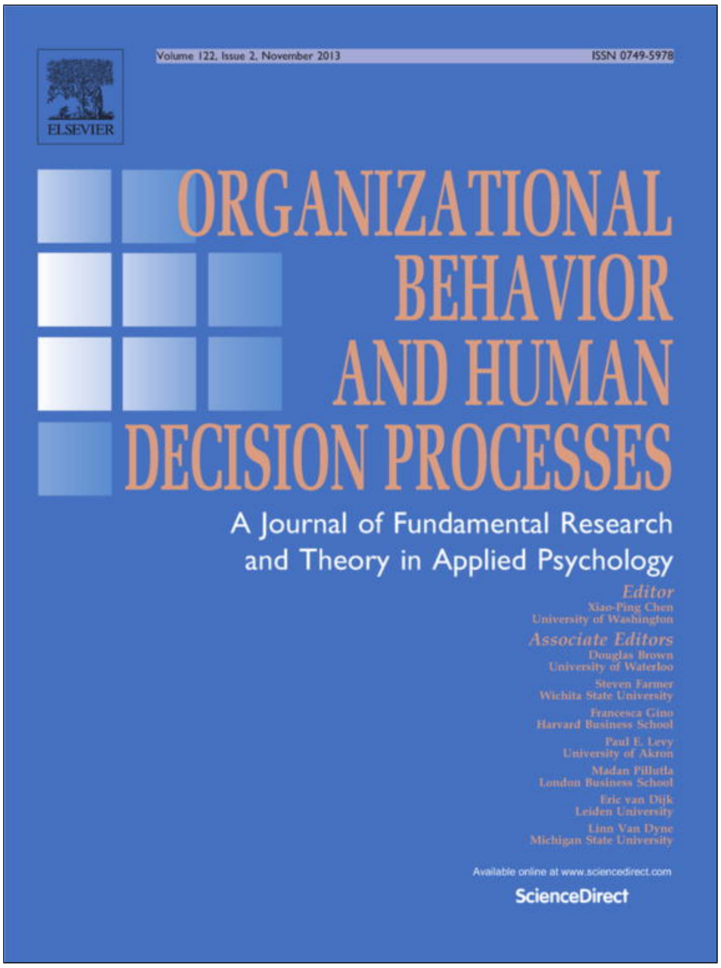
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People believe that they are prototypically good or bad

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ABSTRACT

People have been shown to view their beliefs as being prototypical (modal) but their abilities as (falsely) unique (above or below average). It is possible that these two viewpoints – self as prototypical and self as unique – can be reconciled. If the distribution of ability for a given skill is skewed such that many others have high (low) ability and few others have low (high) ability, it is possible that a majority of peoples' self-assessments can be above (below) average. Participants in 5 studies demonstrated an understanding that various skills have skewed ability distributions and their self-assessments were related to distribution shape: high when negatively skewed and low when positively skewed. Further, participants tended to place themselves near the mode of their perceived skill distribution. Participants were most likely to think that they were good at skills for which they thought that most others were also good.

Introduction

Prototypes, the most common or typical example containing the modal features of a particular class or category, are easily brought to mind. People have been shown to prefer prototypes, finding them more memorable (Homa & Vosburgh, 1976) and pleasant (Winkielman, Halberstadt, Fazendeiro, & Catty, 2006). It is not surprising, then, that prototypes also easily come to mind when people form perceptions of themselves. In particular, participants asked to predict their own thoughts and feelings tended to view themselves as prototypical unless they had specific reason to believe that they were somehow exceptional or distinct (Karniol, 2003). Bilingual people change the way that they describe their personality toward the prototypical personality profile for the language that they are using to assess themselves (Chen & Bond, 2010). Participants appear to use prototypical representations of others as their benchmark for their own beliefs about themselves.

As with assessments of their likely thoughts and feelings (Karniol, 2003) and personality (Chen & Bond, 2010), it would seem to follow that people, when assessing their abilities, should view themselves as typical (modal) for a majority of skills (Moore, 2007a). Not only do people "like" prototypes and find them more memorable, but for most abilities, there is often no factual basis for people to believe that they are distinct or unique. For example, when assessing their own abilities, people would likely fall back on the prototype for that ability (I can drive on the street and highway without, for the most part, getting into an accident) unless they see themselves as somehow distinct on the ability in question (I am a competitive NASCAR driver; see also Bartlett, 1932, for a similar process in reconstructive memory).

However, studies examining ability assessment often find "better-than average" and "worse-than average" biases with participants often viewing themselves as unique – not prototypical – scoring themselves as much better than average for a number of common or easy tasks (Kruger, 1999; Moore, 2007a) and worse than average for hard or uncommon tasks (Kruger, 1999; Moore & Kim, 2003; Windschitl, Kruger, & Simms, 2003). For example, Kruger (1999) found that people rated themselves as above average on skills such as driving a car and riding a bicycle and below average on skills such a juggling and programming a computer. In general, researchers have noted that there is a "false uniqueness" effect where participants indicate that they are atypically good or bad for a large range of abilities and personality traits (see Chambers, 2008; Chambers & Windschitl, 2004; Dunning, Heath, & Suls, 2004; Sedikides & Gregg, 2008; Taylor & Brown, 1988, for reviews).

Both motivational and non-motivational causes have been offered to explain people's expressed belief that they are falsely unique. For example – when beliefs are of the "better-than-average" type – people may be motivated to generate a positive self-image, with possible health and productivity benefits (Armor & Taylor, 1998; Taylor & Brown, 1988). Or bias may be due to cognitive

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inadequacies in the way that people process information about their own ability and the ability of others (see Chambers & Windschitl, 2004, for a review). For example, people may, due to egocentrism, easily bring to mind all the steps that they have taken to be a good driver, but struggle to come up with the steps that others have taken (Kruger, 1999; Kruger & Burrus, 2004; Windschitl et al., 2003).

Here we propose an explanation "better-than-average" and "worse-than-average" effects that simply exploits the statistical properties of a skewed distribution of abilities. A skewed distribution has the property of the mode of the distribution being higher (or lower) than the mean. For example, a negatively skewed distribution of ability will necessarily have a larger proportion of people who are better-than-average than worse-than-average. We present studies demonstrating correct identification of the skew of the distribution of ability and corresponding rankings that fall appropriately in the direction of the mode of the distribution. More specifically, we argue that this mechanism allows the two views – self as typical and self as unique – to be reconciled in the literature. For this to be true, we propose that two conditions need to be met:

(1) The skills being assessed must have a skewed (non-symmetric) ability distribution.
(2) Participants must recognize that ability distributions are skewed.

If participants recognize that skills have skewed ability distributions, then participants may believe their abilities to be prototypical, *not* unique. Self-enhancement and self-derogation occurs when a person unrealistically views himself or herself as being more or less skilled than others (Kwan, John, Kenny, Bond, & Robbins, 2004). In contrast, we propose that people may at times indicate that they are above or below average (mean), because they believe that the majority of people are above or below average.

An over reliance on prototypes (the prototype heuristic) is thought to explain a number of errors and biases on judgment and decision-making tasks (Kahneman & Frederick, 2002). Here, a reliance on prototypes might cause ratings that, on face value, appear to indicate a belief in the self as unique. If people are aware that the skill has a skewed distribution, they are also likely to easily recall a prototypical, or modal, ability level for that skill – either fairly good or fairly bad. Past research indicates that when asked to assess their ability level, people likely use the least amount of effort and supply a prototypical ability rating if they have no reason to see themselves as distinct for that ability (Karniol, 2003). As with many other heuristics and shortcuts that ease judgment and decision-making (Shah & Oppenheimer, 2009), it is possible that participants often rely on prototypical ability ratings because to do so requires little effort. An over reliance on prototypes may cause participants to give themselves high ability ratings when they believe most are good and low ability ratings when they believe most are bad.

We are not proposing that people first bring up a representation of the whole distribution and then settle on a prototypical value for that distribution when assessing their ability. Rather, that people have a strong representation for the prototypical skill levels that are easily brought to mind due to previous exposure to people performing these skills. A similar theory of judgment has been proposed for *decision by sampling* (Stewart, Chater, & Brown, 2006), which proposes that the subjective value of a target object is derived from a series of ordinal comparisons with objects retrieved from memory, based on previous exposure to the naturally existing distribution of such objects. Therefore, skills that will likely lead to self-as-prototypical ratings are those for which information about others is available, such as when they are familiar and public.

Recognizing skewed distributions

Easy or hard tasks frequently have a non-symmetric distribution of performance. Easy tasks often have negatively skewed ability distributions (most are good while a few are bad) and hard tasks often have positively skewed ability distributions (most are bad while a few are good). When the ability distribution for the skill being scored is negatively skewed, with high ability much more common than low ability, most people are above average (Gigerenzer, 2002; Krueger, 1998; Moore, 2007a). Conversely, most are below average if the distribution is positively skewed.

Importantly, people can be adept at perceiving environmental statistics (Fiedler & Juslin, 2006). Previous research indicates that people properly assess distributions that are skewed or non-normal for various social and everyday phenomena. For instance, college students were accurate in describing the varying, often non-symmetric, distributions of the behaviors and attitudes of their classmates, such as frequency of drinking alcohol and beliefs about political issues (Nisbett & Kunda, 1985). Similarly, participants made accurate predictions about duration and extent of everyday phenomena, such as box office waiting times and eventual movie grosses, which also had non-symmetrical distributions (Griffiths & Tenenbaum, 2006). Further, people are sensitive to and influenced by both the range and skew of previous observations for a wide variety of judgments (Pettibone & Wedell, 2007; Smith, Diener, & Wedell, 1989; Wedell & Pettibone, 1999; Wedell, Santoyo, & Pettibone, 2005). People appear to appreciate that a number of social and everyday stimuli have non-symmetric distributions and often take this information into account in their assessments and predictions.

Knowledge of environmental statistics should be greatest for tasks that are routinely performed since these tasks provide the opportunity for people to gain perspective on their own ability by comparing themselves to others (Festinger, 1954). Ability comparisons with others tend to be automatic and non-discriminate (Mussweiler, Ruter, & Epstude, 2004). If people often assess the ability of others, then they are likely to have a good idea of whether or not the ability has a skewed distribution and also the prototypical ability level for that skill. In support, people seem to be most knowledgeable about themselves and others for behaviors (Vazire & Mehl, 2008) and personality traits (Vavire, 2010) that are public and easy to observe.

Comparison to previous explanations and research

It should be noted that our argument is distinct from previous alternative explanations for "better-than-average"-type effects such as egocentrism (Kruger, 1999; Kruger & Burrus, 2004; Windschitl et al., 2003) or the LOGE model (Giladi & Klar, 2002). The egocentrism and LOGE alternatives posit that people make improper comparisons to others that either (a) do not sufficiently weigh others' ability (egocentrism) or (b) use an incorrect benchmark for others that combines local and general exemplars (LOGE model; this combination can lead participants to improperly assess all in-group members as unique). We propose that people correctly understand the asymmetric nature of others' ability and believe that they often fall near the mode of those ability distributions. Easy access to the likely prototypical ability level causes them to at times give themselves high or low self-assessments. Instead of incorrectly using others' ability level when forming their assessments, the prototypical ability level of others often constitutes their assessment. Similarly, bias in estimation for how long it will take to complete a task may have more to do with the nature of distributional information available in memory than due to ignoring or improperly using past experience (Roy, Christenfeld, & McKenzie, 2005).

Similar to egocentrism (Chambers, Windschitl, & Suls, 2003), we propose that a focus on prototypical abilities is likely a non-motivational explanation for why people at times describe themselves as above or below average. Because prototypes easily come to mind, people rely on prototypes when asked to assess their own abilities. It is possible that a view of the self as prototypical could, at least at times, have motivational causes. People seem to want to find a balance of being like others at times and being distinct from others at times (Brewer, 1991). Viewing themselves as prototypical could be a way for people to see themselves as similar to people like themselves. Indeed, people seem very motivated to behave like the prototypical other, changing their behavior to match that of a typical other (Goldstein, Cialdini, & Griskevicius, 2008; Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008).

Present studies

In Study 1 participants were asked to provide direct assessments for a number of skills, such as driving, performing magic tricks, and playing "ball" sports. Next, participants assessed the distribution of ability for these skills in the general population. This allowed us to establish whether or not there was a relationship between self-assessments and the perceived skill distributions. Study 2 sought to replicate Study 1 using an alternative method of measuring participants' perceived distributions of ability and examining consistency of results across diverse participant populations (including US and South African samples). Study 3 used a third method of measuring participants' perceived distributions of ability which allowed for a better evaluation of how participants thought that their abilities compared to those of the general population. In Studies 4 and 5, distribution of the skill was manipulated to examine its influence on self-assessment for a familiar task (Study 4) and an unfamiliar task (Study 5). The goal was to establish a causal relationship between people's belief in their own skill abilities when most others were portrayed as good or bad.

In these studies, we examine the effect of skewness on direct judgments of comparative ability. Previous studies on the better-than-average effect have used both direct methods, where participants supply one rating that indicates how they compared to an average other, and indirect methods, where participants indicate their ability level and the ability level for an average other. Of the two methods, the direct method has been the most used, leads to more robust better-than-average effects (Chambers & Windschitl, 2004), and is thought to best frame the decision for the participant (Alicke & Govorun, 2005). As a consequence, here we use the direct method of self-assessment and investigate how this type of rating is influenced by skew. However, it is possible that skewness could also affect the indirect method of assessment – this possibility is further explored in the general discussion section.

Study 1

In Study 1 the relationship between people's self-assessments and their perceptions of how that skill is distributed in the population was examined. Participants assessed themselves on 10 skills and then indicated which of four possible distribution descriptions best depicted that skill.

Method

Participants

Fifty-five undergraduate psychology students at a large, public, mid-western university (64% females) participated. Overall, 63% of the sample was Caucasian, 25% Asian, 1% African American, 1% Native American and 10% indicated "Other". They received course credit for their psychology classes in exchange for participation.

Procedure

Participants first assessed themselves on a scale from 0 to 100 on 10 skills presented sequentially in random order. Before providing each of their ability assessments, participants were instructed to read the following:

> For the following question, please give a percentile score between 0 and 100, where 0 means everyone is better than you, 50 means you are better than half the other people, and 100 means you are better than everyone else.

The skills assessed were: driving, interpreting emotions, bicycle riding, performing magic tricks, performing music, playing "ball" sports (e.g. basketball, tennis), performing martial arts, shoe tying, dancing, and public speaking.

Participants then indicated how they perceived these skills to be distributed in the population. In particular, for each skill (again sequentially in random order) participants indicated which of the following best described that skill: most people are (1) good at the task, but a minority are very bad (negatively skewed), (2) "OK" at the task, while some are very good and some are very bad (symmetric), (3) bad at the task, but a minority are very good (positively skewed), or (4) either very good or very bad at the task (bimodal).

Skills were chosen with the intention that they would have fairly large differences in the distributions of ability to allow better comparison between perceived distribution and self-assessment. Also, a number of public skills were chosen so that participants would likely have knowledge about other's performance. As stated earlier, it was important not only that the skills being measured had a skewed distribution – but that participants recognized that the distribution was skewed. For example, shoe tying was a familiar task with a distribution that we thought was likely highly negatively skewed with most participants' skill level being very high, and only a few low. If there were a relationship between perceived distribution and self-assessment in accordance with our conjecture, then it would be expected that most would give themselves very high scores on this skill.

Results and discussion

Descriptive statistics for Study 1 are shown in Table 1. The first three columns provide the mean, median, and modal self-assessments for each skill, with skills ordered from highest to lowest mean scores. The fourth column contains the skewness statistic, which indicates how participants' self-assessments were distributed – i.e., higher negative (positive) numbers equate to more negatively (positively) skewed self-assessments. The final four columns indicate the proportion of participants that described the skill as having a negatively skewed, symmetric, positively skewed, or bimodal distribution.

Taken at face value, participants indicated their abilities were falsely unique: above-average for shoe tying, detecting emotion, driving, biking, and public speaking, and a below-average for performing music, magic, and martial arts. Participants exhibited no above- or below-average bias for playing sports and dancing.

Relationship between self-assessments and perceived distribution

Table 1 provides the proportion of people that described the skill as having a negatively skewed, symmetric, positively skewed, or bimodal ability distribution. Most appear to view themselves as typical (modal): self-assessments were highest when participants tended to believe that the majority of others were good at the skill

Table 1
Self-perception and other-perception of skill distribution for Study 1.

Skill	Self assessment				Proportion of participants describing the skill distribution as			
	Mean	Median	Mode	Skewness	−Skewed	Symmetric	+Skewed	Bimodal
Shoe tying	76.3	80	100	−1.18	0.78	0.15	0.00	0.07
Detecting emotion	68.7	75	90	−1.33	0.18	0.55	0.16	0.11
Driving	63.4	70	50	−1.14	0.22	0.64	0.04	0.11
Biking	62.3	60	50	−0.64	0.47	0.44	0.02	0.07
Public speaking	61.2	70	75	−0.91	0.07	0.58	0.18	0.16
Playing "Ball" sports	55.7	50	50	−0.31	0.18	0.73	0.02	0.07
Dancing	51.3	50	40	−0.01	0.09	0.64	0.11	0.16
Performing music	44.7	40	10	0.23	0.02	0.40	0.20	0.38
Magic tricks	24.6	10	10	1.29	0.05	0.16	0.42	0.36
Martial arts	23.9	10	0	1.06	0.00	0.20	0.47	0.33

(negatively skewed distribution) and lowest when they tended to believe others were bad (positively skewed distribution). The correlation between average self-assessment and the likelihood of a skill being described as skewed (proportion describing skill as positively skewed minus proportion describing skill as negatively skewed) was $r(10) = -.84$. While skills with the highest self-assessments were likely to be described as negatively skewed, skills receiving the lowest self-assessments (performing music, magic and martial arts) were likely to be labeled as either positively skewed or bimodal. It would seem that both of these characterizations are likely correct: music, magic and martial arts performance are abilities that can either be described as ones for which a majority are unskilled (positively skewed) or for which people fall into one of two categories, those with the skill and those without (bimodal).

Fig. 1 provides the mean, median, and distribution of self-assessments when grouped by the described distribution – e.g. all instances where a skill was labeled negatively skewed were grouped together. Self-assessments were highest when the skill distribution was described as negatively skewed, lowest when described as positively skewed, and in-between when described as symmetric or bimodal.

Accuracy of perceived distribution shape

Fig. 1 also graphically illustrates the distribution of participants' self-assessments grouped by the distribution that the participant thought best described that skill. Participants appear to be fairly accurate in their perceptions of skill distribution: descriptions of the ability distribution matched the distribution of their own self-assessments. When a skill was described as having a certain distribution, such as being bimodal for example, the distribution of participants' self-assessments fit that assessment, or, was itself bimodal. Further, the relationship between the skewness of self-assessments for each of the skills and how they were described also indicated that participants were accurate in their descriptions. Table 1 provides the skewness statistic for the distribution of participants' self-assessments (4th column). Participants' likelihood of describing a distribution as skewed was highly related to the degree of skewness in the distribution of their scores, $r(10) = .73$.

Summary

Participants appear to be fairly accurate in their perception of distribution of the various skills measured here. Further, their responses indicate that they likely see their abilities as being similar to that of others, good when most are good and bad when most are

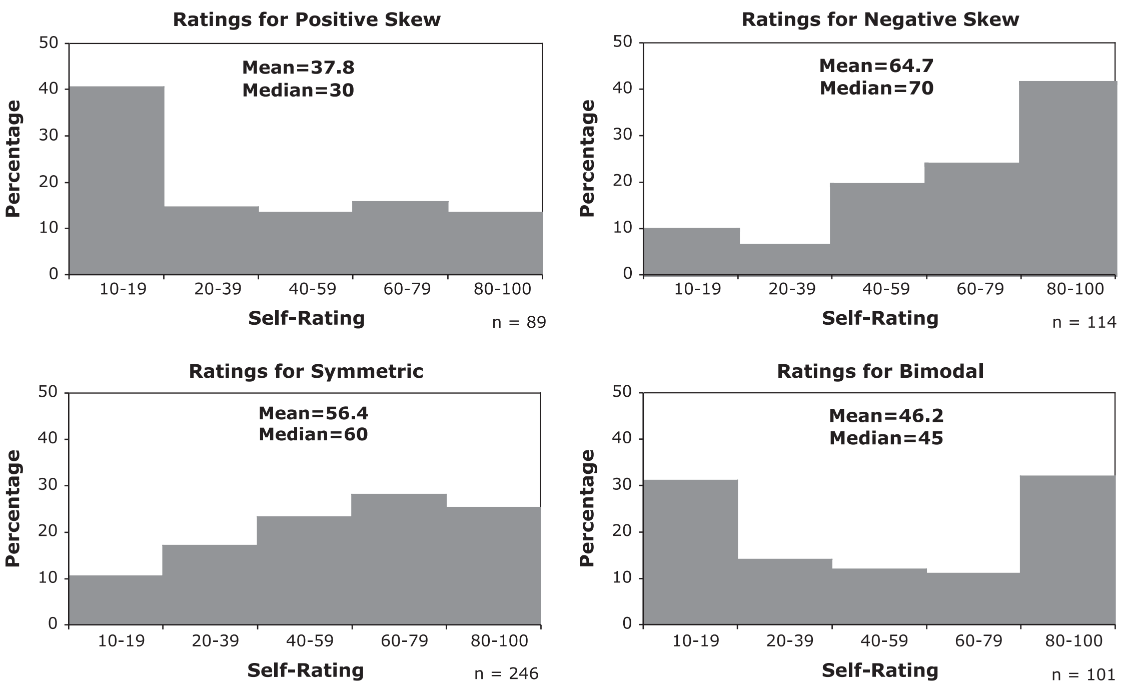

Fig. 1. Mean, median and distribution of self-assessments for skills described as having a negatively skewed, positively skewed, symmetric, or bimodal distribution.

bad. Results do, however, still indicate possible overestimation of ability or false uniqueness. When the ability distribution was described as symmetric, average self-assessment was above 50 (M = 56.4, SE = 1.7) and the actual distribution of self-assessment was somewhat negatively skewed. However, the effect is small, and should be interpreted with caution since participants' actual skill was not measured; it is possible that the young adults participating in these studies were more skilled at these tasks (Kwan et al., 2004). It is also possible that the slight self-enhancement found here is due to the insensitivity of the measures used. Participants were forced to choose which one of four written descriptions best matched the actual distribution. This could be problematic for cases where participants believed that the distribution was somewhere in-between the forced choices. To address this shortcoming, participants in Study 2 created their own distributions for each of the skills.

Study 2

In addition to the aforementioned goal (to replicate the results of Study 1 using a more sensitive measure of perceived skill distribution) Study 2 included two additional goals: (1) to more accurately compare participants to their self-generated distributions and (2) to generalize results using two diverse samples.

Self-generated distributions

To avoid potential problems associated with forced choice of distribution type, participants in Study 2 created their own distributions for each of the skills, indicating what percentage of participants they believed to be very good, very bad, or somewhere in-between. Participants also rated their abilities on a similar scale so their ability ratings could be directly compared to their self-generated distributions.

Sample comparison

We expanded the scope of Study 2 to examine whether or not results of Study 1 could be generalized to very different samples. Here, responses of participants from a small, east coast college in the United States (US) were compared to those of participants from a large, public university in South Africa (SA). The SA sample, as well at the US sample, was chosen by convenience – one of the authors was completing other work in South Africa – and there were no theoretical reason for its selection other than to compare diverse samples.

Method

Participants

Thirty-two psychology undergraduates at a small, private, east coast US college (75% females, M age = 19.5 yrs) and 21 graduate students at a large, public SA university (52% females, M age = 23.3 yrs) participated. The US students were predominately Caucasian with one participant of Asian descent, while SA participants were approximately 50% African, 33% South Asian and 17% Caucasian (3 participants did not indicate race). Both groups completed paper and pencil questionnaires as a group during class.

Procedure

Participants first supplied ability assessments in the same manner as Study 1 for the same 10 skills. Participants also indicated their ability on a five-point scale by checking a box indicating whether they thought they were very good, good, average (neither good nor bad), bad, or very bad at that skill. This second rating of ability allowed for direct comparison of ability ratings to participants' self-generated ability distributions.

Participants then constructed their own skill distributions. Participants indicated what percentage of the population they believed to be very good, good, average, bad, and very bad for each skill. Participants received a reminder on each skill that their responses should add to 100. Responses that did not add to 100 were disregarded (4% of the US and 6% of the SA responses fell into this category, and were excluded from the analysis).

Results and discussion

Table 2 provides the descriptive statistics for Study 2. The first three columns list the mean, median, and modal responses to the ability questions for each of the 10 skills for both the United States and South African participants (in the same order as Study 1). The fourth column provides the skewness statistic for the participants' self-assessments. The fifth column lists the average self-assessment using the 5-point scale (very bad, bad, average, good, or very good) for each of the skills with ratings converted to numerical scores from 1 (very bad) to 5 (very good).

The last 6 columns show participants' perceived skill distribution in the general population. In particular, the average percentage is shown for each of the 5 possible skill levels (very bad, bad, average, good, and very good) and the last column provides a weighted average for the skill. To simplify participants' perceived distributions, a weighted index was created by multiplying the percent believed to be very bad by 2, percent bad by 1, percent average by 0, percent good by -1, and percent very good by -2. Sign and magnitude indicate direction and size of skew (i.e., a large negative number indicates a highly negatively skewed distribution).

Asterisks indicate where the United States and South African samples significantly differed in their responses.

Sample comparison

As indicated in Table 2, there were few differences between the United States and South African students, with both groups giving themselves similar scores on the skills and viewing the skills as having similar distributions (varying only in degree of skewness). In terms of self-assessments in comparison to others (on the 100-point scale), SA students scored themselves higher in shoe tying, $t(50) = -2.94$, $p = .005$, $d = .83$, and lower in driving$t(50) = 3.44$, $p = .001$, $d = .97$. For assessments on the 5-point scale (whether they are simply good or bad), SA students again scored themselves lower on driving ability $t(50) = -3.54$, $p = .001$, $d = 1.0$, but higher on public speaking ability, $t(51) = 2.63$, $p = .01$, $d = .74$. SA students were more likely to view four of the skills, driving, $t(48) = -3.27$, $p = .002$, $d = .94$, public speaking,$t(49) = -2.12$, $p = .04$, $d = .61$, playing sports, $t(50) = -5.91$, $p < .001$, $d = 1.67$, and performing music, $t(50) = -2.04$, $p = .04$, $d = .58$, as having more negatively skewed distributions than did US students. Despite these differences, the overall pattern of responses was surprisingly similar between SA and US students.

Relationship between self-assessments and perceived distribution

Consistent with the results of Study 1, participants' self-assessments were highly related to the perceived skewness of ability in the population. Skills where participants scored themselves highest or lowest were also the skills that were most likely to be described as having a skewed distribution. For Study 2, the relationship between perceived skill distribution and self-assessment was examined in terms of both individual and group perceptions of the skill distributions.

First, the relationship between perceived skewness and self-assessment was examined within participants, indicating whether or not an individual's fluctuation in self-assessment was related to

Table 2
Self-perception and other-perception of skill distribution for Study 2.

Skill	Self assessment				Mean 5-point	Average perceived distribution in population					
	Mean	Median	Mode	Skewness	Assessment	%VBad	%Bad	%Ave	%Good	%VGood	Weighted
Shoe Tie – US	72.2	75	50	−1.87	Good (4.2)	4.5	7.2	29.4	19.9	39.0	−81.7
Shoe Tie – SA	89.2**	99.5	100	−1.55	Good (4.4)	5.5	5.7	11.9	22.3	54.8	−115.1
Det Emot – US	74.2	75	80	−0.48	Good (4.2)	11.1	17.8	37.7	22.0	11.4	−4.8
Det Emot – SA	66.6	70	70	−0.49	Good (3.9)	14.8	18.1	27.4	18.8	21.4	−14.0
Driving – US	67.5	70	70	−1.75	Good (4.0)	12.8	14.0	35.2	24.6	13.4	−11.7
Driving – SA	41.0**	45	0	−1.29	Ave (2.8)**	9.0	9.5	23.8	27.1	30.5	−60.5**
Biking – US	62.0	50	50	−0.05	Good (3.7)	6.8	10.4	33.9	27.3	21.6	−46.5
Biking – SA	67.7	80	90	−1.18	Good (3.8)	9.0	10.0	22.1	25.2	34.5	−66.2
Pub Speak – US	48.4	50	70	−0.30	Ave (3.1)	13.0	20.7	39.5	17.5	9.3	10.6
Pub Speak – SA	57.3	60	70	−0.52	Good (3.8)*	15.8	15.6	26.5	19.0	22.7	−17.2*
Sports – US	52.5	57.5	50	−0.54	Ave (3.3)	11.1	18.5	39.5	19.3	11.5	−2.0
Sports – SA	54.2	50	50	−0.36	Ave (3.3)	7.5	10.4	20.2	22.9	38.6	−74.7**
Dancing – US	44.9	50	50	−0.43	Ave (3.2)	10.3	18.8	40.5	19.8	10.5	−1.3
Dancing – SA	41.7	50	50	−1.02	Ave (3.2)	13.2	19.9	22.0	20.1	22.5	−18.9
Perf Music – US	51.5	50	50	−0.22	Ave (3.2)	18.4	20.1	34.7	17.5	9.3	20.7
Perf Music – SA	38.2	40	40	0.12	Ave (2.7)	17.0	17.6	26.0	20.2	18.9	−6.3*
Magic – US	15.7	10	0	.81	Bad (1.7)	26.5	21.1	29.5	15.3	7.7	43.4
Magic – SA	16.8	15	0	.86	Bad (1.6)	20.3	28.5	27.7	13.3	9.7	36.3
Mart Arts – US	18.3	12.5	0	1.31	Bad (1.8)	30.3	23.8	24.8	14.2	6.9	56.5
Mart Arts – SA	12.8	5	0	0.90	Bad (1.5)	28.0	19.8	26.0	12.6	13.7	35.8

* $p < .05$ difference between US and SA.
** $p < .01$.

differences in their specific perceived distributions. To put another way, when a person described a skill as having a negative distribution, did they give themselves a high score (and a low score when described as positively skewed)? For each participant, their self-assessment on each of the 10 skills was correlated with their perceived distribution (weighted index) for each of those 10 skills. The individual correlations were averaged together by converting them to Fisher *Z* scores, averaging them together, and then converting the mean back to a correlation. The relationship between the weighted index of perceived skewness and self-assessments within participants was $r(10) = -.53$ for US participants and $r(10) = -.59$ for SA participants. How an individual participant scored her or himself in terms of ability was related to their own specific perception of how the skills were distributed.

Next, the relationship between average perceived skewness and average self-assessment for each of the skills was examined to determine if differences in skill type influenced both changes in perceived skewness and self-assessment. More simply, were skills that typically received high or low self-assessments more likely to be viewed by the majority as having a skewed distribution? Overall, when the 20 average skill assessments (10 skills × 2 countries) were compared with the corresponding weighted perceived skewness scores, the correlation was $r(20) = .-76$. Overall, skills that received the highest self-assessments were also most likely to be described as having a skewed distribution.[1] Whether examining the relationship within participants or across skills, self-assessments were related to perceived distribution of the skill.

Relationship between self-assessments and modal ability

Having participants create their own distributions allowed for a closer examination of whether or not participants were likely to see themselves as typical (modal). Participants' self-assessments on the 5-point scale (very bad, bad, average, good very good) were compared to the skill level they thought was most prevalent in the population. It should be noted that, as found previously (Baron, 1997; Giladi & Klar, 2002; Klar & Giladi, 1997; Klar & Giladi, 1999; Moore, 2007a, 2007b), there was little difference between participants self-assessments on the 100-point scale where they compared themselves to an average other and their self-assessments on the 5-point scale where they simply indicated whether or not they were good or bad at the skill. The mean correlation (correlations computed for each participant and averaged together using Fisher *Z*transformations) between the two assessments was $r(10) = .95$ for US participants and $r(10) = .94$ for SA participants.

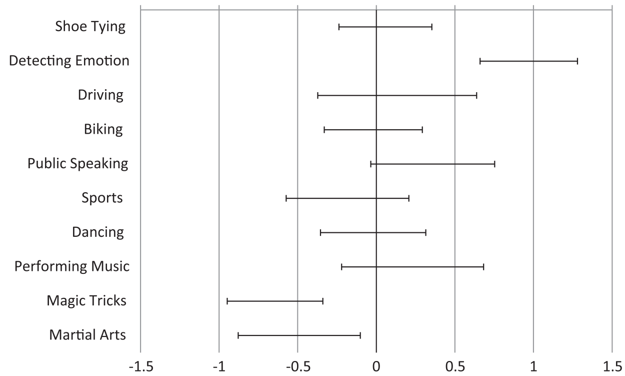

Fig. 2. 95% confidence intervals for the differences between self-assessments and the perceived *modal* ability levels for each skill.

Self-assessments on the 5-point scale were subtracted from the perceived modal skill level (the skill level that they indicated as containing the highest percentage of others[2]) – this computation resulted in positive values if a participant thought they were better than the prototypical other and negative values if a participant thought they were worse. For example, if a participant thought that they were very good at driving while the typical person was only good, then they would receive a score of positive one.

Scores were averaged together by skill to see if they were significantly different from 0 (no difference between self and the typical person). Fig. 2 provides the 95% confidence intervals for the difference

[1] The one skill did not follow this pattern was driving for SA students, likely due to 25% of the SA students indicating that they do not drive. The SA participants thought that most were good at driving even though many of them did not drive.

[2] When two categories had equal high ratings, the modal skill level was the average of the two.

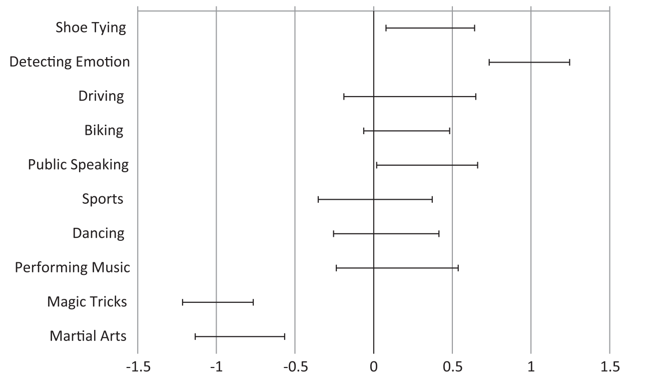

Fig. 3. 95% confidence intervals for the differences between self-assessments and the perceived *mean* ability levels for each skill.

scores.[3] Note that only three of the confidence intervals, detecting emotion, performing magic tricks and performing marital arts, failed to include zero. Participants indicated that they were slightly worse than the prototypical other in martial arts and magic and much better than the prototypical other in detecting emotion. For the other seven skills, participants rated their ability as being typical.

Participants appear to view themselves as being closer to the mode than to the mean when the skill distribution was perceived to be skewed. Fig. 3 provides the 95% confidence intervals for the difference between their self-assessment and the mean for their perceived skill distribution. As can be seen from Fig. 3, participants indicated that they were above what they considered to be average (mean) for shoe tying, detecting emotion, and public speaking (with a trend in that direction for driving and biking) and far below the average for performing magic tricks and martial arts. While participants were likely to view themselves as similar to the prototypical (modal) other, they were less likely to view themselves as being as similar to the average (mean) other when the skill had a skewed distribution. To put another way, they thought that, like most others, they were above or below average when the skill distribution was skewed.

Participants rated themselves as slightly below the mode for the two rare skills, performing magic tricks and martial arts. It appears that for tangible, physical skills that are uncommon, there was a tendency for slight underestimation of ability. Participants were more likely to undervalue their ability when the skill had a positively skewed distribution. Results indicate that people might have different mental representations of their abilities for rare skills than they do for more common skills.

In both Studies 1 and 2, participants gave themselves high scores on detecting emotion, but, unlike other skills receiving high scores, participants tended to view the skill as having a normal distribution (rather than as being negatively skewed). They tended to rate themselves on the high end of what they described as a normal distribution. Of the 10 skills evaluated in these studies, this was the only skill to exhibit a clear false uniqueness effect after the perceived distribution was taken into account. Participants rated themselves above both the mode and the mean of their own distributions. What could explain this result? Detecting emotion may be a qualitatively different skill than the others: while the other skills are public and fairly easy to judge, detecting emotion is more related to factors surrounding personality and harder to judge. Social comparison may have been complicated because participants were not able to easily evaluate others. In relation, people are likely to be more egocentric in their comparisons to others when they have little information about the beliefs and traits of others (Kruger, Windschitl, Burrus, Fessel, & Chambers, 2008). Further, participants in these studies did not appear to be very accurate in their description of the skill distribution for detecting emotion: in both Studies 1 and 2 participants own scores were negatively skewed while they tended to describe the distribution as being more symmetric in shape.

Importance of the skill

Another possible reason for detecting emotion receiving clear better-than-average ratings is that participants might have valued this skill more highly than the others. Previous research has found that participants are more likely to self-enhance on traits important to their self-concept (e.g., Alicke, 1985; Sedikides, Gaertner, & Vevea, 2005).

To examine this possibility, we recruited a new group of participants ($n = 40$; 27 females) from a large, private, east coast university to rate the importance of the 10 skills. Participants rated how important it was to be good at each of the skills both in their eyes and they eyes of others on a scale from one (not important) to five (very important) in an online survey. Table 3 gives the average importance ratings for all 10 skills (the two ratings of importance were highly correlated, $r(40) = .83$, and, therefore, averaged together). Importance of the skill may have played some role in participants' ratings: detecting emotion, along with public speaking and driving, were thought to be the most important skills, while performing magic tricks and martial arts, both of which received ratings below the mode, were rated as least important. All other skills were rated as moderately important. However, it does not seem that importance alone can account for the above-average effects found in detecting emotion since public speaking and driving received similar or higher ratings of importance (although there is a trend for ratings to be above the mode for public speaking). Further, the correlation between importance of the skill and average self-assessments was $r(10) = .54$ while the correlation between perceived skew and self-assessments was $r(10) = -.88$ (with the samples from SA and US combined). The relationship between self-assessment and perceived skew helped to explain more than two and a half times the variability in self-assessment than did the relationship between self-assessments and importance. Indeed, there was not a very strong relationship between importance and perceived skew, $r(10) = -.21$. Further research is needed to tease apart the influence of task importance, visibility and skew on self-assessment. What these results do indicate is that methods such as the one employed here should be used to better determine whether or not true above-average or below-average effects exists for a skill or trait.

Previous research has found that people are likely to rate themselves as above average on positive personality traits such as sensitivity and studiousness (Dunning & Cohen, 1992; Dunning & McElwee, 1995; Dunning, Meyerwitz, & Holzberg, 1989). Results of these first two studies indicate that it is possible that robust false uniqueness effects could remain for positive personality traits even when the perceived distribution for those traits is taken into account.

Table 3
Average importance of the skill to participants' self-concept.

Skill	Mean	St. dev.
Shoe tying	2.40	1.37
Detecting emotion	3.71	0.91
Driving	3.60	1.32
Biking	2.38	1.25
Public speaking	4.05	1.09
Playing "Ball" sports	2.58	1.28
Dancing	2.85	1.14
Performing music	2.51	1.09
Magic tricks	1.68	1.14
Martial arts	1.88	1.04

[3] Results do not differ if tested at .05 level of significance using *t*-tests.

Possible demand characteristics

It is possible that the results found here, with self-assessment related to perceived distribution, might be due to the study design. Having participants supply their self-assessments first might have influenced how they then described the skill distributions. Therefore, an additional 61 participants were recruited (same participants as in Study 5) for a between participants replication of this study. After they completed the tasks detailed in Study 5, one group of participants ($n = 33$) was randomly assigned to fill out self-assessment portion for this study and the remaining participants ($n = 28$) filled out the perceived distribution portion. As can be seen from Table 4, there was a nearly identical pattern of results even when self-assessment and perceived distribution were given separately. This similarity is reflected in the correlation between the average self-assessments and average weighted distribution of $r(10) = -.88$. Demand characteristics cannot account for the pattern of results found here.

Accuracy of perceived distribution shape

Participants' perceptions of skew in the distributions appeared to be fairly accurate. The correlation between perceived skewness (the weighted index) and actual skewness in their responses (the 4th column of Table 2) was $r(20) = .79$. The distribution of participants' own responses was highly related to their perceptions of how the distributions were shaped. As discussed previously, the one skill that participants were the least accurate in describing was detecting emotion, indicating that it likely had a symmetric distribution while the distribution of participants' own self-assessments was negatively skewed.

Summary

Overall, Study 2 replicated the results of Study 1 using a more sensitive method of assessing perceived skill distribution and two different participant populations. Participants did not appear to view themselves as unique for most of the skills: they were likely to believe their skill level to be near the mode of the distribution for the majority of the skills.

However, the scale used in Study 2 was restricted to only 5 levels and therefore may not be sensitive enough to pick up actual differences. Even though people saw themselves as generally being in the same category as the majority, the measure might not have detected perceived differences within that category. For example, a person might see themselves at the high end of the good category with most others at the low end (e.g. McFarland & Miller, 1990). Therefore, in Study 3 the relationship between the modal value and self-assessment was more directly examined using a continuous scale.

Study 3

In Study 3 we sought to replicate the findings of the first two Studies using a third measure of perceived skill distribution. In addition to providing self-assessments for each skill, participants indicated which of three visual representations for the distributions best matched the actual distribution for that skill. This method allowed us to directly examine the relationship between participants' perception of how the skill was distributed in the population and their own perceived ability: after selecting the "population" distribution, participants were asked to mark where their ability fell on that distribution. If participants tended to believe that their ability was prototypical, then they should have placed themselves near the mode of the distribution.

Table 4
Between-subjects self-perception and other-perception.

Skill	Mean self-assessment	Weighted perceived distribution
Shoe tying	80.0	−91.8
Detecting emotion	74.5	−20.9
Driving	65.8	−8.9
Biking	72.1	−40.6
Public speaking	56.2	21.3
Playing "Ball" sports	54.4	−7.3
Dancing	46.0	−0.1
Performing music	52.5	14.6
Magic tricks	16.8	52.6
Martial arts	26.2	48.8

Method

Participants

One hundred thirty-eight undergraduate psychology students at a large, public west-coast university (72% females) participated (data on ethnicity not available). They received course credit for their psychology classes in exchange for participation.

Procedure

Due to time concerns (this was only one of a group of studies that participants were completing), participants supplied self-assessments on only 6 of the skills from Studies 1 and 2, presented in the same manner. The skills scored were driving, performing magic tricks, playing "ball" sports (e.g. basketball, tennis), performing martial arts, shoe tying, and dancing.

Participants then indicated which of three pictures of a distribution – symmetric, negatively skewed, or positively skewed (see Fig. 4) – best represented the distribution of that skill in the general public (participants were first given a brief written tutorial on the distribution types). After picking one of the three distributions, participants were asked to place an "X" on the spot where they thought they fell on the distribution. Marked responses were measured in distance (16^{ths} of an inch) from the left most point of the distribution.

Results and discussion

Results, summarized in Table 5, replicated our two main findings from the previous studies. First, participants gave themselves high scores on skills that they thought more likely to have a negatively skewed distribution and low scores on tasks viewed as likely having a positively skewed distribution: the correlation between self-assessment and likelihood of describing the distribution as skewed was $r(6) = -.96$ (see Study 1 for a detailed description of this analysis). Second, participants appear to be fairly accurate in their selection of the skill distributions with a correlation of $r(6) = .78$ between the likelihood of describing the skill as having a skewed distribution and the distribution of their own self-assessments (column 4 in Table 5).

Relationship between self-assessments and perceived prototypical ability

Recall that after deciding which distribution best represented the skill in question, participants marked where their ability fell on the selected distribution (see Fig. 4). Marked responses were measured in distance (16^{ths} of an inch) from the left most point of the distribution, meaning that higher measurements equated to higher perceptions of self-ability. Results indicate that participants tended to rate themselves as typical. For all three distribution types, participants' mean self-assessment was not significantly different from the mode of the distribution, but was significantly different from the mean and median when the distribution was skewed. When participants chose the skill as having a symmetric distribution ($n = 307$), they placed themselves, on average, at 33.4 16^{ths} of an inch with a 95% confidence interval of

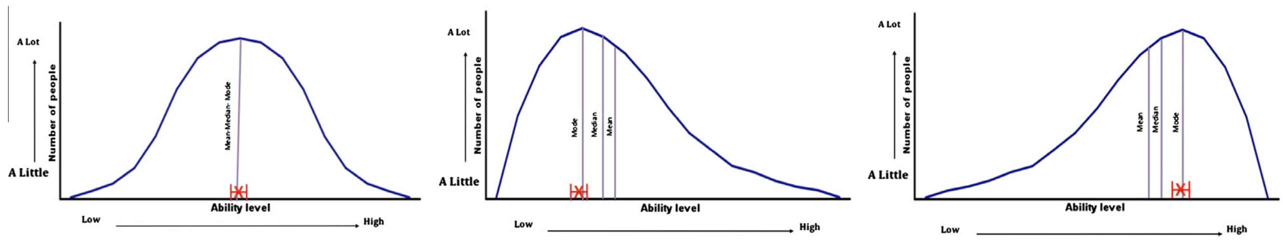

Fig. 4. Normal, negatively skewed, and positively skewed distributions (mean, median and mode were not included during the study, but added here to aid interpretation). Bars with X represent 95% confidence intervals of self-assessments.

Table 5
Self-perception and other-perception of skill distribution for Study 3.

Skill	Self-assessment				Proportion of participants describing the skill distribution as		
	Mean	Median	Mode	Skewness	−Skewed	Symmetric	+Skewed
Shoe tying	74.0	75	50	−.43	0.81	0.19	0.00
Driving	67.4	70	50	−1.18	0.25	0.60	0.15
Playing "Ball" sports	48.3	50	50	−0.05	0.14	0.58	0.28
Dancing	48.4	50	50	−0.13	0.07	0.62	0.31
Magic tricks	22.0	10	0	1.15	0.01	0.13	0.86
Martial arts	26.3	12.5	0	.91	0.04	0.10	0.86

31.9–35.0 16ths (the true mean, median and mode for the distribution was 33.2 16ths). When described as positively skewed (n = 337), the average self-placement was 16.1 16ths, 95% CI 14.4–17.7 16ths (true mean = 22.8 16ths, median = 20.8 16ths, mode = 16.6 16ths). Finally, when described as negatively skewed (n = 183), self-placement was 49.5 16thss, 95% CI 47.2–51.7 16ths (true mean = 43.6 16ths, median = 45.7 16ths, mode = 49.8 16ths).

Participants in Study 3 were asked to supply two comparative self-assessments. First, participants supplied their assessment using the typical percentile ranking method often seen in "better-than-average" and "worse-than-average" studies. Second, they supplied their assessment using our alternative method where participants indicated where they fell relative to others on the graph of their perceived distribution of the population's ability. It is possible that participants used different cognitive processes when forming the assessments for the two methods. However, the mean within person correlation (whether or not they were consistent on which skills received the highest and lowest assessments) was $r(6) = .93$ and the mean within skill correlation (whether or not they were consistent where they assessed themselves on each skill in comparison to others) was $r(138) = .76$. Participants were consistent in how they assessed themselves regardless of the method used, indicating that they were likely using similar cognitive processes for both elicitation methods.

Study 4

In the previous three studies, a strong relationship was found between participants' self-assessments for a skill and how good they thought people were at the skill. However, these studies established a correlational, not causal, relationship. This matters because our assertion is that underlying perceptions of skill distributions contribute to participants' self-assessment – specifically, the more others are believed to be good at a skill, the higher participants will tend to rate themselves at that skill. Correlational evidence leaves open the possibility that there is a third (unmeasured) variable contributing to the relationship (e.g., self-identification with the skill), or that the relationship is directionally reversed (the higher participants rate themselves at the skill, the more others are believed to be good at the skill).

To establish the causal relationship of interest, we examined the effect of varying how a skill was described, most good or most bad, on self-assessment in Study 4. In particular, participants were told (and provided with pictorial representations of distributions showing) that most others were either good or bad at dancing. They were then asked to rate their own dancing ability. If self-assessment is influenced by perception of how skilled others are at a task, then participants should give themselves higher ratings when told that most are good at dancing and lower ratings when told that most are bad. On the other hand, if participants egocentrically focus on their own ability when forming their assessment, then how the ability is described should not influence self-assessment. Given that dancing ability was consistently described in the previous studies as having a normal distribution, and that participants were shown to more moderately self-identify with dancing (participant found it "somewhat important" that they and others considered them to be a good dancer), it is a skill where the ability distribution could be framed in either a positive or negative direction.

Method

Participants

Ninety-seven students at a large, private east-coast university (67% females) participated (data on ethnicity not available). They received payment in exchange for participation (participants were entered into a lottery to win a $100 Amazon.com gift certificate). Participants completed the study online.

Procedure

To make sure that participants understood the meaning of the different distributions, participants were first directed to a page that gave the pictorial representations of two distributions – positively and negatively skewed – accompanied by written descriptions. The picture of the negatively (positively) skewed distribution was followed by text describing this as a situation where most were good (bad) at the task.

Next, participants went to a page that gave both a pictorial representation and written description of dancing ability. Dancing was either depicted as a task where most are good (negatively skewed) or most are bad (positively skewed), randomly determined. After reading the description, participants were asked to supply a self-assessment of their dancing ability using the same procedure as in the previous three studies. Finally, participants answered demographic questions along with two questions about how important dancing ability was to them (how important it was for them to be a good dancer in their own eyes and in the eyes of others).

Results and discussion

Participants in the two conditions – most are good ($n = 47$) or most are bad ($n = 50$) – did not differ in terms of gender ($\chi^2(1, n = 97) = 1.17$, $p = .28$) or age ($t(95) = -1.82$, $p = .07$) and, of the two variables, only gender was related to self-assessment with women tending to supply higher ratings of dancing ability than did men, $M = 54.2$ vs $M = 42.7$, $t(95) = -1.93$, $p = .06$, $d = .42$.

As predicted, the two groups did differ in their self-assessments, with those who were told that most were good giving themselves higher ratings, $M = 55.0$ ($SD = 26.1$), than those who were told most were bad, $M = 44.7$ ($SD = 24.1$), $t(95) = 2.02$, $p = .046$, $d = .41$. Self-assessment was influenced by the perceived distribution of that skill in the population.

How important the skill was to the participant (average of how important it was in their eyes and they eyes of others) was related to self-assessment, $r(96) = .55$, $p < .001$. However, how the ability distribution was described, most good or most bad, did not influence ratings of importance, $t(95) = 1.15$, $p = .252$, $d = .23$ (note that questions of importance came after the manipulation). The influence of perceived distribution on self-assessment was separate from that of perceived importance.[4]

Study 5

In the previous study, participants' self-assessments of their dancing ability were influenced by how the dancing ability of others was described. A potential issue with this study is that dancing is a skill that people are familiar with and, as seen in the previous studies, have an opinion about the likely distribution of the ability. It may have been that the way the distribution was described influenced other aspects of their understanding of dancing, such as how it was defined, that could also explain the shift in self-assessments. Therefore, in Study 5, we had participants rate their ability on a task for which they have little experience: matching purebred dogs with their owners. In particular, participants tried to match a purebred dog with its potential owner and then rated their ability on this task. Before participants rated their ability, they read a paragraph that described dog/owner matching as fairly easy (having a negatively skewed distribution) orfairly hard (having a positively skewed distribution). It is worthy of note that – despite people's inexperience with this task – previous research has found that people are able to match purebred dogs with their owners, although the effect size for these studies tends to be fairly small (Payne & Jaffe, 2005; Roy & Christenfeld, 2004; Roy & Christenfeld, 2005; Sadahiko, Yamarnoto, & Yoshimoto, 2009).

Method

Participants

Sixty-one students at a small, private east-coast college (83% females) participated. Overall, 85% of the sample was Caucasian, 7% Asian, 3% African American, 3% Hispanic and 2% indicated "Other". They received course credit for their psychology classes in exchange for participation.

Procedure

Participants first completed the dog/owner matching task. Fourteen different types of purebred dogs and their owners were used for the study. Participants were shown a picture of one dog and six owners. One owner was the target and the other five were randomly drawn lures. Position of the target owner was randomly determined. Participants were given slips of paper numbered 1–6 and asked to rank order the owners from most to least likely to own the presented dog (see Roy & Christenfeld, 2005; Zajonc, Adelmann, Murphy, & Niedenthal, 1987, for studies using similar methods). To make the task slightly harder than in previous matching studies, participants were asked to match dog and owner on either personality or physical characteristics, randomly determined. Which cues the participants were asked to utilize for their matches, personality or physical characteristics, did not influence results and were therefore grouped together. Participants completed only one dog/owner matching trial to ensure that no pictures of potential owners were repeated and no one was given feedback on whether their choice was correct.

Next, participants read a paragraph that described dog and owner matching as either an easy or a hard task before assessing their own dog matching ability. In the easy condition, participants read that most people were very good at the task with only a small minority unable to perform the task (people that do not like dogs or have had little contact with dogs). In the hard condition, participants read that most people were not very good at the task with only a small minority able to perform the task (people that work extensively with dogs and owners). After reading the description, participants were asked to supply a self-assessment of their dog/owner matching ability using the same procedure as in the previous studies. Participants next rated how confident they were in their rating of their own ability and in the rankings they gave for the dog and potential owners on a scale from 1 (not confident) to 9 (very confidant).[5]

Results and discussion

Participants placed the correct owner in the first position 24.6% of the time, which is not significantly greater than a chance level of 16.7% correct, $\chi^2(1, n = 61) = 2.76$, $p = .096$.[6]

Participants in the two conditions – most are good ($n = 32$) or most are bad ($n = 29$) – did not differ in terms of gender ($\chi^2(1, n = 60) = 3.43$, $p = .06$) or age ($t(58) = 1.40$, $p = .17$). Additionally, neither gender nor age was related to ability ratings ($ps > .5$).

As predicted, the two groups did differ in their self-assessments: Those who were told that most were good at the task gave themselves higher ratings, $M = 53.2$ ($SD = 15.8$) relative to those who were told most were bad, $M = 36.4$ ($SD = 17.7$), $t(59) = 3.92$, $p < .001$, $d = 1.0$. Critically, self-assessments were not related with actual ability to match dog and owner together: A 2×2 ANOVA including whether or not participants made a correct match and condition (most are good or most are bad) indicates that ratings of ability were not related to whether or not participants made the correct match, $F(1,57) = .00$, $p = .99$, and there was no interaction between being correct and condition, $F(1,57) = .06$, $p = .81$. Since participants appeared to be unaware of whether or not they were actually good at the task, they relied on the descriptions of typical ability for their self-ratings.

[4] There was also no significant interaction between the manipulation and either importance or gender ($ps > .4$).

[5] After they were finished with this part of the experiment, participants completed the between subjects study reported in Study 2 with half supplying self-assessments and half supplying ability distributions for the 10 abilities.

[6] Because of an error in recording, only data on whether or not the correct dog was picked in the first position was available. Knowing what ranking was given the correct owner would have produced a more sensitive test of ability. This may explain why we did not replicate earlier findings that people are able to match purebred dogs and their owners together as these studies tend to have fairly small effect sizes (Payne & Jaffe, 2005; Roy & Christenfeld, 2004; Roy & Christenfeld, 2005; Sadahiko et al., 2009).

A lack of awareness of actual ability was reflected in confidence ratings with participants indicating that they were moderately confident in both their pick for the match ($M = 5.26$, $SD = 1.61$) and in their self-assessment of their ability ($M = 5.41$, $SD = 1.83$) on the nine-point scale. Whether or not participants picked the correct owner was not related to how confident they were in their pick, $t(59) = -0.74$, $p = .46$, $d = .22$, or how confident they were in their self-rating, $t(59) = -1.28$, $p = .20$, $d = .38$. Confidence in their pick and their ability was also not related to whether participants were told that most people were either good or most were bad at the task, $t(59) = 1.38$, $p = .35$, $d = .38$ and $t(59) = 1.69$, $p = .10$, $d = .43$ respectively. While confidence was not related to outcome or condition, those who tended to give themselves higher ratings of ability were more confident in their self-assessment of their ability and whether or not their pick was correct, $r(61) = .48$, $p < .001$ and $r(61) = .56$, $p < .001$ respectively.

As with the previous study, how the ability distribution was described influenced participants' self-assessments. There was a large difference between self-assessments when the task was described as being either easy or hard to perform. Participants with no or little knowledge of their ability – or that of others – appeared to rely on the supplied description of the distribution to help formulate their own ability assessments. When told that most were good they gave themselves a higher rating and when told that most were bad they gave themselves a lower rating. Note that even when they were told that most were very good at the task, participants were still uncertain about their abilities, rating themselves around the 50th percentile. It might have been expected that they would have given themselves a higher self-assessment if they only relied on the described distribution (most found it easy). Their uncertainty was reflected in ratings of only moderate confidence in their pick for the correct owner and their self-assessment of their ability. Regardless, the results indicate that the perceived ability distribution influenced self-assessment for a novel task.

General discussion

People tend to view their thoughts and feelings as prototypical (Karniol, 2003). However, people appear to indicate that they are falsely unique in their abilities, often much better or much worse than others (e.g. Dunning et al., 2004). Results from our studies indicate that these two views can, at least for certain skills, be reconciled. People rely, possibly too much, on prototypes when making judgments because it is easy to do so (Kahneman & Frederick, 2002). As a consequence, when the skill being rated has a skewed distribution, this tendency can lead to self-assessments that, on face value, appear to indicate a belief in the self as being falsely unique, but actually may indicate a belief in the self as being prototypical (modal). People rate themselves as above average on the skills for which they are likely to be above average.

Prototypical, not unique

We examined the relationship between participants' self-assessments and their perceptions of how the skills were distributed to determine whether or not they saw themselves as typical (modal). Participants in the first three studies, using three different methods of determining distribution shape and four different samples of participants, consistently scored themselves highest on skills they tended to describe as having negatively skewed distributions (most good) and lowest on skills they described as positively skewed (most bad). Overall, participants in all four samples (west coast, mid-west, east coast, and South Africa) were very similar in their self-assessments for the abilities and in their descriptions of the distributions. Further, results from Studies 2 and 3 indicated that participants, for the most part, see themselves as being near the mode of the distribution. These results can help explain why people at times rate themselves as better than average on common or easy tasks (Kruger, 1999; Moore, 2007a) and worse than average for hard or uncommon tasks (Kruger, 1999; Moore & Kim, 2003; Windschitl et al., 2003). Hard and easy tasks, almost by definition, have skewed distributions with the majority of people either good or bad at the task. The influence of perceived distribution on self-assessment appears to be causal. In Studies 4 and 5, participants that were told that the majority of others were good at the skill gave themselves higher ratings than those who were told that most were bad.

Karniol (2003) suggested that when people are predicting their own beliefs, they rely on a generic representation unless they have specific information that indicates that they are somehow distinctive on the behavior in question. The same process may be at work here: participants may have viewed their abilities as generic unless they were clearly distinct. Participants that only had one hand available to tie their shoes or were professional car racers would have a representation of themselves that was clearly distinct from others on these skills that would be activated when answering questions about their skill level. Others, who might not have a reason to define themselves as distinct, would simply use the prototypical representation.

These results offer an alternative reason to egocentrism or focalism as to why people seem to overestimate (underestimate) the chances of common (rare) events happening to them (Chambers et al., 2003; Kruger & Burrus, 2004). Common events, such as owning a car, and rare events, such as owning an airplane (Kruger & Burrus, 2004), are likely to have skewed distributions. Most are likely to experience the common event, while few are likely to experience the rare event (Moore, 2007a). People may be simply picking the prototypical likelihood when assessing their own potential future.

A tendency for people to view themselves as prototypical, and not unique, does not mean, however, that people are necessarily accurate in their self-perceptions. Since we did not measure actual ability, these studies cannot determine whether or not participants were correct in their self-assessments. It is quite possible that majority of the participants were not prototypical in their ability, they simply rated themselves as such because it was what was most easily brought to mind. In support, ratings of ability in Study 5 were related to the perceived ability distribution and not to actual ability. As has been found before, reliance on prototypes can lead to errors in judgment (Kahneman & Frederick, 2002).

Accuracy in perception of distribution shape

Our data suggest that participants seem to be fairly accurate in their perceptions of skill distributions. For the first three studies, involving four different populations, participants' perception of the skill distribution matched the distribution of their own self-assessments. However, these results should be interpreted with some caution since the distributions are based upon self-reports of skills and not behavioral measures. It is important to note, though, that previous research found that people were fairly accurate at describing and sensitive to varying distributions for a fairly wide range of phenomena (Griffiths & Tenenbaum, 2006; Nisbett & Kunda, 1985; Pettibone & Wedell, 2007; Smith et al., 1989; Wedell & Pettibone, 1999; Wedell et al., 2005). Indeed, population data for two of the skills support participants' self-reports. Driving ability appears to have a negatively skewed distribution, with a small minority (the very inexperienced, the very old, and the very chemically impaired) much more likely to be in an accident (Evans, 1991). Also, martial arts appear to have a positively skewed distribution with less than 3% of Americans participating in some sort of martial arts training (McGough, 2005). Overall, the results of the current studies are in line with findings that people have a fairly sophisticated, intuitive sense of environmental statistics (Fiedler & Juslin, 2006).

Discussion of methods and limitations

Here we used one method of eliciting self-assessments, a direct measure, and 10 specific skills. It is possible that our results are due to the specific nature of this particular paradigm or these particular skills.

Participants in these studies were asked to make a single direct comparison of their ability and the ability of others. While a large number of studies examining the better-than-average effect have used similar direct comparison techniques, others studies have found somewhat weaker better-than-average and worse-than-average effects using indirect methods of assessment with participants making one rating for themselves and another rating for an average other (see Alicke & Govorun, 2005; Chambers & Windschitl, 2004 for review). It is possible that skewed ability distributions could play a role in the results of studies using indirect measures. Studies that employ indirect methods often ask participant to assess the ability level of the average other. It is not clear how the participant determines the skill level of the average other and whether or not that person is closer to the mean, median or mode of the distribution. If the average other is considered to be near the mean or median, then skew in the distribution could create apparent better than average and worse than average results. The participant might at times realize that, in the case of a skill with a negatively skewed distribution, most are very good at the skill but lower their rating for an average other to account for the minority who are very bad. Participants would, correctly, see themselves as better than the average other when the distribution was negatively skewed and as worse than the average other when the distribution was positively skewed. In support, results from Study 2 indicate that participants do view their ability level as above or below the mean of their perceived ability distribution when the distribution was thought to be skewed.

Also, the skills examined in these studies are not a representative sample of all possible skills, raising potential problems in generalizing the results (Hogarth, 1981).[7] Further, some of the skills chosen for these studies, such as shoe tying and performing magic tricks, were chosen because they were likely to have very skewed distributions. These skills are somewhat different from the types of skills normally employed in most better-than-average and worse-than average studies because they are either overly commonplace, shoe tying, or overly rare, performing magic tricks. While they may be out of the norm, we feel that they offer two added benefits to this study. First, they help give insight into the underlying cognitive processes likely used to form the self-assessments. In the case of shoe tying, for example, the extremely high self-assessment for shoe tying can easily be accounted for by the self as prototypical explanation, but less so by motivational explanations for the better than average effect (e.g., Armor & Taylor, 1998; Taylor & Brown, 1988). It seems unlikely that people would bolster their self-image through a misguided belief about their superior shoe tying ability; people rarely bring up their shoe tying ability as a point of emphasis in job interviews or first dates.

Second, using less studied skills such as shoe tying also helps to give us more insight into commonly studied skills such as driving – a skill often used as the prototypical example for the better-than-average effect (Moore, 2007a). Our participants rated themselves in the 60th and 70th percentile for driving ability, much like participants in previous studies (Lajunen & Summala, 1995; Svenson, 1981; Waylen, Horswill, Alexander, & KcKenna, 2004; Williams, 2003). Taken alone, this would seem to provide strong support to self-enhancement explanations. However, these same participants also rated themselves in the 70th, 80th, and even 90th percentile for shoe tying, indicating that the self as prototypical explanation for shoe tying would likely describe the results for driving as well.

The majority of the skills used in these studies are public and easy to judge; the type of skills that people are likely to know the skill distribution. While the high correlation between perceived skew and self-assessments held for most of the skills scored in these studies, it did not hold for perceiving emotion. There was a clear false uniqueness effect for this skill with most participants indicating that they were on the high tail of what they believed to be a normal distribution. Although it is possible that the US and South African participants were very emotionally astute, it seems unlikely. Instead, it is possible that detecting emotion is somehow distinct from the other skills measured here – detecting emotion seems to have more personality trait characteristics than the other skills assessed in our studies. Previous research has found robust better-than-average effects for personality traits such as ambition and social perception (Dunning & Cohen, 1992; Dunning & McElwee, 1995; Dunning et al., 1989). A number of personality traits are less visible and hard to judge (Vazire, 2010). Because participants are not able to as easily judge others on these types of skills, they may be unaware of the actual distribution and how they compare. Consistent with this notion, research indicates that participants are most likely to be egocentric in their comparisons to others when they have little information about the beliefs and traits of others (Kruger et al., 2008). When people do not have information about the ability of others, such as when the skill is private or novel, they may rely on other strategies when assessing their relative abilities. For example, they may use their own absolute ability as the basis for their comparative rating (Kruger et al., 2008) or they may be more conservative and regressive when assessing the likely ability of others (Moore & Cain, 2007). Or, as indicated by Study 5, people may be willing to use information supplied by others (e.g., an experimenter) about the ability distribution – especially when they have little or no knowledge about other's ability.

It is also possible that detecting emotion might have received better-than-average ratings because it was more important to participants' self-concept. Since it was important to participants to be seen as good at that skill, both in their own eyes and the eyes of others, participants may have been more likely to believe that their ability to detect emotion was superior (Alicke, 1985; Sedikides et al., 2005). Research indicates that people may be more likely to rate themselves as similar to others when the task is unimportant to them and different from others when the task is important (Tesser, 1988). However, the skill's importance cannot account in full for the effects found here: in Study 2, other skills were deemed equally important but did not receive ratings higher than the mode. Further, manipulating the skill distribution in Study 4 influenced self-assessment for dancing ability, but not the importance of the skill to the participants' self-concept.

It appears that at times, such as with detecting emotion, the relative judgments of traits and ability that are frequently used in self-assessment studies might indicate actual false uniqueness beliefs. However, if a claim is being made that people are biased in their self-perception, distorting reality to see themselves as unique, then a clear false uniqueness effect should also exist for skills where it is easy for participants to judge the ability level of others. It would not seem that false uniqueness should be limited only to

[7] It should be noted that, in this regard, this study is similar to other better-than-average and worse-than-average studies; no study that we are aware of employed a random sample of skills. Also, like our study, the majority of previous studies used skills that were thought likely to result in better-than-average and worse-than-average ratings.

cases where it is hard to judge the person's skill level, such as detecting emotion, or where participants do not have access to the distribution, such as ability on novel laboratory tasks. It may be that different cognitive processes are used when assessing comparative ability when the skill distribution is known and when it is unknown. However, these studies indicate that people are likely to view their own ability level as being prototypical when the skills are public and easily observable or when they are given distributional information. Further, this relationship appears to be causal with shifts in perceived prototypical ability leading to shifts in self-assessments.

Our results illustrate the importance of taking into account the full, perceived distribution of ability on a task when examining people's self-assessments. The methods employed in this paper could be useful for future researchers to discover the types of skills that lead to "self as prototypical" ratings and those that lead to potential "self as unique" ratings.

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