International Journal of Psychology

International Journal of Psychology, 2020
DOI: 10.1002/ijop.12733

I can see myself helping: The effect of self-awareness on prosocial behaviour

Jerome Anthony Lewis[1], Zachary M. Himmelberger[2], and J. Dean Elmore[3]

[1]Bellevue University, Bellevue, NE, USA
[2]Maryville College, Behavioral Sciences Division, Maryville, TN, USA
[3]Benedictine College, Department of Psychological Sciences, Atchison, KS, USA

Many studies indicate that increasing self-awareness leads to individuals reflecting on their values and ideals (Silvia & Duval, 2001). This self-reflection appears to increase prosocial behaviour (Berkowitz, 1987). However, previously studies typically manipulated self-awareness in situations in which the individual may have felt pressure from the researcher to help. Thus, experimenter pressure to behave prosocially confounds the self-awareness explanation provided in past research. We used a novel experimental paradigm to manipulate self-awareness and remove the researcher's presence to decrease the likelihood that the participant would conform to experimenter demand. Participants were 36 college students (M_{age} = 19.52; 25 women). The results indicated a strong probability that the experimental condition participants were more prosocial than control condition participants. These findings provide additional support for the hypothesis that self-reflection increases prosocial behaviour, even without experimenter demands. These findings and the importance of studying objective self-awareness in light of the coronavirus are discussed.

Keywords: Objective self-awareness theory; Experimenter demand; Self-presentation; Prosocial behaviour.

People help for many reasons. One laudable reason is adherence to one's own salient moral ideals. However, people rarely help without others watching (Batson et al., 1997; Chou et al., 2020). Although many studies indicate that raising self-awareness can lead to prosocial behaviour (e.g., Pfattheicher & Keller, 2015; Scheier & Carver, 1977), the question remains about whether this is due to altruistic motives or social pressure. On one hand, heightened self-awareness may increase the likelihood of helping by reminding the individual of their own moral principles (Batson et al., 1999). On the other hand, self-presentational concerns can lead people to behave in ways that are viewed as socially appropriate. In this case, people may help because they feel social pressure. Whereas previous research indicates that both temporary manipulation of and individual differences in self-awareness influence prosocial behaviour (see Silvia & Duval, 2001 for a review), few studies have directly examined whether it is experimenter demands rather than heightened self-awareness that ultimately leads to prosocial behaviour.

Objective self-awareness theory (OSA) posits that self-focused attention initiates a self-evaluation process wherein the self is compared to relevant standards, or mental representations of appropriate or correct behaviour (Duval & Wicklund, 1973; Silvia & Duval, 2001). If the self is found to be discrepant with the standards, then, the individual becomes motivated to establish consistency between self and standards, which leads to behavioural change. This self-standard comparison appears to be central to the well-established observation that heightened self-awareness increases prosocial behaviour. For example, Batson et al. (1999) found that heightened self-awareness (as aroused by the presence of a mirror) led to more prosocial behaviour, but only if a moral standard was first made salient. When the standard

Correspondence should be addressed to Jerome Anthony Lewis, Bellevue University, 1000 Galvin Road South, Bellevue, NE 68005. (E-mail: jerome.lewis@bellevue.edu)

The authors would like to thank Lili Rafalski, Taylor Leonard, Maddie Bagci, and Ginny Lyne Guisadio for their help in recruiting participants and collecting data.

Jerome Anthony Lewis is the first author. He conceptualized the study and designed the procedures. He also wrote the introduction and discussion sections. Zachary M. Himmelberger is the second author. He collected, analyzed, and interpreted the data. He also wrote the method and results. Dean Elmore is third author. He was heavily involved in revising the manuscript and providing important intellectual content.

© 2020 International Union of Psychological Science

was not made salient, increasing self-awareness did not promote greater prosociality beyond baseline. Thus, to the degree that such behaviour is seen as valuable or moral, increasing self-awareness should orient people toward prosocial behaviour when relevant standards are accessible.

Although self-standard comparison and the salience of standards are essential to the relationship between prosocial behaviour and heightened self-awareness, various situational factors may play a role in whether prosocial behaviour will occur. For instance, when thinking about death, heightened self-awareness can decrease the likelihood of helping when it leads to self-focused anxiety (Arndt et al., 1998) or, more typically, increase the likelihood of helping when it leads to greater other-focused cognitions or focusing on self-transcendent values such as universalism and benevolence (Hirschberger, 2010). In addition, whereas a positive mood increases prosocial behaviour under conditions of heightened self-awareness, a negative mood decreases prosocial behaviour (Berkowitz, 1987).

Individual and cultural differences may also affect the relationship between heightening self-awareness and prosocial behaviour (Joireman & Duell, 2005). For instance, Joireman and Duell (2007) found evidence that individuals with low levels of self-transcendent values showed a greater increase in prosocial behaviour after experiencing heightened self-awareness than individuals with high self-transcendent values. In addition, cross-cultural research indicates that those from collectivistic cultures have higher baseline other-focused levels than individualistic cultures. This difference leads those from collectivistic cultures to be relatively unaffected by self-awareness primes that are well-replicated in individualistic cultures (e.g., Shinohara & Yamamoto, 2016). Thus, the relationship between self-awareness and prosocial behaviour may depend on more transient influences (e.g., morality salience) as well as more enduring ones (e.g., culturally derived beliefs of the individual).

Further complicating the relationship between self-awareness and prosocial behaviour, other research indicates that many people may only desire to be *seen* as altruistic and may not behave prosocially when there is no one around to witness their acts of kindness (Batson et al., 1997). From this perspective, increased prosociality under conditions of OSA is the result of self-presentational processes. In other words, if participants know that they are being asked to behave prosocially and that the researcher is observing their behaviour, then they might behave altruistically to appear to comply with societal norms (Kleck & DeJong, 1983 For example, Berkowitz (1987) found that raised self-awareness using written prompts and a mirror task was related to changes in helping behaviour. However, Berkowitz's experimental design required the participants to respond to a face-to-face request for aid from the experimenter. Berkowitz noted that nearly every participant agreed to help (94 out of 108, study 1; 57 out of 60 in study 2), even though there were significant differences in effort between experimental conditions. Thus, experimenter demands, and not raised self-awareness, may have been the primary reason participants helped. Indeed, past research shows that people are less prosocial (and more selfish) than they might otherwise be when experimenter demands have been removed, both in laboratory (Batson et al., 1999) and field settings (Bekkers, 2007).

Objective self-awareness theory has been replicated numerous times since its conception. However, many of the previous studies regarding the influence of OSA on prosocial behaviour have failed to systematically remove self-presentation effects. Yet, given the numerous studies showing that activation of self-awareness leads to thinking about one's personal values, it is still likely that an OSA explanation of prosocial behaviour will still be supported when self-presentation effects are removed. Thus, the present study will test two opposing explanations of prosocial behaviour. If prosociality in past research is indeed the result of heightened self-awareness, then increasing self-awareness in the absence of experimenter demand characteristics should lead to more prosocial behaviour. One plausible explanation for this relationship is that heightened self-awareness activates moral ideals which increases the likelihood that people will be motivated to help. On the other hand, if prosocial behaviour in past OSA studies is due to self-presentational concerns, then we should expect to see no differences between the experimental and control conditions when experimenter demand characteristics are removed.

METHODS

Participants

Participants included 36 college students aged 18–26 years old ($M = 19.52$, $SD = 1.48$; 25 females, 11 males). The participants were recruited from psychology courses and received extra credit toward their course grade.

Materials and procedure

Participants were told that they were participating in a study examining cooperative problem-solving skills. When the participants first arrived, they were informed that they had arrived before their partner, but that they could complete the consent form and practice the task while they waited. The task consisted of reading a

© 2020 International Union of Psychological Science

coded sheet of paper and decoding it using a cipher key. They were told that in the actual study, they and their partner would sit on opposite sides of the room and complete the task cooperatively, with one person reading the coded sheet aloud and the other decoding the cipher. They were led to believe that they would switch jobs, and seats, for each trial until every trial was complete.

Participants were told that all trial answers would be marked and put into a discrete envelope to be reviewed by another researcher to prevent a pairing of the participants' answers with the participants. This was ostensibly a way to protect the identity of the participants, but it was actually a way to avoid experimenter demand to help the other participant.

Participants were randomly assigned to one of two conditions. In the experimental condition ($n = 18$), the key was written at approximately eye-level in marker on a mirror. Participants were made to look at themselves when doing the task. In the control condition ($n = 18$), participants saw the key written at approximately eye-level on the back-side of the mirror, a non-reflective plastic surface.

After the participant spent 5 minutes practicing the task, the researcher returned, asked the participant to come out of the room, and told them that the other person could not make it on time because they were in a minor "fender bender." The participant was also told that the other person was not hurt, would participate in the study later that day, and that each participant could be in the "control group" instead, which would involve solving the ciphers on their own. Finally, the participant was told that they could take the complete set of ciphers that was to be completed cooperatively, fill out as many ciphers as they wanted to complete, and that the other participant could complete the remaining ciphers when they arrived. Participants were told that any ciphers they did not solve would be completed by the other person. In this way, participants were given the option to help the other person by reducing the amount of work that they would later have to perform. Participants were then left alone to work on the ciphers and were instructed to inform the experimenter when they were finished and ready to leave. At that point, they were debriefed about the deception and given the option to exclude their data from the analysis (although no one did). The researcher's script can be found in Appendix S1, Supporting Information.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Maryville College Institutional Review Board and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual adult participants included in the study.

Data analysis plan

We modelled the data using a Bayesian framework (see O'Hagan, 2004 for a non-technical introduction). Bayesian modelling starts with two inputs: a prior distribution and the observed data. The prior distribution assigns a probability to all possible values of the parameter. A Bayesian model outputs a new probability to all values of the parameter that has been updated using the observed data. This output is called a posterior distribution. Bayesian models have two advantages over frequentist models. First, the posterior distribution provides valuable information about all parameter values, not just the value of the null hypothesis. This has the effect of discouraging significance testing and instead focusing on a more quantitative and nuanced interpretation of the findings. Second, Bayesian models do not rely on asymptotic distributions. Therefore, the results can still be accurate in cases where the sample size is small. However, the prior distribution can have a disproportionately large impact on the results when there is less data. To test the robustness of our choice of prior, we repeated our analysis using a different prior distribution.

To model the number of ciphers completed by each group, we created an index variable to represent each condition. This allowed us to model each group mean explicitly. We assumed that the errors would be independently and normally distributed and that the population variances were equal. Because this is a novel methodological approach, we chose to use weakly informative priors, as recommended by O'Hagan (2004). The formal model can be expressed as:

$$\begin{aligned} \text{ciphers}_i &\sim \text{normal}\ \left(\mu_i, \sigma\right)\ \mu_i = \alpha_{\text{experimental}} \\ &\quad + \alpha_{\text{control}}\alpha \sim \text{normal}\ (10, 5) \quad \text{bounded at } 0, 20 \\ &\quad \sigma \sim \text{half} - \text{Cauchy}\ (0, 2.5.) \end{aligned}$$

where the first line describes the likelihood, the second line describes the linear model, and the remaining two lines describe the prior distribution for each parameter. These priors corresponded to expected means for each group to be normally distributed around 10 ciphers, with bounds set at 0 and 20. This restricted the possible values to be within the possible range given the experimental design. This prior reflects the belief that, on average, participants would complete about half of the ciphers in the set meant for two people, although it also suggests low certainty in that prediction. A normally distributed prior also regularises the estimate by placing more probability around the mean and less in the tails of the distribution. The half-Cauchy prior was chosen for the error term because it tends to yield reasonable results at low parameter values and is only weakly informative at higher values (Gelman, 2006). The model estimates were fitted using the BRMS package (Bürkner, 2017) in R. We obtained

© 2020 International Union of Psychological Science

Table 1
Summaries from posterior distribution of ciphers solved

Condition	*Mean (SD)*	*95% Credible interval*
Mirror	13.98 (1.25)	11.50, 16.40
Control	11.04 (1.22)	8.62, 13.46
Experimental effect	2.94 (1.75)	−0.54, 6.29
Cohen's *d*	0.56 (0.33)	−0.07, 1.23
Sigma	5.37 (0.66)	4.16, 6.67

The credible interval was calculated using the highest probability density; CLES = common language effect size; *SD* = standard deviation.

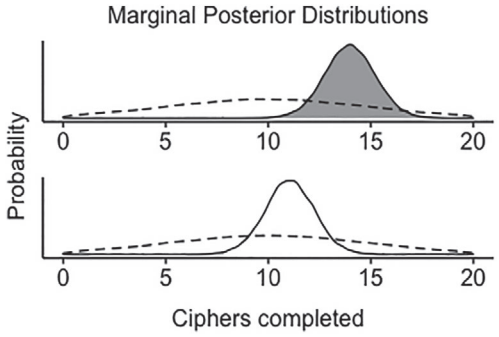

Figure 1. Marginal posterior distribution for each condition. *Note*. The dotted line shows the prior distribution and the solid area shows the marginal posterior distributions for the experimental (top) and control (bottom) conditions.

32,000 samples from four Markov Chain Monte Carlo algorithm chains.[1]

RESULTS

The model estimates are summarised in Table 1. We took the difference between the group means as a measure of the experimental effect. The results revealed that the most likely estimate for the experimental effect was 2.94 with 75% of the probability clustered between 1.02 and 5.01. The model suggests a 95.5% probability that the OSA hypothesis (i.e., an experimental effect greater than zero) is correct. See Figures 1 and 2. We calculated Cohen's *d* as a measure of effect size. The results revealed that the most probable value for Cohen's *d* is 0.56. Furthermore, there is a strong probability (∼86%) that the effect is at minimum a medium effect size (>20).

In order to test the robustness of our results, we used two alternative Bayesian analyses: we conducted the same test using uninformative priors and we used our original priors but did not assume that the groups had equal variance. The point estimates, credible intervals and interpretations were similar across all Bayesian models. This suggests that our assumption of equal variance and our use of weakly informative priors did not unduly influence the results and provides additional confidence in the robustness of our findings. As a third alternative, we conducted an independent samples *t*-test to compare group means. Because we had a directional hypothesis, we used a one-tailed significance test. The results revealed a statistically significant difference between the group means with a medium effect size, $t(34) = 1.76$, $p = .044$, $d = 0.59$, which was consistent with our Bayesian model.

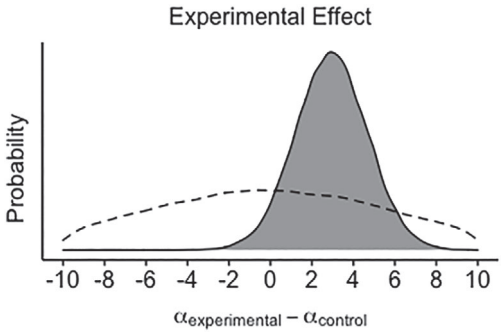

Figure 2. Marginal posterior distribution for experimental effect. *Note*. The dotted line shows the prior distribution and the shaded area shows the posterior distribution.

DISCUSSION

We tested the hypothesis that heightened self-awareness would induce helping behaviour. We created a procedure to convince participants that they were helping a fellow college student by solving ciphers. Whereas the experimental group completed the puzzles while viewing their reflection in a mirror, the control group did not see their reflection as they progressed through the study procedures. The results indicated that participants in the experimental group completed more ciphers than those in the control group, supporting our hypothesis and OSA more broadly. Importantly, because the study protocols did not involve a direct request for help, we can be more confident in attributing the observed differences in prosocial behaviour to differences in self-awareness rather than experimenter demand characteristics.

We employed a novel method of heightening self-awareness that serves to support and extend past research on OSA. Specifically, in other studies using a mirror manipulation, participants were not made to look at the mirror in a systematic way (e.g., Carver & Scheier, 1978), thus, making it unclear whether they attended to the mirror and, if they did, to what extent. People can switch rapidly from attending to the self as a subject to attending to the self as an object (Geller & Shaver, 1976), so in designing the current study, we

[1]The R script and the raw data are available here: https://github.com/ZacharyHimmelberger/I-can-see-myself-helping.

© 2020 International Union of Psychological Science

sought to ensure that participants were exposed to the mirror in a consistent and ongoing way. Because participants in the experimental condition were required to repeatedly look at themselves in the mirror to solve the ciphers, we can have greater confidence that their self-awareness was heightened for most of the experiment, which we assume led to the observed differences.

In previous studies, helping was operationalised as providing assistance after completing the initial experimental task. In our paradigm, helping was an extension of the task. Thus, there is an additional advantage to our experimental design: our measure reflects the continuum of prosocial behaviour. Whereas participants could have completed all the ciphers, exhibiting maximal prosocial behaviour, participants could also have engaged in social loafing by leaving all 20 ciphers for the other person. Indeed, some participants completed all ciphers and others completed as few as three. Importantly, the decision to help was ongoing and concurrent with heightened self-awareness, which is fundamentally different than previous studies.

One plausible explanation for why heightened self-awareness leads to prosocial behaviour is that in helping situations, self-focus can cause individuals to reflect on their moral values, which initiates self-evaluative processes that lead to changes in behaviour (Batson et al., 1997; Batson et al., 1999). However, in this study, we did not manipulate the salience of moral standards, nor did we attempt to account for other explanations for why heightened self-awareness leads to helping (e.g., because helping reduces personal distress; Cialdini et al., 1987). Although we did not deliberately highlight standards in the current study, it seems reasonable to think that aspects of the study procedures could have brought participants' moral standards to mind, thereby affecting behaviour. For example, it is possible that learning about the other student's ostensible misfortune served as a cue for standards related to prosociality, which led participants to complete more ciphers when given the opportunity to do so as a way of reducing the other student's research burdens. Future research utilising this paradigm should investigate whether manipulating the salience of moral standards produces a stronger or more consistent prosocial response among participants who have been induced into a self-focused state.

Our study's design could provide another test of whether using a mirror to heighten self-awareness leads to cultural differences in prosocial behaviour. For instance, several studies have found that mirrors do not seem to raise self-awareness to the same degree for individuals from collectivistic cultures as individuals from individualistic cultures (e.g., Heine et al., 2008; Shinohara & Yamamoto, 2016). However, in these studies, as in previously mentioned studies, the mirror manipulation did not require participants to look in the mirror directly while performing the task. Thus, using our design could provide additional insight into whether members of collectivistic cultures are less prone to engage in objective self-awareness when exposed to their own reflection or whether they require a more salient presentation of the own reflection.

Despite its limitations, the current study provides important evidence regarding the effects of self-awareness on prosocial behaviour. The design that we implemented helps to confirm past research that indicates that people are more likely to behave prosocially after viewing themselves as social objects and further suggests that this boost in prosociality represents more than just self-presentational processes. The question of how self-awareness impacts behaviour continues to be a relevant concern, especially in the context of the broad-scale societal changes brought about by the COVID-19 pandemic. This unique event has heightened concerns about social distancing and has caused many individuals to adopt mask-wearing as a daily practice. Past research indicates that wearing masks decreases self-awareness (e.g., Mullen et al., 2003), which can increase the likelihood of selfish behaviour (Miller & Rowland, 1979). However, it is unclear whether similar effects will occur when the individual has chosen to wear a mask for ostensibly prosocial reasons (i.e., to slow the spread of the virus). People may also be more likely to view themselves as social objects as a result of the increased use of video-conferencing software. Although one would assume that this would lead to more prosocial behaviour, past research suggests that heightened self-awareness may lead to greater egoism when thoughts about death are salient (Arndt et al., 1998) or when the individual is in a negative mood state (Berkowitz, 1987), both of which are plausible under pandemic conditions. Thus, there are a variety of applications of OSA theory to the current societal circumstances that warrant consideration, and understanding how we can raise self-awareness in ways that can lead to prosocial behaviour has self-evident utility. This study provides a new, tightly controlled design for heightening self-awareness that could further advance research examining the self.

Manuscript received July 2020
Revised manuscript accepted November 2020

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix S1. Script for Conducting the Experiment

REFERENCES

Arndt, J., Greenberg, J., Simon, L., Pyszczynski, T., & Solomon, S. (1998). Terror management and self-awareness: Evidence that mortality salience provokes avoidance of the

© 2020 International Union of Psychological Science

self-focused state. *Personality and Social Psychology Bulletin*, *24*, 1216–1227.

Batson, C. D., Kobrynowicz, D., Dinnerstein, J. L., Kampf, H. C., & Wilson, A. D. (1997). In a very different voice: Unmasking moral hypocrisy. *Journal of Personality and Social Psychology*, *72*, 1335–1348.

Batson, C. D., Thompson, E. R., Seuferling, G., Whitney, H., & Strongman, J. A. (1999). Moral hypocrisy: Appearing moral to oneself without being so. *Journal of Personality and Social Psychology*, *77*, 525–537.

Bekkers, R. (2007). Measuring altruistic behavior in surveys: The all-or-nothing dictator game. *Survey Research Methods*, *1*(3), 139–144.

Berkowitz, L. (1987). Mood, self-awareness, and willingness to help. *Journal of Personality and Social Psychology*, *52*(4), 721–729.

Bürkner, P. (2017). Brms: An R package for Bayesian multilevel models using Stan. *Journal of Statistical Software*, *80*(1), 1–28. https://doi.org/10.18637/jss.v080.i01

Carver, C. S., & Scheier, M. F. (1978). Self-focusing effects of dispositional self-consciousness, mirror presence, and audience presence. *Journal of Personality and Social Psychology*, *36*(3), 324–332. https://doi.org/10.1037/0022-3514.36.3.324

Chou, E. Y., Hsu, D. Y., & Hernon, E. (2020). From slacktivism to activism: Improving the commitment power of e-pledges for prosocial causes. *PLoS One*, *15*(4), e0231314.

Cialdini, R. B., Schaller, M., Houlihan, D., Arps, K., Fultz, J., & Beaman, A. L. (1987). Empathy-based helping: Is it selflessly or selfishly motivated? *Journal of Personality and Social Psychology*, *52*(4), 749–758.

Duval, T. S., & Wicklund, R. A. (1973). Effects of objective self-awareness on attributions of causality. *Journal of Experimental Social Psychology*, *9*, 17–31.

Geller, V., & Shaver, P. (1976). Cognitive consequences of self-awareness. *Journal of Experimental Social Psychology*, *12*, 99–108.

Gelman, A. (2006). Prior distributions for variance parameters in hierarchical models. *Bayesian Analysis*, *1*(3), 515–534. https://doi.org/10.1214/06-ba117a

Heine, S. J., Takemoto, T., Moskalenko, S., Lasaleta, J., & Henrich, J. (2008). Mirrors in the head: Cultural variation in objective self-awareness. *Personality and Social Psychology Bulletin*, *34*(7), 879–887.

Hirschberger, G. (2010). Compassionate callousness: A terror management perspective on prosocial behavior. In M. Mikulincer & P. R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature (p. 201–219)*. American Psychological Association.

Joireman, J. & Duell, B. (2005). Mother Teresa versus Ebenezer Scrooge: Mortality salience leads proselfs to endorse self-transcendent values (unless proselfs are reassured). *Personality and Social Psychology Bulletin*, *31*(3), 307–320.

Joireman, J. & Duell, B. (2007). Self-transcendent values moderate the impact of mortality salience on support for charities. *Personality and Individual Differences*, *43*(4), 779–789.

Kleck, R. E., & DeJong, W. (1983). Physical disability, physical attractiveness, and social outcomes in children's small groups. *Rehabilitation Psychology*, *28*(2), 79.

Miller, F. G., & Rowland, K. L. (1979). Halloween masks and deindividuation. *Psychological Reports*, *44*, 422.

Mullen, B., Migdal, M. J., & Rozell, D. (2003). Self-awareness, deindividuation, and social identity: Unraveling theoretical paradoxes by filling empirical lacunae. *Personality and Social Psychology Bulletin*, *29*(9), 1071–1081.

O'Hagan, A. (2004). Bayesian statistics: Principles and benefits. *Frontis*, *3*, 31–45.

Pfattheicher, S., & Keller, J. (2015). The watching eyes phenomenon: The role of a sense of being seen and public self-awareness. *European Journal of Social Psychology*, *45*(5), 560–566. https://doi.org/10.1002/ejsp.2122

Scheier, M. F., & Carver, C. S. (1977). Self-focused attention and the experience of emotion: Attraction, repulsion, elation, and depression. *Journal of Personality and Social Psychology*, *35*, 625–636.

Shinohara, A., & Yamamoto, S. (2016). Mirrors have a modest effect on human impulsivity. *Letters on Evolutionary Behavioral Science*, *7*(1), 25–28.

Silvia, P. J., & Duval, T. S. (2001). Objective self-awareness theory: Recent progress and enduring problems. *Personality and Social Psychology Review*, *5*(3), 230–241.

© 2020 International Union of Psychological Science