one’s general tendency to differentiate him or her self from others and to identify with his or her self-concept (see introduction for more detailed conceptualization). High scores should indicate that one clearly differentiates him or her-self from others and identifies with his or her self-concept, whereas low scores should indicate one does not differentiate him or her-self from others and does not identify with his or her self-concept as much. In other words, high scores should indicate a proneness to say “no” to the question “Could I have been another person?” whereas low scores indicate a proneness to say “yes”.

The scale is a self-report questionnaire consisting of 17 items. Participants rate the items on a 5-point-scale, 1 (completely disagree) to 5 (completely agree). Eight of the items are reverse scored. The deductive method was used in the scale development. The idea of the concept core-self differentiation was operationalized by coming up with items that ask whether a subject feels like he or she might have been another who is currently different from self. This may reveal how flexible a subject’s “core” self-concept is. The other (or imaginary self) was different from self in various ways in different items.

There are items targeting the extent of differentiation –alienation- from others in general (e.g. “There are people in this world that I just cannot understand how they can be like that. I cannot relate to them in anyway.”), context flexible self-concept (e.g. “If my environment when I was growing up was different, I might have ended up being a very different person.”), differentiation from inferior (e.g. “I would never make the same stupid mistakes some people make.”), differentiation from immoral (e.g. “It is hard for me to blame people, because I can sometimes see myself being like them), identification with beliefs (e.g.
Core-self differentiation and its correlates

“If I was born somewhere else, I can imagine myself having very different beliefs.”), identification with nation (e.g. “I cannot imagine myself being from another country. My country and I are kind of a good match.”), how definitive one’s self-concept is in general (e.g. “I have a very good understanding of who I am and who I am not.”), and flexible attitude identification (e.g. “It is hard for me to pick favorites - I am not sure of my favorite color or movie.”).

There is, of course, no psychometric data available regarding to the measure at this point since it was developed for this study. Correlations among the items - internal consistency data- can provide an idea about reliability of the scale. Additionally, revealed correlations with other constructs measured in the study can indicate some validity data for the scale. Also, factor analysis can reveal possible factors within the scale.

As mentioned, perceived similarity refers to a specific relationship, therefore it is a state of perception. In accordance with that, scales of perceived similarity are state measures. We could find a few noteworthy trait measures that may seem similar to CSD in some aspects; however, they also differ from the designed scale in various ways.

**Self-concept clarity (SCC).** One concept from the literature that may appear similar to CSD is “Self-Concept Clarity” (Campbell et al., 1996). Self-concept clarity (SCC) refers to how “clearly and confidently defined”, “internally consistent”, and “stable” one’s self-concept is. Both CSD and SCC focus on one’s ideas about his or her self. CSD was defined as to what extent one identifies him or her self with those ideas, whereas SCC was defined as certainty, consistency, and stability of those ideas. One may think ideas about the self are already about identification, so then, is not the extent of identification - CSD- kind of same as the extent of certainty - SCC? This is only partly true. They both tap on a form of certainty
Core-self differentiation and its correlates

with self-concept, and this may be an overlap between the two concepts. Probably people whose self-beliefs are confidently defined tend to identify with their self-beliefs more, and their core self-concepts tend to be more exclusive and inflexible (I am definitely “this”, so I am not “that”). This overlapping reflects on one of the items of the each scale. The item “I have a very good understanding of who I am and who I am not” in CSD almost seems to be measuring SCC, and maybe it does so. SCC has the very similar item “In general, I have a clear sense of who I am and what I am.” Certainty of self-concept, which is a part of SCC, can also be a part of CSD.

However, the fact that they have an overlap does not mean they are the same. They still differ in important ways. Clearly and confidently defined, stable, consistent self-beliefs as in SCC may not exactly refer to exclusive/rigid self-concept as in CSD. One may have consistent self-beliefs (high SCC) but they could be very few and very flexible (low CSD). Similarly, one may have unstable self-beliefs (low SCC) but they can be very exclusive (high CSD). The distinction becomes more clear when we use the conceptualizations of “layers of self” and “core self-concept”. SCC seems to refer to certainty (also consistency/stability) in all layers of the overall self-concept whereas CSD refers to certainty (also exclusiveness/rigidity) in “core self-concept”. One may have a very clearly defined, consistent, and stable self-concept (high SCC), but they may still feel like they could have been a different person, meaning that they do not identify their “essence” or their “core self-concept” completely with their self-beliefs (low CSD). The other way around sounds also possible considering someone with inconsistent self-beliefs (low SCC) could still feel they could not have been another (high CSD). Maybe one way to look at it is that SCC is more about one’s present self-concept, while CSD is more about possible selves.
Self-concept flexibility. The name of the concept, admittedly, would also be a very fitting name for CSD. However, the concepts do not match as much as their name seems to be. Self-concept flexibility (Choi and Choi, 2002) refers to one’s tendency to hold inconsistent self-beliefs. It was measured in the study by comparing the answers to the questions of how introverted are “you” (subjects), and how extraverted are “you” (subjects) – with some filling questions in between. Participants who had higher inconsistencies responding these two questions (for example rating self high in both introversion and extraversion) were considered to have high self-concept flexibility, while those who responded more consistently were considered to have low self-concept flexibility. The assumption was that if one is comfortable with holding opposing views of him or her-self, they must have a more flexible self-concept. “Dialectical self” was emphasized in conceptualization, which is an Eastern concept referring to way of seeing self as an integration of opposites.

CSD clearly differs from self-concept flexibility. Self-concept flexibility has a specific focus on consistency (which was measured by reacting to a single personality construct), unlike CSD’s broader focus on flexibility/uncertainty and on core self-concept (“I” might have been a different person). Still, self-concept flexibility and CSD are likely to correlate (negative correlation). People who are comfortable holding opposing views of themselves (high self-concept flexibility) may tend to have more flexible core self-concepts (low CSD). Nonetheless, their difference is still theoretically possible: One may hold consistent self-believes (low self-concept flexibility) but they may still have flexible core self-concepts (as defined by low CSD) in that they may feel they could have been different.
Results

Core Self Differentiation Scale

CSD-S, comprised of 17 items, developed for this study to measure “core-self differentiation”, had a mean, after reverse scoring the 8 reverse-coded items, of 51.57 and a standard deviation of 7.52. An internal consistency analysis was conducted on the scale. A total of 122 participants’ responses were taken into consideration. Cronbach’s alpha for the CSD-S was found to be .62.

Means and standard deviations of the each item, along with each item’s correlations with the total score and Cronbach’s alpha values if the item deleted, are presented in the Table 1.
### Table 1

**Means, Standard Deviations, Correlations, and Cronbach’s Alpha Values If the Item Deleted for Each Item of the CSD-S**

<table>
<thead>
<tr>
<th>Items</th>
<th>M</th>
<th>SD</th>
<th>r</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a very good understanding of who I am and who I am not.</td>
<td>3.87</td>
<td>1.08</td>
<td>0.43</td>
<td>0.58</td>
</tr>
<tr>
<td>There are people in this world that I just cannot understand how they can be like that. I cannot relate to them in anyway.</td>
<td>3.87</td>
<td>1.03</td>
<td>0.21</td>
<td>0.61</td>
</tr>
<tr>
<td>If my environment when I was growing up was different, I might have ended up being a very different person. (-)</td>
<td>4.15</td>
<td>1.02</td>
<td>0.21</td>
<td>0.61</td>
</tr>
<tr>
<td>I would never make the same stupid mistakes some people make.</td>
<td>3.23</td>
<td>1.17</td>
<td>0.30</td>
<td>0.60</td>
</tr>
<tr>
<td>I sometimes feel confused about who I am. (-)</td>
<td>3.00</td>
<td>1.32</td>
<td>0.46</td>
<td>0.57</td>
</tr>
<tr>
<td>It is hard for me to blame people, because I can sometimes see myself being like them. (-)</td>
<td>3.46</td>
<td>0.96</td>
<td>0.28</td>
<td>0.60</td>
</tr>
<tr>
<td>If I was born somewhere else, I can imagine myself having very different beliefs. (-)</td>
<td>3.62</td>
<td>1.12</td>
<td>0.22</td>
<td>0.61</td>
</tr>
<tr>
<td>I cannot imagine myself being from another country. My country and I are kind of a good match.</td>
<td>3.19</td>
<td>1.29</td>
<td>0.14</td>
<td>0.62</td>
</tr>
<tr>
<td>It is hard for me to pick favorites - I am not sure of my favorite color or movie. (-)</td>
<td>3.06</td>
<td>1.34</td>
<td>0.21</td>
<td>0.61</td>
</tr>
<tr>
<td>It is easy for me to imagine myself as a very different person than who I am now. (-)</td>
<td>3.06</td>
<td>1.29</td>
<td>0.17</td>
<td>0.61</td>
</tr>
<tr>
<td>Sometimes people seem either disgusting or weak, that I wonder why one would be like that.</td>
<td>3.11</td>
<td>1.13</td>
<td>0.26</td>
<td>0.60</td>
</tr>
<tr>
<td>It is hard for me to feel sympathy for some people I know.</td>
<td>2.48</td>
<td>1.33</td>
<td>-0.06</td>
<td>0.65</td>
</tr>
<tr>
<td>Many people in other countries seem to lack basic reasoning skills, and that is why there is so much suffering in those countries.</td>
<td>2.54</td>
<td>1.19</td>
<td>0.12</td>
<td>0.62</td>
</tr>
<tr>
<td>I have a very strong personality - I do not change easily.</td>
<td>3.64</td>
<td>1.11</td>
<td>0.36</td>
<td>0.59</td>
</tr>
<tr>
<td>If I were in a country where most people sleep on a bed covered in bananas on a certain day of the year, I would probably do it too like the people around me. (-)</td>
<td>3.16</td>
<td>1.28</td>
<td>0.30</td>
<td>0.59</td>
</tr>
<tr>
<td>When I hear about people who behaved badly - for example seriously hurting others - I feel like I could do the same thing if provoked enough (-)</td>
<td>2.43</td>
<td>1.25</td>
<td>0.13</td>
<td>0.62</td>
</tr>
<tr>
<td>The things I like do not change easily.</td>
<td>3.58</td>
<td>1.03</td>
<td>0.29</td>
<td>0.60</td>
</tr>
</tbody>
</table>

α = Cronbach’s Alpha if Item Deleted, r = Item-Total Correlation (corrected), (-) indicates reverse coded items - reported means are before reverse coding the items.
Gender and Ethnic Differences

We did not expect to find a particular gender or ethnicity based differences in any of the scales, but we did explore the possibility. To investigate gender and ethnicity based differences for constructs measured, t-tests were conducted on the aggression scores, the empathy scores, the self-esteem scores, and the core-self differentiation scores.

Only possible comparison across ethnicities was between African-Americans (n = 36) and Caucasians (n = 79), due to the very low number of people identified as other ethnicities (six identified as one of the other, and one declined to answer). Due to the use of multiple t-tests, findings at the $p < .05$ level are considered tentative.

Table 2

Results of t-tests and Descriptive Statistics for Aggression, Empathy, Self-Esteem and CSD by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female (n = 92)</th>
<th>Male (n = 30)</th>
<th>95% CI of the Difference</th>
<th>t</th>
<th>df (120)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>35.68</td>
<td>8.88</td>
<td>33.53</td>
<td>8.47</td>
<td>-1.50, 5.81</td>
</tr>
<tr>
<td>Empathy</td>
<td>94.79</td>
<td>14.00</td>
<td>89.07</td>
<td>9.28</td>
<td>.31, 11.14</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>3.38</td>
<td>1.24</td>
<td>3.53</td>
<td>1.07</td>
<td>-.65, .35</td>
</tr>
<tr>
<td>CSD</td>
<td>51.01</td>
<td>7.86</td>
<td>53.27</td>
<td>6.18</td>
<td>-5.37, .86</td>
</tr>
</tbody>
</table>

Note. CSD = Core-self differentiation; df = degrees of freedom; CI = Confidence Interval
* $p < .05$.

There was no statistically significant difference between male and female participant scores for aggression, self-esteem, and CSD scores; however, there was a statistically significant difference in empathy between females and males, $p = .02$ (one-tailed) at an alpha level of .05 (Table 2). Female participants had higher scores on the empathy scale.
Table 3

Results of t-tests and Descriptive Statistics for Aggression, Empathy, Self-Esteem and CSD by Ethnicity

<table>
<thead>
<tr>
<th>Identified Ethnicity</th>
<th>African-American (n = 36)</th>
<th>Caucasian (n = 79)</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>95% CI of the Difference</th>
<th>t</th>
<th>df (113)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression</td>
<td>40.45</td>
<td>8.44</td>
<td>32.35</td>
<td>7.94</td>
<td>4.87</td>
<td>11.32</td>
<td>-4.35, 11.32</td>
<td>4.97</td>
<td>***</td>
</tr>
<tr>
<td>Empathy</td>
<td>92.06</td>
<td>12.60</td>
<td>94.02</td>
<td>13.98</td>
<td>-7.37</td>
<td>3.44</td>
<td>-4.35, 3.44</td>
<td>-0.72</td>
<td>*</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>3.81</td>
<td>1.37</td>
<td>3.23</td>
<td>1.08</td>
<td>0.11</td>
<td>1.05</td>
<td>0.11, 1.05</td>
<td>2.43</td>
<td>*</td>
</tr>
<tr>
<td>CSD</td>
<td>54.19</td>
<td>6.43</td>
<td>50.62</td>
<td>7.89</td>
<td>0.60</td>
<td>6.55</td>
<td>0.60, 6.55</td>
<td>2.38</td>
<td>*</td>
</tr>
</tbody>
</table>

Note. CSD = Core-self differentiation; df = degrees of freedom; CI = Confidence Interval
* p < .05. ** p < .01. *** p < .001.

There were statistically significant differences between African-American and Caucasian participants for all the scales at an alpha level of .05 (Table 3). Participants who identified as African-American have higher scores on aggression (p < .0005, one-tailed), self-esteem (p = .01, one-tailed), and core-self differentiation scales (p = .01, one-tailed), and lower scores on the empathy scale (p = .24, one-tailed), than those identified as Caucasians.

Correlations

Pearson correlations were calculated for the self-esteem scale, the Core-Self Differentiation Scale, the aggression scale and its four subscales (physical aggression, verbal aggression, anger, hostility) and the empathy scale and its four subscales (fantasy, empathic concern, perspective taking, personal distress).
Table 4

Summary of Intercorrelations, Means, and Standard Deviations for the Aggression, Empathy, Self-Esteem, and CSD Scales Total Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CSD</td>
<td></td>
<td></td>
<td></td>
<td>51.57</td>
<td>7.52</td>
</tr>
<tr>
<td>2. Self-Esteem</td>
<td>.33**</td>
<td></td>
<td></td>
<td>3.42</td>
<td>1.20</td>
</tr>
<tr>
<td>3. Empathy</td>
<td>-.18*</td>
<td>-.28**</td>
<td></td>
<td>93.39</td>
<td>13.20</td>
</tr>
<tr>
<td>4. Aggression</td>
<td>.11</td>
<td>-.06</td>
<td>-.03</td>
<td>35.16</td>
<td>8.79</td>
</tr>
</tbody>
</table>

Note. CSD = Core-self differentiation

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

As can be seen in Table 4, core-self differentiation had a negative correlation with empathy ($p = .049$) and a positive correlation with self-esteem ($p < .001$). As can be seen in Table 5, CSD positively correlated with the verbal aggression subscale of the aggression scale ($p = .001$).

Self-esteem negatively correlated with the overall empathy scale ($p = .002$). In accordance with that, there was a negative correlation between self-esteem and three of the four subscales of the empathy scale: the fantasy ($p = .01$), empathic concern ($p = .04$), and personal distress ($p = .01$) subscales -but no significant correlation with the perspective taking subscale. Additionally, self-esteem negatively correlated with the hostility subscale of the aggression scale ($p = .02$).
Table 5

Summary of Intercorrelations, Means, and Standard Deviations for the Aggression Scale and Its Four Subscales, the Empathy Scale and Its Four Subscales, the Self-Esteem Scale, and the CSD Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<td>1. CSD</td>
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<td>2. Self-esteem</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. Aggression Tot.</td>
<td>.11</td>
<td>-,.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Physical (Agg.)</td>
<td>.09</td>
<td>.03</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Verbal (Agg.)</td>
<td>.29**</td>
<td>.05</td>
<td>+</td>
<td>.42**</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6. Anger (Agg.)</td>
<td>.03</td>
<td>-.06</td>
<td>+</td>
<td>.39**</td>
<td>.40**</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>7. Hostility (Agg.)</td>
<td>-.11</td>
<td>-.22*</td>
<td>+</td>
<td>.48**</td>
<td>.31**</td>
<td>.48**</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8. Empathy Tot.</td>
<td>-.18*</td>
<td>-.28**</td>
<td>-.03</td>
<td>-.06</td>
<td>-.05</td>
<td>-.10</td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Fantasy (E.)</td>
<td>-.15</td>
<td>-.22*</td>
<td>-.01</td>
<td>-.04</td>
<td>.00</td>
<td>-.07</td>
<td>.08</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Concern (E.)</td>
<td>-.05</td>
<td>-.19*</td>
<td>-.10</td>
<td>-.06</td>
<td>-.08</td>
<td>-.16</td>
<td>.00</td>
<td>+</td>
<td>.47**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Perspective (E.)</td>
<td>-.09</td>
<td>-.07</td>
<td>-.19*</td>
<td>-.12</td>
<td>-.12</td>
<td>-.28**</td>
<td>-.06</td>
<td>+</td>
<td>.25**</td>
<td>.41**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Distress (E.)</td>
<td>-.17</td>
<td>-.23*</td>
<td>.20*</td>
<td>.06</td>
<td>.04</td>
<td>.22*</td>
<td>.29**</td>
<td>+</td>
<td>.26**</td>
<td>.14</td>
<td>-.12</td>
<td></td>
</tr>
</tbody>
</table>


** SD | 7.52 | 1.20 | 8.79 | 3.39 | 2.87 | 2.76 | 2.72 | 13.20 | 5.78 | 4.56 | 4.78 | 4.96

Note: CSD = Core-self differentiation, Tot. = Total Score; (Agg.) = Subscale of the Aggression Scale; (E.) = Subscale of the Empathy Scale

* Correlation cannot be calculated because of shared items,

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).
Even though the overall empathy score did not correlate with the overall aggression score, there were significant relationships between the subscales of aggression and the subscales of empathy, and also between some of the subscales and the total scores. The total aggression score negatively correlated with the perspective taking subscale ($p = .04$), and positively correlated with personal distress subscale ($p = .03$) of the empathy scale. The anger subscale of the aggression scale negatively correlated with the perspective taking subscale ($p = .002$), and positively correlated with personal distress subscale ($p = .01$) of the empathy scale. The hostility subscale of the aggression scale positively correlated with the personal distress subscale ($p = .001$) of the empathy scale.

Each of the aggression subscales positively correlated with each other significantly (all relationships at $< .01$). All the empathy subscales positively correlated with one another significantly, except personal distress, which did not correlate with perspective taking and empathic concern (all significant relationships at $< .01$).
Discussion

Psychometrics of Core-Self Differentiation Scale (CSD-S)

One of the goals of the study was to develop a scale that captures one’s level of core-self differentiation (CSD) - one’s level of attachment to core self-concept and differentiation from others. The scale (CSD-S) was developed for that purpose with using a theory based deductive method.

Cronbach’s alpha value for the CSD-S was calculated as .62. Numerous psychology studies cites Nunnally (1978) for a rule of thumb acceptable Cronbach’s alpha value of .70 or higher. However, Nunnally clarifies that what values are acceptable depends on the context and the way a scale is used. Given that CSD-S is a very first attempt to operationalize a concept, which is also a new conceptualization, approaching the acceptable level may not be considered low. Eliminating some of the items that do not correlate strongly with other items is a one way to increase internal consistency of the scale straightaway.

CSD-S seemed to show an extent of convergent validity. It correlated with some of the constructs that were theorized to correlate; however, it also did not with some others. Negative correlation with empathy and positive correlation with verbal aggression indicate that the scale may actually be measuring the concept CSD. Positive correlation with self-esteem also is not completely surprising. It can be explained in ways that are consistent with the conceptualization of CSD (see self-esteem - CSD discussion section below). Having no significant relationship with the total aggression score is a concern for validity. However, there are some sample-related potential reasons why the total aggression scores did not correlate with almost any construct in the study, which will be discussed later.
We could not find previous theory or research showing that the construct CSD exists as a stable trait in one’s personality. Even if it does, it is too early to claim that CSD-S is able to capture it successfully. CSD is a preliminary conceptualization and CSD-S can be considered as an early stage of a test development. Given this context, mentioned psychometrics of CSD-S indicates a good potential. Future attempts to improve the scale may be worthwhile.

**Gender Differences**

The empathy scores of female participants were higher than those of male participants. This gender difference is consistent with the findings in the literature (e.g. Davis, 1980).

It should be noted that this difference does not indicate a causal relationship between gender and empathy. Culture-bound and socio-evolutionary gender roles that have been encouraged by the institutions of society are likely to be the cause of such differences. Traditional masculine roles may restrict the range of emotions openly experienced and expressed (which is essential for empathy), while traditional feminine roles may allow and encourage caring responses (which is also a crucial part of empathic responding). Therefore, this difference is most likely to be caused by the culture, rather than actual biological differences between sexes -or identifying as a male or female because such identification can also mean different things across different cultures and times.

Our findings show a much smaller difference in empathy scores between the genders than the previous findings (Davis, 1980). Also there were not any significant differences between genders for aggression, self-esteem, and CSD, which one may expect to find. This might be due to a variety of reasons. First of all, our participant pool consisted of students
Core-self differentiation and its correlates

majoring in psychology. Choosing psychology as a major may indicate an interest in people’s thoughts and emotions, which could relate to a proneness to empathy. Likewise, psychology training may increase one’s empathic tendencies by stimulating a further interest in how the mind works. What is more is that, psychology students may be particularly more aware of gender roles because of their exposure to the psychology literature, and this awareness may partly liberate them from these roles. Also apart from that, the traditional gender roles have been slowly but gradually fading away from the dynamics of society between the cited research and present findings. Lastly, our sample was quite small \( n = 122 \), and males were underrepresented \( n = 30 \).

**Ethnic Differences**

Participants who identified as African-American scored higher on the aggression scale, on the self-esteem scale, and on the CSD scale. They scored lower in the empathy scale than participants who identified as Caucasians in the study.

It is important to note that differences found is by no means evidence for a causal relationship between ethnicity and the constructs in the study. Just as with the gender differences, differences in ethnicities are likely to be the result of longstanding cultural dynamics. One very obvious candidate within the culture that might cause these differences is the decades of oppression, institutional and social racism towards the African-American populations in the U.S. Being oppressed and being treated unjustly is for sure provocative, which might have caused the higher aggression scores. This may also limit one’s empathic range. Likewise, higher CSD scores (high differentiation) of African-Americans may be the result of the “mainstream” culture repeating to them that they are different - the other (e.g. colored). African-American’s higher self-esteem scores may sound contradictory to
experiences of suppression at first; however, high self-esteem may be a necessary defense for people who have been seen by a culture as inferior. These are a few considerations to take into account when interpreting the results, speculations about ethnicity with these results should be made with caution.

That being said, the pattern of differences between the two groups seems to be in accordance with the conceptualization of self-differentiation, and some of the findings we reviewed in the literature. The group with higher scores on CSD (African-Americans) also had higher scores in aggression and self-esteem, and had lower scores in empathy. This co-manifestation may indicate that high CSD, high aggression, high self-esteem, and low empathy may relate to each other in the theorized directions. High CSD indicates more distance between self and other (less perceived similarity), and this may lead to more aggression while constraining empathy. High self-esteem may also be playing a role in increasing this distance, as discussed.

**Correlations among the Constructs**

**Core-self differentiation and empathy.**

**Empathy total score.** Self-differentiation negatively correlated with total empathy score. Even though the correlation was somewhat low ($r = -.18$, $p = .049$), presence of a significant relationship is consistent with the conceptualization of core-self differentiation.

Perceived similarity has a reciprocal positive relationship with empathy (Davis et al., 1996; Kreb, 1975; Laurent and Myers, 2011), and possibly a causal one. The more perceived similarity the more empathy, and the more empathy the more perceived similarity. We thought of CSD as a quality of self-concept that can regulate one’s tendency to perceive others similarly. If low levels of CSD (less identification/more flexible core self-concept)
make people more prone to perceive others similarly (as conceptualized), then it should also make people more prone to empathy. The negative correlation found in this study supports this idea.

**Empathy subscale scores.** Despite the significant correlation with the total score, empathy subscales did not have a significant correlation with CSD. All correlations were in the expected direction (negative) but they were low, and apparently they increased when they were combined. Looking at the definitions of each subscale and our conceptualization of CSD, we would expect significant negative relationships with all the subscales, which was not found. Apart from possible problems in our conceptualizations or scale development, limited variance in the empathy scores of the sample and the small sample size might have been the cause.

**Core-self differentiation and aggression.**

**Aggression total score.** No significant relationship between CSD and total aggression score was found in this study, which is not in line with our expectation given the conceptualization of CSD.

As reported, there is evidence in the literature indicating that perceived similarity decreases aggression (e.g. Shuntich, 1976; Lange and Verhallen, 1978). If CSD affects perceived similarity in the way we conceptualized it (high CSD leading to low perceived similarity), it should positively correlate with aggression -low perceived similarity leads to less empathy and more aggression.

It is possible that low scores on the aggression scale might have resulted in a lack of significant correlation between CSD and total aggression scores. Considering our population was college students enrolled in a psychology course, there is a likelihood of restricted range
or floor effect on the scores of the aggression scale. Moreover, limited variance in aggression scores and small sample size might have also hidden a possible correlation.

**Aggression subscale scores.** One of the subscales of aggression had a significant positive relationship with CSD in the expected direction. There was a positive correlation between verbal aggression and CSD ($r = .29, p = .001$). Higher CSD was related to higher verbal aggression: The more one differentiates one’s self from others, the more verbally aggressive that person seems to be. The remaining three of the four subscales of the aggression scale did not have a significant correlation with CSD, in accordance with the total aggression scores. It is a possibility that CSD—as a construct- relates to only verbal aggression, while it does not relate to other aspects of aggression as much. Other aspects of aggression may be regulated by other mechanisms not relevant to CSD. However, there are also other possible factors that may cause this pattern of the results, apart from the actual relationships between the constructs.

**General discussion.** Maybe CSD correlates with aggression overall, but only correlation with verbal aggression was found because of the characteristic of the sample. The verbal aggression scores of the sample might have a more representative distribution. As verbal aggression is more socially acceptable and almost certainly more prevalent in the college student population (compared to other aggression subscales), it is likely to be a more sensitive measure of aggression for our sample. Standard deviations of the subscales do not seem to be very different from each other, but the mean of the verbal aggression score was highest among all the subscales. Therefore, restricted range of the other subscales may have not shown correlations, while a correlation was found for verbal aggression score. So, it is possible that CSD does have a relationship with aggression overall.
Another possibility, which is not inconsistent with the one above, is that the impact of CSD is more prominent in certain ranges of aggression. Maybe the difference between very low aggression and low aggression is not affected at all—or as much—by CSD. Other factors may become much more important within that range of aggression. Different levels of CSD may be able to create a bigger difference within the range of high-to-low aggression, or high-to-very high aggression, but not low-to-very low aggression. Not only the presence but even the direction of the correlation may differ in different ranges of the two variables. That would mean that the relationship is not linear, which is a possibility. High levels of CSD may increase aggression because people do not mind being aggressive towards others who they clearly feel different from, whereas very low levels of CSD may create frustration and anger when one witnesses people, who are not that different in their core, exhibiting extreme differences in living conditions, leading to a perception of an incredibly unjust world (curvilinear relationship). It is possible that this curvilinear relationship affected correlations.

It is also possible that presence or a degree of a third variable (moderator) determines the strength of the CSD-aggression relationship. Maybe for people who have secure self-esteem, for instance, CSD does not correlate with aggression, but for people who have insecure self-esteem CSD makes a difference.

**Core-self differentiation and self-esteem.**

In the introduction, we discussed the possibility that extreme scores of self-esteem (high or low) might relate to high CSD, because “I am better” and “I am worse” requires that “I am different”. While our finding supports one side of this, it does not support the other. Core-self differentiation positively correlated with self-esteem ($r = .33, p < .001$). The higher the CSD the higher the self-esteem was in the sample. So high self-esteem and high CSD co-
occurred as expected, but low self-esteem and high CSD did not. Low self-esteem was more common with low CSD. It seems that low self-esteem does not relate to high CSD as much as high self-esteem does --or even at all.

One way to explain this is by considering people’s ego protective motives. It is probably costly to think that “I could not have been any different” when I believe “I am worse than others” and pleasing to think such when I believe “I am better than others”. Looking at the other side of the same coin, when I believe “I am worse than others” it is hopeful and rewarding to think that “I might have been a very different person”, but when I believe “I am better than others” the thought that “I might have been different” is threatening.

Another way to explain this is that “being special/different” has a more positive association than “being not that different from others”. “Being different-unique” may be perceived as more positive in general, whereas “being same-ordinary” usually has a more negative connotation. So high CSD may boost self-esteem while low CSD may hamper it.

In conclusion our findings show that “I am different” goes more often with “I am good”, while “I am not that different” goes more often with “I am not that good”.

**Aggression and empathy.**

**Total scores.** There was no significant relationship between the overall empathy score and the overall aggression score. As mentioned in the introduction, there is abundance of studies confirming the negative relationship both empirically (e.g. Miller & Eisenberg, 1988; Richardson et al., 1994; Mehrabian, 1997 and theoretically (e.g. Zillmann, 1988; Baron-Cohen & Wheelwright, 2004); but ours is not the first study to not find a relationship between aggression and empathy. There are also numerous studies that found no relationship --or a very modest relationship- between empathy and aggression (for a meta-analysis, look at
Vachon, Lynam & Johnson, 2014). The answer to this controversy may be more complicated than whether they relate or not, considering some factors including subscale scores.

**Subscale scores.** Some of the subscales of aggression did correlate with some of the subscales of empathy. Also, total aggression score correlated with some of the subscales of empathy. The direction of these relationships varied.

The perspective taking subscale -of the empathy scale- had a significant negative correlation with the anger subscale -of the aggression scale- \((r = -.28, p = .002)\) and the overall aggression score \((r = -.19, p = .04)\). The higher the perspective taking score one had, the lower the anger score and the lower the total aggression score one had. This is clearly in line with the theory and research that claims empathy inhibits aggression. An aspect of empathy negatively correlates with an aspect of aggression, also with overall aggression.

Also, the specific relationship is consistent with the findings we reviewed on perceived similarity, and it fits with the ideas discussed in the introduction. Perspective taking is found to increase perceived similarity (Davis et al., 1996; Laurent and Myers, 2011), which is found to decrease aggression (Shuntich, 1976; Lange and Verhallen, 1978). So, perspective taking would be expected to decrease aggression. When people take “the other person’s perspective”, they partly get out of their own narrative and acknowledge others’ reasons. This potentially softens the border between right and wrong, good and bad, and me and you, which in turn makes it harder to justify aggression, so they may experience less anger and lower levels of aggression.

However, as opposed to perspective taking, another subscale of empathy had a relationship with the two subscales of aggression and overall aggression scores in the unexpected direction. The personal distress subscale -of the empathy scale- correlated
positively with the hostility ($r = .29, p = .001$), and anger subscales ($r = .22, p = .01$) -of the aggression scale-, and also with overall aggression ($r = .20, p = .03$). The higher the personal distress subscale score one reported, the more hostility, anger, and overall aggression that person was likely to report. Personal distress refers to one’s feeling anxiety and unease when others are in a difficult situation, which is theorized to be an aspect of empathy. If one is more sensitive to others’ feelings, he or she may experience more distress when others are in difficult situations. The conventional idea is that if one is more sensitive to others’ feelings they would also be less aggressive, because hurting others partly hurt themselves. Our findings indicate the exactly opposite direction. This is not completely unexpected. One possibility is that the constant negative experiences (personal distress) because of being sensitive to others’ pain may frustrate a person in their interpersonal relationships and in watching the news in a world with much suffering. A constant background feeling of anxiety may pile up to make one more aggressive.

This diversity of findings draws a complicated picture of the aggression-empathy relationship. Different aspects of empathy seem to relate to different aspects of aggression in different ways. Certain empathy related processes may be making the individual more or less prone to certain ways of aggression, and some processes may be completely irrelevant to each other. In conclusion, it is unlikely that empathy and aggression do not relate to each other. The inconsistent results may be due to complicated nature of their relationship.

**Self-esteem as it relates to empathy and aggression.**

**Empathy.** Self-esteem had a negative correlation with the overall empathy scores ($r = -.28, p = .002$). Likewise, it negatively correlated with three of the four subscales of the empathy scale: fantasy ($r = -.22, p = .01$), empathic concern ($r = -.19, p = .04$), and personal
distress ($r = -.23, p = .01$) subscales -but did not significantly correlate with the perspective taking subscale. Participants with higher self-esteem scores were found to have lower empathy scores, while those with lower self-esteem scores had higher empathy scores.

One possible explanation for these findings is that the way one evaluates him or her self (self-esteem) affects one’s empathic tendency in the following way. People who tend to evaluate themselves very highly may have less empathic concern for others, because they may tend to evaluate others more negatively. People often use social references in evaluating themselves, so “I am good” may partly mean “Others are not that good”. So it may bring about less concern and distress when people who are suffering are perceived as inferior or bad to some extent. This difference in evaluation may create a disconnection, decreasing empathic engagement. This may become even sharper if a high self-esteem person believes in a just world. They may feel that bad things, which happen to others, would not happen to them because they are better, and the people who suffer should be suffering because they are bad or not good like them. Such thinking patterns could explain low “empathic concern” and low “personal distress” scores of high self-esteem individuals. Looking at the other side of the correlation with the same logic, people who evaluate themselves negatively may experience more concern and distress when others are suffering because those who are suffering are “more valuable” beings.

*Aggression.* Self-esteem did not correlate with the total aggression score, but it did correlate negatively with one of the subscales of the aggression scale, which is the hostility scale ($r = -.22, p = .02$). Different explanations can be offered for this, but we chose not to go beyond the focus of this study to speculate. It is a very specific and provisional finding.
Limitations

There is very limited information available regarding the psychometrics of the CSD-S. It was developed for this study with a deductive method, so there was no pilot study or statistical method involved in the scale development. Cronbach’s alpha value of the scale (.62) indicated a somewhat low internal consistency, and there is no other data to assess reliability. Similarly, correlates of the scale draw a quite incomplete picture of validity.

Multiple t-tests and correlation analyses were conducted for the study, which increases the chance of false positives (Type 1 error). We did not use any statistical correction in evaluating the significance. The significant findings with higher p values should be interpreted with more caution, since those results are more likely to be by chance.

The sample for the study consisted of undergraduate students who were taking a psychology course with the majority being Caucasian females. It is a narrow group with limited variance in its demographics. So representativeness of the sample has questionable generalizability to the wider population. Moreover, limited demographic diversity is possibly reflected in the scales as low variance and constricted range of the scores measured, possibly lowering correlations. Also, comparisons across genders and ethnicities should be considered tentative because males and African-Americans were underrepresented (92 females and 30 males, 79 Caucasians and 36 African-Americans).

The study was correlational, we gathered data without manipulating any of the constructs. Therefore, the findings are not evidence for causal relationships among the constructs. Third variables or mediators may be causing the correlations. Discussions of causal relationships among the constructs are only speculative.
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Future Directions

Future research focusing more closely on validity, reliability, and improvement of the CSD-S is needed to gain a better understanding of CSD and its role in aggression and empathy, and possibly in other aspects of personality.

To gain a better insight on validity, correlations with theoretically similar trait constructs like “Self-Concept Flexibility” and “Self-Concept Clarity”, and several other self-concept related constructs can be examined. Another way to improve our understanding of the scale can be through conducting a factor analysis. This may reveal multiple factors within the scale, exploring the structure of the concept. Also, looking at correlations among the items in a wider sample, and deleting some of the items that correlate poorly with the rest of the scale can increase the borderline internal consistency. Each item of the scale can be analyzed both theoretically and statistically by considering its correlations with other items and other scales, and their inclusion can be re-considered.

If building on CSD-S does not produce good results, different methods can be used to develop an alternative scale that captures CSD better. Responses to open ended questions about CSD (e.g. “What kind of person do you think you could not have been?”, “What makes you “you” more than anything else?”, “What things about you can change and what things about you cannot change?”, “Do you think all people are similar in their core regardless of their differences? How can you tell?”) can be analyzed to create another scale.

We drew parallels between perceived similarity and CSD. A study pattern in which participants rate numerous other people with regards to their similarity and fill out a scale that measure CSD can reveal if CSD actually relates to perceived similarity across relationships and contexts, as theorized. This may be a good measure of predictive validity.
Experimental designs could help clarifying possible causal mechanisms between CSD and other constructs. Interventions can be designed to manipulate CSD, empathy, or aggression. It would be especially interesting to see if interventions that aim to decrease CSD—by making participants feel they could have been another person— increase empathy and decrease aggression. Such a study could have direct implications on various very critical contexts like education, correction, prevention, moral development etc.

Future research can be watchful of curvilinear relationships and interaction effects among the constructs, by conducting statistical tests to examine such, which would be more productive with a bigger sample size. Not only larger but also demographically more diverse sample would help to reveal possible relationships. Also, this would make findings more generalizable to a wider population.

Broader literature review might help place the concept in a broader context. This could improve the conceptualization and also indicate possible relationships with other concepts, which can be used in validity and reliability. One part of the literature that could be stimulating to explore is the self in certain Eastern philosophies. We theorized that core self-concepts that are less exclusive/rigid/certain might be more compatible for feeling one with/similar to other. This notion is parallel to certain notions in the traditions of Sufism and Buddhism in that removing or reducing “self/ego” from one’s worldview is associated to a broader and more prevalent experience of self-compassion.
Conclusion

Despite the low correlations and many methodological imperfections, our study indicates that the conceptualization of core-self differentiation (CSD) along with the scale that was developed to capture it (i.e. CSD-S) can be useful.

Pattern of differences found by t-tests between the ethnicities are confirmative of the conceptualization of CSD. The group with higher CSD scores had higher scores on aggression and lower scores on empathy. Consistently, CSD negatively correlated with empathy and positively correlated with verbal aggression. Still, lack of correlation with total aggression scores, and subscales of empathy is a concern. CSD may have a more complicated relationship with aggression and empathy.

Self-esteem positively correlated with CSD, and negatively correlated with empathy. This controversial finding joins the studies that remind us of the unclear role of self-esteem in our psyche.

The differences found between African-Americans and Caucasians is thought provoking beyond the focus on conceptualization and scale development. Higher CSD scores of African-Americans as a historically discriminated group can have social and political implications. Use of CSD in studies with a specific focus on culture and social dynamics may be a fruitful platform.

CSD showed potential in clarifying individual differences empathy, aggression, and self-esteem. CSD-S may be a good first attempt to operationalize the concept. More research on the concept and the scale can build on this study.
References


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doi:10.1111/1467-8721.00053


Core-self differentiation and its correlates


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Webster, G. D., DeWall, C. N., Pond, R. S., Deckman, T., Jonason, P. K., Le, B. M., ... Bator, R. J. (2014). The brief aggression questionnaire: Psychometric and behavioral
 evidence for an efficient measure of trait aggression. *Aggressive Behavior, 40*(2), 120-139. doi:10.1002/ab.21507


Appendix A.

Brief Aggression Questionnaire (BAQ)

Using this 5-point scale, indicate how uncharacteristic or characteristic each of the following statements is in describing you, by checking the corresponding boxes.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
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<tbody>
<tr>
<td>I tell my friends openly when I disagree with them.</td>
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<tr>
<td>Given enough provocation, I may hit another person.</td>
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<tr>
<td>Other people always seem to get the breaks.</td>
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<tr>
<td>I am an even-tempered person.</td>
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<tr>
<td>If I have to resort to violence to protect my rights, I will.</td>
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<tr>
<td>I sometimes feel that people are laughing at me behind my back.</td>
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<tr>
<td>When people annoy me, I may tell them what I think of them.</td>
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<tr>
<td>Sometimes I fly off the handle for no good reason.</td>
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<tr>
<td>When people are especially nice, I wonder what they want.</td>
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<td>There are people who pushed me so far that we came to blows.</td>
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<tr>
<td>My friends say that I’m somewhat argumentative.</td>
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<tr>
<td>I have trouble controlling my temper.</td>
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</table>
Appendix B.

**Interpersonal Reactivity Index (IRI)**

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by ticking the corresponding box.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Does not describe me well</th>
<th>Describes me a little</th>
<th>Somewhat describes me</th>
<th>Describes me well</th>
<th>Describes me very well</th>
<th>Describes me extremely well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I daydream and fantasize, with some regularity, about things that might happen to me.</td>
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<tr>
<td>2. I often have tender, concerned feelings for people less fortunate than me.</td>
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<td>3. I sometimes find it difficult to see things from the &quot;other guy's&quot; point of view.</td>
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<td>4. Sometimes I don't feel very sorry for other people when they are having problems.</td>
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<td>5. I really get involved with the feelings of the characters in a novel.</td>
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<td>6. In emergency situations, I feel apprehensive and ill-at-ease.</td>
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<td>7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.</td>
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<td>8. I try to look at everybody's side of a disagreement before I make a decision.</td>
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<tr>
<td>9. When I see someone being taken advantage of, I feel kind of protective towards them.</td>
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<td>10. I sometimes feel helpless when I am in the middle of a very emotional situation.</td>
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<td>11. I sometimes try to understand my friends better by imagining how things look from their perspective.</td>
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<td>12. Becoming extremely involved in a good book or movie is somewhat rare for me.</td>
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<td>13. When I see someone get hurt, I tend to remain calm.</td>
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<td>14. Other people's misfortunes do not usually disturb me a great deal.</td>
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<td>15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.</td>
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<td>16. After seeing a play or movie, I have felt as though I were one of the characters.</td>
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<td>17. Being in a tense emotional situation scares me.</td>
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<td>18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.</td>
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<td>19. I am usually pretty effective in dealing with emergencies.</td>
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<tr>
<td>20. I am often quite touched by things that I see happen.</td>
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<td>21. I believe that there are two sides to every question and try to look at them both.</td>
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<td>22. I would describe myself as a pretty soft-hearted person.</td>
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<tr>
<td>23. When I watch a good movie, I can very easily put myself in the place of a leading character.</td>
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<td>24. I tend to lose control during emergencies.</td>
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<tr>
<td>25. When I'm upset at someone, I usually try to &quot;put myself in his shoes&quot; for a while.</td>
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<tr>
<td>26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.</td>
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<tr>
<td>27. When I see someone who badly needs help in an emergency, I go to pieces.</td>
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<tr>
<td>28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.</td>
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</table>
Appendix C.

Single Item Self-Esteem Scale (SISE)

Please circle a number to indicate how much you agree with the statement below.

I have high self-esteem.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<tbody>
<tr>
<td></td>
<td>Not very true of me</td>
<td></td>
<td></td>
<td></td>
<td>Very true of me</td>
</tr>
</tbody>
</table>
Appendix D.

Core-Self Differentiation Scale (CSD-S)

Please respond to items by circling a number to indicate how much you agree with the statements.

1. I have a very good understanding of who I am and who I am not.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Completely disagree</td>
<td>Somewhat disagree</td>
<td>Neither agree or disagree</td>
<td>Somewhat agree</td>
<td>Completely agree</td>
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</tbody>
</table>

2. There are people in this world that I just cannot understand how they can be like that. I cannot relate to them in anyway.

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</tbody>
</table>

3. If my environment when I was growing up was different, I might have ended up being a very different person.

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4. I would never make the same stupid mistakes some people make.

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<td>Completely agree</td>
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5. I sometimes feel confused about who I am.

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<td>Neither agree or disagree</td>
<td>Somewhat agree</td>
<td>Completely agree</td>
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6. It is hard for me to blame people, because I can sometimes see myself being like them.

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<td>Somewhat agree</td>
<td>Completely agree</td>
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</table>
7. If I was born somewhere else, I can imagine myself having very different beliefs.

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</table>

8. I cannot imagine myself being from another country. My country and I are kind of a good match.

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</table>

9. It is hard for me to pick favorites - I am not sure of my favorite color or movie.

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<td>Neither agree or disagree</td>
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</tbody>
</table>

10. It is easy for me to imagine myself as a very different person than who I am now.

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<td>Completely agree</td>
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</tbody>
</table>

11. Sometimes people seem either disgusting or weak, that I wonder why one would be like that.

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12. It is hard for me to feel sympathy for some people I know.

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</table>

13. Many people in other countries seem to lack basic reasoning skills, and that is why there is so much suffering in those countries.

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</table>
14. I have a very strong personality - I do not change easily.

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15. If I were in a country where most people sleep on a bed covered in bananas on a certain day of the year, I would probably do it too like the people around me.

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16. When I hear about people who behaved badly – for example seriously hurting others – I feel like I could do the same thing if provoked enough.

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17. The things I like do not change easily.

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</tbody>
</table>
Appendix E. Demographic Form

Please respond to questions by writing or marking circles.

Date of Birth: ____________

Gender identity
  ☐ Female
  ☐ Male
  ☐ Other, please explain ____________

Education
Which class/level most closely describes your current level of education?
  ☐ Freshman
  ☐ Sophomore
  ☐ Junior
  ☐ Senior
  ☐ Graduate Student
  ☐ Other, please explain ____________

Your ethnic-racial background
  ☐ African-American
  ☐ Caucasian
  ☐ Hispanic
  ☐ Native American Indian
  ☐ Asian
  ☐ Other, please describe ____________
  ☐ Unknown
  ☐ Decline to answer

What is your marital status?
  ☐ Single
  ☐ Married
  ☐ Separated
  ☐ Divorced
  ☐ Widowed
Appendix F.

Informed Consent Form

CONSENT TO PARTICIPATE IN RESEARCH

Self-Concept Characteristics

You are invited to participate in a research study conducted by Nazmi Cem Turker and Dr. Russell Gruber (faculty sponsor), from the Psychology Department at Eastern Illinois University.

Your participation in this study is entirely voluntary.

• PURPOSE OF THE STUDY

The goal of this study is to explore possible relationships among different ways a person sees him or herself and certain other psychological variables.

• PROCEDURES

If you volunteer to participate in this study, you will be asked to complete a brief demographic questionnaire, including questions about age and sex. You will then complete a questionnaire that measures different dimensions of your personality.

After completing these questionnaires, the study will be over. Questions should take 40-50 minutes to complete.

• POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable risks to participants in this study.

• POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

There are no explicit benefits in participating; however participation may provide you with an introspective experience potentially leading to gaining insight on how you see and evaluate yourself. Also, results found in the study may lead to the improvement of psychological interventions, may have implications for social policies, and may inspire further research in the interested area.

• INCENTIVES FOR PARTICIPATION (Optional)

If you registered for participation via the SONA system and are completing this study for research participation credit (if you are an introduction to psychology student) or for extra course credit (if you are not an introduction to psychology student), your credit will be granted upon the completion of the study.

• CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.
Confidentiality will be maintained by means of assigning random identification numbers to your responses. Your information will be kept by the researchers involved with this study and destroyed when the project is completed. The only other people who will see your responses will be those directly involved in analyzing the results of the study.

- PARTICIPATION AND WITHDRAWAL

Participation in this research study is voluntary and not a requirement or a condition for being the recipient of benefits or services from Eastern Illinois University or any other organization sponsoring the research project. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind or loss of benefits or services to which you are otherwise entitled. There is no penalty if you withdraw from the study and you will not lose any benefits to which you are otherwise entitled.

- IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about this research, please contact:

Nazmi Cem Turker B.A. (Principal Investigator; 217-693-1320; ncturker@eiu.edu)
Dr. Russell Gruber Ph.D. (Faculty Sponsor; 217-581-6614; regruber@eiu.edu)

- RIGHTS OF RESEARCH SUBJECTS

If you have any questions or concerns about the treatment of human participants in this study, you may call or write:

Institutional Review Board
Eastern Illinois University
600 Lincoln Ave.
Charleston, IL 61920
Telephone: (217) 581-8576
E-mail: eiuirb@www.eiu.edu

You will be given the opportunity to discuss any questions about your rights as a research subject with a member of the IRB. The IRB is an independent committee composed of members of the University community, as well as lay members of the community not connected with EIU. The IRB has reviewed and approved this study.

By proceeding with this study you are agreeing to the following terms:

"I voluntarily agree to participate in this study. I have read the above terms and I understand that I am free to withdraw my consent and discontinue my participation at any time."

You may print this document if you wish to do so.

To proceed, click the "Next" (>>) button below.
Appendix G.

Debriefing Form

DEBRIEFING

Thank you for participating in this study. The goal of the present study is to explore the relationships among different self-identification patterns, self-esteem, empathy, and aggression. The series of questions you answered during the study measure what different domains you may identify yourself with, extent of your identification, your self-esteem, your empathic tendency, and your tendency to react aggressively.

The relationships among mentioned constructs are not clear in the recent literature, there are inconsistent findings, and gaps in our knowledge to understand these variables. The battery of questionnaires you have just completed will help clarify the possible relationships exist among them.

We truly appreciate your participation in this study. Please do not discuss or disclose any information regarding this study with other people who have no yet participated in our study. Knowledge of the study prior to participation will invalidate the results. Thank you in advance for your cooperation.

If you have any concerns about your self-concept (i.e., how you see and evaluate yourself), we suggest that you consult with EIU’s Counseling Center. The address, phone number, and web-link are found below:

EIU Counseling Center
First Floor, Human Services Building
(217) 581-3413
http://www.eiu.edu/~counstcr/index.php

We are happy to answer questions, concerns, or comments about the study. You can contact me, Nazmi Cem Turker, at ncturker@eiu.edu or my faculty advisor, Dr. Russell Gruber, at regruber@eiu.edu.