

The Egocentric Orientation Scale: Different Facets of Egocentric Cognition

BY

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A Thesis submitted to the Faculty of Graduate Studies of  
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### Abstract

The current study introduces a new scale designed to measure adult egocentrism, the Egocentric Orientation Scale (EOS). The items developed for the EOS represent four different facets of egocentric cognition - Nondifferentiation, Failure To Adjust, Illusion of Transparency, and Self As Target - which have been suggested by research as underlying an egocentric disposition. Four hundred and thirteen participants filled out the scale, along with measures of egocentric behavior, depression, self-consciousness, social anxiety and social desirability. The results revealed good psychometric qualities of the EOS such as internal reliability, theoretical validity of the proposed facets of the scale, construct validity, and convergent validity. Specifically, three of the four proposed facets emerged as meaningful in factor analyses. These were Nondifferentiation, Illusion of Transparency and Self as Target. The discussion includes a look at the facets and their success in representing Egocentrism. Furthermore, proposed revisions of the scale are considered.

## The Egocentric Orientation Scale: Different Facets of Egocentric Cognition

### *Why Is Egocentrism Important?*

Appreciating that others may have a perspective that is different than one's own is essential for individuals to express themselves clearly, understand others accurately, and meet their personal and interpersonal goals. Therefore, egocentrism, which is characterized by a lack of appreciation for the reality of different perspectives between oneself and others (Johnson, Brown, and Koven, 2001), creates an obstacle to accomplishing these goals. One can hardly imagine trying to effectively negotiate a disagreement with a partner, or an employer, while being unable to recognize that he/she has a perspective that is different than one's own. As children mature into adults, they may have increasingly more of these types of interactions, where they must effectively deal with the difference between their perspective and another's. Furthermore, this is often within a relationship that is instrumental to meeting their goals, which underscores the importance for adults to overcome egocentric thinking.

Still, it seems that adults do not always successfully take on another's perspective, or express their own perspective as distinct from another's perspective (e.g., Beauregard & Dunning, 1998; Gilovich & Savitsky, 1999). For example, one study (Epley, Keysar, Van Boven, & Gilovich, 2004) found that individuals assume that the intentions of a speaker (i.e., that he intended to be sarcastic) on an ambiguous answering machine message would be more clear to other listeners based on how clear it was to them, after being given information about the events leading up to the message. Moreover, an egocentric bias may not only interfere with accuracy when trying to understand another's perspective in a given situation, but over time and repeated occurrence may create long-term consequences. Therefore, some of the negative experiences, including conflict, frustration, and general unhappiness that all adults experience at some time may be associated with an egocentric bias.

Elkind (1985), who developed a theory and measure of egocentrism in adolescents, states that “as a clinician, I would say that the inability of husbands and wives or parents and children to see the other’s point of view, or to credit it with any validity, is a leading cause of marital and child mental health problems” (pp. 220-221). Therefore, from a clinical perspective, it could be argued that the many individuals who struggle with anxiety, depression, or relationship conflict, for example, struggle with appreciating that their perspective is different from others’ perspectives. Baron and Hanna (1990) relate the distortions that individuals engage in when perceiving the world egocentrically to the cognitive distortions that have been shown to play a role in depression, as proposed by Beck (1972). They found that young adults who were high on a measure of adolescent egocentrism reported significantly more depressive symptoms, based on the Beck Depression Inventory, than those who were low on the egocentrism measure, providing some evidence that egocentrism can play a contributing role in depression. Hence, knowledge of the process and consequences of an egocentric outlook could be used to help clinicians address the difficulties that individuals present them with, and in turn help individuals overcome these.

### *The Importance of Individual Differences in Egocentrism*

The research clearly indicates that one cannot safely assume that all adults have overcome the tendency to respond egocentrically (Epley, Morewedge, & Keysar, 2004; Gilovich & Savitsky, 1999; Nickerson, 1999). Yet, despite the evidence that egocentric biases are exhibited by adults and that negative consequences can occur as a result, a method of specifically measuring this tendency in adults has been lacking. Furthermore, much of the research has focused on the tendency for adults to exhibit egocentric biases in similar situations and has assumed that individuals will show the same degree of egocentrism, given the same situation. In line with this, Epley, Keysar, et al. (2004) provide evidence that individuals become more egocentric when under time pressure,



presumably allowing for less opportunity to use cognitive resources, and are less egocentric when provided with incentives, presumably increasing motivation. If one considers that these factors, along with a number of other factors that may influence the use of cognitive resources, will differ between individuals, differences in egocentrism are expected to also become evident. For example, higher egocentrism has been found to be correlated with greater neuroticism (Johnson & Ediger, 2001). Liotti (1992) also describes the role of egocentrism in psychological disorders, suggesting that egocentrism is much more pervasive in the thinking of people suffering from personality disorders such as borderline or histrionic personality disorder than in emotional disorders such as depression or obsessive-compulsive disorder, and is most pervasive in psychotic types of disorders such as schizophrenia. Furthermore, different types of cognitive dysfunction, and in turn different types of egocentric biases, will be prominent in each type of disorder. Presumably, some disorders such as schizophrenia are characterized by egocentrism that permeates much of cognitive processing. However, with other disorders, such as obsessive-compulsive disorder, egocentrism will not be as prominent when the focus of attention is on aspects of the individual's life that do not relate to the particular targets of obsessive thinking and compulsive behaviors, for example. Therefore, the consequences of individual differences in egocentrism on personal and interpersonal functioning, and the importance of examining it in adults is supported by research and theorists.

### *Measuring Egocentrism*

Johnson, et al. (2001) addressed this by developing the Egocentric Behavior Scale (EBS), a measure of individual differences in the tendency to behave egocentrically across several different situations. The EBS has shown good internal consistency. Furthermore, through showing significant correlations with theoretically relevant constructs and demonstrating good convergent validity it has contributed to research supporting the importance of individual differences in adult egocentrism. Specifically, research using the

EBS has shown that individuals who are higher on egocentrism also exhibit greater difficulty both identifying and describing feelings, and greater levels of a ruminative type of private self consciousness, public self consciousness, and social anxiety, than those who are lower on egocentrism (Johnson et al., 2001; Johnson & Ediger, 2001; Vorauer & Ross, 1999). The success of the EBS in displaying reliability and validity therefore provides evidence that the construct can be measured in adults in self-report fashion.

### *Goal of the Current Study*

The EBS scale was moderately successful in demonstrating the association between egocentric behavior and theoretically relevant constructs. As such, it provides an initial measure to investigate the consequences of a persistent egocentric perspective in adults in the form of behavior. However, because the items refer to behaviors rather than thoughts, the EBS represents an indirect measure of egocentric cognitive processing, which does not have a similar method of being investigated. Before understanding how to measure egocentric thinking, it is necessary to examine how it has been conceptualized as a cognitive disposition. Research has postulated much of this process. Specifically, research revealing egocentric biases in adults offers a beginning to understanding how a chronic egocentric outlook operates in the minds and lives of individuals. Yet, a measure that combines the different facets of an egocentric disposition has not been previously developed. That is the purpose of the current investigation; to contribute to the development of a psychometrically reliable and theoretically valid measure of egocentric thinking. In order to do this, Piaget's widely known conceptualization of egocentrism in children was examined initially and will therefore be described. Elaboration of this conceptualization for adolescents and research on egocentric biases in adults will then be examined to provide a basis for the facets used in the current scale.

*Defining Egocentrism: A Historical Perspective*

Since Piaget's formulation of cognitive development, it has been widely accepted that children are characterized by an egocentric bias in how they view the world. Through his observations of children's play and speech, Piaget (1954) discovered that individuals begin their cognitive evolution with the ability to understand the world only through their unique perspective. This cognitive state not only lacks an objectivity required to understand others' perspectives, but includes an absence of self-perception, such that "through an apparently paradoxical mechanism...., it is precisely when the subject is most self-centered that he knows himself the least" (Piaget, 1954, pp.10).

Piaget captures this immersion in one's own perspective, while lacking awareness for this focus, in his description of egocentrism as "an unconscious illusion, an illusion of perspective" (Piaget, 1959, p.268). With this description, he suggests that egocentric behavior, which can be observed, is a manifestation of an intellectual or cognitive phenomenon. Egocentric behavior is therefore the result of a cognitive perspective that people hold based on their own knowledge and experience. Piaget (1959) states that this is not a conscious phenomenon, as people are not aware that their perspectives are based solely on their experiences, or that others have different experiences. Consequently, "illusions will colour his knowledge of other people" (Piaget, 1959, p.269). In other words, people relate to the world based on an illusion that their perspectives are the only ones that exist. Moreover, this perspective is viewed as reality, rather than more accurately recognized as simply their subjective reality.

Piaget also describes this cognitive position as "chaotic undifferentiation," as children exhibit a lack of differentiation between their own perspective and others' perspectives, and are not aware that the possibility of differentiation exists. This lack of differentiation can even occur when ideas or perspectives are adopted from others, such as when children imitate the activity or speech of another child and believe that the imitated

behavior originated with themselves. Again, not only is the child wrapped up in his/her own behavior, but there is a lack of awareness that the behavior is not his/her own creation (Piaget, 1959).

Another quality that characterizes the egocentric bias exhibited by children, according to Piaget (1959), is the belief that others know what one is thinking or feeling prior to any clear communication of it. This is the reason that children's speech is so vague and includes much less of the descriptive and conjunctive words that are necessary to communicate thought clearly. There is an assumption of shared knowledge. The manifestation of these different aspects of egocentrism in children, in both their cognitive style and speech, results in interference with typical social interaction. This explains why one may often find young children talking in the presence of each other, but not necessarily to each other during play. The ability to engage in typical social interaction therefore seems to necessitate overcoming the egocentric biases that children tend to exhibit.

### *Contemporary Perspectives of Egocentrism in Children and Adolescents*

Although Piaget's claim that young children use their own perspectives to make judgments about what others think, feel, and know, leading to egocentrism in their thinking, speech, and behavior, is still widely accepted, recent research has indicated that children may overcome certain egocentric tendencies earlier than he proposed (Shaffer, 1999). For example, children as young as age three, who are given less complicated tasks than Piaget's original tasks, have failed to show the same egocentric biases that children in Piaget's experiments displayed (Shaffer, 1999). Not only are children thought to overcome egocentric biases earlier than Piaget thought, but the process by which this happens is believed to occur differently than the stage-like qualitative changes that Piaget proposed. As a result, many researchers now view cognitive development as gradual and consisting of smaller quantitative changes (see Shaffer, 1999). Specifically,

perspective-taking abilities develop slowly as children learn more, and continue to be refined as egocentric tendencies gradually diminish. This description of cognitive development better accounts for some perspective-taking abilities in younger children who are still technically in the stage where egocentrism is expected to occur. Yet, despite criticism of Piaget's theories, the concept of cognitive development occurring in stages, or in some predictable sequence, is still maintained by many theorists (see Shaffer, 1999). However, the expectation for children to exhibit abilities at one stage that were entirely absent at a previous stage, and for this to occur over a brief period of time, is no longer supported. Furthermore, the assumption that children will develop skills in different domains at the same pace, while exhibiting the same developmental path, is not maintained by many theorists (see Shaffer, 1999).

One theorist is well known for elaborating on Piaget's formal operational stage of cognitive development, which adolescents are thought to enter into at age eleven or twelve. Elkind (1967) developed a theory of egocentrism that follows Piaget's conceptualization of cognitive development, but focuses on adolescent egocentrism. He describes the adolescent as "coming to regard himself, and particularly his feelings, as something special and unique. Only he can suffer with such agonized intensity, or experience such exquisite rapture" (Elkind, 1967, p.1031). The adolescent's belief that his/her experiences, thoughts, and feelings are unique and cannot be shared by others are constructed into what Elkind identified as a *personal fable*. The personal fable omits the fact that all individuals pass through the same developmental stages, and that many experiences, such as love and loss, are universal. Unlike the nondifferentiation that is typical of children and some adults, this is an overdifferentiation that diminishes the real commonalities that exist among human beings, especially peers who are in the same stage of development. The adolescent's personal fable is a reflection of this sense of uniqueness, and although it may not usually be disclosed to others, it is typically constructed by every adolescent.

Elkind also describes the nondifferentiation that adolescents exhibit between the focus of their own thoughts and attention (namely themselves), and the focus of others' thoughts and attention. Specifically, Elkind identifies a type of egocentrism where adolescents believe that they are the focus of others' attention and feel as though they are on stage, causing everyone around them to be concerned with their actions and appearance. Elkind called this phenomenon the *imaginary audience*. The imaginary audience illustrates a paradoxical effect similar to what Piaget described in children, in that the more adolescents focus on themselves and try to discern what others are thinking about, the more they erroneously assume that it is about them. Although the personal fable is recognized as a form of egocentrism, it will not be focused on in the current study. Rather, the imaginary audience provides a description that is similar to how adult egocentrism will be conceptualized in the current study.

Although Elkind's description of the two facets of adolescent egocentrism has been useful in understanding adolescent cognitive development and elaborating on Piaget's theories, there are still questions about this stage of development and what happens beyond it. It is not clear when and if all individuals successfully attain formal reasoning presumed to correspond with adolescence, even though Piaget assumed that most people showed formal reasoning abilities by the time they are 18 years old. More recent research suggests that adolescents are slower to develop skills expected during adolescence than Piaget expected, and that a large number of adults do not exhibit these skills (Shaffer, 1999). So, the assumption that adults have developed particular abilities simply because they have passed through the chronological adolescent stage may be mistaken. Similarly, the assumption that egocentrism has been overcome in all adults because they have passed through the delineated stages of cognitive development is not supported by the evidence that indicates that adults do exhibit egocentric biases. One study (Epley, Morewedge, & Keysar, 2004) found that adults were just as likely as children to initially interpret an experimenter's instructions egocentrically, suggesting that

this is an automatic process that is not overcome easily. The difference between children and adults appeared in what the authors described as the more controlled process of correcting the initial interpretation, at which adults were quicker and more effective. This suggests that one cannot know whether adults will respond more or less egocentrically based on the fact that they have passed through typically egocentric stages. Moreover, it appears that the tendency to initially interpret a situation egocentrically may be common, whereas the controlled process of correcting this response may manifest differences based on the situation or the individual.

### Adult Egocentrism: Theory and Research

#### *Non-Differentiation*

Clearly, egocentrism is not a new concept. Among other things, Piaget (1954) is famous for introducing the idea that individuals are born predisposed to be egocentric in their perspective, which changes through learning to accommodate to new ways of problem solving and approaching the world. Furthermore, even as certain egocentric tendencies change, other types of egocentric biases are still present at different stages of development. One of the major cognitive characteristics of children, and major facets of egocentrism, is the lack of appreciation for the difference between one's own perspective and another's. Initially, parents foster a child's experience that the world revolves around his or her needs, by being sensitive to and responding to them unconditionally. In this way, children are reinforced for focusing on their own private experiences and the world reflects the importance of this back to them. Even as adults, individuals spend a lot of time in their own private world of thoughts and feelings, as these are the most readily available at any given time. When there is a lack of appreciation for the subjective nature of this world, one is susceptible to not differentiating adequately between the content that exists solely in this world and the content that is shared with the outside world. Individuals may

in turn relate to the outside world based on this presumed shared information, and as Nickerson (1999) suggests, overimpute their knowledge onto others.

Nickerson (1999) provides a description of this process with the *anchoring and adjustment bias* (Tversky & Kahneman, 1974). Individuals base (i.e., anchor) their expectations for novel situations on present knowledge. He suggests that initially individuals use their own knowledge, or rules about knowledge, to make attempts at predicting what others' knowledge, opinions, or behavior will be. More specifically, the most efficient way to deal with a novel situation is to imagine oneself in that situation, or to refer to a similar situation in the past. In this sense, this is a default model of others' thinking based on the self that most individuals are likely to engage in, because information about the self is the most accessible information that one has. This knowledge serves as an anchor from which one can make adjustments as information is provided from other sources, or is reevaluated to form new judgments. Individuals who exhibit egocentrism fail to differentiate between their own private thoughts and feelings and those of others, and make decisions based primarily on this anchor about what others know, think, and feel, based on what they know, think, and feel themselves. Nickerson suggests that the result of this is that individuals tend to overimpute their private knowledge onto specific others when determining what others know, believe, or how they will react in a given situation. Moreover, individuals do not recognize this as a bias, because all they have to base their decision on is what they know or can imagine experiencing.

To illustrate this process, consider the case of having more knowledge than another individual. This is the dilemma of the professor or any expert who has knowledge that students or novices do not possess. In order to convey this knowledge, the teacher must try to remember what it was like to lack it. So, a teacher or expert may have difficulty recognizing that students or novices do not possess the same knowledge that he/she does, and teach with the assumption that the students have information that they have not yet acquired (see Nickerson, 1999). Evidence of this is when experts tend to



underestimate the time it will take novices to complete a task, with an increase in the likelihood of this occurring the more knowledge one has of the task, or when individuals who have recently been given the solution to anagrams judge them to be easier than those who had not seen them (Jacoby & Kelley, 1987; Kelley & Jacoby, 1996 as cited in Nickerson, 1999). Hence, adults who are capable of recognizing that they possess knowledge that another has not yet obtained, have difficulty placing themselves back in the position of the novice.

Lack of awareness of the subjective nature of interpretations is also reflected in a phenomenon identified as the *false consensus effect* which has also been labeled as the *egocentric attribution bias* (Ross, Greene, & House, 1977). There has been considerable evidence in the social psychology literature of the tendency for individuals to make biased estimates of what others' habits, values and actions are, based on their own habits, values, and actions. One way that this process has been described is that individuals project their own beliefs, attitudes and opinions onto others, similar to Nickerson's description of overimputing private knowledge onto others. Gilovich (1990) states that people do not always think that their own thoughts or actions are shared by a majority of other people. Yet, they tend to estimate the prevalence of a given thought or action as closer to their own. In one study (Ross, 1977), individuals were asked to indicate their own preference between two options on several different issues, such as "Do you think about dying?", "Are you shy?", and "Do you think that there will be a discovery of extraterrestrial life by the year 2000?". The author found that when individuals were then asked to make consensus estimates about which option other people would choose, they consistently overestimated how many people would choose the option that they preferred themselves.

Gilovich (1990) elaborated on this finding and found that a larger false consensus effect is more likely to occur when the choices given can easily be interpreted in alternative ways. For example, when given the choice between the colors tan and aqua, individuals who are shown a swatch of the colors (and given less room for subjective

interpretation) are less likely to overestimate how many other people would choose their preferred color than individuals who have to imagine what aqua or tan looks like (and have more room for interpretation). Gilovich argues that individuals do not fully appreciate that different people construe the same choices, objects, or situations differently, instead assuming that their own ideas about these features are objective. Consequently, they do not make adequate allowances for these differences in interpretation, and bias their estimates in the direction that comes closer to their own interpretations. Therefore, lack of awareness of the possibility of alternative construals of the same situation appears to play an integral role in the false consensus effect. Similarly, lack of awareness of the existence of alternative perspectives is an integral facet of egocentrism.

#### *Failing to Adjust For New Information*

Researchers suggest that adults may actually recognize that their perspective differs from others, yet they fail to apply this knowledge effectively. They simply use their own perspective to begin with, and may try to adjust to get closer to what another thinks, but fail to do so sufficiently, resulting in a perspective that is still anchored too closely in their own (Gilovich & Savitsky, 1999; Nickerson, 1999). Epley, Keysar et al. (2004) suggest that this anchor is a reasonable place to begin when trying to figure out what another's perspective is, as people generally approach the world with the same basic perceptive devices, such as the five senses. Furthermore, the initial way that individuals approach the world as children, according to Piaget (1959) and other theorists (Nickerson; Royzman, Cassidy, & Baron, 2003), is by using themselves as a model to predict others' thoughts and feelings. However, adults also have the knowledge that individuals possess backgrounds, beliefs, and motivations that may differ from each other, and therefore engage in an adjustment process to accommodate for this knowledge, based on theories of how these operate on people's perspectives (Nickerson, 1999; Royzman et al., 2003).

Furthermore, individuals are not always in situations where they must infer what others know with only their own knowledge as a source of information. They may also come across other information that provides further clues about how to interpret a situation or another person's perspective more accurately. Therefore, referring to a base of knowledge or having a frame of reference for a given situation does not inherently pose an obstacle to evaluating a situation accurately.

What seems to make a dispositional egocentric thinking style most salient, over and above the egocentric biases that all individuals exhibit, is its encountering with circumstances that should challenge the assumptions that private thoughts and feelings will be the same in others. According to Piaget's formulation of cognitive development (Shaffer, 1999), children must accommodate for new ways of thinking in order to develop less egocentric and more mature forms of processing information. The ability to adjust existing assumptions when one's environment provides information or opportunity to do this allows for true cognitive adaptability. This ability to be flexible in one's perspective is also a characteristic of adaptive adult cognitive processing. Just as this process requires being open to information that may challenge existing modes of thinking and modifying them, failing to do this leaves one with the same information, the same egocentric cognitive style, and an inability to effectively assimilate new information.

Several researchers (e.g. Epley, Morewedge, & Keysar, 2004; Nickerson, 1999) suggest that adjustment is a multistage process that adults go through to figure out another's perspective. The first or default part of the process appears to be automatic as it refers to the anchor, which contains easily accessible information. However, the adjustment stages of the process require effort (Epley et al., 2004). Due to cognitive resources being in limited supply while being used for other tasks, even an attempt at adjustment may result in a perspective that is still anchored too closely in one's own. Epley, Keysar and colleagues (2004) provide support for this theory, showing that individuals given less time, in a hurried condition, make estimates of how others will

interpret a situation that are much closer to how they interpret the situation themselves. In other words, they are more egocentric than individuals who are given more time to figure out what another's perspective would be. Presumably, individuals who are not in the hurried condition are given an opportunity to engage in an adjustment process that requires the use of cognitive resources to be accurate. Furthermore, individuals who are given an incentive to be accurate, which presumably increases their motivation, are less egocentric in their estimates of others' interpretations of a situation. Both of these findings suggest that adjusting one's perspective using the knowledge that others will not have the same information that one has is an effortful process. Furthermore, once engaged in, this process may result in an estimate that is different than the automatic anchor that one began with, but one that is still insufficient in capturing the reality of others' perspectives. This resulting perspective is in turn egocentric in nature.

The ability to influence the adjustment process by increasing motivation and creating a greater space (more time) for cognitive processing suggests that individuals may differ in their use of cognitive resources in this adjustment process. Individuals who habitually respond in an egocentric fashion may consistently refer to their default anchor and fail to adjust sufficiently, resulting in a perspective that is always closer to their own than others who may adjust further. Furthermore, because they experience having engaged in some attempt at adjustment, their failure to capture another's perspective may be attributed to something other than themselves, such as the other person. When difficulty with communicating or conflict result, one may develop theories for this that rest outside of oneself and one's cognitive processing. As Liotti suggests (1992), individuals may consequently make attributions that are global and stable about the self and others, trapping them in a self-confirmatory style of egocentric cognition. For example, the individual may feel that the person he/she is speaking with is "impossible to communicate with," or another person who is trying to communicate with the individual may become frustrated and cease any attempts to engage with the individual, who is left to come up

with reasons for why communication was unsuccessful or the relationship deteriorated. These attributions are therefore liable to increase the individual's tendency to persist in his/her perspective from situation to situation and use the same adjustment process that fails to come closer to another's perspective. This will result in persistence across situations that is characterized by a lack of sufficient adjustment and an approach and perspective that is chronically egocentric in nature.

Therefore, egocentrism may become even more evident when individuals do not manage to use information that may challenge their perspective in a situation, leading to a failure to adjust and a subsequent persistence in one's perspective over time. Not only is the expectation consistently present for others to be "on the same page" with the individual, but when information suggesting otherwise is presented, and this challenge is not met, the expectation is maintained. This is conceptualized as failing to adjust for new information that may suggest that others' knowledge or perspectives may differ, and results in the expectation that it is still always the same as one's own subjective knowledge. When presumed knowledge and mode of processing persist despite externally provided information that challenges it, any new situations that draw upon one's cognitive processing or the existing information will be approached in the same way as in the past. With this failure to adjust, assimilation has not led to accommodation, but rather confirmation of the initial egocentric perspective. Hence, one would expect that each situation would be approached in a similar way for someone who has an egocentric cognitive style. Not only would one persist in his/her perspective, but this same perspective or cognitive approach would manifest in situation after situation, creating a rigidity in perspective, processing, and behavior.

### *Illusion of Transparency*

In the above descriptions of non-differentiation and failure to adjust, an individual will assume that others share his or her knowledge or beliefs and fail to appreciate

sufficiently that others may possess perspectives that are different from one's own. Failing to differentiate private knowledge from what others know can also manifest in the assumption that others know what one is thinking and feeling, even in circumstances where objectively this is unlikely to be the case. Gilovich and Savitsky (1999) provide evidence that generally individuals assume that they are more transparent to others than they truly are. In one study, after being told to conceal their disgust of a foul tasting drink, individuals overestimated how much their disgust, conveyed via taped facial expressions, was transparent to observers. Furthermore, they find that individuals make inaccurate estimations that reflect an egocentric bias when they are asked to report how much others notice about them, what information others possess, and how others will judge them, especially when their own knowledge or feelings are made salient to them before deciding what others' perspectives are. Hence, there is an egocentric gap that individuals must struggle to bridge, and even with the knowledge that others have different perspectives than one has, they may not be fully successful in doing this.

Vorauer and Ross (1999) examined the tendency to focus on the self and found that it is associated with this same phenomenon that can be described as egocentric in nature. Specifically, they found that individuals thought that more stable aspects of themselves, namely their personalities, could be inferred by others based on limited and non-discriminating information about their behavior. Using hypothetical questions about relationship scenarios where three of four answers were designed to be unreasonable, individuals were asked to indicate, based on the answer to these questions, whether another person could accurately judge them on thirty different traits. They found that individuals have a tendency to feel that others know about their thoughts, feelings, or intentions based on limited displays of their behavior or speech. The researchers also found that individuals who were consistently focused on private knowledge about the self had greater difficulty differentiating between their perspective and another's, resulting in an egocentric bias that left them feeling vulnerable to being exposed to others.

Specifically, a significant relationship was found between public self-consciousness and feelings of transparency. That is, those who were high on public self-consciousness were more likely to believe that others would know all about their personalities based on questions that revealed little of anything that would be unique to them. The relationship between self-consciousness and egocentrism is probably best expressed by Vorauer and Ross (p. 434), when they conclude that “people are least likely to realize that they are *in the know* about themselves precisely when they are most immersed in what they know about themselves.” This illustrates the paradox that is represented in an egocentric disposition. There seems to be a strong focus on the self and one’s own private thoughts and feelings. It is the unshared *nature* of these thoughts and feelings that is not recognized. So, not only does an egocentric outlook lead one to assume that others have the same thoughts or knowledge as the self has, but any thoughts that one has are perceived as vulnerable to being seen by others easily, corresponding with a feeling of transparency.

### *Self-As-Target Bias*

Self-consciousness is associated with another cognitive bias that has been identified as egocentric, the *self-as-target bias* (Greenwald, 1980). The self-as-target bias has been defined as the overperception of oneself as a target of an event which, in reality, may not be directed toward the self (Fenigstein, 1984). Presumably, when individuals are estimating the likelihood of their being the target of a particular action or event, information and experiences about themselves are the most accessible, increasing the likelihood that they will see themselves as a target in the present or the future. For example, Fenigstein found that students who were told prior to the return of an exam that someone in the class had performed brilliantly on the exam overestimated the probability that the exam was their own as opposed to another classmate’s. Evidently, they assumed that they were the target of the professor’s remarks. Somewhat surprising was the finding

that students displayed the self-as-target bias when the professor said that a student in the class had performed very poorly and that their exam was the worst he had ever seen. Students still overestimated the probability that the professor's remarks were about them and their own exam as opposed to a classmate's, suggesting that motivation to protect or enhance self-esteem does not clearly play a role in the self-as-target bias. It seems that people tend to overestimate their role in events that may not involve them, even when lacking convincing evidence that they may be the target of a particular event. Furthermore, this bias occurs with both positive and negative events, suggesting a general assumption that the causes and consequences of events are somehow related to the self more than other more likely alternatives, such as other people or situational factors.

Not surprisingly, the tendency to focus on the self increases the self-as-target bias, as information about the self is continually salient, while accuracy of how this information applies relative to other people and events is not necessarily increased. In support of this, in another study Fenigstein (1984) found that although all participants displayed the self-as-target bias when asked whether themselves or another participant would be more likely to be randomly chosen to participate in a demonstration, individuals who were high on public self-consciousness exhibited an exaggerated tendency to believe that they would be chosen for the demonstration. Presumably, public self-consciousness increases the accessibility of information about the self, resulting in a greater tendency to perceive the self as the target of random events as well as others' thoughts and behaviors.

### *Purpose*

The purpose of the current study is to assess a new measure of adult egocentrism, the Egocentric Orientation Scale (EOS). The data from the study was used to determine the scale's success as a psychometrically and theoretically valid form of measuring adult egocentrism. Results of the study were used to revise the scale and provide data regarding how best to measure and conceptualize the construct of adult egocentrism. The scale



follows the moderate success of the Egocentric Behavior Scale (Johnson et al., 2001), which was included in the study for comparison between scales and assessing congruent validity. The EOS was designed to specifically address some of the limitations of the EBS by assessing egocentric cognition. Furthermore, the development of the scale, being a theory-driven process, included examination of distinct facets of egocentrism that have been suggested by research, allowing for investigation of the validity of these different facets as part of the larger construct of adult egocentrism. In addition to developing a scale that is reliable and theoretically valid, another goal of the current study is to create a scale that will have practical utility in research and clinical contexts. Therefore, although the original scale was designed with 60 items, revisions of the scale included reducing the number of items considerably to meet the goal of practical utility. Other theoretically relevant measures were included in the study in order to investigate the convergent validity and construct validity of the EOS. These measures are the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Self-Consciousness Scale (SCS; Fenigstein, Scheier, & Buss, 1975), the Rumination-Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999), the Social Phobia Inventory (SPIN; Conner, Davidson, Churchill, Sherwood, Weisler, & Foa, 2000), and the Marlowe-Crowne Social Desirability Scale (M-C SDS; Crowne & Marlowe, 1960). Hence, the development of egocentrism research will be aided by the addition of a scale that both measures different facets of egocentrism and isolates egocentrism as a construct distinct from other similar constructs.

#### *Facets of the Scale and Item Development*

Based on both theoretical underpinnings for definitions of egocentrism and research on egocentric biases, the current scale attempts to define egocentrism with four distinct facets, each representing different types of egocentric cognition. The EBS (Johnson et al., 2001) provides a model for this in that it makes the same attempt with

different types of egocentric responses in the form of behavior. The EBS includes items that reflect three types of egocentric responses. The first type is *Referential Communication*. Items designed to tap this type of response describe situations where an attempt to communicate subjective knowledge fails due to a failure to differentiate one's own perspective from another's. An example of this type of item is "Given a talk or presentation about something that was clear in your mind but which did not come across clearly to your audience." Another type of item included in the EBS is *Illusory Transparency*. Illusory transparency items describe responses where individuals know about some aspect of one's inner experience, such as their emotions, despite minimal communication about it. An example of this type of item is "Felt very excited and expected everyone to know it." The last type of item in the EBS is *Self-As-Target*. These items reflect the belief that one is the target of others' attention or the basis for their action in a social situation. An example of one of these items is, "While giving a public presentation a member of the audience leaves and you concluded that they were bored."

The EBS displayed moderate success measuring egocentrism with good reliability and validity while using these three types of egocentric responses as part of the scale. Therefore, some similar types of items in the EOS were also designed to tap these different facets. Unlike the EBS, which focused mostly on observable responses that result from an egocentric disposition, the attempt was made with the EOS to uncover the underlying thinking that is associated with egocentric behavior. With this in mind, four types of items are included in the EOS representing different facets of adult egocentric cognition. These are Nondifferentiation (nondifferentiated thinking and nondifferentiated feeling), Failure To Adjust, Illusion of Transparency, and Self As Target.

### *Nondifferentiation Items*

Based on the tendency for egocentric behavior to reflect difficulty recognizing that one's own thoughts, beliefs, and opinions may be different than those of others', items

examining the *Nondifferentiated Self* were included in the EOS. Some of these items focus on nondifferentiated thinking, while some items focus on nondifferentiated feeling, in an attempt to further tap both aspects of the nondifferentiated self. *Nondifferentiated Thinking* items tap into the difficulty with recognizing that another may have a different opinion or belief in a given situation. This is conceptualized as an expectation that one's own and others' thoughts will be the same. Yet, this does not reflect a conscious desire to disregard another's opinion, but rather a failure to incorporate it because of the tendency for egocentric thinking to be based on an automatic process and a default perspective of others' thinking based on one's own. Such items include, "I am sure that others are thinking about the same thing that I am thinking about," and "I have trouble understanding why others do not share the same opinion about something that seems very clear and obvious to me." These items not only reflect the nondifferentiated nature of these situations, but the tendency for this to habitually occur and be automatic for someone who endorses these items. Items that represent *Nondifferentiated Feeling* are similar in that they reflect the tendency to fail to distinguish between what the self is feeling and what another is feeling, with the expectation that this will be the same in most situations. These items also capture the individual's lack of awareness for this process of expectation without evidence. An example of this type of item is, "When I dislike someone or something, I think that everyone else does too."

#### *Failure to Adjust Items*

The next type of item in the EOS represents difficulty adjusting one's perspective sufficiently to appreciate that others' thoughts and feelings will be different from one's own. Although most adults presumably understand that others have a different perspective than they do, and may be able to use this knowledge, individuals high on egocentrism will chronically fail to sufficiently utilize this knowledge in approaching situation after situation. Therefore, they consistently focus on and relate to others and the world based

on their own perspective. Because this appears to be a non-conscious process, it is presented as difficulty incorporating new information or changing one's opinion. The ability to adjust requires paying attention to and utilizing information by deviating from the default model of knowledge that serves as an anchor. This is an effortful process that could eliminate the persistence that is characteristic of maintaining the perspective associated with the anchor in each new situation. Therefore, *Failure to Adjust* items reflect the automatic nature of an egocentric style, and in turn an important facet of the egocentric construct.

The tendency to persist in an egocentric opinion, attitude, or style, despite information or cues that should prompt a change, is represented in the EOS with *Failure to Adjust* (FTA) items. Examples of FTA items are, "When I dislike someone, I continue to have this bad feeling after I find out good things about them," and "When I am pleased about something, I continue to have this attitude, even if I have heard things that should make me feel differently about it." These items tap into both the tendency to persist in the face of challenges to one's perspective, and this persistence being based on how strongly one feels rather than on concrete information. This reflects the idea that individuals may persist due to the strength of a particular opinion or feeling, but will fail to sufficiently pay attention to or utilize the reasons that should lead to a change in perspective. Therefore, they will not adjust their perspective because they fail to pay attention to and utilize information that would lead to deviating sufficiently from their anchor. In turn, they fail to change their perspective adequately and approach any new situation from their anchor, which is essentially their own perspective. Moreover, once this cognitive process is complete, this anchor and perspective is seen as representing others' perspectives and an accurate picture of the world.

### *Illusion of Transparency Items*

A third facet of egocentrism suggested by research is represented in the EBS with Illusory Transparency. Therefore, in the EOS several items are devoted to representing the feeling that others can see things about the self that they are unlikely to be privy to. Moreover, items are posed in such a way that the thoughts and feelings of the individual, and presumably the disposition to approach the world with an egocentric bias, are the focus of the response. This is as opposed to focusing on the response of others or the context of the situation, which was measured directly in the EBS. The third facet in the EOS contains items called *Illusion of Transparency* (Gilovich, Savitsky, & Medvec, 1998). These are items representing the tendency to think and feel that others have private knowledge of one's thoughts and feelings, while lacking real evidence that this should be so. Examples of this type of item are, "I feel that others know exactly what mood I am in," and "When I am attracted to someone I think that he/she knows how I feel, even though I have not told them."

### *Self-As-Target Items*

The last type of item in the EOS represents the tendency to believe that one is the target of others' thoughts and behaviors, and is identified as *Self-As-Target*. The EBS included self-as-target items using specific examples of situations where a person believes that he/she is the target of others' attention or the basis for their action in a social situation. In the EOS, self-as-target items tap the assumptions that would lead someone to make interpretations that overestimate his/her own involvement in others' thoughts and actions, and in turn exhibit an egocentric cognitive style. Therefore, the EOS attempts to capture the underlying assumptions that would be reflected in behaviors characterized as egocentric and that the EBS focuses on. Examples of self-as-target items in the EOS are,

“I think that when others are upset it has a lot to do with me,” and “I think that others are talking about me specifically even when they do not use my name.”

### *Assessing Scale Validity*

The items representing the different facets of the scale can be utilized to investigate psychometric properties related to the reliability of the scale. However, the validity of the scale, that is, its success in measuring what it purports to measure, is established by comparing it to other theoretically relevant constructs. Specifically, construct validity is established through accumulation of evidence that includes demonstrating a pattern of correlations with measures of other constructs in expected directions. Theoretical propositions for the direction of correlations are formed based on the psychological antecedents and consequences that are expected to be associated with the construct being measured, following the conceptualization of the construct (see Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996). Therefore, in order to establish the psychometric properties of the EOS related to construct validity, five other measures, in addition to the EOS, were included in the study. A measure of social desirability was also included.

The Egocentric Behavior Scale (EBS) was included in the current study in order to evaluate congruent validity, which is demonstrated by correlating a new measure with another measure with established validity. The EBS is the only known measure that assesses individual differences in adult egocentrism and has established both reliability and some validity, based on correlations with other measures of theoretically relevant constructs (Johnson et al. 2001; Johnson & Ediger, 2001). Therefore, the EBS items were used in analyses to provide support for validity of the new Egocentric Orientation Scale. A positive correlation with the EBS was expected as the scales are both measuring egocentrism. However, this correlation was expected to be moderate as the EBS represents egocentric behavior, while the EOS represents egocentric cognition with some different facets than the EBS. Specifically, the illusory transparency items of the EBS were

expected to correlate most highly with the illusion of transparency items of the EOS. Similarly, the self as target items of both scales should correlate more highly than with any other facets. The nondifferentiation items of the EOS may exhibit a correlation with referential communication items of the EBS as both types of items represent a failure to appreciate that others have a different perspective and an assumption that the focus of others' thoughts are the same as one's own thoughts. In order to compare the moderate success of the EBS in demonstrating validity via associations with theoretically relevant constructs to the EOS's ability to demonstrate validity, correlations between the EBS and the other measures included in the study were performed and compared to the same correlations with the EOS. The correlations were expected to be similar for both the EOS and EBS.

Evaluating convergent validity was further accomplished by correlating the EOS with constructs with which it should, in theory, be associated. This was also intended to contribute to evidence for construct validity of the EOS. Four other measures were included in the study to establish evidence for convergent validity of the EOS: the Beck Depression Inventory (BDI; Beck et al., 1961), the Self-Consciousness Scale (SCS; Fenigstein et al., 1975), the Rumination-Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999), and the Social Phobia Inventory (SPIN; Conner et al., 2000).

Following research that has exhibited an association between more depressive symptoms and greater egocentrism using an adolescent measure of egocentrism (e.g. Baron & Hanna, 1990), the Beck Depression Inventory (BDI) was included in the current study to determine if the same association is found with an adult measure of egocentrism, the EOS. Specifically, the BDI was expected to correlate positively with the EOS. Research has also consistently shown an association between egocentrism and self-consciousness (Fenigstein, 1984; Johnson et al., 2001; Johnson & Ediger, 2001; Vorauer & Ross, 1999). However, when different types of self-consciousness are examined more closely, they exhibit different associations with egocentrism. For example,

although research has found that both private and public self-consciousness are associated with egocentrism (Johnson et al., 2001; Vorauer & Ross, 1999), one study (Johnson & Ediger, 2001) found that higher egocentrism was significantly correlated with a ruminative type of self-consciousness in women, while a reflective type of self-consciousness was more strongly correlated with higher egocentrism in men. Therefore, both the SCS and the RRQ were included in the study. A positive relationship was expected to be revealed between the two factors of the SCS, private self-consciousness and public self-consciousness, and the total EOS. The factors of the EOS that emerge as meaningful will be compared to the SCS factors to gain a better understanding of how egocentrism and self-consciousness are related. Positive correlations are expected. The RRQ is also expected to correlate positively with the EOS. The two subscales of the RRQ, rumination and reflection, will each be examined with the total EOS and its factors to assess the association between egocentrism and adaptive vs. maladaptive self-consciousness. Finally, adult egocentrism has been found to be associated with social anxiety, with the EBS and the social anxiety items of the SCS (Johnson et al., 2001). Furthermore, the underlying expectation in both social anxiety and egocentrism that others perspectives will be the same as one's own perspective suggests that the two constructs may be related. Specifically, social anxiety is characterized by distorted perceptions of the self that tend to be judgmental, along with the expectation that others' perceptions of the self will be the same. Egocentrism has been defined as a focus on subjective perceptions without awareness that other perceptions exist (Elkind, 1982). In order to investigate the relationship between social anxiety and egocentrism using the EOS, a measure of social anxiety, the Social Phobia Inventory will be included in the study. As in previous research, a positive correlation is expected to be revealed.

The issue of response bias must be considered in a study that includes self-report measures, which tend to be subject to this type of bias. Moreover, filling out the EOS requires participants to report on tendencies related to appreciating others' perspectives,



which is commonly associated with social sensitivity, a socially desirable quality. Therefore, a measure of social desirability bias was included in the study with the Marlowe-Crowne Social Desirability Scale (M-C SDS; Crowne & Marlowe, 1960). The EOS is expected to have a low correlation with the M-C SDS that is not significant. However, if a significant correlation is found, the role of social desirability in egocentrism will be taken into consideration.

### *Hypotheses*

#### 1. Structural Validity

Four factors corresponding with four facets of egocentrism (nondifferentiation, failure to adjust, illusion of transparency, and self as target) proposed in the EOS will emerge as meaningful following factor analyses.

#### 2. Divergent Validity

The MC SDS is expected to have a small negative correlation with the EOS.

#### 3. Congruent Validity

- A) The EOS is expected to have a significant positive correlation with egocentric behavior as measured by the EBS. However, the correlation will be moderate demonstrating the unique qualities of the EOS in measuring cognition.
- B) Conceptually similar subscales of the EOS and the EBS (Illusion of Transparency and Self as Target) are expected to have significant positive moderate correlations.
- C) subscales with less conceptual similarity (Referential Communication subscale of the EBS and the Nondifferentiation items of the EOS) are expected to have a smaller but significant positive correlation.

#### 4. Construct Validity:

The EOS is expected to have significant positive correlations with measures of self consciousness, social anxiety and depression.

Specifically, the EOS will have A) similar significant positive correlations with both the private and public self consciousness factors of the SCS; B) significant positive correlations with the subscales of the RRQ. The Rumination subscale is expected to have a higher correlation with the EOS than the Reflection subscale; C) a significant positive correlation with the BDI; D) a significant positive correlation with the SPIN.

### Method

#### *Participants*

Participants were 413 students from the University of Manitoba who were recruited from Introductory Psychology courses. They were given 2 course credits for their participation in the study, which consisted of completion of all parts of the questionnaire package containing the EOS and six other measures. The initial participant sample consisted of 447 participants, who were asked to indicate whether they had been reading and writing English for a minimum of 6 years. Prior to data analyses, during screening procedures, 27 participants were eliminated from the participant pool because they did not meet this criterion leaving 420 participants, including 245 females and 175 males. After examining the data during preliminary analyses, 4 participants were eliminated from the participant group due to missing data. Three more participants were eliminated because they were either extreme outliers or they were outliers and their response set for the questionnaires was unusual (i.e. endorsed 1 for all items of a questionnaire), making the final sample for the study consist of 239 females and 174 males, for a total of 413 participants. Each participant filled out a package containing

questionnaires ordered in one out of two possible sequences, which the researcher has labeled Package 1 and Package 2. In the final sample, 198 participants received and completed one sequence of the questionnaires (Package 1) and 215 participants received and completed a second sequence of the questionnaires (Package 2). See table 1 for summary of means and standard deviations for EOS total participant sample and groups within sample.

### *Procedure*

Participants were administered the questionnaire package in groups ranging from approximately 30 to 50 students. They were recruited from Introductory Psychology classes and signed up for testing sessions based on if the session fit their schedule (Appendix A). Each group of participants was given verbal and written instructions (Appendix B) on how to complete the questionnaire package. In order to ensure that they would be the same for each group, the researcher modeled the instructions for each research assistant involved in testing participants, either privately or at the beginning of a testing session. Participants were randomly given one of two packages that differed only in the order in which the questionnaires were presented to control for order effects. Each package contained two identical consent forms (Appendix C), informing participants that they will receive course credit, that they may withdraw from the study at any time, and providing them with a brief description of the study (“examining how individuals and those around them perceive their thoughts, feelings, and behavior”). The form also included contact information if they had any more questions after their participation was complete or if they felt that they needed counselling or crisis intervention services. One consent form was returned to the researcher along with the rest of the questionnaire package at the end of the testing session. Participants were instructed both in the form and verbally to take one copy of the consent form with them after completing their participation in the study to ensure access to the counselling and emergency contact information. After

reading and signing the consent form, participants were asked to fill out the questionnaire package. Upon completion of all sections of the questionnaire package, participants were provided with a brief written description (of adult egocentrism) and the purpose of the study (Appendix D).

### *Measures*

A self-report questionnaire package containing 188 items in total was used: 5 items asking for demographic information (Appendix E), 60 items that constitute the EOS (Appendix F), 23 items from the EBS (Appendix G), 17 items from the Self-Consciousness Scale (Appendix H), 12 items from the Rumination-Reflection Questionnaire (Appendix I), 17 items from the Social Phobia Inventory (Appendix J), 21 items from the Beck Depression Inventory (Appendix K), and 33 items from the Marlowe-Crowne Social Desirability Scale (Appendix L).

*Egocentric Orientation Scale (EOS)*. The EOS is a 60 item self-report questionnaire designed to assess individual differences in egocentric cognition. The instructions for the EOS asks participants to rank each item from “one to seven indicating how true it is about you; one being very false and seven being very true.” The EOS taps into four different facets of egocentrism. These can be described as Nondifferentiation, Failure to Adjust (11 items), Illusion of Transparency (13 items), and Self As Target (13 items). The nondifferentiation items are broken down further into Nondifferentiated Thinking (11 items) and Nondifferentiated Feeling (12 items).

*Egocentric Behavior Scale (EBS)*; Johnson et al., 2001). The other egocentrism measure that participants were asked to complete assesses individual differences in egocentric behavior with a 23 item self-report questionnaire. Specifically, the EBS provides examples of egocentric responses that can be observed and easily reported on, and reflect the consequences of having a habitually egocentric outlook. The instructions for the EBS asks participants “For each situation please rate how commonly you make the

particular response when in the situation using the scale below.” A scale of one to five is then provided, with one being never and five being often. The EBS contains three different types of items: Referential Communication, Illusion of Transparency, and Self as Target. The EBS has shown good internal consistency, with Cronbach’s Alpha = .86. Through showing significant correlations with theoretically relevant constructs it has also exhibited good convergent validity (Johnson et al., 2001). In the current study, a Cronbach’s Alpha of .79 was found for the total EBS. The Referential Communication, Illusion of Transparency, and Self as Target subscales had reliability coefficients of .73, .70, and .54 respectively.

*Self-Consciousness Scale* (SCS; Fenigstein et al., 1975). The SCS assesses individual differences in the tendency to focus on the self with a 22 item self-report questionnaire. Participants are asked to answer each item on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. In the course of developing the scale the authors discovered that the SCS is composed of three subscales, private self-consciousness, public self-consciousness, and social anxiety. The private self-consciousness subscale represents the tendency to focus on one’s personal thoughts and feelings and contains 10 items. The public self-consciousness subscale represents the tendency to focus on the self as a social object and contains 7 items. Only the private self-consciousness and public self-consciousness items were used in the study. A separate measure of social anxiety was also included in the study (see below). The SCS has exhibited considerable evidence for its reliability and validity (e.g., Campbell et al., 1996; Johnson et al., 2001; Vorauer & Ross, 1999). In the current study, the Private and Public subscales of the SCS had reliability coefficients of .59 and .77 respectively.

*Rumination-Reflection Questionnaire* (RRQ; Trapnell & Campbell, 1999). The RRQ is a 24 item self-report questionnaire designed to measure individual differences in two different types of self-consciousness. Instructions for the questionnaire ask participants to rate on a 5- point scale how much they agree with each item, where 1 =

*strongly disagree* and 5 = *strongly agree*. The Rumination scale measures an involuntary and emotionally negative form of self focus with 12 items. The Reflection scale contains 12 items measuring a voluntary and emotionally positive form of self focus. Good reliability and validity has been reported (Johnson & Ediger 2001; Trapnell & Campbell, 1999). In the current study the Rumination and Reflection subscales of the RRQ had reliability coefficients of .79 and .83 respectively.

*Social Phobia Inventory* (SPIN; Conner et al., 2000). The SPIN is a 17-item self-rated questionnaire designed to assess the full spectrum of fear, avoidance, and physiological symptoms that are characteristic of social anxiety. Participants are asked to choose the answer that best describes how much each of the given problems have bothered them in the past week based on a scale of 1 = *not at all* to 5 = *extremely*. Research with the SPIN has shown good internal consistency for the full scale and the different subscales (fear, avoidance, and physiological). As evidence of convergent validity, the authors of the SPIN also report highly significant correlations with measures of social anxiety and measures of other relevant constructs, with coefficients ranging from .47 to .92. Weak correlations with unrelated constructs has been cited as evidence for divergent validity. Evidence for construct validity has also been reported (Conner et al., 2000). In the current study the SPIN had a Cronbach's Alpha of .89.

*Beck Depression Inventory* (BDI; Beck et al., 1961). The BDI is a 21-item self-report measure that assesses cognitive, behavioral, affective, and somatic aspects of depression. Participants are asked to rank from 0 to 3 which response among 4 or 5 choices given for each item best represents their current state. Total scores can range from 0 to 63, with higher scores representing greater depression. The psychometric qualities of the BDI have been demonstrated with both clinical and nonclinical samples (see Leahy, 2004). Specifically, internal reliability coefficients of .82 with a non-clinical population (Gould, 1982) and .87 with a clinical population (Vredenburg, Krames & Flett, 1985) have been found. The BDI has also demonstrated good congruent validity with a

significant correlation of .82 with another depression measure (Vredenburg et al., 1985) In the current study, Cronbach's Alpha for the BDI was .87.

*Marlowe-Crowne Social Desirability Scale* (M-C SDS; Crowne & Marlowe, 1960). The M-C SDS is a 33-item self-report questionnaire designed to measure the degree to which participants attempt to present themselves in a socially desirable manner. Participants are asked to indicate whether each statement is *true* or *false* about them. A social desirability bias is indicated with false answers to some questions on the scale (e.g., "I like to gossip sometimes") and true answers on others (e.g., "No matter who I'm talking to, I'm always a good listener"). The M-C SDS has exhibited good reliability with an internal consistency coefficient of .88 using Kuder-Richardson formula 20 and test-retest correlation of .89 (Crowne & Marlowe). In the current study, Cronbach's Alpha for the MC-SDS was .75.

## Results

### *Overview of Analyses*

Analyses were performed to evaluate whether the Egocentric Orientation Scale demonstrates reliability and validity in measuring the construct of adult egocentrism. The analyses that led to the final version of the EOS used in the study will be discussed first, followed by the analyses looking at the validity of the scale. The initial analyses will focus on psychometric properties, such as internal reliability and factor structure of the scale, including whether the proposed underlying facets of egocentrism emerge as a meaningful description of the items in the scale.

### *Preliminary Analyses*

The psychometric properties of the initial pool of 60 items and the total scale were evaluated for ceiling and floor effects by calculating means and standard deviations and

looking for deviant means and low standard deviations. Overall, the item and total scores were congruent with normality assumptions. The scale of each item on the EOS had a range of 1 to 7, with a midpoint of 4. The overall item mean for the initial sample (with 60 items) was 3.39 with a range of means from 2.28 to 4.86 and a range of standard deviations from 1.24 to 1.85. The total scale score had a possible range of 60 to 420 with a midpoint of 240. The actual sample mean for the total scale was 203.52 (SD = 41.05). Based on the means and standard deviations of the items and total scale, ceiling or floor effects appear unlikely. A histogram and scores of skewness and kurtosis were also examined revealing that the total scale means were approximately normally distributed.

#### *Scale Development: Internal Consistency*

Overall, items were weakly to moderately correlated with each other and generally did not exhibit excessive redundancy. Nonetheless, in order to reduce the scale to a manageable number of items, the inter-item correlation matrix was examined to identify items that provide excessive redundancy to the scale and thus could be eliminated. The mean inter-item correlation for the 60 item pool was .17. Inter-item correlations ranged from -.13 to .66. Five items were identified as having high correlations ( $> .50$ ) with at least one other item in the scale. Following elimination of items based on item-total correlations and factor analyses, none of the five items were retained in the final scale.

Corrected item-total correlations were performed on the data from the 413 participants on the initial 60 item pool to determine which items best represent egocentrism. Correlations between each item on the scale and a corrected total score for the scale, excluding the item of interest from the total score, were calculated in order to find corrected item-total correlations. These were used to evaluate how well each item represents egocentrism in combination with other items of the scale. Initially, weak items with item-total correlations less than .30 were candidates for elimination from the scale. Eleven items were eliminated based on this criteria, leaving 49 items. Cronbach's alpha for



the 49 item scale was .92. A high Cronbach's alpha leaves room for shortening the scale further (DeVellis, 2003). Furthermore, since the goal of the study is to develop a scale that is concise and practical for use in research and clinical contexts, it was decided that items with item-total correlations less than .40 would be eliminated next. Twenty-one items were eliminated based on the .40 criteria, leaving 28 items in the item pool. Items designed to reflect each of the proposed facets were represented almost equally in the 28 item pool (Nondifferentiated Thinking 7, Nondifferentiated Feeling 7, Illusion of Transparency 7, and Self As Target 6) except the Failure to Adjust facet, which had 1 item remaining in the item pool. Upon further consideration, this item appeared to fit with the Nondifferentiated Thinking facet and was therefore retained in subsequent analyses where it consistently loaded with other Nondifferentiated Thinking items in the factor analysis.

### *Factor Analysis*

The goal of the current study was to develop a psychometrically reliable measure of egocentrism. However, because its development has been theory-driven, how the scale represents egocentrism from a theoretical perspective was also considered when the analyses were conducted and the items for the final scale were chosen. Specifically, the items of the final version of the EOS were chosen and their factor structure was evaluated based on a principal components analysis, examination of the scree plot, several factor rotations, examination of strength of item loadings on factors, and the a priori hypotheses.

*Factorability of Items and Principal Components Analysis.* Tests of the 28 item correlation matrix provided evidence for the factorability of the matrix. Specifically, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) looks at the effects of all other variables (via partial correlations) on the correlations between each pair of items in the correlation matrix. A value closer to 1 represents a smaller influence of partial correlations on the matrix. Values greater than .60 are suggested as good for factor analysis (Tabachnick & Fidell, 1989). The KMO for the 28 item pool of the EOS is .90,

indicating that the correlation matrix provided support for the factorability of the items. A principal components analysis was performed on the 28 items yielding a large first factor and 7 factors with eigenvalues greater than one which explained 56.98% of the variance among the items. Moreover, examination of the scree plot revealed a large first factor and a possible factor structure of two to seven factors. Based on the high KMO value, and in view of the consideration that most of the hypotheses of the study could not be examined with a single factor scale, a multiple factor solution was chosen to represent the data.

*Factor Rotation.* All possible factor solutions implied by the data (2 to 7 factors) were rotated with an orthogonal rotation using a VARIMAX method and examined. In the two factor solution, the pattern of item loadings was difficult to interpret leaving the meaning of the factors unclear and therefore failing to meet the criterion of an interpretable factor solution. In the four factor solution, items began loading on factors based on the structure rather than content of the item, such as whether it was a longer or shorter item, or whether it asked about general circumstances or a specific situation. This solution was not deemed desirable because although it was interpretable, it did not match the goal of creating a theoretically based scale. Subsequent factor rotations resulted in the same types of factors that made stylistic distinctions rather than primarily theoretical distinctions emerging. Therefore, a three factor solution emerged as the most interpretable based on the 28 item scale containing items representing the three remaining facets, Nondifferentiation, Illusion of Transparency and Self as Target, (after item-correlation analyses), and on how these items loaded on each factor.

*Final Elimination of Items.* In order to meet the goal of creating a scale that is concise enough to have practical utility in research and clinical contexts, items were eliminated based on which items most strongly represent their respective factors among the 3 factors chosen for the scale. Overall, items loaded distinctly on one factor with a few high cross loadings. Loadings of .45 or higher have been identified as good for factor analysis by some authors (e.g., DeVellis, 2003). Therefore any items with a loading of less

than .45 were eliminated. Nine more items were eliminated from the 28 item scale based on this criteria leaving a final scale of 19 items with a KMO of .88. Some items in the final 19 item scale loaded below .45 on their respective factors due to changes in loadings once items were eliminated. Finally, one item was removed due to a high cross loading and replaced with a lower loading item in the second factor. Another item that cross loaded on the first and third factors was retained for the third factor because this factor had the smallest number of items. Moreover, the item matched the conceptual definition of the other items in the third factor and was originally designed to be included in the same facet as these other items. See table 2 for factor structure of the EOS.

### *Final Scale*

*Factor Structure.* The final scale consisted of 19 items with three factors that accounted for 36.26% of the total variance among the items: Nondifferentiation, Illusion of Transparency and Self as Target. Ten items (5 thinking items and 5 feeling items) composed the first factor which was labeled the Nondifferentiation factor. The second factor was labeled Illusion of Transparency and consisted of 5 items. The third factor consisted of 4 items, all of which were Self as Target items. See table 5 for a summary of subscale and total scale statistics.

*Item Statistics.* The average item mean for the final scale was 3.16 with a range of 2.42 to 3.73, which is just below the midpoint of the 1 to 7-point scale for the EOS. The mean inter-item correlation was .27, with a range of .09 to .48. See table 3 for means and standard deviations of items.

*Scale Statistics: Assessing Normality, Means and Standard Deviations.* The final scale was examined with a histogram, box plot, and stem and leaf diagrams along with skewness and kurtosis statistics which revealed that the data fit the assumption that sample means are normally distributed. The possible range for the final scale total score was 19 to 133, with a midpoint of 77. The actual mean for the final scale was 60.05 (SD = 16.55),

which was below the midpoint. See table 4 for means and standard deviations for total scale scores.

*Scale Statistics: Internal Reliability.* In order to analyze the reliability of the scale, a Cronbach's alpha coefficient of internal consistency among items was obtained. The alpha for the final version of the EOS total scale was .87, demonstrating good reliability and the scale's utility in measuring egocentrism consistently. Split-half reliability was also computed with a Spearman-Brown correlation. Using the unequal length statistic, split-half reliability analyses revealed coefficients greater than .80, again exhibiting good internal consistency of the scale. Specifically, the Spearman-Brown coefficients were .83 and .84, depending on how the items were divided.

*Differences Between Groups Within the Sample.* Within the sample of 413 participants, 239 participants were female and 174 were male. An ANOVA revealed that there was a small but significant difference at the .05 level between the mean for females and the mean for males,  $F(1, 411) = 5.89, p < .05$ ). Specifically, males scored higher overall on the EOS. Participants were also randomly assigned to filling out a package that contained one sequence of questionnaires (package 1) or a second different sequence of questionnaires (package 2). An ANOVA revealed that the means for these two groups were significantly different at the .05 level,  $F(1, 411) = 5.26, p < .05$ ). Specifically, participants who filled out package 2 scored significantly higher than participants who filled out package 1. See table 4 for scale statistics.

In order to evaluate whether the difference between the means for the participant group that received package 1 and the participant group that received package 2 remains significant when gender is controlled, further analyses were performed on the relationship between gender (Gender), order of questionnaires (Order), and scores on the EOS (EOS total score). An ANCOVA was used with the EOS total score as the dependent variable, order of the questionnaire packages (i.e. package 1 and package 2) as the fixed factor, and gender as the covariate. The ANCOVA procedure provides adjusted means after

partialling out the covariate, (Gender), and tests whether the subsequent adjusted means are significantly different from each other. The results of the ANCOVA indicated that the difference in EOS total scores between participants who received package 1 and participants who received package 2 remain significant at the .05 level but not at the .01 level when differences in gender are controlled for  $F(1, 410) = 5.17, p < .05$ . The small partial eta squared of .01 suggests a weak relationship between the EOS total score and Order when controlling for Gender, with Order accounting for less than 2% of the variance in the EOS total score (when controlling for Gender). The relationship between Gender and the EOS total score when Order is controlled for was also evaluated. The results indicate that the difference in EOS scores based on Gender when Order is controlled for remains significant at the .05 level, but not at the .01 level  $F(1, 410) = 5.80, p < .05$ . Moreover, the relationship between Gender and the EOS total score is weak when Order is controlled for with a partial eta squared of .01. In other words, Gender accounts for less than 2% of the difference in EOS total scores when Order is controlled for. Overall, the differences between scores on the EOS based on participants' gender or the sequence of questionnaires that they completed is significant but weak once the other variable is controlled for, suggesting that the relationship between each of the two variables and the EOS is confounded with other factors.

*Subscale Statistics.* The final scale of 19 items when factor analyzed loaded on three factors corresponding to three of the four facets of egocentric cognition represented in the original EOS. The Nondifferentiated Thinking (5 items) and Nondifferentiated Feeling (5 items) items loaded together on the first factor creating a Nondifferentiation subscale with a total of 10 items. The one remaining item from the proposed Failure to Adjust facet in the original EOS loaded on the first factor and after examining its contents was labeled a Nondifferentiated Thinking item. The internal reliability for the Nondifferentiation subscale is very good with a Cronbach's alpha of .81 and a mean inter-item correlation of .31. The second factor of the final EOS contains 5 items

representing the Illusion of Transparency facet of adult egocentrism. This subscale has a Cronbach's alpha of .73 and a mean inter-item correlation of .35. The third and final subscale of the EOS represented by the third factor is the Self as Target subscale which contains 4 items. The Self as Target subscale has a Cronbach's alpha of .73 and a mean inter-item correlation of .40. See Table 5 for summary of subscale and total scale statistics.

In order to examine the relationship between the subscales, correlations between each total subscale were obtained. The Nondifferentiation subscale (ND) had a Pearson correlation of .52 ( $p < .01$ ) with the Illusion of Transparency subscale (IT) and .54 with the Self as Target subscale ( $p < .01$ ). The Illusion of Transparency and Self as Target (ST) subscales had a slightly lower correlation of .44 ( $p < .01$ ). Overall, all three subscales appear to be moderately correlated, with the ND subscale having a stronger relationship with the other two subscales than they did with each other (see table 7 for subscale intercorrelations).

#### *Evaluating Validity and Social Desirability Bias*

Six other measures were included in the study: the Egocentric Behavior Scale (EBS), the Self-Consciousness Scale (SCS), the Rumination Reflection Questionnaire (RRQ), the Marlowe-Crowne Social Desirability Scale (M-C SDS), the Social Phobia Inventory (SPIN), and the Beck Depression Inventory (BDI). Each scale was evaluated for normality assumptions with a histogram and measures of skewness and kurtosis. The sample means for all of the measures approximated a normal distribution with the exception of the SPIN which had a small positive skew and the BDI which had a large positive skew (see table 6 for ranges, means, and standard deviations of validity measures and MC-SDS). Total scale scores and subscale scores of each measure (where applicable) were correlated with the EOS total scale and subscales with Pearson correlations revealing weak to moderate correlations. All correlations were positive except the M-C SDS which had a negative correlation with the EOS. The relationships between the validity measures

and the EOS were examined with partial correlations controlling for social desirability revealing small changes in scores. Similarly, correlations between the EBS and the other measures in the study were performed and compared to partial correlations, controlling for social desirability bias, between the EBS and other measures. The correlations between validity measures and the EBS were compared to the correlations with the same measures and the EOS. Finally, all validity measures were correlated with each other (see table 13 for intercorrelations among validity measures).

*Egocentric Behavior Scale (EBS): Referential Communication, Illusion of Transparency and Self as Target.* In order to evaluate congruent validity, the relationship between the EOS and the EBS was examined using total scale scores and subscale comparisons. As expected, the total EBS had a moderate positive correlation with the total EOS ( $r = .37, p < .01$ ). The items of the EBS were distinguished based on three facets that the items represent and examined for the reliability of each of these facets. The Referential Communication facet of the EBS included 12 items which together had a Cronbach's alpha of .73 and a mean inter-item correlation of .19. The Illusion of Transparency items had a Cronbach's alpha of .70 and a mean inter-item correlation of .25 with 7 items representing this facet. Four Self as Target items were included in the EBS. Together they had a Cronbach's alpha of .54 and a mean inter-item correlation of .24. The reliability coefficients and inter-item correlations of each of the item groupings of the EBS were deemed satisfactory to use as subscales and compare to the EOS subscales. Therefore, Referential Communication, Illusion Transparency, and Self as Target items of the EBS were compared to the Nondifferentiation, Illusion of Transparency and Self as Target subscales of the EOS, respectively. The Referential Communication subscale of the EBS was compared to the Nondifferentiation subscale of the EOS revealing a significant correlation of .14 ( $p < .01$ ). The Illusion of Transparency subscale of the EBS was compared to the corresponding subscale of the EOS revealing a significant correlation of .46 ( $p < .01$ ). The last subscale of the EBS, the Self as Target was compared to the

corresponding subscale of the EOS revealing a significant correlation of .43 ( $p < .01$ ). See table 7 for correlations between EBS total and subscales and EOS total and subscales scores.

*Self-Consciousness Scale (SCS): Private and Public Self-Consciousness.* In order to investigate the relationship between adult egocentrism and self-consciousness and provide a measure of validity for the EOS specifically, the EOS was compared to the SCS. Furthermore, the SCS was divided into two of its factors, private self-consciousness and public self-consciousness, and compared to the EOS to gain a better understanding of how egocentrism and self-consciousness are related. Based on the total scale scores the relationship between the EOS and SCS revealed a significant correlation of .14 ( $p = .01$ ). When the separate factors were compared, both factors had similarly significant positive relationships with the EOS. The Private Self-consciousness factor and the EOS had a correlation of .12 ( $p = .02$ ) and the Public Self-consciousness factor and the EOS had a correlation of .11 ( $p = .03$ ). Furthermore, comparisons between the SCS factors and the EOS subscales revealed small but significant correlations for all subscales except the relationship between Public Self-consciousness and Self as Target which was not significant. The Private Self-consciousness factor of the SCS and Self as Target subscale of the EOS had the strongest relationship amongst all of the subscales of the two measures. See table 8 for correlations between EOS total and subscales and SCS subscales.

*Rumination-Reflection Questionnaire (RRQ): Adaptive and Maladaptive Self-Consciousness.* The RRQ, another measure of self-consciousness, was correlated with the EOS in order to examine further the relationship between self-consciousness and egocentrism and provide evidence for the validity of the EOS. Furthermore, the RRQ was divided into its separate subscales, reflection and rumination, to assess the association between egocentrism and adaptive vs. maladaptive self-consciousness. The EOS and the RRQ had a significant moderate correlation of .25 ( $p < .01$ ). When the RRQ was divided



into its two subscales, as expected, both subscales had a significant positive relationship with the EOS. However, contrary to what was hypothesized, the Reflection subscale had a stronger relationship with egocentrism than the Rumination subscale. Specifically, Rumination had a correlation of .18 ( $p < .01$ ) and Reflection had a correlation of .22 ( $p < .01$ ) with the EOS. When the relationship between the subscales of the RRQ and the subscales of the EOS were examined further, similar correlations to the RRQ subscales and EOS total scale were found except for the correlation between the Self as Target subscale of the EOS and the Rumination subscale of the RRQ, which was very small and nonsignificant. See table 9 for correlations between EOS total and subscales and RRQ subscales.

*Social Phobia Inventory (SPIN)*. The SPIN was compared to the EOS to investigate the relationship between egocentrism and social anxiety. Because a histogram and skewness value revealed a positively skewed distribution for the SPIN, before performing any further analyses, a square root transformation was performed resulting in a less skewed distribution that better approximated a normal distribution and revealed a smaller skewness index. The new SPIN total scale score exhibited a small but significant relationship with the EOS ( $r = .16, p < .01$ ). The SPIN also exhibited small but significant relationships with the Nondifferentiation and Illusion of Transparency subscales of the EOS subscales and no relationship with the Self as Target subscale.

*Beck Depression Inventory (BDI)*. The distribution of sample means for the BDI revealed a large positive skew when examined with a histogram and skewness value index. A square root transformation was performed to force the means to more closely approximate a normal distribution. Subsequently, the EOS was correlated with the BDI resulting in a small and nonsignificant correlation. When the EOS subscales were correlated with the BDI the Nondifferentiation subscale had the same relationship with the BDI as the EOS total scale. The Illusion of Transparency subscale exhibited the strongest and only significant relationship with the BDI, and the Self as Target subscale exhibited a

very small negative relationship with the BDI. See table 10 for correlations between SPIN, BDI, and EOS total and subscales.

*Marlowe-Crowne Social Desirability Scale (MC-SDS).* In order to evaluate the degree of response bias influencing scores on the EOS, the relationship between the M-C SDS and the EOS was examined. Because the distribution of sample means for the MC-SDS approximated a normal distribution, the pool of 413 participants was used to compare with the EOS. As hypothesized, a negative correlation between the MC-SDS and the EOS was found ( $r = -.22$ ). Contrary to expectation, the correlation was significant ( $p < .01$ ). Correlations between the MC-SDS and the subscales of the EOS revealed similar small negative relationships between social desirability bias and EOS scores. See table 11 for correlations between EOS total and subscales and MC-SDS.

*Relationships Between Validity Measures and EOS controlling for MC-SDS.* In order to evaluate whether the relationships between the EOS and the validity measures were confounded with social desirability bias, partial correlations between the EOS and the other measures, controlling for the effects of social desirability bias, were examined. The partial correlations were similar to zero-order correlations between the EOS and the validity measures. Specifically, partial correlations with the EBS ( $r = .37, p < .01$  compared to  $r = .32, p < .01$ ), the Rumination subscale of the RRQ ( $r = .18, p < .01$  compared to  $r = .13, p < .05$ ), the Public Self-consciousness subscale of SCS ( $r = .11, p < .01$  compared to  $r = .08, n.s.$ ), the SPIN ( $r = .16, p < .01$  compared to  $r = .11, p < .05$ ) and the BDI ( $r = .07, n.s.$ , compared to  $r = .02, n.s.$ ) were slightly smaller than zero-order correlations between these scales and the EOS. See table 12 for partial correlations between the EOS and validity measures controlling for social desirability bias.

#### *Correlations Between the EBS and Other Validity Measures*

In order to evaluate whether the EOS demonstrated a similar degree of validity to a previous measure of egocentrism that has already shown associations with theoretically

relevant measures, the EBS was correlated with the other validity measures included in the study and compared to the same correlations with the EOS. The results revealed slightly stronger relationships between the EBS and some of the validity measures than the relationships exhibited between the EOS and the same validity measures. Specifically, the Public subscale of the SCS ( $r = .14, p < .01$  compared to  $r = .11, p < .01$ ), the Rumination subscale of the RRQ ( $r = .31, p < .01$  compared to  $r = .18, p < .01$ ), the SPIN ( $r = .33, p < .01$  compared to  $r = .16, p < .01$ ), and the BDI ( $r = .31, p < .01$  compared to  $r = .07, n.s.$ ) had a stronger relationship with the EBS than the EOS. The EBS also had a stronger relationship with the MC-SDS ( $r = -.32, p < .01$  compared to  $r = -.22, p < .01$ ) than the EOS. See table 12 for correlations between EBS and validity measures.

*Correlations Between the EBS and Other Validity measures Controlling for Social Desirability Bias.* In order to investigate whether the correlations between the EBS and the other validity measures were confounded with social desirability bias, partial correlations between the EBS and the other validity measures (controlling for social desirability bias) were performed. The results revealed the same pattern that was found with the EOS. Specifically, the Public subscale of the SCS ( $r = .11, p < .05$  compared to  $r = .14, p < .01$ ), the Rumination subscale of the RRQ ( $r = .24, p < .01$  compared to  $r = .31, p < .01$ ), the SPIN ( $r = .28, p < .01$  compared to  $r = .33, p < .01$ ) and the BDI ( $r = .25, p < .01$  compared to  $r = .31, p < .01$ ) all had weaker correlations with the EBS when social desirability bias was controlled for. See table 12 for partial correlations between EBS and validity measures controlling for social desirability bias.

## Discussion

### *Egocentric Orientation Scale: Development, Reliability, and Factorial Composition*

The aim of the current study has been to develop a measure of egocentric cognition in adults that differentiates between dispositionally egocentric individuals and

individuals who display egocentric biases only in certain situations, as has been demonstrated in the past (Fenigstein 1984; Gilovich & Savitsky, 1999; Vorauer & Ross, 1999). Moreover, past efforts at measuring egocentrism have focused on egocentrism in adolescents (Adolescent Egocentrism-Sociocentrism Scale; Enright, Shukla, & Lapsley, 1980) and egocentric behavior in adults (Egocentric Behavior Scale; Johnson et al., 2001). Therefore, by attempting to measure a dispositional form of egocentric cognition in adults, the current study focuses on aspects that have not been examined in past research with egocentric biases, behavior, and egocentrism in adolescents. Furthermore, the study was designed to provide evidence that adult egocentrism can be measured reliably in self-report fashion. Finally, the focus on egocentric cognition allows for examining the different facets of egocentric cognition, which have never specifically been examined in the past. The current study looked at 4 different facets of egocentric cognition, Nondifferentiation (Thinking and Feeling), Failure to Adjust, Illusion of Transparency, and Self as Target, and whether these facets provide a better representation of egocentrism than a single factor.

*Item Reduction and Reliability.* When developing a scale, indicators of internal consistency are the most commonly used method for item selection in scale development (Clark & Watson, 1995). However, as Clark and Watson point out, standard measures of internal consistency such as Cronbach's alpha or average inter-item correlation may not be sufficient to create a scale of items that coherently represent an underlying construct. Furthermore, although certain standards of internal consistency are desired and frequently reported in scale development, aiming for higher internal consistency measures may not be desirable due to item redundancy. Clark and Watson illustrate this point with the "attenuation paradox". They suggest that increasing internal consistency of a test, although desirable to a certain degree, may even compromise validity. They seem to suggest that the aim of scale development is to strike a balance between the psychometric

properties demonstrated through internal consistency and the construct validity of the scale.

In the current study items were eliminated with the aim of creating a scale with good internal consistency and differentiated items. Furthermore, because the study had a theoretical basis for the structure of the scale, items were also eliminated based on factor analysis. Therefore, items were eliminated based on low item-total correlations, highly redundant items and interpretability of the factor structure based on theory. Specifically, the original scale included 60 items which was reduced to 28 items based on item-total correlations. The 28 item scale was then further reduced to 19 items following factor analysis, based on both factor loadings and theoretical conceptualization of factors. The results of the current study indicate that the EOS exhibits good internal and split-half reliability, providing evidence for the psychometric properties of the scale. Moreover, both the average inter-item correlation and the individual inter-item correlations are moderate, exhibiting consistency without excessive redundancy of items. Furthermore, the current study provides further confirmation for the evidence provided by Johnson et al., (2001) who developed the Egocentric Behavior Scale, that adult egocentrism can be measured reliably in self-report fashion.

*Failure to Adjust Facet.* Initially, items in the EOS were designed to represent four facets of egocentrism. Following the elimination of items based on low item-total correlations, the Nondifferentiation, Illusion of Transparency and Self as Target facets were represented roughly equally in the remaining 28 item pool. However, of the 11 items that were included in the scale to represent the fourth facet, Failure to Adjust, only 1 item remained in the item pool. Upon further consideration, several reasons for why only one item of this facet remained after statistical analyses are possible.

First, the Failure to Adjust facet, unlike the other facets, is described in the literature as a cognitive process in itself (Epley, Morewedge, & Keysar, 2004; Nickerson, 1999). Initially, there is a default phase where an anchor of existing knowledge or

information in one's mind is consulted, followed by an adjustment for new information that is encountered. Potentially, the dynamic nature of this process presents a challenge when trying to capture it in a phrase or identify it as part of one's own cognitive processing. Second, in examining the failure to adjust items included in the EOS, it becomes apparent that the items may convey a quality that is arguably related to egocentrism, but not inherent in it. Specifically, several items appear to describe a stubbornness to change one's perspective (e.g., "When I am not looking forward to something, I continue to dread it, even if I have heard it may be better than I initially thought" and "When others tell me that I feel too strongly about something, it is hard for me to change my mind, even when I think that I should"). Although individuals who tend to be egocentric may indeed display a stubborn quality when consistently focusing on and approaching situations based on their own perspectives, even in the face of challenging information, stubbornness is not a type of egocentric bias. This illustrates another reason why the failure to adjust items may have failed to emerge as congruent with the other items in the scale. Furthermore, it could be argued that research that has examined the failure to adjust has inferred a failure to adjust process from an egocentric response that does not differentiate the failure to adjust as a particular type of egocentric bias. For example, when Epley, Keysar et al., (2004) asked participants to make estimates of how others will interpret a situation they find that participants' estimates are much closer to how they interpret a situation themselves, in other words more egocentric, when they are given less time to decide and less egocentric when they are given an incentive to be accurate. The authors infer that less access to resources, such as in a situation where a person is rushed, makes it more difficult to adjust, whereas motivation to be accurate encourages using cognitive resources which makes it easier to adjust. Although this outcome may rightly reflect an anchoring and adjustment process, the egocentric bias that results cannot easily be identified as a clear and unique aspect of egocentric cognition. In fact, the anchoring and adjustment process may better describe the dynamic process that

leads to the manifestation of different egocentric biases rather than a bias in itself. Moreover, whether one looks at the anchoring and adjustment bias as one type of egocentric bias or the process by which different types of egocentric biases arise, it may more readily be examined in an experimental context. However, the one remaining Failure to Adjust item was retained in the final version of the EOS because it consistently loaded with Nondifferentiation items in the factor analysis and appeared to fit the definition of Nondifferentiation.

#### *Factorial Composition: Different Facets of Egocentric Cognition*

Factor analysis of the EOS revealed a large general overriding factor. However, because one aim of the study was to examine different facets of egocentric cognition that have been postulated in the research, but have never been examined in particular, a multiple factor solution was chosen. Three factors emerged as being the most meaningful solution for the items. The scale was subsequently reduced further in order to balance the number of items that constituted each factor and create a scale that had practical utility in research and clinical contexts. Burisch (1984) suggests 10 to 20 items as “the maximum scale length you can accomplish without too much redundancy”. The final version of the EOS contained 19 items. The first factor contained 10 items reflecting Nondifferentiation. The second factor contained 5 Illusion of Transparency items. Four Self as Target items made up the third factor.

*Nondifferentiation Subscale.* During development of the EOS, the Nondifferentiation facet was divided into two types of nondifferentiation, thinking and feeling. However, factor analyses consistently revealed a lack of distinction between the items designed to represent these two types of Nondifferentiation. The first factor of the EOS therefore includes 5 Nondifferentiated Thinking items and 5 Nondifferentiated Feeling items creating a large first factor. A pilot study looking at different facets of egocentric cognition revealed a similar finding with Nondifferentiated Thinking and

Feeling items loading together on one factor, along with a few different items (Choch, 2005). One possibility for this lack of distinction between thinking and feeling items is that although the feeling items designed for the scale refer to how one feels about something, what is being responded to by someone who endorses the item is egocentric thinking. That is, the items may be measuring cognitions about feelings rather than the actual experience of feelings. Some examples of feeling items illustrate this point: “When I am impressed by something, I expect others feel the same way”, “When someone meets a person I dislike, I know he/she will feel the same way I do”, and “When I dislike someone or something I think that everyone else does too”. Although these items make reference to feelings, there is also a clear reference to a cognitive process as demonstrated by the knowing, thinking, and expecting parts of the items. So, although the feeling items may refer to feelings, participants may be responding to the cognitive process of expecting others’ perspectives to be the same as theirs. Even if the perspective is a feeling, the process is still much closer to a thinking one. Future research may attempt to explore whether genuine feeling items that capture an egocentric cognitive process, where feelings are the focus of the experience, can be developed and properly measured.

*Illusion of Transparency Subscale.* The second factor of the EOS was represented by Illusion of Transparency (IT) items. Five items constituted the Illusion of Transparency subscale. Overall, the IT items loaded together primarily with minimal cross loadings. The results from the current study support the success of the items designed to measure the illusion of transparency bias in measuring what they purport to measure. Furthermore, the illusion of transparency bias, which has been shown to be a particular egocentric bias that most people exhibit some of the time (Gilovich & Savitsky, 1999; Gilovich, Savitsky, & Medvec, 1998) appears to also be a particular facet of egocentrism in individuals who exhibit egocentrism most of the time, that is as a disposition. In sum, future research should consider the Illusion of Transparency facet of egocentrism as important when looking at egocentrism in adults. Moreover, the items of the final version of the EOS



provide a good base for items that reliably measure this facet as part of egocentric cognition.

*Self as Target Subscale.* The third factor that emerged in factor analysis contained items designed to represent the Self as Target facet of egocentrism. This was the least pure factor amongst the three factors due to cross loadings mostly with the first factor. Two items in particular consistently had cross loadings with the first factor, Nondifferentiation. They were “When I hear people talking about qualities they really like in a person, I think that they are talking about me” and “When I hear someone will be praised for their work, I think that it will be me”. After items were dropped before the final factor analysis, only one of these items had a cross loading with the Nondifferentiation factor. However, both items were retained for the third factor and subscale of the EOS. There are a few reasons why this decision was made. First, after examining the items it was unclear how they fit with the definition of the label of the first factor, which seemed to neatly tie all the Nondifferentiation items together. One explanation is that when individuals think something about themselves, in this case something positive, and tend to be egocentric in their thinking, they assume that others feel the same way they do or that circumstances will reflect their perspective. Thus, the two self as target items may reflect the lack of distinction between an individual’s impressions of him/herself and what the individual expects others to think of him/her. However, the items still appear to match the self as target definition more closely than the nondifferentiation facet. Second, the third factor being the smallest factor was in need of these two items much more than the first and largest factor. The third factor and subscale of the EOS including these two items contained four Self as Target items. Finally, several of the hypotheses posed by the study revolve around the different proposed facets of egocentrism and comparing them to subscales of other measures. In order to investigate the relevance of the self as target facet to adult egocentrism, the factor had to be retained.

Furthermore, reliability estimates provide support for using the Self as Target subscale in subsequent analyses.

Another point of consideration arises regarding the Self as Target (ST) subscale because it is apparent that all of the items are worded positively. Of the thirteen items designed to represent the ST subscale, the four items remaining in the final version of the EOS are all items that describe positive experiences. On one hand, this seems counterintuitive. Generally, one would expect items that describe negative experiences to be more salient in individuals' minds and therefore more likely to be endorsed. However, in a study by Fenigstein (1984), he predicted that the self as target bias may be more pronounced with positive events rather than negative events based on motivation to protect self esteem. Contrary to his prediction, he found that participants expected to be the target of both negative and positive events, suggesting that the need to protect self esteem is not an obvious contributing factor to the self as target bias. However, unlike Fenigstein's study which looked at the tendency for most individuals to exhibit the self as target bias in certain situations, the current study looked at the tendency for some individuals to consistently exhibit the self as target bias as part of an egocentric disposition and found the bias to be more characteristic of egocentrism when it refers to positive expectations. One conclusion that could be drawn is that people who are consistently more egocentric also tend to have more positive expectations for what others' thoughts, feelings, and behaviors will be towards them. More accurately, they see themselves as the *target* of others' positive thoughts, feelings and behaviors. However, confirmation of this theory would require a more specific examination of the nature of the self as target bias in adults who tend to be egocentric, which could be a direction for future research. The inclusion of a self esteem questionnaire may elucidate whether individuals who are more egocentric also expect others to have more positive thoughts, feelings, and behaviors towards them, perhaps because this matches their own positive thoughts and feelings about themselves. Similarly, the question of whether individuals who are more egocentric

are motivated to protect self esteem more than less egocentric individuals could also be examined. In sum, although research has suggested that the self as target bias is not strongly influenced by self esteem or concerns over protecting the ego, the current study which has examined egocentric cognition in adults as a disposition provides some evidence that self esteem or ego-defense may be involved in the self as target facet of egocentrism.

### *Single General Factor Versus Subscales*

The current study used a three subscale measure to represent different facets of egocentrism. One subscale was a conglomeration of two types of one proposed facet, Nondifferentiation, one proposed facet was not included amongst the final three factors, and two subscales matched their respective proposed facets when the EOS was originally designed. A three subscale measure allows for the investigation of the importance of different facets of egocentrism versus a general egocentrism construct that is represented by one definition. Although different facets of egocentric cognition have been proposed in the literature, they have not specifically been examined in adult egocentrism. Furthermore, any examination of these facets has focused mainly on the observation and reporting of events or behavioral outcomes (e.g., Johnson et al., 2001). Therefore, the current study provided an opportunity to examine the role and importance of different facets of egocentrism in what is often observed as egocentric thinking and behavior. In order to accomplish this, the final version of the EOS had to include different facets of egocentrism. However, the question of whether future attempts to measure egocentrism in adults should include separate subscales remains. Moreover, when the proposed EOS was factor analyzed the scree plot revealed a large first factor suggesting that egocentrism may be represented with a general factor rather than multiple factors.

There are several advantages to using a single general factor to measure egocentrism. First, a single factor scale allows for reducing the number of items in the measure which contributes to the simplicity and practical utility of the measure. The

question that arises with the EOS is whether a single factor measure would consist of the Nondifferentiation items alone or a combination of these items with items representing different facets of egocentrism. If one were interested primarily in distinguishing between individuals who are more egocentric versus individuals who are less egocentric a Nondifferentiation measure may suffice. However, at this stage, where individual differences in adult egocentrism has been subject to minimal investigation in research and there is still much to understand about egocentric cognition and how it operates, it seems that including items that represent different aspects of egocentrism is important. As mentioned earlier, the simplicity of the measure will be increased with a single factor measure allowing for less complex statistical procedures and easier interpretation and conceptualization of egocentrism with one definition of the construct.

From a theoretical perspective using a single factor measure presents a disadvantage. Several types of egocentric biases have been identified in the social psychology literature as important (Fenigstein, 1984; Ross, Greene, & House, 1977; Vorauer & Ross, 1999). If adult egocentrism as a personality construct is to be fully elucidated, the different aspects of egocentrism that have been identified in the past should be investigated to determine their role in an egocentric disposition. The current study provides a preliminary investigation of the different facets of egocentrism as part of an egocentric disposition in adults by using a three subscale measure. Examining the relationship between these subscales and other measures provides some evidence for whether the advantages of including these different facets in a measure of egocentrism are compelling enough to outweigh the advantages of using a single factor measure. The relationship between the EOS and other measures of constructs that are theoretically associated with egocentrism will be discussed now to provide some evidence for the validity of the EOS. Furthermore, relationships between the validity measures and the subscales of the EOS will be discussed with emphasis on their contribution to a measure of egocentrism.

*Validity: The Relationship Between Egocentrism and Other Theoretically Relevant Constructs*

Support for the the validity of the EOS, that is, its success in measuring what it purports to measure, is demonstrated by comparing it to other established scales of egocentrism, and scales measuring theoretically relevant constructs. Specifically, construct validity is established through significant correlations with measures of other constructs in expected directions. Therefore, in order to provide evidence for the validity of the EOS, it was compared to five other measures with expected positive correlations and a scale measuring social desirability that was expected to have a negative correlation with the EOS. All correlations were in the hypothesized direction. Furthermore, correlations between validity measures and the subscales of the EOS were evaluated to determine the nature of associations between facets of the EOS and other relevant constructs.

*Evaluating Social Desirability Bias.* Whenever individuals are asked to admit to qualities in themselves that may be undesirable the issue of self presentation must be considered. There are a few reasons why individuals filling out the EOS in particular may be motivated to answer in a self protective manner. In the current study, participants were asked to answer questions about their tendency to perceive and approach situations from their own perspective while making an assumption that others mirror their perspective. Because people generally assume that children are egocentric and become less so as they develop more sophisticated cognitive abilities and become adults, they may be less than honest when answering questions about egocentric thinking, especially if it is a large part of their personality and not just an occasional occurrence in their overall thinking and behavior. The items of the EOS refer to a global way of thinking which reflects a persistent personality style rather than particular situations. Furthermore, individuals who have a difficult time considering others' perspectives may be associated with socially undesirable traits, such as stubbornness, and may even be told that they are viewed this

way. Therefore, individuals may be motivated to minimize or hide the traits that they view as undesirable.

In order to determine whether the desire to present as more socially adaptive influenced how participants responded to items in the EOS, a measure of social desirability bias was included in the study, the Marlowe-Crowne Social Desirability Scale (M-C SDS). As predicted, the relationship between the EOS and social desirability bias was small and consistent with what other studies have found (Campbell et al., 1996). The anonymity provided to the participants when filling out the EOS could explain this finding. Specifically, participants were administered the measure in group testing sessions, were given participant numbers and asked for minimal demographic information so that they could not be identified and thus feel free to report their egocentrism.

The relationship between the EOS and M-C SDS also revealed that participants who were high on egocentrism displayed less social desirability bias, while individuals who were low on egocentrism displayed greater social desirability bias, which was also consistent with hypotheses. One explanation for this finding is that the developers of the M-C SDS designed the items of the scale with the goal of eliminating pathology-relevant item content (Crowne & Marlowe, 1960). In other words, the M-C SDS may be measuring a more adaptive type of social desirability. Because egocentrism is conceptualized as a more maladaptive type of cognitive style, the inverse relationship between the EOS and social desirability bias as measured by the M-C SDS in the current study is consistent with theoretical assumptions about egocentrism.

Contrary to expectation, the MC-SDS had a significant relationship with the EOS. Therefore, partial correlations were performed in order to investigate further whether associations between the EOS and other measures were confounded with social desirability bias. All of the partial correlations were similar to initial zero-order correlations that were found between the EOS and the validity measures. Not surprisingly, the measures that exhibited a slightly weaker relationship once social desirability bias was

controlled for were those that represented tendencies that participants would presumably be reluctant to report on or have more self presentational concerns about, including public self consciousness, the clinical measures, and maladaptive self consciousness. However, overall it appears that scores on the EOS were not confounded with the motivation to present as socially desirable.

*The EOS and the EBS: Egocentric Behavior Versus Egocentric Cognition.* Good convergent validity was demonstrated for the EOS as it had a significant moderate positive correlation with the EBS. This suggests that the EOS was successful in measuring what it purports to measure, egocentrism. However, because the correlation was moderate, this also suggests that although both scales are measuring egocentrism they do not overlap entirely. Presumably, they are each capturing something different about the construct, which matches the proposed hypothesis for the study. That is, the EOS was designed to measure egocentric cognition following the success of the EBS in measuring egocentric behavior in self report fashion. The positive but moderate relationship between the two measures provides support for the EOS as a measure of egocentrism, while also demonstrating its potential to provide something new to the assessment and investigation of egocentrism in adults. Therefore, the EOS may be a unique and valuable tool in measuring egocentrism in adults.

Similar to the finding with the overall scales, the relationship between the subscales of the EOS and EBS revealed significant positive correlations that suggest that the EOS subscales were successful in measuring different facets of egocentrism. However, the relationships were weak to moderate which also suggests a distinction between what the subscales of each total scale are measuring. As predicted, the weakest relationship was between the Nondifferentiation subscale of the EOS and the Referential Communication subscale of the EBS, while the Illusion of Transparency and Self as Target subscales of each measure had a much stronger relationship with the same subscale of the other measure. One possible reason for this is that the scales were designed to measure

egocentrism from a different perspective, observable behaviors versus cognitive style. Therefore, the Nondifferentiation items of the EOS may be most characteristic of egocentric cognition while Referential Communication items of the EBS may represent egocentric situations or behaviors more closely than the other two types of items in the EBS. The IT and ST subscales of each scale on the other hand may be more similar in how they measure these facets of egocentrism. Overall, the relationship between the subscales of the EOS and the EBS suggest that the EOS is providing a new perspective to measuring facets of egocentrism that was not captured in the EBS, particularly the nondifferentiation facet.

*Self-Consciousness and Egocentrism: The EOS, SCS and RRQ.* Several studies have shown a relationship between egocentrism and self-consciousness (Fenigstein, 1984; Johnson et al., 2001; Johnson & Ediger, 2001; Vorauer & Ross, 1999). One explanation for how the two constructs are related proposes that self consciousness increases accessibility of information about the self. Because this information is difficult to set aside, it interferes with perspective-taking which leads to a greater tendency to engage in egocentric cognition and behavior, such as assuming that others have the same perspective as the self does (Nondifferentiation), perceiving the self as exposed, vulnerable and transparent (Illusion of Transparency) or perceiving the self as the target of events, thoughts, and behaviors of others (Self as Target).

Two measures were included in the present study to represent self consciousness. The Self Consciousness Scale (SCS) has been used in the past to examine the relationship between self consciousness and different egocentric biases (Fenigstein, 1984; Vorauer & Ross, 1999). Furthermore, the study by Johnson et al. (2001) investigated the relationship between self consciousness (with the SCS) and egocentrism as a disposition based on a measure of observable egocentric behaviors. The SCS includes two subscales, a private scale that represents the focus on private aspects of the inner self, and a public scale that represents the focus on public aspects of the self. The present study found a small and



significant positive relationship between egocentrism and both private and public self consciousness. Moreover, similar to past findings (Fenigstein, 1984; Johnson et al., 2001; Vorauer & Ross) the relationship with the total EOS was similar for both private and public self consciousness. The positive relationship corroborates past findings that suggest that individuals who have a tendency to be more self conscious, whether their focus is more on private or public aspects of themselves, also have a tendency to be more egocentric.

When the EOS is examined further using its subscales, most of the subscales have a similar relationship with both private and public self consciousness as the total EOS. However, the IT subscale has a very weak relationship with private self consciousness and the ST subscale has a very weak relationship with public self consciousness. These findings are surprising considering that individuals who are very focused on their private thoughts and feelings would likely expect others to also be focused on their thoughts and feelings and be able to know what they are, in other words they would expect to be transparent (Vorauer & Ross, 1999). Similarly, individuals who are focused on what others may notice about them, and do not have awareness for this focus, would likely expect others to be focused on them and to be at the center of others' thoughts and behaviors, in other words the target of others' thoughts and behaviors (Fenigstein, 1984). The relationship of the Nondifferentiation facet with both types of self consciousness which is similar to the relationship of the total EOS with self consciousness supports this facet's success in representing egocentrism on its own. However, the illusion of transparency and self as target facets may have a more complex relationship with self consciousness that requires further investigation to both determine their value as part of a conceptualization of adult egocentrism and understand the relationship between egocentrism and self consciousness.

The second self consciousness scale that was used in the study, the Rumination-Reflection questionnaire (RRQ), makes a distinction between voluntary or

adaptive self consciousness (Reflection) and involuntary or maladaptive self consciousness (Rumination). Because egocentrism is easily identified as a more maladaptive cognitive style, a stronger relationship between maladaptive self consciousness and egocentrism was hypothesized. Contrary to expectation, the EOS had a similar relationship with both voluntary and involuntary self consciousness. In fact, a slightly stronger relationship was exhibited between egocentrism and adaptive self consciousness. The subscales of the EOS exhibit a similar pattern of relationships with the RRQ subscales as was revealed with the SCS subscales. The Nondifferentiation and IT subscales of the EOS had a similar relationship with the Rumination subscale as the total EOS while the Nondifferentiation and ST subscales had a similar relationship with the Reflection subscale as the total EOS. The ST subscale had a very weak relationship with involuntary self consciousness and the IT subscale had a weaker relationship than the other EOS subscales with voluntary self consciousness. One explanation for these findings is that individuals who tend to be preoccupied with thoughts about themselves that they have difficulty shutting off may feel that these thoughts have a power beyond their control and in turn are likely to feel that others can see these thoughts. Therefore, for individuals who ruminate the feeling of being transparent may be stronger than the feeling that they are the target of others' thoughts or behaviors. On the other hand, individuals who are focused on themselves, but feel as though they can control their thinking may be more concerned with others' focus on them, but less concerned about the power of their own thoughts and their transparency to others.

Overall, it appears that the tendency to assume that others have the same perspective that one has is the cognitive process that best represents egocentrism and is consistently associated with the tendency to focus on the self, whether this focus is on private or public aspects of the self and whether this focus is perceived as controllable or involuntary. Once more specific ways of thinking egocentrically are examined, the relationship becomes more complex. Therefore, the Nondifferentiation facet of

egocentrism is associated with self consciousness overall, but the illusion of transparency and self as target facets of egocentrism each have stronger associations with certain types of self consciousness than others.

Regardless of the process by which self consciousness influences the tendency to be egocentric, there appears to be a relationship between the two constructs that deserves further investigation. The present study provides evidence for the relationship between self consciousness and egocentric cognition in adults which confirms the relationship between the two constructs and supports further exploration of this relationship. The lack of distinction between different forms of self consciousness, private versus public, voluntary versus involuntary, suggests that more research is required to elucidate the role that each has in egocentrism. The present study provides a direction for further investigation by bringing the relationship of self consciousness and egocentrism, which is well documented, into the realm of individual differences rather than just focusing on biases that occur on an occasional basis. A more in depth look at egocentrism from this perspective, where the egocentric thoughts and behaviors are more pervasive for an individual, may make the relationship more robust and easier to decipher. However, this remains to be seen.

*Egocentrism and Depression: The EOS and the BDI.* Depression is often characterized as a disorder where cognitive distortions play a primary role (see Leahy, 2004). Individuals who exhibit depressive symptoms often have a difficult time distinguishing their subjective negative beliefs about themselves and the world from more objective expectations from others and the world. Similarly, as Elkind (1982) describes, egocentrism is characterized by distorted ways of perceiving oneself and the world that include a focus on one's subjective perception without awareness that other perceptions exist. Because of the similar tendency towards cognitive distortions that include a persistent focus on one's own perspective in both depression and egocentrism, the association between the two cognitive styles has been investigated. For example, Baron and Hanna (1990) found that individuals who were more egocentric also reported more

depressive symptoms than those who were less egocentric. Although they were looking at egocentrism in a young adult population of undergraduate students, Baron and Hanna used a measure of adolescent egocentrism. Based on their finding and theory it appears that egocentrism may play a role in depression. However, egocentrism has been thought of as an adolescent phenomenon that is overcome when adults reach the level of cognitive ability associated with formal operations. As the present study and other studies have shown, the ability to overcome egocentric cognition does not necessarily coincide with the emergence of adulthood, and in fact can persist as a consistent pattern of thinking and behavior (Fenigstein, 1984; Johnson et al., 2001; Vorauer & Ross, 1999). Without a measure of adult egocentrism, this phenomenon is being fit into an adolescent framework that risks failing to capture the nuances of egocentrism that may be particular to adults. Furthermore, the evidence that egocentrism occurs in adults supports the use of a measure of adult egocentrism.

The present study investigated the relationship between depression and adult egocentrism using a new measure of egocentric cognition in adults and the BDI which is a version of the same scale that was used in the Baron and Hanna (1990) study. The relationship between egocentrism and depression indicated that participants who were more egocentric also reported more depressive symptoms, but the relationship was weak and not significant. When the different facets of egocentrism were examined with depression, the Illusion of Transparency facet was the only one that had a significant association with depression in that individuals who had a tendency to see their thoughts as transparent also had a tendency to be more depressed. This finding supports the benefit of examining different facets of egocentrism rather than using a single egocentrism factor. The Self as Target facet had a very weak association with depression that indicated that individuals who tend to see themselves as the target of others' thoughts and behaviors are less likely to be egocentric. Similar to findings that were discussed previously with the EOS and other measures, the Nondifferentiation facet had the same relationship with

depression as the total EOS that included all the facets. Overall, depression did not have a strong association with egocentrism which was contrary to findings in the past and theory. However, the relationship between depression and the tendency to feel transparent, one facet of egocentrism, and the development of a measure of adult egocentrism provides a new direction for exploring the relationship between depression and egocentrism in the future.

*Egocentrism and Social Anxiety: The EOS and the SPIN.* Similar to depression, social anxiety is characterized by distorted cognitions about the self and in particular a focus on others' perceptions about the self. Individuals who are socially anxious tend to feel shame and embarrassment about how they appear to others and assume that others are focused on the same shameful aspects of themselves and judge them as strongly as they judge themselves. Although the content of the presumed shared knowledge may be about social aspects of the self in social anxiety, the expectation that others have the same perspective that one has and the inability to appreciate that others may view a situation differently than the self does is central to egocentric cognition. Therefore, an association between social anxiety and egocentrism fits with theoretical descriptions of both cognitive styles. Johnson et al. (2001) found an association between social anxiety and the EBS, a measure of persistent egocentric behavior in adults. Based on their results and theory, a measure of clinical levels of social anxiety, the SPIN, was included in the present study. The total EOS, Nondifferentiation subscale and Illusion of Transparency subscale all had similar significant moderate associations with social anxiety. Therefore, the present study provides support for the association between egocentrism and social anxiety in adults using a measure of egocentric cognition. However, the Self as Target facet was not associated with social anxiety.

A closer look at the different facets of egocentrism and their relationship with social anxiety suggests that similar to depression where there is a persistent tendency to

focus on one's own thoughts in an involuntary fashion, in social anxiety thoughts may appear powerful due to their emotional counterparts and create the assumption that they are transparent. Furthermore, because of their perceived power their content appears to be the only possible perspective creating the assumption that anyone viewing the situation must have the same perspective. An analogy can be made to the short story the Tell Tale Heart by Edgar Allen Poe (1843/1973) where he describes the perception that someone's thoughts and feelings can be transparent to others simply because they seem so powerful to oneself, "But the beating grew louder, louder! I thought the heart must burst. And now a new anxiety seized me - the sound would be heard by a neighbour!" In another part of the story he describes how the protagonist's knowledge of what he has done results in such powerful feelings of guilt that he assumes that anyone observing him surely knows what he is thinking and feeling and why.

"...but the noise arose over all and continually increased. It grew louder - louder - louder! And still the men chatted pleasantly, and smiled. Was it possible they heard not? Almighty God! - no, no! They heard! - they suspected! - they knew! - they were making a mockery of my horror!-this I thought, and this I think. But anything was better than this agony! Anything was more tolerable than this derision! I could bear those hypocritical smiles no longer! I felt that I must scream or die! and now - again! - hark! louder! louder! louder! louder!" (Edgar Allen Poe, 1843/1973, pp. 296)

The finding that the SPIN was not associated with the tendency to assume that one is the target of others' thoughts and feelings is surprising considering the preoccupation that individuals with social anxiety have about others focusing on them and noticing negative aspects of them. One explanation for this finding is that people who are socially anxious take great pains to avoid being noticed by others so that they will not be

scrutinized and assume that they are successful at doing this. Another possibility is that the items themselves all refer to positive expectations, which is unlikely to be associated with a cognitive style that focuses on negative perceptions of the self. A more comprehensive subscale that represents both positive and negative items relating to seeing the self as the target of others' thoughts and behavior may result in a stronger association with social anxiety.

Overall, the present study suggests an association between egocentrism and social anxiety which is consistent with theoretical propositions about egocentrism and provides evidence for the validity of the EOS. Because of the clinical nature of the scale the present findings also support the importance of egocentrism in clinical practice and research. Social anxiety is considered a pervasive disorder. Knowledge about how egocentrism plays a role in the disorder may inform clinicians trying to treat anxiety as well as theorists trying to understand the disorder, including its antecedents and consequences, more extensively.

#### *Relationships Between the EBS and Other Validity Measures*

The success of the EOS in demonstrating validity was further examined by comparing the relationships of the EBS to the other validity measures in the study with the same relationships revealed with the EOS. The findings suggest that the EBS has a stronger association than the EOS with several constructs including depression, social anxiety, and a maladaptive form of self-consciousness. One explanation for this is the inclusion of negative self as target items in the EBS. The EOS exhibited a weak relationship with depression, anxiety, and self consciousness, and a weak or negative relationship when the self as target subscale was examined in particular in relation to these constructs. Therefore, the EBS may be more strongly associated with more maladaptive tendencies because it has a more comprehensive set of self as target items that includes items referring to negative expectations. Another reason that the EBS may have a stronger

association with some tendencies is the observable nature of the scenarios presented in the items. Situations that can be asked about and observed easily may be more accessible to participants' memory than their more complex cognitive processes. Lastly, the MC-SDS had a stronger relationship with the EBS than with the EOS, suggesting that the EBS may be more susceptible to social desirability bias. In order to investigate this possibility, the relationships between the EBS and the validity measure were examined after controlling for social desirability bias. The results revealed that the relationships between the EBS and several measures became weaker once social desirability bias was controlled for. However, they still remained stronger than the relationships between the same measures and the EOS. Overall, although the EOS exhibited weaker associations than the EBS with some theoretically relevant constructs, the associations were all in the predicted direction. Furthermore, a more comprehensive set of self as target items, including items that capture negative expectations may prove to increase the association between the EOS and more maladaptive cognitive tendencies.

### *Limitations of the Study*

*Gender Differences.* An unexpected finding in the current study was a small but significant effect of men scoring higher than women on the EOS. Past research has found the opposite effect of women scoring higher than men on a measure of adult egocentrism (Johnson & Ediger, 2001). Because minimal research has been performed on whether men or women tend to be more egocentric, the present study did not focus on this inquiry or form any hypotheses about it. Furthermore, because the focus of the study was the development of a scale and its composition, gender differences were beyond the scope of the present investigation. Therefore, a combined sample was used for all analyses in the study. Future research may investigate the relationship between gender and egocentrism starting with the relationship between egocentrism and social skills. For example, skill at



perspective taking is a major determinant of successful interactions (Nickerson, 1999). If women have a tendency to exhibit better social skills than men, and perspective taking is required to be socially adept, it would be expected that they would also be less egocentric than men. Future research could investigate this theory further.

*Order Effects.* Questionnaire packages were distributed to participants in one of two different sequences in order to ensure that participants' responses to the questionnaires were not influenced by the order in which they filled them out. The sequences were designed to place the questionnaire that was the focus of the study at the beginning of the package (EOS) and the two clinical measures (BDI-II and SPIN) at the end of the package to ensure that any emotions induced by the clinical measures would not influence responses to the other questionnaires. Another unpredicted finding that emerged in the study was that participants who filled out one sequence of the questionnaires scored significantly higher on the EOS than participants who filled out the second sequence of the questionnaires. This finding suggests that participants' responses were influenced by which sequence of questionnaires they filled out. However, the difference between the scores for each sequence of questionnaires was small. Furthermore, the difference in scores was on the EOS, which was the only questionnaire that was in the same place in the sequence of questionnaires for both packages. To be more specific, it was the first questionnaire in both sequences. Therefore, it seems unlikely that participants' responses on the EOS could have been influenced by other questionnaires in the package. Furthermore, because of the small difference in EOS scores for the different package sequences, it may be a statistically significant difference that is not practically significant. Therefore, all subsequent analyses in the study used a combined sample of participants who filled out both package sequences. Of course, another possible cause for the difference in scores is that participants who filled out the questionnaires began the questionnaire package in a different order than was presented, leading them to initially fill out one of the clinical measures (which were presented last in the questionnaire package) and subsequently fill

out the EOS. The effect of filling out one of the clinical measures (the SPIN or BDI) first in the sequence of questionnaires may have influenced the difference in scores on the EOS. Furthermore, participants may have filled the questionnaire package out in any order once it was presented to them. One final possibility for the difference in scores is that participants similarly speculated about the significance of receiving a questionnaire package labelled one versus two.

*Lack of Cross-Validation With Objective Measures.* One limitation of the current study is a lack of cross validation for responses given by participants on questionnaires. All of the measures in the study were self-report measures. Hence, the same method is being used to validate the EOS and it is arguably a biased one. Because social desirability was weakly related to EOS scores it appears unlikely that participants responses on the EOS were motivated by self presentation concerns. However, the paradoxical strong focus on the self while lacking awareness for this focus inherent in egocentrism implies an inability of egocentric individuals to reliably report on their cognitive approach to the world, and in particular their egocentric tendencies. Johnson et al. (2001) addressed this issue by having two acquaintances rate a target on the EBS along with several other theoretically related measures used in a validation study for the EBS. They found that acquaintance ratings were more reliable than self-ratings and the correlation between the two was small. Similar to the current study, the authors concluded that participants were not motivated by social desirability concerns, as overall they scored themselves higher on egocentrism than their respective acquaintances. However, the authors concluded that acquaintance ratings were likely more valid than self-ratings, suggesting that acquaintances may take a dispositional approach to responding to items while targets took a more episodic approach. Furthermore, acquaintance ratings resulted in more robust effects that supported theoretically based hypotheses about egocentrism and its correlates. One suggestion that Johnson et al. proposed to increase validity in self report responding is encouraging participants to take a dispositional approach to responding to items.

Another option is to have participants respond to scenarios reflecting different facets of egocentric cognition while being observed and correlate these findings with scores on the EOS filled out by participants. For example, the scenario in Fenigstein's (1984) study where he had a professor tell students that someone had performed very well or very poorly on an exam and measured the students' tendencies to see themselves as the target of the professor's remarks (Self as Target) could be used and the results could be compared to EOS scores. The challenge with this method would be maintaining a focus on egocentric cognition, rather than behavior, which may be more easily deciphered. Future research may incorporate some of these validity methods in studies using the EOS.

### *Summary*

Adult egocentrism is the tendency to interpret and approach interactions and situations in general based on one's own impressions and knowledge while being unaware that this knowledge is not necessarily shared by others. Generally, there is an expectation that children are egocentric but that adults have learned to become more aware of how their perspectives are their own and may be different from others or information that is provided by the outside world. The development of cognitive abilities from child to adult suggests a natural progression from being mostly egocentric to being much less egocentric. However, this does not appear to always be the case. Research has shown that most adults still exhibit egocentrism in some situations. By developing and examining a measure of persistent egocentric cognition, the present study has provided evidence that some adults exhibit egocentrism in most situations. Beyond providing support for individual differences in egocentric cognition, the study also examined the broader consequences of having a persistent egocentric cognitive style through showing associations with other theoretically relevant constructs, including different forms of self consciousness (private, public, voluntary and involuntary), social anxiety and to some extent depression. The persistent and clinical nature of the constructs associated with

egocentrism supports the benefit of including egocentrism in research and practice in the area of personality. Moreover, recognizing egocentrism in clients may assist in the treatment of a range of difficulties that they experience.

The aim of the present study was to develop a psychometrically reliable and theoretically valid measure of adult egocentrism that includes different facets of egocentrism that have been proposed in the research. Out of four facets that were proposed in the initial scale, three of them emerged as reliable and theoretically coherent, Nondifferentiation, Illusion of Transparency, and Self as Target. The final version of the EOS in the present study provides a preliminary step in measuring adult egocentric cognition reliably with the inclusion of different facets of egocentrism. The study also provides several directions for future research that include continued development of a successful measure of adult egocentrism and continued investigation of conceptualization of egocentrism in adults. Perhaps, the largest contributions of the study are further confirmation that we can no longer assume that adults have overcome the tendency to be egocentric, that many adults may exhibit egocentrism as a persistent style and that egocentrism is associated with several psychological issues that clinicians frequently come across, but does not necessarily collapse into them. That is, egocentrism is a construct that has unique qualities of its own and deserves attention from researchers and clinicians.

#### *Directions For Future Research*

- 1) Replicate the study with a non-university population to see if results generalize to other adult populations. It would be interesting to look at both a non-clinical population and a clinical population. Specifically, a socially anxious or a depressed population would be of particular interest.
- 2) Investigate the value of using a general factor scale versus subscales when looking at dispositional egocentrism in adults.

- 3) Develop a psychometrically reliable and theoretically valid measure of the Failure to Adjust facet of egocentrism and determine how it fits into the the larger construct of egocentrism. It may be an underlying cognitive process that is inherent in different egocentric biases or a separate facet of egocentrism that stands on its own.
- 4) Determine whether the self as target facet of egocentrism is characterized more by positive expectations of being the target of others' thoughts and behaviors as the study found or if the facet should include negative expectations as well. A comprehensive subscale including both positive and negative items could be developed and the association with social anxiety and depression could be reexamined to see if there is a stronger relationship than what the present study found.
- 5) Determine whether nondifferentiated feeling items should be included in the nondifferentiation facet of egocentrism and if so develop feeling items that capture the experience of nondifferentiated feeling rather than cognitions about feelings.
- 6) Replicate the study with the inclusion of additional measures to demonstrate validity and elucidate adult egocentrism. For example, a measure of self esteem such as the Rosenberg Self-esteem Scale (1965) could be included in any subsequent research on adult egocentrism.
- 7) Examine gender differences in egocentrism and whether social skills may play a contributing role.
- 8) Examine discriminant validity more closely such as determining that EOS items are not capturing negative affectivity characteristic of Neuroticism with a factor analysis that contains both EOS and Neuroticism items (see Clark & Watson, 1995).
- 9) Replicate study with acquaintance ratings for each measure and compare to target ratings (see Johnson et al., 2001).

Table 1

*Means and Standard Deviations for EOS Total Participant Sample and Groups Within Sample*

	Package 1			Package 2			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
<i>N</i>	116	82	198	123	92	215	239	174	413
<i>M</i>	56.97	59.73	58.12	59.70	64.70	61.84	58.38	62.36	60.05
<i>SD</i>	16.44	15.00	15.88	17.18	16.38	16.99	16.85	15.89	16.56

Table 2

*Factor Structure of EOS*

<u>Items</u>	<u>Factor Loadings</u>		
	1	2	3
19. When I am impressed by something, I expect that others feel the same way. (NF)	.586	.162	.191
5. When I am disgusted by something, I know that others feel the same way. (NF)	.566	.070	.237
2. When someone meets a person I dislike, I know he/she will feel the same way I do. (NF)	.557	.141	.301
3. I assume that others see things as I do. (NT)	.554	.142	.157
16. I know the way I perceive most situations is the way anyone would. (NT)	.547	.214	.101
7. When I dislike someone or something, I think that everyone else does too. (NF)	.521	.259	.129
4. I assume that when I am preoccupied with something, others are thinking about the same thing. (NT)	.493	.145	.155
15. I have a difficult time understanding why others can become so upset by something that would never upset me. (NF)	.407	.183	.063
* 13. I find it difficult to accept when I imagine how someone will react to something and it is different than what I imagined. (NT)	.396	.322	.075
9. I have trouble understanding why others do not share the same opinion about something that seems very clear and obvious to me. (NT)	.387	.225	.121
12. I think that others should know when I need to be left alone or when I need attention. (IT)	.078	.672	.187
6. I expect a person I am angry with to know what I want them to do to make it up to me. (IT)	.207	.588	.021
14. When something is bothering me I expect those around me to know what is on my mind. (IT)	.277	.581	.145
18. I think that others know exactly what mood I am in. (IT)	.190	.498	.252
10. Others know what I am thinking before I tell them. (IT)	.257	.349	.174
11. I think that when others are happy it has to do with me. (ST)	.113	.140	.767
17. I think that when others are excited about planning an activity together it is because they will be spending time with me. (ST)	.193	.232	.550
** 8. When I hear people talking about qualities they really like in a person, I think that they are talking about me. (ST)	.416	.189	.489
1. When I hear someone will be praised for their work, I think that it will be me. (ST)	.322	.106	.431

Note: NT = nondifferentiated thinking, NF = nondifferentiated feeling, IT = illusion of transparency, ST = self as target; \* originally a Failure to Adjust item, \*\*cross loads on factor 1 but kept as ST item

Table 3

*Descriptive Statistics for Items of EOS*

<u>Items</u>	<u>Mean</u>	<u>SD</u>
1. When I hear someone will be praised for their work, I think that it will be me. (ST)	3.51	1.60
2. When someone meets a person I dislike, I know he/she will feel the same way I do. (NF)	2.91	1.54
3. I assume that others see things as I do. (NT)	3.02	1.55
4. I assume that when I am preoccupied with something, others are thinking about the same thing. (NT)	2.42	1.24
5. When I am disgusted by something, I know that others feel the same way. (NF)	3.11	1.56
6. I expect a person I am angry with to know what I want them to do to make it up to me. (IT)	3.60	1.85
7. When I dislike someone or something, I think that everyone else does too. (NF)	2.47	1.41
8. When I hear people talking about qualities they really like in a person, I think that they are talking about me. (ST)	2.71	1.40
9. I have trouble understanding why others do not share the same opinion about something that seems very clear and obvious to me. (NT)	3.73	1.77
10. Others know what I am thinking before I tell them. (IT)	2.89	1.47
11. I think that when others are happy it has to do with me. (ST)	3.14	1.47
12. I think that others should know when I need to be left alone or when I need attention. (IT)	3.69	1.71
13. I find it difficult to accept when I imagine how someone will react to something and it is different than what I imagined. (NT)	3.42	1.55
14. When something is bothering me I expect those around me to know what is on my mind. (IT)	3.03	1.64
15. I have a difficult time understanding why others can become so upset by something that would never upset me. (NF)	3.69	1.83
16. I know the way I perceive most situations is the way anyone would. (NT)	3.07	1.54
17. I think that when others are excited about planning an activity together it is because they will be spending time with me. (ST)	3.00	1.61
18. I think that others know exactly what mood I am in. (IT)	3.20	1.72
19. When I am impressed by something, I expect that others feel the same way. (NF)	3.44	1.64



Table 4

*Means and Standard Deviations for EOS Total Scale Scores*

---

	<i>N</i>	<i>M</i>	<i>SD</i>
Total Scale	413	60.05	16.55
Females	239	58.38 <sub>a</sub>	16.85
Males	174	62.36 <sub>b</sub>	15.89
Package 1	198	58.12 <sub>c</sub>	15.88
Package 2	215	61.84 <sub>d</sub>	16.99

---

Note: Means with different subscripts differ significantly at  $p < .05$  (ie. males are sig. higher than females; package 2 is sig. higher than package 1)

Table 5

*Summary of Subscale and Total Scale Statistics for the EOS*

---

	<u># of Items</u>	<u>Cronbach's Alpha</u>	<u>Mean Inter-item r</u>
ND Subscale	5 ND Thinking 5 ND Feeling	.81	.31
IT Subscale	5	.73	.35
ST Subscale	4	.73	.40
Total Scale	19	.87	.27

---

Note: ND = nondifferentiation, IT = illusion of transparency, ST = self as target, # of items = number of items in each subscale, mean inter-item r = mean inter-item correlation

Table 6

*Ranges, Means, and Standard Deviations for Validity Measures and MC-SDS*

<u>Measures</u>	<u>Scale Range</u>	<u>Actual Range</u>	<u>Mean</u>	<u>SD</u>
EBS	23-115	32-95	60.48	10.28
SCS	17-85	31-81	61.47	7.26
Private (SCS subscale)	10-50	20-47	35.48	4.33
Public (SCS subscale)	7 - 35	7 - 35	25.98	4.56
RRQ	12-60	18-59	40.75	7.28
Rumination (RRQ subscale)	6 - 30	6 - 30	21.31	4.37
Reflection (RRQ subscale)	6 - 30	8 - 30	19.44	4.68
SPIN	17-85	17-81	39.54	11.35
BDI-II	0 - 63	0 - 48	10.56	7.81
MC-SDS	0 - 33	2 - 30	13.88	4.93

Note: EBS = Egocentric Behavior Scale; SCS = Self-consciousness Scale, RRQ = Rumination-Reflection Questionnaire; SPIN = Social Phobia Inventory; BDI= Beck Depression Inventory; MC-SDS = Marlowe-Crowne Social Desirability Scale  
 Range = possible (theoretical) range of scores for measure, Scale Range = empirical (actual) range of scores for measure, Mean = mean for total scale, SD = standard deviation

n = 413

Table 7

*Correlations Between EOS Total and Subscales and EBS Total and Subscales*

	EOS Total	ND	IT	ST	EBS Total	RC	IT	ST
EOS Total								
ND	N/A	1.0						
IT	N/A	.52**	1.0					
ST	N/A	.54**	.44**	1.0				
EBS Total	.37**	.32**	.35**	.23**				
RC	.14**	.14**	.12*	.05	N/A	1.0		
IT	.46**	.34**	.46**	.19**	N/A	.35**	1.0	
ST	.43**	.30**	.26**	.43**	N/A	.28**	.35**	1.0

Note: EOS= Egocentric Orientation Scale, ND = Nondifferentiation, IT = Illusion of Transparency, ST = Self as Target  
 EBS = Egocentric Behavior Scale, RC = Referential Communication  
 \* p < .05 level, \*\* p < .01 level  
 n = 413

Table 8

*Correlations Between EOS Total and Subscales and SCS Subscales*

	<u>SCS Subscales</u>	
	Private	Public
EOS Total	.12*	.11**
<u>EOS Subscales</u>		
Nondifferentiation	.11*	.10*
Illusion of Transparency	.07*	.12*
Self as Target	.13**	.02

Note: SCS = Self-consciousness Scale, Private = Private Self-consciousness Scale, Public Self-consciousness Scale

n = 413

\* p < .05 level, \*\* p < .01 level

Table 9

*Correlations Between EOS Total and Subscales and RRQ Subscales*

	<u>RRQ Subscales</u>	
	Rumination	Reflection
EOS Total	.18**	.22**
<u>EOS Subscales</u>		
Nondifferentiation	.18*	.20**
Illusion of Transparency	.19**	.12*
Self as Target	.03	.22**

Note: RRQ = Rumination-Reflection Questionnaire

\*  $p < .05$  level, \*\*  $p < .01$  level

$n = 413$

Table 10

*Correlations Between BDI, SPIN, and EOS Total and Subscales*

	<u>Measures</u>	
	BDI	SPIN
EOS Total	.07	.16**
<u>EOS Subscales</u>		
Nondifferentiation	.07	.17**
Illusion of Transparency	.13**	.17**
Self as Target	-.05	-.00

Note: BDI-II = Beck Depression Inventory - Second Edition, SPIN = Social Phobia Inventory

\*\*  $p < .01$  level

$n = 413$

Table 11

*Correlations Between EOS Total and subscales and MC-SDS*

---

	MC-SDS
EOS Total	- .22**
<u>EOS Subscales</u>	
Nondifferentiation	- .23**
Illusion of Transparency	- .19**
Self as Target	- .08

---

Note: MC-SDS = Marlowe-Crowne Social Desirability Scale

\* p < .05 level, \*\* p < .01 level

n = 413



Table 12

*Comparison of Zero-order and Partial Correlations (controlling for social desirability bias) between EOS and EBS with other validity measures*

Measures	r with EOS	Partial r	r with EBS	partial r
EBS	.37**	.32**		
PR (SCS)	.12*	.12*	.11*	.12*
PU (SCS)	.11**	.08	.14**	.11*
Rum. (RRQ)	.18**	.13*	.31**	.24**
Ref. (RRQ)	.22**	.22**	.19**	.20**
SPIN	.16**	.11*	.33**	.28**
BDI-II	.07	.02	.31**	.25**
MC-SDS	-.22**		-.32**	

Note: EOS = Egocentric Orientation Scale; EBS = Egocentric Behavior Scale; SCS = Self-consciousness Scale (PR = Private, PU = Public); RRQ = Rumination-Reflection Questionnaire (Rum. = Rumination, Ref. = Reflection); SPIN = Social Phobia Inventory; BDI = Beck Depression Inventory; MC-SDS = Marlowe-Crowne Social Desirability Scale  
 r with EOS = relationship with EOS (zero-order correlation), Partial r = relationship with EOS when social desirability is controlled for, r with EBS = relationship with EBS (zero-order correlation), partial r = relationship with EBS when social desirability is controlled for

\*  $p < .05$  level, \*\*  $p < .01$  level

n = 413 participants

Table 13

*Intercorrelations Between Validity Measures*

	<u>Correlation With Measures</u>						
	PR(SCS)	PU(SCS)	Rum.(RRQ)	Ref.(RRQ)	SPIN	BDI-II	MC-SDS
<u>Measures</u>							
PR (SCS)		.33**	.48**	.61**	.12*	.14**	.01
PU (SCS)			.41**	.10*	.21**	.25**	-.13**
Rum. (RRQ)				.29**	.37**	.40**	-.29**
Ref. (RRQ)					.07	.08	-.02
SPIN						.42**	-.22**
BDI-II							-.26**
MC-SDS							

Note: SCS = Self-consciousness Scale (PR = Private, PU = Public); RRQ = Rumination-Reflection Questionnaire (Rum. = Rumination, Ref. = Reflection); SPIN = Social Phobia Inventory; BDI = Beck Depression Inventory; MC-SDS = Marlowe-Crowne Social Desirability Scale

\*  $p < .05$  level, \*\*  $p < .01$  level

n = 413 participants

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## Appendix A: Instructions For Test Recruiting

Good morning/afternoon. My name is \_\_\_\_\_ and I am here to recruit participants for a study looking at how people perceive their thoughts, feelings, and behaviors. The study invites you to complete a questionnaire package that you will receive two course credits for. The questionnaires should take you approximately 60 minutes, 1 hour to complete. Initially you will be asked to provide personal information, such as your sex and background information to determine your fluency in English. Then you will be asked to answer questions about how you perceive your thoughts and feelings, in general, and in relation to others around you, such as how others perceive you and what they know about you. Before completing the questionnaire you will be given a consent form which includes all the information that I will give you today plus some extra information regarding confidentiality and contact numbers, in case you have any further questions about the study or your participation. You will be asked to sign this consent form once you have read through it and are satisfied with its contents. Then you may proceed with completing the questionnaires. If you are interested in participating in this study please fill out all information in the green portion of the (IBM) sign up sheet in pencil and make sure to take your ticket (information) for when and where the study will be held. This is very important as this is the only information you will be given for when you must come to the study to receive your credits. So, please take extra care to hold on to these tickets (this information). Thank you very much for your time today. I will now pass around the sign up sheet. Are there any questions?

### Appendix B: Instructions for test administration

The questionnaire package you will be asked to complete for this study includes two copies of a consent form. Please read the consent form carefully. If you are satisfied with its contents, please sign one of the copies. You will be asked to hand in this consent form along with the rest of your questionnaire package. The second copy of the consent form is for you to take home with you.

This study asks you to complete 8 short questionnaires. In total, the questionnaires should take you no longer than 60 minutes to complete, but please take your time, as additional time will be given if required. You will receive 2 course credits for your participation today. Please read the instructions carefully before beginning each questionnaire. All answers will be kept completely confidential, so please respond as honestly as possible and complete all statements. You will need a pen or pencil to fill out the questionnaires. If you do not have one, please raise your hand and one will be provided to you. If you have any questions while completing the questionnaires, please put up your hand and someone will come to help you.

Once you are sure that you have completed all parts of the questionnaire package, please come up to the front and hand in the questionnaires in the designated piles. You will be given a feedback form with a brief description of the study that you have just participated in. Once you have read the description of the study you will be asked to refrain from sharing information about this study with persons in your class or from other sections of the introductory psychology course, as they may be potential participants in the future. Please remember to take a copy of the consent form and a copy of this feedback form, as it contains important contact information for counselling services if you should require them. Also, please remember to return pencils that have been provided for you. Thank you.

## Appendix C: Consent Form

**Title of Project:** How We Perceive Our Thoughts and Feelings.

**Researcher:** Michelle Choch, B.A.(Honours), M.A. Candidate

**Research Supervisor:** Dr. Edward Johnson, Ph.D., C. Psych.

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

You are invited to participate in a research study conducted by Michelle Choch, a Master's student from the Psychology Department at the University of Manitoba. This study is being conducted in order to fulfill requirements for a Master's thesis project. The study is looking at how individuals perceive their thoughts, feelings, and behaviors. Should you choose to participate you will be asked to fill out all items on 8 questionnaires, which should require up to 60 minutes to complete. Initially you will be asked to provide personal information, such as your sex and background information to determine your fluency in English. Then you will be asked to answer questions about how you perceive your thoughts and feelings, in general, and in relation to others around you, as well as how others perceive you and what they know about you. Please read instructions carefully and answer all items as honestly as possible.

You will receive 2 credits towards your introductory psychology course for your participation today.

Completion of this questionnaire package is strictly voluntary. You may choose not to participate or discontinue participation at any time without penalty.

Names will not be asked for, so your identity will remain anonymous, and cannot be linked to items on your questionnaire. Completed questionnaires and any other information received today will be securely kept in a locked cabinet and will be viewed only by laboratory researchers. The results of the study will be presented as group data and will be shredded by september 2006, once all data has been collected and analyzed. The results of the study will be used in a M.A. thesis paper, and may be referred to in journal articles and presentations at psychology conferences.

There are no known risks associated with participation in this study. However, you may choose to discontinue participation at any time, and are encouraged to speak to the experimenter or use the contact information provided on this consent form. Furthermore, if there is any additional information that has not been provided or is unclear, you should feel free to ask.

Your signature on this form indicates that you understand to your satisfaction the information above regarding participation in this study and willingly agree to participate. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

If you experience discomfort during participation in the study, or if you have any further questions regarding the study please feel free to call Michelle Choch, BAH. 955-4881 or Ed. Johnson, Ph.D 474-8331.

This research has been approved by the Psychology/Sociology Research Ethics Board at the University of Manitoba. Any concerns or complaints about this study may be directed to the Human Ethics Secretariat at 474-7122.

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Researcher's Signature

\_\_\_\_\_  
Date

If you wish to receive a summary of the study's results please provide your email or mailing address as of June, 2006. If not, please do not provide your address.

Email or Mailing Address (if interested in receiving summary of results):

\_\_\_\_\_

Appendix D: Feedback Form: Adult Egocentrism and  
the Egocentric Orientation Scale

Thank you for your participation in this study. The questionnaires you have just completed required you to answer items related to your thoughts, feelings, and behaviors. We were particularly interested in examining a dispositional form of thinking which is characterized as adult egocentrism. Adult Egocentrism is defined as the perception of people and events based on subjective knowledge without considering the private and unique qualities of this knowledge. Therefore, someone who tends to think egocentrically would answer "very true" for an item such as "When I am angry, I expect others to know how I am feeling without my having to tell them." Data from this study will be used to determine what the theoretical factors underlying egocentrism are, whether items in the scale reflect these factors appropriately, and how the scale should be revised to reflect them better. Results from the study will be available in June, 2006 and will be posted in the room that you were recruited in to participate in the study.

Please feel free to contact the numbers given to you on the consent form if you have any questions or concerns. Also, if you think that you may be depressed, require help or counselling services, you may contact any of the following: the Peer Advisor's office in 150 University Centre (474-6696), at the Counselling Centre (474-8592) or the Psychological Service Centre (474-9222). If you think that you are suicidal and require immediate help, please contact Klinik at 786-8686.

Please do not discuss this study with persons in your class or from other sections of the introductory psychology course, as they may be potential participants in the future. Thank you.

## Appendix E: Demographic Information Form

Please answer the following questions as honestly as possible:

Sex: Male \_\_\_\_\_ Female \_\_\_\_\_ (check one)

Where were you born?: Canada      Elsewhere      (Circle one)

How long have you lived in Canada?: \_\_\_\_\_ (# of years or months)

Is English your first language?: \_\_\_\_\_

How long have you been reading and writing English?: \_\_\_\_\_ (# of years or months)

## Appendix F: Egocentric Orientation Scale

Please mark each item with a number from 1 to 7 indicating how true it is about you; 1 being very false to 7 being very true.

- \_\_\_ 1. I am sure that others are thinking about the same thing that I am thinking about.
- \_\_\_ 2. When people are talking about how much they dislike how others behave, I think that they are talking about me.
- \_\_\_ 3. I think that others are talking about me specifically even when they do not use my name.
- \_\_\_ 4. When I think I have a good idea about something, it is hard for me to believe that it may not be as good as I had thought.
- \_\_\_ 5. When I am upset, I expect others to understand and share my feelings.
- \_\_\_ 6. When I feel strongly about something, I expect others to know what it is.
- \_\_\_ 7. I expect others to be as excited as I am to talk about a good book or movie that I have read or seen.
- \_\_\_ 8. I often find out that what I think will make someone feel better is not what they wanted.
- \_\_\_ 9. When others tell me that I feel too strongly about something, it is hard for me to change my mind, even when I think that I should.
- \_\_\_ 10. When I need to be comforted, I expect those around me to know how I feel.
- \_\_\_ 11. When I hear that someone will be praised for their work, I think that it will be me.
- \_\_\_ 12. When someone meets a person I dislike, I know that he/she will feel the same way I do.
- \_\_\_ 13. When I am pretending to be having a good time even though I am not, I think that other people know how I am really feeling.
- \_\_\_ 14. I assume that others see things as I do.
- \_\_\_ 15. I continue to feel a certain way about something, even when others give me good reasons not to.

1 ----- 7  
Very False Very True

- \_\_\_ 16. When someone cancels plans to spend time with me, I think that it is because they don't want to see me.
- \_\_\_ 17. When I am attracted to someone I think that he/she knows how I feel, even though I have not told them.
- \_\_\_ 18. I know the way I feel in most situations is the way anyone would.
- \_\_\_ 19. When I find something funny, I think that everyone around me knows why I am laughing.
- \_\_\_ 20. I always use my own ideas first when I am figuring something out and find it difficult to incorporate others' ideas with mine.
- \_\_\_ 21. I feel that others' actions have a lot to do with me.
- \_\_\_ 22. I assume that when I am preoccupied with something, others are thinking about the same thing.
- \_\_\_ 23. When I dislike someone, I continue to have this bad feeling after I find out good things about them.
- \_\_\_ 24. When I am disgusted by something, I know that others feel the same way.
- \_\_\_ 25. When I am talking to someone and they seem to be in a bad mood I think that it is because of me.
- \_\_\_ 26. I have a hard time changing my mind about others when I learn new things about them that does not fit my impression of them.
- \_\_\_ 27. When I have not heard from someone I usually talk to for a long period of time, I think that it is because they do not want to talk to me.
- \_\_\_ 28. I continue to feel angry at someone, even if I have new information that could change how I feel.
- \_\_\_ 29. I am poor at predicting how well others will understand my ideas.
- \_\_\_ 30. I think that others should know what I want before I ask.



1 ----- 7  
Very False Very True

\_\_\_ 31. I expect a person that I am angry with to know what I want them to do to make it up to me.

\_\_\_ 32. When I dislike someone or something, I think that everyone else does too.

\_\_\_ 33. When I hear people talking about qualities they really like in a person, I think that they are talking about me.

\_\_\_ 34. I have trouble understanding why others do not share the same opinion about something that seems very clear and obvious to me.

\_\_\_ 35. Others know what I am thinking before I tell them.

\_\_\_ 36. I find it difficult to feel sorry for someone, unless I have felt the same way before.

\_\_\_ 37. When I have figured out a problem, I expect that others will be able to easily see how to figure it out as well.

\_\_\_ 38. If I am on a date and my date wants to go home early I think that he/she does not want to spend any more time with me.

\_\_\_ 39. I think that when others are happy it has to do with me.

\_\_\_ 40. I think that everyone knows how I feel, even if I have not talked about my feelings.

\_\_\_ 41. I think that when others are upset it has to do with me.

\_\_\_ 42. I think that others should know when I need to be left alone or when I need attention.

\_\_\_ 43. When I am talking about something exciting or interesting to me, I think that the person I am talking to shares my feelings.

\_\_\_ 44. I find it difficult to accept when I imagine how someone will react to something and it is different than what I imagined.

\_\_\_ 45. I am surprised when others do not know much about something that I know a lot about.

1 ----- 7  
Very False Very True

\_\_\_ 46. When I see someone experience something that I have before, I know exactly how he/she feels about it.

\_\_\_ 47. When I have reasons to think that how I feel is inappropriate, I still find it difficult to change how I feel.

\_\_\_ 48. When something is bothering me I expect those around me to know what is on my mind.

\_\_\_ 49. I have a difficult time understanding why others can become so upset by something that would never upset me.

\_\_\_ 50. I know the way I perceive most situations is the way anyone would.

\_\_\_ 51. When I am not looking forward to something, I continue to dread it, even if I have heard it may be better than I initially thought.

\_\_\_ 52. When I am nervous and trying not to show it, I think people can see how I am feeling.

\_\_\_ 53. I feel that other people's conversations have to do with me.

\_\_\_ 54. I do not know how to describe my experiences so that others who weren't there will really understand me.

\_\_\_ 55. When I introduce someone to a friend, I know he/she will like them too.

\_\_\_ 56. I think that when others are excited about planning an activity together it is because they will be spending time with me.

\_\_\_ 57. I think that others know exactly what mood I am in.

\_\_\_ 58. I have a difficult time seeing how another person's opinion makes sense if it is very different from mine.

\_\_\_ 59. When I am impressed by something, I expect that others feel the same way.

\_\_\_ 60. When I am pleased about something, I continue to have this attitude, even if I have heard things that should make me feel differently about it.

## Appendix G: Egocentric Behavior Scale

**Instructions.** The following questionnaire asks about how commonly you make various types of responses in particular situations. Each item identifies a particular situation, for example telling a joke you thought was self-explanatory, and a particular response that can occur in that situation, such as having to explain the joke. For each situation, please rate how commonly you make the particular response when in the situation using the scale listed below. For instance, if when telling a joke you often need to explain it to others you would put a "5" beside the item. Please answer the questions honestly.

- | 1   | 2      | 3            | 4         | 5     | <u>Rating</u> |
|---|--------|--------------|-----------|-------|---------------|
| never   | rarely | occasionally | sometimes | often |               |
| 1. Enthusiastically proposed everyone play your favorite game at a party only to discover no one else liked it.                             |        |              |           |       | _____         |
| 2. Phoned a friend or acquaintance and had to identify yourself when he or she did not recognize you from your voice alone.                 |        |              |           |       | _____         |
| 3. Phoned and left a message for an acquaintance, forgetting to give your name or number.   |        |              |           |       | _____         |
| 4. Experienced intense excitement over something and felt surprise and disappointment that not everyone shared your feelings.               |        |              |           |       | _____         |
| 5. Resumed what you were saying after a long interruption, without telling your listener what you were talking about.                       |        |              |           |       | _____         |
| 6. Heard a talk praising generosity and felt it was about you in particular.  |        |              |           |       | _____         |
| 7. Experienced distress and expected everyone would know it.  |        |              |           |       | _____         |
| 8. Given a talk or presentation about something that was clear in your mind but which did not come across clearly to your audience.         |        |              |           |       | _____         |
| 9. Experienced intense anxiety over your performance in a situation, and felt that everyone who observed it knew just how anxious you were. |        |              |           |       | _____         |
| 10. Written a paper or report which you thought was clear only to get feedback that it was not at all clear.                                |        |              |           |       | _____         |
| 11. Written a letter or email to someone which was totally misunderstood by the recipient.  |        |              |           |       | _____         |

- | 1     | 2      | 3            | 4         | 5     | Rating |
|-------|--------|--------------|-----------|-------|--------|
| never | rarely | occasionally | sometimes | often |        |
12. Wanted to help someone out only to discover that he or she was irritated by the attempt. \_\_\_\_\_
13. Told a story you thought nicely illustrated a certain point only to find that others did not make the connection. \_\_\_\_\_
14. As part of a group involved in making a decision you propose a solution you feel is in the best interest of all only to have it rejected by others. \_\_\_\_\_
15. Experienced intense anger at someone and felt that the person should know why, without your having to explain it. \_\_\_\_\_
16. Experienced deep sadness over a loss and expected others to understand why without having to explain it. \_\_\_\_\_
17. Been at a party and noticed some people looking admiringly your way and assumed they were talking about you. \_\_\_\_\_
18. Gave what you thought were clear directions on how to get to your home only to find that they were incomplete and therefore unhelpful. \_\_\_\_\_
19. Given a public lecture and afterwards run into a small group of members of the audience who were talking excitedly and concluded they were enthused about your presentation. \_\_\_\_\_
20. Explained how to do a task to someone only to find they misunderstood how to do it. \_\_\_\_\_
21. Felt very excited and expected everyone to know it. \_\_\_\_\_
22. Heard a speech condemning selfishness and felt it was about you in particular. \_\_\_\_\_
23. Experienced intense guilt over personal misbehaviour and felt that others would know about what you did. \_\_\_\_\_

## Appendix H: Self-consciousness Scale

**For each of the following statements, please indicate your level of agreement or disagreement by circling one of the scale categories below each statement.**

1. I'm always trying to figure myself out.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

2. I'm concerned about my style of doing things.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

3. Generally, I'm not very aware of myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

4. I reflect about myself a lot.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

5. I'm concerned about the way I present myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

6. I'm often the subject of my own fantasies.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

7. I never scrutinize myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

8. I'm self-conscious about the way I look.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

9. I'm generally attentive to my inner feelings.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10. I usually worry about making a good impression.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

11. I'm constantly examining my motives.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

12. One of the last things I do before I leave my house is look in the mirror.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

13. I sometimes have the feeling that I'm off somewhere watching myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

14. I'm concerned about what other people think of me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

15. I'm alert to changes in my mood.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

16. I'm usually aware of my appearance.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

17. I'm aware of the way my mind works when I work through a problem.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

## Appendix I: Rumination-Reflection Questionnaire

**For each of the following statements, please indicate your level of agreement or disagreement by circling one of the scale categories below each statement.**

1. My attention is often focused on aspects of myself I wish I'd stop thinking about.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

2. Sometimes it is hard for me to shut off thoughts about myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

3. I love analyzing why I do things.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

4. I tend to "ruminate" or dwell over things that happen to me for a really long time afterward.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

5. I often love to look at my life in philosophical ways.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

6. I spend a great deal of time thinking back over my embarrassing or disappointing moments.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5



7. I love exploring my "inner" self.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

8. My attitudes and feelings about things fascinate me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

9. Long after an argument or disagreement is over with, my thoughts keep going back to what happened.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10. I'm very self-inquisitive by nature.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

11. I love to meditate on the nature and meaning of things.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

12. I often reflect on episodes in my life that I should no longer concern myself with.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Appendix K: Social Phobia Inventory

Please choose the answer that best describes how much the following problems have bothered you during the past week. Circle only one number for each problem and be sure to answer all items.

1. I am afraid of people in authority.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

2. I am bothered by blushing in front of people.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

3. Parties and social events scare me.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

4. I avoid talking to people I don't know.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

5. Being criticized scares me a lot.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

6. Fear of embarrassment causes me to avoid doing things or speaking to people.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

7. Sweating in front of people causes me distress.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

8. I avoid going to parties.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

9. I avoid activities in which I am center of attention.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

10. Talking to strangers scares me.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

11. I avoid having to give speeches.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

12. I would do anything to avoid being criticized.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

13. Heart palpitations bother me when I am around people.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

14. I am afraid of doing things when people might be watching.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

15. Being embarrassed or looking foolish are among my worst fears.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

16. I avoid speaking to anyone in authority.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

17. Trembling or shaking in front of others is distressing to me.

Not at all	A little bit	Somewhat	Very much	Extremely
1	2	3	4	5

## Appendix L: Beck Depression Inventory

**INSTRUCTIONS:** On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out this one statement in each group which best describes the way you have been feeling in the **past week including today**. Fill in the bubble beside the statement that you picked. If several statements in the group seem to apply equally well, fill in each one. **Be sure to read all the statements in each group before making your choice.**

1.

- 0. I do not feel sad.
- 1. I feel sad.
- 2. I am sad all the time and I can't snap out of it.
- 3. I am so sad or unhappy that I can't stand it.

2.

- 0. I am not particularly discouraged about the future.
- 1. I feel discouraged about the future.
- 2. I feel I have nothing to look forward to.
- 3. I feel that the future is hopeless and that things cannot improve.

3.

- 0. I do not feel like a failure.
- 1. I feel that I have failed more than the average person.
- 2. As I look back on my life, all I can see is a lot of failures.
- 3. I feel I am a complete failure as a person.

4.

- 0. I get as much satisfaction out of things as I used to.
- 1. I don't enjoy things the way I used to.
- 2. I don't get real satisfaction out of anything anymore.
- 3. I am dissatisfied or bored with everything.

5.

- 0. I don't feel particularly guilty.
- 1. I feel guilty a good part of the time.
- 2. I feel quite guilty most of the time.
- 3. I feel guilty all the time.

6.

0. I don't feel I am being punished.

1. I feel I may be punished.

2. I expect to be punished.

3. I feel I am being punished.

7.

0. I don't feel disappointed in myself.

1. I am disappointed in myself.

2. I am disgusted with myself.

3. I hate myself.

8.

0. I don't feel that I am any worse than anybody else.

1. I am critical of myself for my weaknesses or mistakes.

2. I blame myself all the time for my faults.

3. I blame myself for everything bad that happens.

9.

0. I don't have any thoughts of killing myself.

1. I have thoughts of killing myself, but I would not carry them out.

2. I would like to kill myself.

3. I would kill myself if I had the chance.

10.

0. I don't cry any more than usual.

1. I cry more than I used to.

2. I cry all the time now.

3. I used to be able to cry but now I can't cry though I want to.

11.

0. I am no more irritated now than I ever am.

1. I get annoyed or irritated more easily than I used to.

2. I feel irritated all the time now.

3. I don't get irritated at all by the things that used to irritate me.

12.

0. I have not lost interest in other people.

1. I am less interested in other people than I used to be.

2. I have lost most of my interest in other people.

3. I have lost all of my interest in other people.

13.

- 0. I make decisions about as well as I ever could.
- 1. I put off making decisions more than I used to.
- 2. I have greater difficulty in making decisions than before.
- 3. I can't make decisions at all anymore.

14.

- 0. I don't feel I look worse than I used to.
- 1. I am worried that I am looking old and unattractive.
- 2. I feel that there are permanent changes in my appearance that make me look unattractive.
- 3. I believe that I look ugly.

15.

- 0. I can work about as well as before.
- 1. It takes extra effort to get started at something.
- 2. I have to push myself very hard to do anything.
- 3. I can't do any work at all.

16.

- 0. I can sleep as well as usual.
- 1. I don't sleep as well as I used to.
- 2. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
- 3. I wake up several hours earlier than usual and cannot get back to sleep.

17.

- 0. I don't get more tired than usual.
- 1. I get easily tired more than I used to.
- 2. I get tired from doing almost anything.
- 3. I am too tired to do anything.

18.

- 0. My appetite is no worse than usual.
- 1. My appetite is not as good as it used to be.
- 2. My appetite is much worse now.
- 3. I have no appetite at all anymore.

19.

- 0. I haven't lost much weight, if any, lately.
- 1. I have lost more than 5 pounds.
- 2. I have lost more than 10 pounds.
- 3. I have lost more than 15 pounds.

I am purposely trying to lose weight by eating less: Yes No

20.

0. I am no more worried about my health than usual.

1. I am worried about physical problems such as aches and pains, or upset stomach.

2. I am very worried about physical problems and it's hard to think of much else.

3. I am so worried about my physical problems that I cannot think about anything else.

21.

0. I have not noticed any recent change in my interest in sex.

1. I am less interested in sex than I used to be.

2. I am much less interested in sex now.

3. I have lost interest in sex completely.



## Appendix M: Marlowe-Crowne Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is *true* or *false* as it pertains to you personally.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
2. I never hesitate to go out of my way to help someone in trouble.
3. It is sometimes hard for me to go on with my work if I am not encouraged.
4. I have never intensely disliked anyone.
5. On occasion I have had doubts about my ability to succeed in life.
6. I sometimes feel resentful when I don't get my way.
7. I am always careful about my manner of dress.
8. My table manners at home are as good as when I eat out in a restaurant.
9. If I could get into a movie without paying and be sure I was not seen I would probably do it.
10. On a few occasions, I have given up doing something because I thought too little of my ability.
11. I like to gossip at times.
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
13. No matter who I am talking to, I'm always a good listener.
14. I can remember "playing sick" to get out of something.
15. There have been occasions when I took advantage of someone.
16. I'm always willing to admit when I make a mistake.
17. I always try to practice what I preach.

- \_\_\_ 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.
- \_\_\_ 19. I sometimes try to get even rather than forgive and forget.
- \_\_\_ 20. When I don't know something I don't at all mind admitting it.
- \_\_\_ 21. I am always courteous, even to people who are disagreeable.
- \_\_\_ 22. At times I have really insisted on having things my own way.
- \_\_\_ 23. There have been occasions when I felt like smashing things.
- \_\_\_ 24. I would never think of letting someone else be punished for my wrongdoings.
- \_\_\_ 25. I never resent being asked to return a favor.
- \_\_\_ 26. I have never been irked when people expressed ideas very different from my own.
- \_\_\_ 27. I never make a long trip without checking the safety of my car.
- \_\_\_ 28. There have been times when I was quite jealous of the good fortune of others.
- \_\_\_ 29. I have almost never felt the urge to tell someone off.
- \_\_\_ 30. I am sometimes irritated by people who ask favors of me.
- \_\_\_ 31. I have never felt that I was punished without cause.
- \_\_\_ 32. I sometimes think when people have misfortune they only got what they deserved.
- \_\_\_ 33. I have never deliberately said something that hurt someone's feelings.