Journal of Experimental Social Psychology 77 (2018) 102–116

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

Understanding dehumanization: The role of agency and communion

Magdalena Formanowicz[a,*], Amit Goldenberg[b], Tamar Saguy[c], Agnieszka Pietraszkiewicz[a], Mirella Walker[d], James J. Gross[b]

[a] Psychology Department, University of Bern, Switzerland
[b] Psychology Department, Stanford University, USA
[c] Psychology Department, Interdisciplinary Center (IDC) Herzliya, Israel
[d] Psychology Department, University of Basel, Switzerland

ARTICLE INFO

Keywords:
Agency
Communion
Big two
Dehumanization
Human rights

ABSTRACT

Dehumanization is the denial of full human potential to an individual or a social group. Although it is widely seen as a grave social ill, the psychological roots of dehumanization are not yet clear. In the present research, we examined the role of agency and communion. These dimensions are pivotal to how we perceive other people, and we hypothesized that they might be crucial to viewing people as fully human. In eight experiments, we manipulated agency or communion using either videos of interacting geometric shapes, or by manipulating static images of faces showing different degrees of agency and communion. Participants rated the degree of humanness of presented targets. Across the studies and in meta-analyses ($N = 758$ for agency and $N = 776$ for communion), agency but not communion had systematic effects on the ratings of humanness. Therefore, granting agency might limit dehumanization.

Since the horrors of World War II, researchers have attempted to explain what leads people to dehumanize others (e.g., Kelman, 1973; Stoecker, 2011). This is an important issue because dehumanization affects many groups and can have detrimental effects for the dehumanized targets (Haslam, 2006). In this article, we ask whether subtle cues conveying information about targets' agency or communion affect dehumanization processes. Agency refers to striving to achieve one's goals, whereas communion refers to bonding with others and creating meaningful and stable social relations (Abele & Wojciszke, 2014). We focus on agency and communion because these two dimensions are known to be crucial to social perception (Abele & Wojciszke, 2014), and therefore, also may be essential to perceiving others as fully human.

We consider this investigation important because in prior work on dehumanization, the role of agency and communion has been assumed, rather than tested directly (e.g., Harris & Fiske, 2006; Haslam, 2006). Our aim here is to directly test the role of agency and communion in dehumanization. Building on previous knowledge and verifying previous theorizing is crucial to eventually deepen the understanding of dehumanization. Knowing which factors drive dehumanization is critical to identifying effective ways to address this social phenomenon.

1. The ubiquity and impact of dehumanization

Dehumanization is defined as the denial of full human potential to an individual or a social group (for reviews see Haslam, 2006; Haslam & Loughnan, 2014). The detrimental effects of dehumanization are both diverse and profound, including increased aggression (Bandura, Underwood, & Fromson, 1975), increased prejudice and discrimination (Vaes, Paladino, Castelli, Leyens, & Giovanazzi, 2003), decreased helping (Cuddy, Rock, & Norton, 2007), and decreased support for policies in favor of dehumanized groups (Costello & Hodson, 2011). In extreme circumstances, dehumanization has been associated with mass killings (Bar-Tal, 1990; Opotow, 1990), including those of Jews during the Holocaust and Tutsis during the Rwandan genocide. Another important consequence of dehumanization is that those who feel dehumanized tend to reciprocate dehumanization (Kteily, Hodson, & Bruneau, 2016). Thus, both dehumanizing others and feeling dehumanized have negative consequences and can contribute to the escalation of conflict.

The importance of dehumanization has led to a number of efforts to clarify who might be dehumanized. Several potential targets have been identified such as the homeless (Harris & Fiske, 2006), the poor, and the unemployed (Cuddy, Fiske, & Glick, 2008), women (Bernard, Gervais, Allen, Campomizzi, & Klein, 2012), individuals from lower social classes (Loughnan, Haslam, Sutton, & Spencer, 2014), the elderly (Wiener, Gervais, Brnjic, & Nuss, 2014), immigrants (Costello & Hodson, 2011), Black Americans (Goff, Eberhardt, Williams, & Jackson, 2008), medical patients (Haque & Waytz, 2012), detainees in police

* Corresponding author at: Department of Psychology, University of Bern, Fabrikstrasse 8, CH-3012 Bern, Switzerland.
E-mail address: magda.formanowicz@gmail.com (M. Formanowicz).

https://doi.org/10.1016/j.jesp.2018.04.003
Received 22 November 2017; Received in revised form 27 March 2018; Accepted 6 April 2018

operations (Bandes, 1999), and victims of mobbing and bullying at school or work (Sloan, Matyók, Schmitz, & Lester Short, 2010). This research has focused on particular instances of dehumanization defined by a particular array of historical, social, and political factors. However, the variety and number of dehumanized groups implies that a search for similarities between these groups may indicate some of the basic psychological mechanisms involved in dehumanization.

2. Toward a general account of dehumanization

In order to address dehumanization in a more general way, several theoretical accounts have been developed (for reviews see Haslam & Loughnan, 2014; Li, Leidner, & Castano, 2014). One approach features a simple context-independent, general construct of dehumanization, referred to as a blatant dehumanization (Kteily, Bruneau, Waytz, & Cotterill, 2015), which aims to capture the continuity of how human-like people seem. It uses a one-item measure, called the Ascent of Man, which is based on pictures that represent the evolution of human beings. The scale ranges from 0 *least evolved* accompanied by the picture of an ape to 100 *most evolved* accompanied by the picture of a human. This simple scale intuitively addresses the core of dehumanization; that is, the extent to which humanness is denied to a target. Yet, using this measurement tool does not address the question of what the key psychological constructs might be that stand at the base of dehumanization.

Other general accounts of dehumanization have tried to address the factors that determine when humanness is granted or denied. Infra-humanization theory has focused on human essence, that is the basic underlying substance defining the identity or nature that makes people unique from other species (Leyens et al., 2000). Infra-humanization theory suggests that one's ingroup is seen as the standard of humanness and that humanness of other groups would be judged in relation to that standard. One particularly well-studied element of the human essence refers to the ascriptions of emotions (Leyens et al., 2000; Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007). Infra-humanization theory states that one way to differentiate between how people think of their own group and other groups is by investigating the type of emotions ascribed to these groups. While outgroups are mostly ascribed with basic emotions that are shared with animals, such as rage, fear, surprise, and pleasure, an ingroup is ascribed with primary as well as secondary, uniquely human emotions, such as tenderness, love, hope, guilt, and shame (Cortes, Demoulin, Rodriguez, Rodriguez, & Leyens, 2005; Demoulin et al., 2004). The ability to feel emotions is an important dimension of perceiving mental life (Gray, Gray, & Wegner, 2007; Weisman, Dweck, & Markman, 2017). Yet, it is neither the only, nor primary, dimension, suggesting other general factors may also contribute to dehumanization processes.

Haslam's (2006) Dual Model of Dehumanization provides a theory of dehumanization that captures a larger variety of human-related attributes. Haslam divides these attributes into two dimensions: those which are central though not exclusive to humans (Human Nature-HN), and those which distinguish humans from non-human animals (Uniquely Human-UH). HN traits include emotional responsiveness, cognitive openness, depth, agency, individuality, and warmth. UH traits include moral sensibility, rationality, logic, maturity, refinement, and civility. Haslam's approach is valuable because it provides a general overview of key traits related to humanness (for review see Haslam & Loughnan, 2014). Moreover, the corresponding types of dehumanization: animalistic, defined as the denial of UH and mechanistic, defined as the denial of HN, had the metaphorical leverage to instigate a lot of research on dehumanization. However, it remains unknown whether all of the hypothesized elements of HN and UH do form an assumed two-factor solution.

One study that started to examine specific elements of Haslam's model focused on the connection between morality and cognition (hypothesized to belong to the UH) to the perception of HN and UH (Haslam, Bain, Douge, Lee, & Bastian, 2005, Study 1). The results indicated that, contrary to the model of dehumanization (Haslam, 2006), cognition correlated positively to HN while both cognition and morality were uncorrelated to UH. Moreover, for scales based on Haslam and Bain (2007), low reliability coefficients are common (e.g., Gwinn, Judd, & Park, 2013; Lammers & Stapel, 2011 and Saguy et al., 2015). These findings suggest that those scales may include items that are not really related to the concepts of HN and UH. Therefore, more work has to be done in order to examine whether and to what extent the elements of the HN and UH do contribute to the humanness ascriptions. In the present research, we ask whether ascribing humanness to others may be linked to two other parts of Haslam's model, namely agency and communion (warmth in Haslam's nomenclature). Our motivation and rationale for focusing on these two particular components is developed in the section that follows.

3. The big two and dehumanization

Agency and communion play such an important role in social perception that they are often referred to as the Big Two (for a recent overview see Abele & Wojciszke, 2014). Agency refers to the capacity to strive to achieve one's goals, whereas communion refers to bonding with others and creating meaningful and stable social relations (Abele & Wojciszke, 2014). Items used in the assessment of the Big Two include traits such as *active*, *dynamic*, *efficient*, *assertive,* and *self-confident* for agency, and traits such as *helpful*, *understanding*, *reliable*, *likable*, *empathetic,* and *friendly* for communion (Abele & Wojciszke, 2007, p. 758).

For over half a century, agency and communion have been understood as crucial coordinates for making sense both of self and others. These two dimensions are said to account for as much as 89% of the content of traits (Abele & Wojciszke, 2007) and 66% of cultural universals (Ybarra et al., 2008). They are also the most frequent themes in autobiographical memories (McAdams, Hoffman, Mansfield, & Day, 1996), descriptions of self and others (Abele & Bruckmüller, 2011; Wojciszke, 1994), and perceptions of groups (Cuddy et al., 2008; Fiske, Cuddy, Glick, & Xu, 2002). Agency and communion are believed to be cross-culturally invariant (Abele, Uchronski, Suitner, & Wojciszke, 2008; Ybarra et al., 2008). Therefore, agency and communion are often said to reflect the *dual nature of human existence* (Abele & Wojciszke, 2014; Kelman, 1973). Yet, despite their prominence in human perception, the direct connection between the Big Two and dehumanization has not been widely explored.

We know of no research documenting the relationship of agency and communion to infra-humanization. This relationship can be only indirectly inferred from previous studies. In the case of agency, some tentative evidence comes from research on status, which is closely related to agency (Abele & Wojciszke, 2014). Specifically, it seems that groups high in status infra-humanize groups low in status, while the reverse is not true (Capozza, Andrighetto, di Bernardo, & Falvo, 2012; Iatridis, 2013 but see Rodriguez-Perez, Delgado-Rodriguez, Betancor-Rodriguez, Leyens, & Vaes, 2011). In the case of communion, some tentative evidence has emerged from the relationship between intergroup friendliness and infra-humanization. Participants tended to attribute more humanity to groups to whom they felt friendly (Rodriguez-Perez et al., 2011). Although this measure cannot be seen directly as an indicator of how friendly (communal) the outgroup is perceived to be, the research on infra-humanization suggests that both agency and communion might be important components of perceptions that regard others as less than human.

In terms of Haslam's Dual Model of Dehumanization, it is still unclear to what extent agency and communion specifically are associated to HN and UH. However, in studies of power, which is related to agency, participants high in power tended to attribute less humanness to low status groups and individuals (both HN and UH–Lammers & Stapel, 2011; only UH–Gwinn et al., 2013). When low-power participants took an agentic perspective and rejected the high-power

participants' offers they were humanized more despite remaining in a lower hierarchical power position (Gwinn et al., 2013). This suggests that agency might play a unique role in dehumanization, one that is separate from power understood simply in terms of hierarchical relations (Simon & Oakes, 2006; Turner, 2005). Similarly, competence, which is related to agency, correlated with the UH ratings of groups (Vaes & Paladino, 2010). Importantly, warmth, which is related to communion, was not correlated to UH ratings (Vaes & Paladino, 2010), suggesting it may not be the primary component of dehumanization.

Due to the lack of clear evidence indicating a direct connection between agency and communion to dehumanization in the literature, it is useful to draw upon other two-factor theoretical accounts dealing with social perception. The first is the Mind Perception Theory (MPT, Gray et al., 2007), which concerns the attribution of mind to human and non-human entities, and comprises two dimensions, agency and experience.

Agency in MPT comprises several qualities, including emotion recognition, memory, morality, and planning. Agency in MPT has been linked to objectification, which is a way of dehumanizing people by seeing them as objects (Gray, Knobe, Sheskin, Bloom, & Barrett, 2011). It has been shown that objectified, naked targets were attributed less agency than not-objectified, fully dressed targets (Gray et al., 2011). However, it is important to note that the understanding of agency in MPT diverges from the classical understanding of agency as the ability to assign goals, and to plan and execute their achievement (as explained above; see also Bandura, 2000, 2001). We chose to examine agency in the classical sense to avoid blurring the widely acknowledged divergent relationship between morality and agency (Brambilla & Leach, 2014; Brambilla, Rusconi, Sacchi, & Cherubini, 2011; Leach, Ellemers, & Barreto, 2007). Our nuanced understanding of agency is supported by a recent amendment of MPT (Weisman et al., 2017) which features a three- rather than two- factor solution to examining aspects of mental life. Interestingly, the factor that explained the most variance in the understanding of mental life closely relates to agency in the classic sense, because it refers to having intentions along with bodily sensations, but not to morality.

Experience is the second factor of MPT and is related to the ability to feel both primary and secondary emotions. This ability is central to the infra-humanization theory (Leyens et al., 2000, 2007); thus, both lines of research indicate that the capacity to experience emotions is critical to understanding humanness, and by consequence dehumanization. However, it is important to note the capacity to feel emotions (which comprise items in a scale addressing the ability to feel e.g., anger, pride, or joy) is not equivalent to communion, which refers to the ability to form relationships with others (which comprise items in a scale addressing traits e.g., caring, helpful, or friendly). Overall, the differences between agency in the MPT and agency in the Big Two, as well as between experience and communion, mean that the two theories are not interchangeable. Moreover, the new light shed on MPT (Weisman et al., 2017) suggests that the previous understanding of the relationship between MPT and dehumanization (e.g., Haslam & Loughnan, 2014; Li et al., 2014) should be treated with caution, and possibly revisited.

The Stereotype Content Model (SCM, Fiske et al., 2002) is a second theoretical account which is relevant to the Big Two. SCM focuses on two qualities that define perceptions of groups: warmth and competence. A study that examined the connection between these two and humanization indicated that it was competence rather than warmth that correlated with the humanity ratings of groups (Vaes & Paladino, 2010). The only other study that is said to have linked competence and warmth to dehumanization focused on the relationship of social groups that elicited 4 distinct emotions; envy, pride, pity, and disgust, to the activation of the medial prefrontal cortex that is involved in forming impressions of people (Harris & Fiske, 2006). Although these results contributed significantly to research on dehumanization, and correspond to other findings on disgust and dehumanization (Buckels & Trapnell, 2013, see also Schaller & Neuberg, 2012), whether perceptions of competence and warmth play a causal role in dehumanization remains an open question.

It is also important to note that there are important differences between the Big Two and the SCM. While warmth is very close to communion, competence is not equivalent to agency (Abele et al., 2016). This is because competence is strongly related to cultural factors such as education and status, and therefore is compared to the uniquely human characteristics (Li et al., 2014). In contrast, agency refers to a sense of goal-directedness that is crucial for all agents, human or non-human alike, and along with warmth is viewed as characteristic of human nature (in reference to Haslam's model).

4. Overview of the present research

Previous research is more strongly supportive of the idea that agency plays a role in dehumanization than the idea that communion plays a role in dehumanization. A similar conclusion can be drawn from research on interpersonal attitudes. Agency is positively related to respect (Wojciszke, Abele, & Baryla, 2009), or more broadly, to human dignity in the philosophical literature (Stoecker, 2011). Communion induces liking (Wojciszke et al., 2009), which has been shown to be separable from dehumanization ratings (Bruneau, Kteily, & Laustsen, 2018; Kteily et al., 2015).

The goal of the present research was to directly address the role of the Big Two in dehumanization. Given that people are intrinsically motivated to be growth-oriented, curious, and focused on their goals (Ryan & Deci, 2000), we hypothesized that perceptions of agency would be critical to the assessment of humanness. Given the conflicting results about the importance of communion (Abele & Wojciszke, 2014; Koch, Imhoff, Dotsch, Unkelbach, & Alves, 2016; Vaes & Paladino, 2010), we were agnostic regarding the role of communion in dehumanization.

One key design challenge is that many, if not all, real-world social actors or groups are richly embedded in specific historical and social set of meanings. To provide a context-independent investigation, and avoid the stereotypical attributions that often inform assessments of actual individuals and social groups, we used subtle manipulations. The first type of manipulation involved the movement of geometric shapes; it was inspired by several previous studies (e.g., Baker, Saxe, & Tenenbaum, 2009; Bloom & Veres, 1999; Gergely, Nádasdy, Csibra, & Bíró, 1995; Heider & Simmel, 1944; Scholl & Tremoulet, 2000; Tremoulet & Feldman, 2000). This paradigm is used to automatically induce the impression of mental states assigned to the geometric shapes (Heberlein & Adolphs, 2004; Heider & Simmel, 1944; Tremoulet & Feldman, 2000), and these processes are believed to run parallel to understanding of real-life action (Castelli, Happé, Frith, & Frith, 2000). The second type of manipulation involved facial features (Walker & Vetter, 2015).

All of the studies presented below were conducted online. For all the studies, we applied the following inclusion criteria; participants explicitly agreed to participate, and they completed the crucial attention-check questions listed in the Supplemental Online Materials (SOM). Further exclusions were made based on responses to these attention-check questions, and are described separately for each study below. In addition, prior to each study, we first tested whether the intended manipulation was successful at conveying a sense of agency or communion. Only after establishing this did we proceed to test whether our manipulation of agency and/or communion affected participants' ratings of humanness.

For each study below, we report on how we determined the sample size. Moreover, we report on statistical power calculated a priori for 2b, 3a, 3b, 3c, 4, and 5. The reasons for the exclusion of participants were similar across studies, and are reported for each study (exclusion criteria for studies 2b, 3a, 3b, 3c, and 4 can be also seen in the preregistration reports). We disclose all of the experimental manipulations in the manuscript. For Studies 1, 2a, and 5 we collected additional

exploratory measures. This information is indicated in the description of each study, and the full set of variables collected in those studies is listed in the SOM accompanying this manuscript. The summary of the details of each study, including the power analysis, the exclusion criteria, and preregistration is also available in the SOM. All of the studies were approved by the Institutional Review Board of the University of Bern.

5. Study 1: The impact of agency on humanness judgments

To estimate the role of agency in humanness ratings, we constructed a manipulation representing the notion of agency through the movement of a geometric shape. In Study 1, we focused on the perception of an individual target.

5.1. Method

5.1.1. Participants

All participants were online volunteers; invitations to participate were emailed using the mailing list of a human resources company. The data collection ended when the participant pool was exhausted (no new data entries recorded for one day). The data was analyzed after collecting all the responses. Twelve participants were excluded based on an attention-check question examining the recognition of the shape presented in the video. Two people were additionally removed as the program failed to record their experimental condition. The final sample consisted of 152 participants (71 women and 81 men; M_{age} = 34.41, SD_{age} = 10.92). In Study 1, the choice of the sample size was not driven by an a priori power analysis.

5.1.2. Procedure and materials

Participants were informed that the study concerned the perception of different targets, and were randomly assigned to watch one of three 15-s videos. In all videos, the participants saw the screen divided in half vertically by a straight black line, with a black dot on the left side. These videos varied in the degree of agency depicted. The key condition conveyed a high level of agency (Video S1, N = 54) in which the dot tried to cross the line and pass to the right side, by bumping up against the line (Maass, Suitner, & Nadhmi, 2014). Eventually, the dot managed to cross the line by jumping over it.

Additionally, we included two conditions conveying low agency in which the dot did not manage to jump over the line. The first low agency condition (Video S2, N = 44) presented the dot bumping up against the line, but not making it to the other side.

In the second low agency condition (Video S3, N = 54), the dot barely moved toward and away from the line.

To evaluate the humanness of the target, we used a one-item measure adapted from Kteily and colleagues (Kteily et al., 2015). In order to make the measure applicable to non-human stimuli, instead of presenting pictures representing the evolution of humans, we used a form of the well-known feeling thermometer. It read as follows: "*Psychological studies show that people tend to attribute different levels of humanness to different objects. The following scale represents humanness levels. 0 represents very low degree of humanness and 100 represent very high degree of humanness. Choose a number that represents the level of humanness of the target.*" The scale ranged from 0% to 100% with 10% increments.

In addition, we used a generalized humanness scale formed by asking whether the dots' behavior was 1) similar to that of human beings; 2) a good example of human nature; 3) exclusively human, not applicable to other species; and 4) an indication of the ability to reason morally. The first three questions captured the two dimensions of humanness proposed by Haslam (2006). The last question captured the delegitimization or moral exclusion characteristic of dehumanization (Bar-Tal, 1990; Opotow, 1990). These questions were assessed using answers ranging from 1 (*not at all*) to 7 (*very much*) and were combined to form a second indicator of humanness.

Table 1
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 1.

Variable	α	*M*	*SD*	H. Scale	Agency	Communion
H. Thermometer		42.04	30.11	0.73***	0.36***	0.39***
H. Scale	0.91	3.89	1.49		0.49***	0.52***
Agency	0.78	3.82	1.01			0.51***
Communion	0.73	4.16	0.79			

Note. H. Thermometer stands for the Humanness Thermometer; H. Scale refers to the Humanness Scale.
*** $p < .001$.

Participants were also presented with several traits that could describe the dots' behavior, which included traits referring to agency (competent, skilled, active, efficient, powerful, dominant, and *disorganized–reverse coded)* and communion (likable, friendly, honest, trustworthy, kind, helpful, *threatening, hostile,* and *frightening–reverse coded*). These questions were assessed using answers ranging from 1 (*not at all*) to 7 (*very much*). The reliability coefficients, means, standard deviations, and correlation coefficients of the humanness indicators, and agency and communion scales, are presented in Table 1. During Study 1, we also asked about additional qualities describing the dot and questions about traits by referring to the participants. These questions were asked only after obtaining the initial dependent variables. As these exploratory measures are not relevant to the present manuscript, we present them in the SOM.

5.2. Results and discussion

5.2.1. Manipulation check

We conducted a 3 (experimental manipulation of agency: high agency, low agency 1, or low agency 2) × 2 (Big Two dimension: agency and communion) ANOVA with the latter measured within subjects. The main effect of experimental manipulation was not significant $F(2,149) = 0.45$, $p = .64$, $\eta_p^2 = 0.01$. The main effect of the Big Two dimension $F(1,149) = 25.52$, $p < .001$, $\eta_p^2 = 0.15$ was qualified by an expected significant interaction $F(2,149) = 12.68$, $p < .001$, $\eta_p^2 = 0.14$. We applied Helmert contrasts in the subsequent analyses to compare the high agency condition to the two low agency conditions considered together (Contrast 1) and the two low agency conditions against one another (Contrast 2); see Table 2 for all means and standard deviations. As expected, the highly agentic dot was perceived as more agentic than the dots with low levels of agency $t(149) = 2.63$, $p = .009$, Cohen's $d = 0.43$. The low agency conditions did not differ from one another in their agency ratings $t(149) = 0.96$, $p = .34$, Cohen's $d = 0.16$. There were no differences in communion ascriptions across conditions $t(149) = -1.84$, $p = .07$, Cohen's $d = 0.30$ for Contrast 1 and $t(149) = -0.10$, $p = .92$, Cohen's $d = 0.02$ for Contrast 2.

5.2.2. Humanness ratings

As expected for Contrast 1, the highly agentic dot received higher ratings on the humanness thermometer than the dots with low levels of agency $t(149) = 2.23$, $p = .03$, Cohen's $d = 0.36$. For Contrast 2, the

Table 2
Descriptive statistics for humanness, agency, and communion indicators in Study 1.

Variable	High agency		Low agency 1		Low agency 2	
	M	*SD*	*M*	*SD*	*M*	*SD*
H. Thermometer	49.26	30.27	37.27	28.96	38.70	30.03
H. Scale	4.05	1.54	3.66	1.35	3.91	1.54
Agency	4.11	1.04	3.77	1.01	3.57	0.91
Communion	4.00	0.87	4.24	0.74	4.25	0.73

low agency conditions did not differ from one another on the humanness thermometer ratings $t(149) = -0.24$, $p = .81$, Cohen's $d = 0.04$. The ratings on the humanness scale, although in the predicted direction, did not differ significantly between conditions $t(149) = 1.06$, $p = .29$, Cohen's $d = 0.17$ for Contrast 1 and $t(149) = -0.82$, $p = .41$, Cohen's $d = 0.13$ for Contrast 2.

6. Study 2a: The impact of agency on humanness judgments of groups

In Study 1, we used an individual target to examine whether agency plays a role in humanness ratings. Historically, however, dehumanization has been considered predominantly in an intergroup domain, with far less research devoted to the dehumanization of individuals (Cortes et al., 2005). Taking into account that dehumanization processes might refer primarily to groups, we replicated Study 1 in a group context, hypothesizing that groups high in agency would be attributed higher humanness compared to groups lower in agency.

6.1. Method

6.1.1. Participants

All participants were recruited through Amazon Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011) at a rate of $5.00 per hour. Four participants were excluded based on an attention-check question adapted from Wiener et al. (2014; "You completed the main part of the questionnaire. To continue, click no"). The final sample consisted of 111 participants (44 women and 67 men; $M_{age} = 32.69$, $SD_{age} = 11.12$). Our sampling for Study 2a relied on a convention of 30 participants per cell.

6.1.2. Procedure and materials

We used a group manipulation of agency–analogous to the manipulation used in Study 1. The key condition exemplified a concept of high agency (Video S4, $N = 37$) in which seven dots tried to cross the line and pass to the other side by bumping up against the line. Eventually, the dots managed to cross the line by jumping over it.

Additionally, we included two conditions of low agency in which the dots did not manage to jump over the line. The first low agency condition (Video S5, $N = 41$) presented the dots bumping up against the line, but not making it to the other side.

In the second low agency condition (Video S6, $N = 33$), the dots barely moved toward and away from the line.

To assess humanness, agency, and communion, we used the same variables as in Study 1, with the wording adapted to match the group setting. For the humanness manipulation, the instruction read: "*Please indicate the level of humanness of the group presented in the following short film.*" For the agency and communion ratings, the instruction read: "*Please evaluate what would be your impression of the group presented in the film. On the following scale please indicate whether the group seemed:*" following with the list of traits. The reliability coefficients, means, standard deviations, and correlation coefficients of the humanness indicators, and agency and communion scales, are presented in Table 3.

Table 3
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 2a.

Variable	α	*M*	*SD*	H. Scale	Agency	Communion
H. Thermometer		30.54	27.66	0.77***	0.40***	0.11
H. Scale	0.84	2.72	1.31		0.50***	0.14
Agency	0.82	4.12	1.05			0.32**
Communion	0.77	4.47	0.80			

** $p < .01$.
*** $p < .001$.

Table 4
Descriptive statistics for humanness, agency, and communion indicators in Study 2a.

Variable	High agency		Low agency 1		Low agency 2	
	M	*SD*	*M*	*SD*	*M*	*SD*
H. Thermometer	42.16	27.09	16.34	22.33	35.15	27.29
H. Scale	3.26	1.27	2.07	1.10	2.91	1.27
Agency	4.65	0.97	3.81	0.94	3.91	1.07
Communion	4.36	0.87	4.41	0.74	4.65	0.77

6.2. Results and discussion

6.2.1. Manipulation check

We conducted a 3 (experimental manipulation of agency: high agency, low agency 1, or low agency 2) × 2 (Big Two dimension: agency and communion) ANOVA, with the latter measured within subjects. The main effect of experimental manipulation was not significant $F(2,108) = 2.65$, $p = .07$, $\eta_p^2 = 0.05$. The main effect of the Big Two dimension $F(1,108) = 13.39$, $p < .001$, $\eta_p^2 = 0.11$ was qualified by an expected significant interaction $F(2,108) = 11.32$, $p < .001$, $\eta_p^2 = 0.17$. We applied Helmert contrasts in the subsequent analyses to compare the high agency condition to the two low agency conditions considered together (Contrast 1) and the two low agency conditions against one another (Contrast 2); see Table 4 for all means and standard deviations. As expected, the highly agentic dots were perceived as more agentic than the dots depicting low levels of agency $t(108) = 3.93$, $p < .001$, Cohen's $d = 0.76$. The low agency conditions did not differ from one another in their agency ratings $t(108) = -0.40$, $p = .69$, Cohen's $d = 0.08$. There were no differences in communion ascriptions across conditions $t(108) = -1.10$, $p = .27$, Cohen's $d = 0.21$ for Contrast 1 and $t(108) = -1.28$, $p = .20$, Cohen's $d = 0.25$ for Contrast 2.

6.2.2. Humanness ratings

As expected for Contrast 1, the highly agentic dots received higher ratings on the humanness thermometer than the two groups of dots with low levels of agency $t(108) = 3.19$, $p = .002$, Cohen's $d = 0.61$. Ratings on the humanness scale followed the same pattern $t(108) = 3.16$, $p = .002$, Cohen's $d = 0.61$. Unexpectedly, for Contrast 2 we found that dots in the second low agency condition in comparison to dots in the first low agency condition were also rated as having higher humanness, both on the humanness thermometer $t(108) = -3.15$, $p = .002$, Cohen's $d = 0.61$ and the humanness scale $t(108) = -2.95$, $p = .004$, Cohen's $d = 0.57$. One possible explanation is that participants perceived the dots in the second low agency condition as coordinated in movement, and the ability to coordinate might be understood as a human characteristic. This conclusion can be drawn from reading some of the comments that participants provided: "*It appeared that the dots were moving in a coordinated fashion towards an objective.*" or "*They were moving in what looked like a pattern.*" This coordination could be interpreted as a sign of agency, as an ability to organize a movement in an effective and synchronized way. It could be also interpreted as communion, as an ability to move cooperatively in a unified way. However, the manipulation check showed no differences between the two low agency conditions, on either agency or communion. To examine this potential artifact, we conducted an additional experiment with uncoordinated dots in the second low agency condition.

7. Study 2b: The Impact of Agency on Humanness Judgments of Groups

In this study, we replicated the Study 2a with a new set of films.

7.1. Method

7.1.1. Participants

All participants were recruited through Prolific Academic at a rate of £8.00 per hour. Three participants were excluded based on an attention-check question adapted from Wiener et al. (2014) and two participants excluded based on the self-commitment question ("It would be very helpful if you could tell us at this point whether you have taken part seriously, so that we can use your answers for our scientific analysis, or whether you were just clicking through to take a look at the survey?"). In addition, four participants were excluded based on attention-check questions examining the recognition of the shape presented in the video or a course of action presented in the video. The final sample consisted of 182 participants (78 women and 103 men, one person indicated another gender; M_{age} = 30.43, SD_{age} = 9.86). For Study 2b we relied on G*Power 3.1 software (Mayr, Erdfelder, Buchner, & Faul, 2007) to calculate the sample size, using a power of 80% benchmark for a medium effect size of f = 0.25 (Cumming, 2014). Moreover this study was preregistered at https://osf.io/nwf5x/register/5771ca429ad5a1020de2872e.

7.1.2. Procedure and materials

This study differed from the Study 2a in a following way: we presented a different set of 15-s videos representing agency. Specifically, the second low agency condition was modified to avoid the perception of the dots being coordinated. The three 15-s videos presented high agency (Video S7, N = 61), first low agency (Video S8, N = 61), and second low agency (Video S9, N = 60) targets.

Secondly, the study involved a briefer set of dependent variables, as we included only the humanness thermometer, and a shortened version of the agency and communion scales. Agency was measured by referring to 6 items (competent, skilled, active, efficient, powerful, and dominant), as was communion (honest, trustworthy, kind, helpful, *threatening,* and *hostile–reverse coded*). The reliability coefficients, means, standard deviations, and correlation coefficients of the humanness indicator, and agency and communion scales, are presented in Table 5.

7.2. Results and discussion

7.2.1. Manipulation check

We conducted a 3 (experimental manipulation of agency: high agency, low agency 1, or low agency 2) × 2 (Big Two dimension: agency and communion) ANOVA, with the latter measured within subjects. The main effect of experimental manipulation was not significant $F(2,179) = 1.63$, $p = .20$, $\eta_p^2 = 0.02$. The main effect of the Big Two dimension $F(1,179) = 4.68$, $p = .03$, $\eta_p^2 = 0.02$ was qualified by an expected significant interaction $F(2,179) = 5.00$, $p = .008$, $\eta_p^2 = 0.05$. We applied Helmert contrasts in the subsequent analyses to compare the high agency condition to the two low agency conditions considered together (Contrast 1) and the two low agency conditions against one another (Contrast 2); see Table 6 for all means and standard deviations. As expected, the highly agentic dots were perceived as more agentic than the dots depicting low levels of agency $t(179) = 2.58$, $p = .01$, Cohen's $d = 0.39$. The low agency conditions did not differ from one another in their agency ratings $t(179) = 0.37$, $p = .71$, Cohen's $d = 0.05$. There were no differences in communion ascriptions across conditions $t(179) = -0.45$, $p = .66$, Cohen's $d = 0.07$ for Contrast 1 and $t(179) = 1.50$, $p = .14$, Cohen's $d = 0.22$ for Contrast 2.

Table 5
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 2b.

Variable	α	M	SD	Agency	Communion
H. Thermometer		28.44	27.30	0.35***	0.20**
Agency	0.88	4.02	1.20		0.42***
Communion	0.67	4.20	0.89		

** $p < .01$.
*** $p < .001$.

Table 6
Descriptive statistics for humanness, agency, and communion indicators in Study 2b.

Variable	High agency		Low agency 1		Low agency 2	
	M	SD	M	SD	M	SD
H. Thermometer	39.13	27.33	25.47	25.35	20.60	26.13
Agency	4.34	1.06	3.90	1.17	3.82	1.31
Communion	4.16	0.96	4.34	0.86	4.10	0.84

7.2.2. Humanness ratings

As expected for Contrast 1, the highly agentic dot received higher ratings on the humanness thermometer than the dots with low levels of agency $t(179) = 3.90$, $p < .001$, Cohen's $d = 0.58$. For Contrast 2 the low agency conditions did not differ from one another on the humanness thermometer $t(179) = 1.02$, $p = .31$, Cohen's $d = 0.15$.

The results of Studies 1-2b indicate that we were successful in creating manipulations of agency that were independent of communion ratings. Moreover, across the three studies we found that when agency is isolated carefully from other factors, it predicts humanness ratings. This effect was evident both for individual and group targets, although it was stronger for group targets, reflecting the fact that dehumanization is often directed at groups. In general, the results obtained in Studies 1-2b confirm the hypothesized relationship between agency and ascriptions of humanness.

8. Study 3a: The Impact of Communion on Humanness Judgments of Groups

Studies 1-2b examined the sole role of agency. To estimate the unique role of communion in humanness ratings, we used a similar procedure and constructed a manipulation representing the notion of communion through the movement of geometric shapes. Given the relational nature of communion, we used group targets only in the manipulation.

8.1. Method

8.1.1. Participants

All participants were recruited through Prolific Academic at a rate of £8.00 per hour. One participant was excluded based on an attention-check question adapted from Wiener et al. (2014) and one participant was excluded based on the self-commitment question. In addition, five participants were excluded based on the attention-check question examining the recognition of the shape presented in the video. The final sample consisted of 154 participants (75 women and 78 men, one person indicated another gender; M_{age} = 35.39, SD_{age} = 13.08). For Study 3a we relied on G*Power 3.1 software (Mayr et al., 2007) to calculate the sample size, using a power of 80% benchmark for a medium effect size of f = 0.25 (Cumming, 2014), as in Study 2b. Moreover, this study was preregistered at https://osf.io/2dwzb/register/5771ca429ad5a1020de2872e.

8.1.2. Procedure and materials

We used an analogous procedure to Studies 1, 2a, and 2b. Participants were randomly assigned to watch one of two 20-s videos. These videos varied the degree of communion depicted, akin to the affiliative and hostile animations used in studies investigating basic social meaning (Tavares, Lawrence, & Barnard, 2008). In the high

Table 7
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 3a.

Variable	α	*M*	*SD*	Agency	Communion
H. Thermometer		31.63	29.40	0.36***	0.02
Agency	0.82	4.18	1.12		0.17*
Communion	0.82	4.04	1.18		

* $p < .05$.
*** $p < .001$.

communion condition (Video S10, $N = 76$), the dots were animated to depict friendly behavior of grouping together. Eight dots formed first three smaller groups of interacting individuals and then came together into a joined circle. As in other abstract manipulations of communal behavior (Tavares et al., 2008), the dots approached each other at a gentle pace.

In the low communion condition (Video S11, $N = 78$), eight dots were animated as hostile. Similar to Tavares et al. (2008), the movement was animated to resemble a physical aggression like in a boxing fight, with approaching, clutching, retreating, and following movements.

To assess humanness, agency, and communion, we used the same variables as in Study 2b. The reliability coefficients, means, standard deviations, and correlation coefficients of the humanness indicator, and agency and communion scales, are presented in Table 7.

8.2. Results and discussion

8.2.1. Manipulation check

We conducted a 2 (experimental manipulation of communion: high communion or low communion) × 2 (Big Two dimension: agency and communion) ANOVA, with the latter measured within subjects. The main effect of the Big Two dimension was not significant $F(1,152) = 1.74$, $p = .19$, $\eta_p^2 = 0.01$. The main effect of the experimental manipulation of communion $F(1,152) = 15.43$, $p < .001$, $\eta_p^2 = 0.09$ was qualified by an expected significant interaction $F(1,152) = 41.70$, $p < .001$, $\eta_p^2 = 0.21$; see Table 8 for all means and standard deviations. As expected, the highly communal dots were perceived as more communal than the dots with low level of communion $t(152) = 7.47$, $p < .001$, Cohen's $d = 1.21$. There were no differences in agency ascriptions across conditions $t(152) = -0.84$, $p = .40$, Cohen's $d = 0.14$.

8.2.2. Humanness ratings

There was no difference in ascriptions of humanness based upon the communion manipulation $t(152) = 0.18$, $p = .86$, Cohen's $d = 0.03$.

9. Study 3b: The impact of communion on humanness judgments of groups

This study is a direct replication of Study 3a.

Table 8
Descriptive statistics for humanness, agency, and communion indicators in Study 3a.

Variable	High communion		Low communion	
	M	*SD*	*M*	*SD*
H. Thermometer	32.05	28.05	31.22	30.83
Agency	4.11	1.13	4.26	1.11
Communion	4.65	0.96	3.43	1.05

9.1. Method

9.1.1. Participants

All participants were recruited through Prolific Academic at a rate of £8.00 per hour. Two participants were excluded based on an attention-check question adapted from Wiener et al. (2014), and one participant was excluded based on the self-commitment question. In addition, four participants were excluded based on the attention-check question examining the recognition of the shape presented in the video. The final sample consisted of 153 participants (82 women and 68 men, three people indicated another gender; $M_{age} = 33.01$, $SD_{age} = 12.33$). For Study 3b we relied on G*Power 3.1 software (Mayr et al., 2007) to calculate the sample size, using a power of 80% benchmark for a medium effect size of $f = 0.25$ (Cumming, 2014), as in Study 2b and 3a.

9.1.2. Procedure and materials

In this study, we used the same two videos as in Study 3a. The two 20-s videos presented high communion ($N = 78$) and low communion ($N = 75$) targets. To assess humanness, agency, and communion, we used the same variables as in Studies 2b and 3a. The reliability coefficients, means, standard deviations, and correlation coefficients of the humanness indicator, and agency and communion scales, are presented in Table 9.

9.2. Results and discussion

9.2.1. Manipulation check

We conducted a 2 (experimental manipulation of communion: high communion or low communion) × 2 (Big Two dimension: agency and communion) ANOVA, with the latter measured within subjects. Both main effects; of the experimental manipulation of communion $F(1, 151) = 7.34$, $p = .008$, $\eta_p^2 = 0.05$, and of the Big Two dimension $F(1, 151) = 7.37$, $p = .007$, $\eta_p^2 = 0.05$ were qualified by an expected significant interaction $F(1, 151) = 33.67$, $p < .001$, $\eta_p^2 = 0.18$; see Table 10 for all means and standard deviations. As expected, the highly communal dots were perceived as more communal than the dots depicting a low level of communion $t(151) = 6.15$, $p < .001$, Cohen's $d = 1.00$. There were no differences in agency ascriptions across conditions $t(151) = -1.10$, $p = .27$, Cohen's $d = 0.18$.

9.2.2. Humanness ratings

There was no difference in ascriptions of humanness based upon the communion manipulation $t(151) = 0.06$, $p = .95$, Cohen's $d = 0.01$.

10. Study 3c: The impact of communion on humanness judgments of groups

This study is a direct replication of Study 3a and 3b using a different humanness scale.

10.1. Method

10.1.1. Participants

All participants were recruited through Prolific Academic at a rate of

Table 9
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 3b.

Variable	α	*M*	*SD*	Agency	Communion
H. Thermometer		25.67	26.78	0.42***	0.14
Agency	0.85	4.12	1.14		0.25**
Communion	0.77	3.86	1.07		

** $p < .01$.
*** $p < .001$.

Table 10
Descriptive statistics for humanness, agency, and communion indicators in Study 3b.

Variable	High communion		Low communion	
	M	*SD*	*M*	*SD*
H. Thermometer	25.79	28.71	25.55	24.82
Agency	4.02	1.05	4.22	1.23
Communion	4.33	0.90	3.38	1.02

£8.00 per hour. Two participants dropped out without giving their consent to participate. Eleven participants were excluded based on an attention-check question adapted from Wiener et al. (2014). In addition, five participants were excluded based on the attention-check question examining the recognition of the shape presented in the video. The final sample consisted of 150 participants (104 women and 46 men; M_{age} = 34.05, SD_{age} = 9.92). For Study 3c we relied on G*Power 3.1 software (Mayr et al., 2007) to calculate the sample size, using a power of 80% benchmark for a medium effect size of f = 0.25 (Cumming, 2014), as in Study 2b, 3a, and 3b. Moreover this study was preregistered at https://osf.io/xmuzt/register/5771ca429ad5a1020de2872e.

10.1.2. Procedure and materials

In this study, we used the same two videos as in Study 3a and 3b. The two 20-s videos presented high communion (N = 75) and low communion (N = 75) targets. To assess humanness we used a generalized humanness scale as in Studies 1 and 2a. We decided to use only 3 items of this scale to capture the two senses of humanness proposed by Haslam (2006). These questions were assessed using answers ranging from 1 (*not at all*) to 7 (*very much*) and were used to form an indicator of humanness. We omitted the fourth item related to the ability to reason morally (Bar-Tal, 1990; Opotow, 1990) due to the link between morality and communion (Abele & Wojciszke, 2014). To assess agency and communion, we used the same variables as in 2b, 3a, and 3b. The reliability coefficients, means, standard deviations, and correlation coefficients of the humanness indicator, and agency and communion scales, are presented in Table 11.

10.2. Results and discussion

10.2.1. Manipulation check

We conducted a 2 (experimental manipulation of communion: high communion or low communion) × 2 (Big Two dimension: agency and communion) ANOVA, with the latter measured within subjects. Both main effects; of the experimental manipulation of communion F(1, 148) = 6.69, p = .01, η_p^2 = 0.04, and of the Big Two dimension F(1, 148) = 10.04, p = .002, η_p^2 = 0.06 were qualified by an expected significant interaction F(1, 148) = 23.72, p < .001, η_p^2 = 0.14; see Table 12 for all means and standard deviations. As expected, the highly communal dots were perceived as more communal than the dots depicting a low level of communion t(148) = 5.08, p < .001, Cohen's d = 0.83. There were no differences in agency ascriptions across conditions t(148) = −0.42, p = .67, Cohen's d = 0.07.

Table 11
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 3c.

Variable	α	*M*	*SD*	Agency	Communion
H. Scale	0.64	3.51	1.06	0.45***	0.26**
Agency	0.80	4.55	0.90		0.38***
Communion	0.77	4.31	0.88		

** p < .01.
*** p < .001.

Table 12
Descriptive statistics for humanness, agency, and communion indicators in Study 3c.

Variable	High communion		Low communion	
	M	*SD*	*M*	*SD*
H. Scale	3.49	1.11	3.53	1.02
Agency	4.52	0.90	4.58	0.91
Communion	4.64	0.83	3.97	0.80

10.2.2. Humanness ratings

There was no difference in ascriptions of humanness based upon the communion manipulation t(148) = −0.20, p = .84, Cohen's d = 0.03.[1]

11. Study 4: The joint impact of agency and communion on humanness judgments of groups

Studies 1–3c examined the unique role of agency or communion. In Study 4, we aimed to assess the possible interactive effects of the two dimensions.

11.1. Method

11.1.1. Participants

All participants were recruited through Prolific Academic at a rate of £8.00 per hour. Twelve participants were excluded based on an attention-check question adapted from Wiener et al. (2014), and three participants were excluded based on the self-commitment question. In addition, 11 participants were removed based on the attention-check questions examining the recognition of the shape presented in the video or a course of action presented in the video. The final sample consisted of 216 participants (118 women and 95 men, three people indicated another gender; M_{age} = 35.73, SD_{age} = 11.98). For Study 4 we relied on G*Power 3.1 software (Mayr et al., 2007) to calculate the sample size, using a power of 80% benchmark for a medium effect size of f = 0.25 (Cumming, 2014), as in Study 2b, 3a, 3b, and 3c. Moreover, this study was preregistered at https://osf.io/5mgsc/register/5771ca429ad5a1020de2872e.

11.1.2. Procedure and materials

The four 20-seconds videos represented a group of dots presenting all four combinations of agency (low and high) and communion (low and high). One presented dots low in agency and low in communion (Video S12, N = 54), one presented dots low in agency and high in communion (Video S13, N = 51), one presented dots high in agency and low in communion (Video S14, N = 55), and one presented dots high in agency and high in communion (Video S15, N = 56).

To assess humanness, agency, and communion, we used the same variables as in Study 2b, 3a, and 3b. The reliability coefficients, means, standard deviations, and correlation coefficients of the humanness indicator, and agency and communion scales, are presented in Table 13. The means and standard deviations for each experimental cell are presented in Table 14.

11.2. Results and discussion

11.2.1. Manipulation check

We conducted two analyses. To examine the effectiveness of

[1] Given the relatively low reliability of the humanness scale, we have also performed analyses separately for each item of the scale. For all of the 3 questions, the results were not significant: whether the dots' behavior was similar to that of human beings F(1,148) = 0.003, p = .95, Cohen's d = 0.01; whether the dots' behavior was a good example of human nature F(1,148) = 0.01, p = .91, Cohen's d = 0.02; whether the dots' behavior was exclusively human, not applicable to other species F(1,148) = 0.11, p = .74, Cohen's d = 0.05.

Table 13
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 4.

Variable	α	*M*	*SD*	Agency	Communion
H. Thermometer		34.79	28.50	0.42***	0.26***
Agency	0.85	4.43	1.04		0.38***
Communion	0.79	4.44	0.97		

*** $p < .001$.

manipulated agency, we conducted a 2 (experimental manipulation of agency: high agency or low agency) ×2 (Big Two dimension: agency and communion) ANOVA, with the latter measured within subjects. The main effect of the Big Two dimension was not significant $F(1, 214) = 0.05$, $p = .83$, $\eta_p^2 = 0.0002$. The main effect of manipulated agency was significant $F(1, 214) = 12.41$, $p = .001$, $\eta_p^2 = 0.05$, indicating that agentic dots were seen as having both more agency and communion ($M = 4.43$, $SD = 0.96$) than non-agentic dots ($M = 3.97$, $SD = 0.95$). The expected interaction of the manipulated agency and the Big Two dimensions was not significant $F(1, 214) = 2.25$, $p = .13$, $\eta_p^2 = 0.01$ however, the pattern of means indicates that the dots high in agency were seen as more agentic ($M = 4.67$, $SD = 0.99$) than dots low in agency ($M = 4.17$, $SD = 1.03$), $t(214) = 3.67$, $p < .001$, Cohen's $d = 0.50$. The dots high in agency were also seen as more communal ($M = 4.58$, $SD = 1.06$) than the dots low in agency ($M = 4.30$, $SD = 0.84$), $t(214) = 2.11$, $p = .04$, Cohen's $d = 0.29$; however the difference in means for communion was less pronounced.

To examine the effectiveness of manipulated communion, we conducted a 2 (experimental manipulation of communion: high communion or low communion) × 2 (Big Two dimension: agency and communion) ANOVA, with the latter measured within subjects. The main effect of the Big Two dimension was not significant $F(1, 214) = 0.05$, $p = .83$, $\eta_p^2 = 0.0002$. The main effect of the experimental manipulation of communion $F(1, 214) = 8.98$, $p = .003$, $\eta_p^2 = 0.04$ was qualified by a significant expected interaction of the manipulated communion and the Big Two dimension $F(1, 214) = 17.67$, $p < .001$, $\eta_p^2 = 0.08$.

The dots high in communion were seen as more communal ($M = 4.77$, $SD = 0.91$) than the dots low in communion ($M = 4.12$, $SD = 0.92$), $t(214) = 5.15$, $p < .001$, Cohen's $d = 0.70$. The dots high in communion were not seen as more agentic ($M = 4.44$, $SD = 1.13$) than the dots low in communion ($M = 4.42$, $SD = 0.94$), $t(214) = 0.19$, $p = .85$, Cohen's $d = 0.03$.

11.3. Humanness ratings

We conducted a 2 (experimental manipulation of agency: high agency or low agency) by 2 (experimental manipulation of communion: high communion or low communion) ANOVA with the humanness thermometer serving as a dependent variable. There was only one expected significant main effect of the agency manipulation $F(1,212) = 8.37$, $p = .004$, $\eta_p^2 = 0.04$ indicating that the high agency dots ($M = 40.14$, $SD = 30.53$) were seen as having more humanness than the low agency dots ($M = 29.12$, $SD = 25.11$). Neither the main effect of communion $F(1,212) = 2.91$, $p = .09$, $\eta_p^2 = 0.01$ ($M = 38.23$, $SD = 29.66$ for high communion and $M = 31.40$, $SD = 27.03$ for low communion) nor the interaction effect $F(1,212) = 2.34$, $p = .13$, $\eta_p^2 = 0.01$ were significant.

12. Study 5: The impact of agency and communion on humanness judgments

In Studies 1–4, we used abstract stimuli to examine the role of agency and communion in humanness ratings. Such a method was indispensable to examine the general factors that affect humanness ratings but did not depend on an actual context. In Study 5, we wanted to examine whether the results obtained in our studies of abstract stimuli generalize to realistic stimuli. To do this, we used a previously validated approach to systematically manipulate the perception of communion and agency from faces (Walker & Vetter, 2015) with a novel set of faces that were photographed recently to build the Basel Face Database (Walker, Schönborn, Greifeneder, & Vetter, 2017). This choice of manipulation allowed us to replicate the effects obtained in Studies 1–4, and to compare the findings from these studies to findings obtained using highly meaningful ecologically valid stimuli.

12.1. Method

12.1.1. Participants

All participants were recruited through Amazon Mechanical Turk (Buhrmester et al., 2011) at a rate of $6.00 per hour. We excluded nine participants based on an attention-check question adapted from Wiener et al. (2014), and one participant based on the self-commitment question. The final sample consisted of 200 participants (94 women and 106 men; $M_{age} = 37.60$, $SD_{age} = 11.62$). For Study 5 we relied on G*Power 3.1 software (Mayr et al., 2007) to calculate the sample size, using a power of 80% benchmark for a small effect size of $f = 0.10$ (Cumming, 2014). This choice of effect size was directed by the fact that the participants judge humanness of actual human faces; therefore, the differences between the humanness ratings of two human faces could be smaller, and more power needs to be applied in order to detect an effect.

12.1.2. Procedure and materials

Participants were informed that the study concerned how people perceive different faces. For details of the introduction to the study and the pretest of the faces used see the SOM. The faces were modeled using a validated computational method (Walker & Vetter, 2015) to vary the amount of perceived agency or communion. For each face, four variants were created; low versus high agency and low versus high communion; an example of an actual face used in Study 5 is available in the SOM. Each participant evaluated two faces that varied either on agency ($N = 97$; low and high) or on communion ($N = 103$; low and high). Which specific face was high or low on a given dimension, and the order of the presentation of faces was counterbalanced across participants.

To assess humanness, agency, and communion, we used the same variables as in Study 2b, 3a, 3b, and 4. In Study 5, we also asked additional questions referring to possible emotions expressed in the manipulation materials. All of these questions were asked after obtaining the initial dependent variables. As these exploratory measures are not

Table 14
Descriptive statistics for humanness, agency, and communion indicators in Study 4.

Variable	High agency/High communion		High agency/Low communion		Low agency/High communion		Low agency/Low communion	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
H. Thermometer	46.21	31.95	33.96	27.96	29.47	24.33	28.80	26.05
Agency	4.81	1.07	4.53	0.88	4.03	1.06	4.30	1.00
Communion	5.01	0.94	4.14	1.01	4.50	0.82	4.10	0.82

Table 15
Reliability coefficients, means, standard deviations, and correlation coefficients for the variables used in Study 5.

Variable	α	*M*	*SD*	Agency	Communion
H. Thermometer		90.00	15.85	0.15**	0.14**
Agency	0.87	4.30	1.01		0.30***
Communion	0.85	4.47	1.03		

** $p < .01$.
*** $p < .001$.

relevant to the present manuscript we present them in the SOM. The correlations of the humanness indicator, and agency and communion scales, are presented in Table 15.

12.2. Results and discussion

12.2.1. Manipulation check

We conducted two analyses. To examine the effectiveness of manipulated facial agency, we conducted a 2 (level of the dimension on the face: low and high) × 2 (Big Two dimension: agency and communion) ANOVA, with the two factors measured within subjects. The main effect of the Big Two dimension was not significant $F(1, 96) = 3.17$, $p = .08$, $\eta_p^2 = 0.03$. The main effect of the level of the dimension on the face $F(1, 96) = 17.92$, $p < .001$, $\eta_p^2 = 0.16$ was qualified by a significant expected interaction of the level of the dimension on the face and the Big Two dimension $F(1, 96) = 9.41$, $p = .003$, $\eta_p^2 = 0.09$. As expected, the faces differed with the ascribed agency $t(96) = 6.29$, $p < .001$, Cohen's $d = 0.66$[2] but not communion $t(96) = 1.25$, $p = .21$, Cohen's $d = 0.13$; see Table 16 for all means and standard deviations.

To examine the effectiveness of manipulated facial communion, we conducted a 2 (level of the dimension on the face: low and high) × 2 (Big Two dimension: agency and communion) ANOVA, with the two factors measured within subjects. The main effect of the Big Two dimension was not significant $F(1, 102) = 3.77$, $p = .06$, $\eta_p^2 = 0.04$. The main effect of the level of the dimension on the face $F(1, 102) = 32.79$, $p < .001$, $\eta_p^2 = 0.24$ was qualified by a significant expected interaction of the level of the dimension on the face and the Big Two dimension $F(1, 102) = 67.79$, $p < .001$, $\eta_p^2 = 0.40$. As expected, the faces differed with the ascribed communion $t(102) = 8.15$, $p < .001$, Cohen's $d = 0.80$ but not agency $t(102) = -1.03$, $p = .30$, Cohen's $d = 0.09$.

12.2.2. Humanness ratings

We conducted a 2 (manipulated facial dimension: agency or communion) × 2 (level of the dimension on the face: low and high) ANOVA with the latter factor measured within subjects. Both main effects; of the manipulated facial dimension $F(1, 198) = 0.46$, $p = .50$, $\eta_p^2 = 0.002$, and of the level of the dimension on the face $F(1, 198) = 0.83$, $p = .36$, $\eta_p^2 = 0.004$ were not significant. The expected interaction of the manipulated facial dimension with the level of the dimension on the face was significant $F(1, 198) = 11.50$, $p = .001$, $\eta_p^2 = 0.05$. As expected, the face with a high level of agency was evaluated as more human than the face with a low level of agency, $t(96) = 2.81$, $p = .006$, Cohen's $d = 0.29$. The effect of communion was not significant $t(102) = -1.91$, $p = .06$, Cohen's $d = 0.19$.[3] It has to be noted that the choice of stimuli for Study 5 was limited to 2 faces. This limited stimulus set resulted from the findings of the pretest. The pretest was conducted to choose only those stimuli for which the base face (prior to applying Face Model manipulation) was perceived as neutral. Only two male faces met this criterion: when the Face Model was applied it conveyed the expected effect as indicated by the manipulation check. We noted also no effect of the face (the effect was the same regardless of which face had the low or high agency or communion). That said, we still cannot completely exclude the possibility that the results are unrepresentative due to the stimulus sampling bias. An additional analysis, including the face type, and the correction for a possible ceiling effect, is presented in the SOM.

Table 16
Descriptive statistics for humanness, agency, and communion indicators in Study 5.

Variable	Facial agency				Facial communion			
	High		Low		High		Low	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
H. Thermometer	91.13	14.06	87.42	17.93	89.61	16.32	91.75	14.71
Agency	4.56	0.79	3.95	1.08	4.30	0.98	4.37	1.09
Communion	4.52	0.96	4.35	1.03	4.97	0.93	4.03	0.96

13. Study 6: Internal meta-analyses

In order to estimate the general size of the effect of the reported studies, we conducted two meta-analyses using the *metafor* package in R (Viechtbauer, 2010). All the meta-analyses were conducted using the Restricted Maximum Likelihood Estimator. For Study 5, where comparisons were made within individuals, the effect sizes were computed by referring to the correlation of measures and were adjusted according to Morris (2008).

Firstly, we compared the effect of manipulated agency on humanness ratings. The results of the meta-analysis indicate that the overall standardized mean difference (*d*) across the studies was significant and moderate in size (point estimator = 0.41, *SE* = 0.08, $p < .001$) see Fig. 1. There was also a small amount of between study variability $Q(4) = 5.87$, $p = .21$, $I^2 = 35.28\%$.

Second, we compared the effect of manipulated communion on humanness ratings. The results of the meta-analysis indicate that the overall standardized mean difference (*d*) across the studies was not significant (point estimator = −0.001, *SE* = 0.07, $p = .99$) see Fig. 2. There was also a small amount of between study variability $Q(4) = 6.05$; $p = .20$; $I^2 = 38.56\%$.

14. General discussion

Throughout this series of studies, we examined the role of the Big Two dimensions of social perception; agency and communion, on the rating of the humanness of targets. Our expectation that agency would be an important factor contributing to dehumanization was supported by five experiments and their meta-analysis. Throughout the five experiments and their meta-analysis, we found no evidence of a relationship between communion and humanness.

[2] The Cohen's *ds* for Study 5 were computed using Morris and DeShon's (2002) formula, which corrects for the dependence between the repeated measures.

[3] The patterns of the means for Study 5 indicated that the low communion face was seen as more human than the high communion face. This effect may be interpreted in evolutionary terms –humanness ascription may follow what we may see as potentially endangering, that is high agency (having the ability to carry out an intention) and low communion (having the negative intention per se). The effect of communion could be seen as parallel to the face in the crowd effect (Shasteen, Sasson, & Pinkham, 2015) for which threatening faces are recognized faster than neutral or friendly faces even in the absence of anger. This effect could suggest that dehumanization, like humanization, follows an evolutionary logic. Yet, given that Study 5 was sufficiently powered to detect a small effect size, we see no reason at this point to view the trend-level effect of communion as anything other than a chance finding.

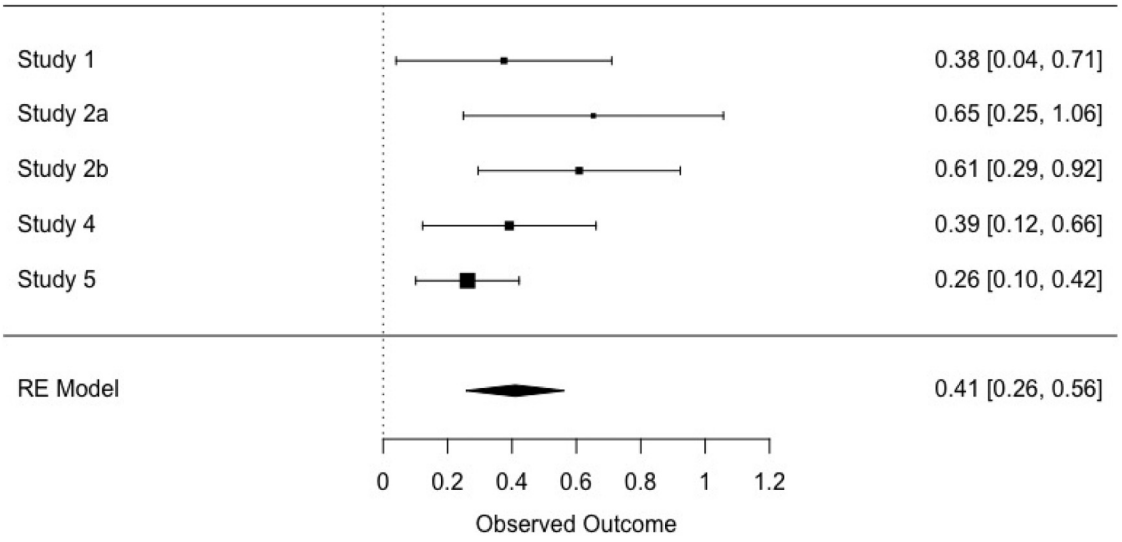

Fig. 1. Forest plot of individual and pooled random effects estimates of the standardized mean differences between agentic and control conditions for humanness examined in five experiments. Studies are represented by symbols, the area of which is proportional to the study's weight in the analysis.

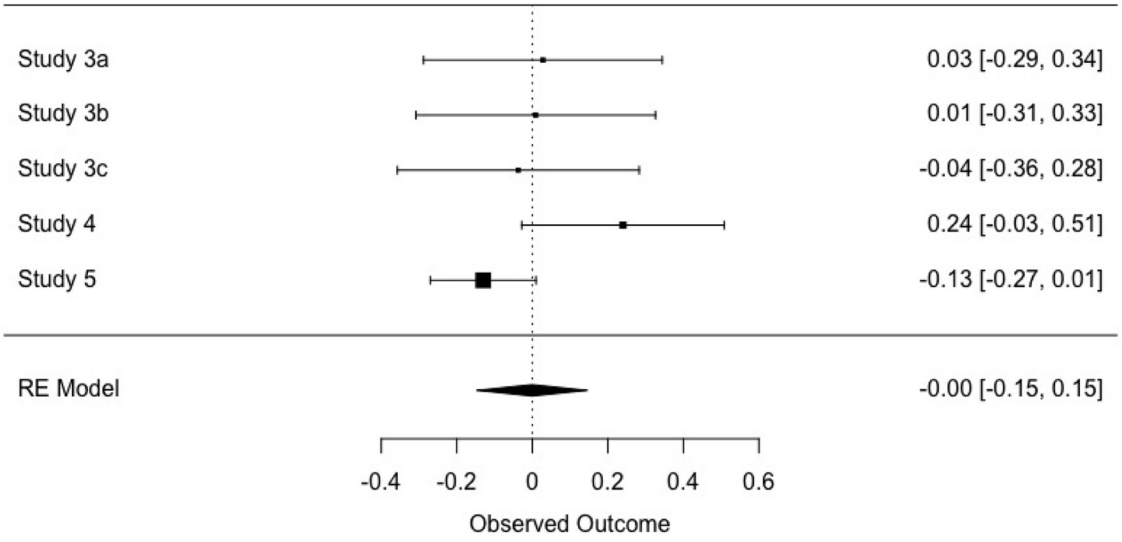

Fig. 2. Forest plot of individual and pooled random effects estimates of the standardized mean differences between communal and control conditions for humanness examined in four experiments. Studies are represented by symbols, the area of which is proportional to the study's weight in the analysis.

14.1. The role of agency in dehumanization

Our observation that agency is a key determinant of attributions of humanness corresponds to other research highlighting the importance of agency in social perception. Agency has been identified as the key predictor of respect in interpersonal attitudes (Wojciszke et al., 2009) and the primary dimension of group classification (Koch et al., 2016). Similar to our findings, competence, which is related to agency, correlated with the perceptions of the human uniqueness of groups in Vaes and Paladino (2010). Additionally, historical examples corroborate that dehumanization and associated acts of violence happen to low agency, harmless, targets (e.g., refugees, captives, slaves, women, and children).

Agentic individuals or groups are able to address their own needs and secure a privileged position. Moreover, agentic targets might have the ability to endanger others or defend themselves when attacked. Therefore, attending to the agency of others carries important consequences for one's interests, or even survival. One argument behind the adaptive function of the attunement to agency is that vigilance toward agency is observable from the very early days of human development (e.g., Csibra, 2008; Gergely et al., 1995; Liu & Spelke, 2017; Luo & Baillargeon, 2005). From the earliest days of life, human babies can differentiate biological, and presumably goal-oriented, from non-biological, random motion (Simion, Regolin, & Bulf, 2008) and as early as at 6 months of age attend to goal directed behaviors (e.g., Csibra, 2008; Luo & Baillargeon, 2005).

It is important to emphasize that our results inform only what contributes to perceptions of humanness, as in what matters to the observers, and not what humanness is, as to the nature of the targets. Low agency results most often from external factors referring to both natural causes, such as illness, or to social causes, such as poverty. Moreover, individuals or groups are part of a broader social reality that might be, but often is not, favorable for achieving their goals. Given how much the actual agency of individuals and groups is determined by their situation, we are not saying that the capacity for agency is what makes people human. On the contrary, we refrain from taking a stance on human essence as there appears to be little to no agreement about the nature of the human essence among scientists (van Zomeren & Dovidio, 2018) or lay people (Bain, Vaes, Kashima, Haslam, & Guan, 2012). Deciding what constitutes human essence can also be dangerous, as different assumptions about human essence have been generated by

a range of political systems, leading to abuse and dehumanization of those who did not fulfill the criteria.

An alternative to understanding dehumanization as a denial of human essence would be to see dehumanization as a denial of human rights. All people are entitled to agency from a human rights perspective, that is, the freedom to pursue one's goals through the freedom of movement, speech, and work, among other things. According to the human rights approach, agency is understood in reference to the external conditions that allow for respectful and dignified living.

This notion is also at the heart of the needs-based reconciliation model (Shnabel & Nadler, 2008), which postulates that granting agency to the victims in the context of intergroup conflict is necessary for the constructive process of resolving the intergroup tension, because victims of conflict feel deprived of perceived control (Baumeister, Stillwell, & Heatherton, 1994). Our research extends the current model of reconciliation, because acquiring agency is not only important for the victim group to pursue reconciliation. The increase in real and perceived agency may restore victims' humanness (as our studies show), as well as their status and respect (Wojciszke et al., 2009), in the eyes of the other party in the conflict. Importantly, real and perceived agency is easier to change (Abele, Rupprecht, & Wojciszke, 2008) than relatively stable structural characteristics, such as hierarchical power relations (e.g., in political or job settings).

14.2. The role of communion in dehumanization

The null effect of communion observed in the context of our targets (geometric figures and faces) corresponds also with other findings in the literature. For example, the ascribed warmth of real groups did not predict their dehumanization (Vaes & Paladino, 2010), and ascribed communion had little importance in the spontaneous classification of groups (Koch et al., 2016). Interestingly, studies in social neuroscience indicate no difference in behavioral and rating data, as well as in brain activation, as measured by the fMRI for affiliative and hostile animations (Tavares et al., 2008); while differences were recorded for animations that depicted differences in the goal-directedness of targets (Schultz, Imamizu, Kawato, & Frith, 2004).

Given that people are seen as ultra-social animals (Tomasello, 2014), the null effect of communion on dehumanization seems counter-intuitive and raises the question: Is communion not perceived as a part of humanness? In our opinion, the answer to this question may be inferred from a superb collection of essays recently published on human essence (van Zomeren & Dovidio, 2018). There it is suggested that both low and high communion are seen as natural (Schroeder & Graziano, 2018; Vandello & Puryear, 2018). Both aggressive and prosocial behaviors are frequent and natural occurrences across the human repertoire of behaviors. Moreover, even prosocial behaviors can be divided further into altruistic versus self-serving ones: those that serve to maintain a positive image of oneself, or serve to maintain social inequality (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Feiler, Tost, & Grant, 2012; Kahneman & Knetsch, 1992; Nadler, 2018). Given this variability, communion might carry little diagnostic information about whether a certain target seems human or not. Moreover, both research evidence and historical examples corroborate that dehumanization and associated acts of violence happened to targets of both low and high communion (e.g., refugees, captives, prisoners, patients, slaves, women, and children). As mentioned before, all of these targets, however, had low agency.

14.3. Limitations and future directions

Our work has several limitations, which suggest key directions for future research. The first limitation refers to the use of non-interactive methods. Unfortunately, this limitation applies to most of the work on dehumanization, as studies have usually asked participants to evaluate different targets, not to interact with them (for notable exception see Gwinn et al., 2013). Most importantly for this article, Gwinn et al.' (2013) research simulated an interaction, and showed that despite the overall tendency to dehumanize subjects with lower power, those who behaved in an agentic way were not dehumanized. This result is congruent with results obtained in our evaluative studies. However, it is important to note that future studies on dehumanization should employ more ecologically valid methods to investigate interactions that differ both in the agentic and communal behaviors of the target.

We employed abstract stimuli for all but one of our studies. This decision was motivated by the desire to abstract away from all of the particular features of any given group. One important question is whether findings obtained with reference to dots can be transferred to humans. We observed convergent results in studies with non-social agents (Studies 1–4), and faces (Study 5), suggesting that agency matters not only with reference to dots, but also with reference to humans. This convergence is not surprising, given that the previous theories indicated that humanization (or anthropomorphization) and dehumanization are in fact two sides of the same coin (Haslam, 2006). The studies examining ascriptions of humanness and dehumanization have often included the same theoretical basis to study both human and non-human targets (e.g., Bilewicz, Imhoff, & Drogosz, 2011; Castano & Giner-Sorolla, 2006; Epley, Akalis, Waytz, & Cacioppo, 2008; Gray et al., 2007; Harris & Fiske, 2008; Haslam, Kashima, Loughnan, Shi, & Suitner, 2008). However, in future work, it will be important to expand upon these findings using realistic stimuli.

Relatedly, future work should directly address contexts in which dehumanization is prevalent, such as intergroup conflicts. Our work provides insights into factors that are important in laboratory contexts, where it is possible to isolate agency from communion. These findings are congruent with empirical and historical examples of dehumanized groups, which also suggest that while most (if not all) of them were in positions of low agency, their communion varied. However, in future research it will be necessary to examine the role of agency and communion in real-world conflict contexts further.[4]

We primarily used the humanness thermometer in our studies, which is based on blatant dehumanization (Kteily et al., 2015). The straightforwardness of this measure is most likely why it was highly predictive of hostile attitudes and behaviors toward groups above and beyond prejudice. The use of this rather general measure of ascribed humanness was determined by the purpose of the study, namely, investigating whether agency and communion are important predictors of dehumanization. Our studies could not use Haslam's measures of UH and HN attributes, as both scales contain items attributed to agency and communion (Haslam & Bain, 2007). However, future studies should use a variety of dehumanization measures to address the question of the relationship between blatant and subtle indicators of dehumanization (Kteily et al., 2015).

Moreover, in all of our studies, the order of presentation was the same; the participants first evaluated humanness and then traits describing the target. Therefore, it is possible that the manipulation check measures were affected by prior ratings of humanness. In order to exclude this possibility, we conducted 2 follow-up studies using manipulations of agency and communion to see whether without assessments of humanness, the results of the manipulation check would remain intact. We discovered that they did. We report on these additional studies in the SOM.

Additionally, despite applying known measures, we recorded relatively low reliability coefficients in some of the measurements (for

[4] In Study 5 we did not ask about participants' race; therefore, we cannot say how participants would react to faces of different races and whether this effect would be moderated by the participant's own race. Such an interaction could suggest that ingroup faces are evaluated differently in terms of humanness than outgroup faces. We cannot exclude that possibility; however, the stimuli were male faces and when the gender of the subjects was included in the analyses it had no interactive effect as would be expected by the ingroup-outgroup hypothesis – see SOM for analysis including gender of participants.

agency: 0.78 in Study 1; for communion: 0.73, 0.77, 0.67, 0.77, 0.77, 0.79 in Studies 1, 2a, 2b, 3b, 3c and 4 respectively; and for humanness: 0.64 in Study 3c). We have investigated this effect, and for the agency and communion scales we assume it was due to the use of the reverse scored items (Weijters, Baumgartner, & Schillewaert, 2013). Indeed, when we removed the reverse coded items from the analyses, the reliability coefficients were much higher (for agency: 0.85 in Study 1; for communion: 0.92, 0.92, 0.93, 0.93, 0.88, 0.91 in Studies 1, 2a, 2b, 3b, 3c and 4 respectively). We report the recalculated reliability coefficients for all of the studies in the SOM, along with the recalculated manipulation checks; however as noted, the pattern was not meaningfully changed.

Finally, the present studies focused exclusively on two factors drawn from a much larger number of possible determinants of dehumanization (including those highlighted by Haslam and colleagues). Future research should empirically examine other attributes of the model. This would be also of utmost importance to the measurement scales of humanness (Haslam & Bain, 2007) that so far include items referring to all of the constituents.

14.4. Conclusion

Following the recent revival of work on dehumanization, we built upon the findings of previous studies to examine the role of agency and communion in dehumanization. Our findings in 8 studies suggest that it is agency and not communion that contributes to the humanization of others. This work opens the door to further questions about the nature of humanization and dehumanization. A more rigorous understanding of dehumanization should inform both basic and applied work that aims to end dehumanization in a variety of domains.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jesp.2018.04.003.

Open practices

The experiments in this article earned Open Materials, Open Data, and Preregistered badges for transparent practices. Materials, data, and the preregistration reports for the experiments can be found https://osf.io/5tus8/.

References

Abele, A. E., & Bruckmüller, S. (2011). The bigger one of the “Big Two?” Preferential processing of communal information. *Journal of Experimental Social Psychology, 47*, 935–948. http://dx.doi.org/10.1016/j.jesp.2011.03.028.

Abele, A. E., Hauke, N., Peters, K., Louvet, E., Szymkow, A., & Duan, Y. (2016). Facets of the fundamental content dimensions: Agency with competence and assertiveness-communion with warmth and morality. *Frontiers in Psychology, 7*(1810), http://dx.doi.org/10.3389/fpsyg.2016.01810.

Abele, A. E., Rupprecht, T., & Wojciszke, B. (2008). The influence of success and failure experiences on agency. *European Journal of Social Psychology, 38*, 436–448. http://dx.doi.org/10.1002/ejsp.454.

Abele, A. E., Uchronski, M., Suitner, C., & Wojciszke, B. (2008). Towards an operationalization of the fundamental dimensions of agency and communion: Trait content ratings in five countries considering valence and frequency of word occurrence. *European Journal of Social Psychology, 38*, 1202–1217. http://dx.doi.org/10.1002/ejsp.575.

Abele, A. E., & Wojciszke, B. (2007). Agency and communion from the perspective of self-versus others. *Journal of Personality and Social Psychology, 93*, 751–763. http://dx.doi.org/10.1037/0022-3514.93.5.751.

Abele, A. E., & Wojciszke, G. (2014). Communal and agentic content in social cognition: A dual perspective model. *Advances in Experimental Social Psychology, 50*, 195–255. http://dx.doi.org/10.1016/B978-0-12- 800284-1.00004-7.

Bain, P., Vaes, J., Kashima, Y., Haslam, N., & Guan, Y. (2012). Folk conceptions of humanness: Beliefs about distinctive and core human characteristics in Australia, Italy, and China. *Journal of Cross-Cultural Psychology, 43*, 53–58. http://dx.doi.org/10.1177/0022022111419029.

Baker, C., Saxe, R., & Tenenbaum, J. (2009). Action understanding as inverse planning. *Cognition, 113*, 329–349. http://dx.doi.org/10.1016/j.cognition.2009.07.005.

Bandes, S. (1999). Patterns of injustice: Police brutality in the courts. *Buffalo Law Review, 47*, 1275–1341. http://dx.doi.org/10.2139/ssrn.165395.

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*, 75–78. http://dx.doi.org/10.1111/1467-8721.00064.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1–26. http://dx.doi.org/10.1146/annurev.psych.52.1.1.

Bandura, A., Underwood, B., & Fromson, M. E. (1975). Disinhibition of aggression through diffusion of responsibility and dehumanization of victims. *Journal of Research in Personality, 9*, 253–269. http://dx.doi.org/10.1016/0092-6566(75)90001-X.

Bar-Tal, D. (1990). Causes and consequences of delegitimization: Models of conflict and ethnocentrism. *Journal of Social Issues, 46*, 65–81. http://dx.doi.org/10.1111/j.1540-4560.1990.tb00272.x.

Baumeister, R. F., Stillwell, A. M., & Heatherton, T. F. (1994). Guilt: An interpersonal approach. *Psychological Bulletin, 115*, 243. http://dx.doi.org/10.1037/0033-2909.115.2.243.

Bernard, P., Gervais, S. J., Allen, J., Campomizzi, S., & Klein, O. (2012). Integrating sexual objectification with object versus person recognition: The sexualized-body-inversion hypothesis. *Psychological Science, 23*, 469–471. http://dx.doi.org/10.1177/0956797611434748.

Bilewicz, M., Imhoff, R., & Drogosz, M. (2011). The humanity of what we eat: Conceptions of human uniqueness among vegetarians and omnivores. *European Journal of Social Psychology, 41*, 201–209. http://dx.doi.org/10.1002/ejsp.766.

Bloom, P., & Veres, C. (1999). The perceived intentionality of groups. *Cognition, 71*, B1–B9. http://dx.doi.org/10.1016/s0010-0277(99)00014-1.

Brambilla, M., & Leach, C. W. (2014). On the importance of being moral: The distinctive role of morality in social judgment. *Social Cognition, 32*, 397–408. http://dx.doi.org/10.1521/soco.2014.32.4.397.

Brambilla, M., Rusconi, P., Sacchi, S., & Cherubini, P. (2011). Looking for honesty: The primary role of morality (vs. Sociability and competence) in information gathering. *European Journal of Social Psychology, 41*, 135–143. http://dx.doi.org/10.1002/ejsp.744.

Bruneau, E., Kteily, N., & Laustsen, L. (2018). The unique effects of blatant dehumanization on attitudes and behavior towards Muslim refugees during the European ‘refugee crisis’ across four countries. *European Journal of Social Psychology*. http://dx.doi.org/10.1002/ejsp.2357.

Buckels, E. E., & Trapnell, P. D. (2013). Disgust facilitates outgroup dehumanization. *Group Processes & Intergroup Relations, 16*, 771–780. http://dx.doi.org/10.1177/1368430212471738.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*, 3–5. http://dx.doi.org/10.1177/1745691610393980.

Capozza, D., Andrighetto, L., di Bernardo, G. A., & Falvo, R. (2012). Does status affect intergroup perceptions of humanity? *Group Processes & Intergroup Relations, 15*, 363–377. http://dx.doi.org/10.1177/1368430211426733.

Castano, E., & Giner-Sorolla, R. (2006). Not quite human: Infrahumanization in response to collective responsibility for intergroup killing. *Journal of Personality and Social Psychology, 90*, 804–818. http://dx.doi.org/10.1037/0022-3514.90.5.804.

Castelli, F., Happé, F., Frith, U., & Frith, C. (2000). Movement and mind: A functional imaging study of perception and interpretation of complex intentional movement patterns. *Online*. http://dx.doi.org/10.1006/nimg.2000.0612.

Cialdini, R. B., Brown, S. L., Lewis, B. P., Luce, C., & Neuberg, S. L. (1997). Reinterpreting the empathy–altruism relationship: When one into one equals oneness. *Journal of Personality and Social Psychology, 73*, 481–494. http://dx.doi.org/10.1037/0022-3514.73.3.481.

Cortes, B. P., Demoulin, S., Rodriguez, R. T., Rodriguez, A. P., & Leyens, J. P. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup, and the outgroup. *Personality and Social Psychology Bulletin, 31*, 243–253. http://dx.doi.org/10.1177/0146167204271421.

Costello, K., & Hodson, G. (2011). Social dominance-based threat reactions to immigrants in need of assistance. *European Journal of Social Psychology, 41*, 220–231. http://dx.doi.org/10.1002/ejsp.769.

Csibra, G. (2008). Goal attribution to inanimate agents by 6.5-month-old infants. *Cognition, 107*, 705–717. http://dx.doi.org/10.1016/j.cognition.2007.08.001.

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the BIAS map. *Advances in Experimental Social Psychology, 40*, 61–149. http://dx.doi.org/10.1016/S0065-2601(07)00002-0.

Cuddy, A. J. C., Rock, M. S., & Norton, M. I. (2007). Aid in the aftermath of hurricane Katrina: Inferences of secondary emotions and intergroup helping. *Group Processes & Intergroup Relations, 10*, 107–118. http://dx.doi.org/10.1177/1368430207071344.

Cumming, G. (2014). The new statistics: Why and how. *Psychological Science, 25*, 7–29. http://dx.doi.org/10.1177/0956797613504966.

Demoulin, S., Leyens, J., Paladino, M., Rodriguez-Torres, R., Rodriguez-Perez, A., & Dovidio, J. (2004). Dimensions of “uniquely” and “non-uniquely” human emotions. *Cognition & Emotion, 18*, 71–96. http://dx.doi.org/10.1080/02699930244000444.

Epley, N., Akalis, S., Waytz, A., & Cacioppo, J. T. (2008). Creating social connection through inferential reproduction: Loneliness and perceived agency in gadgets, gods, and greyhounds. *Psychological Science, 19*, 114–120. http://dx.doi.org/10.1111/j.1467-9280.2008.02056.x.

Feiler, D. C., Tost, L. P., & Grant, A. M. (2012). Mixed reasons, missed givings: The costs of blending egoistic and altruistic reasons in donation requests. *Journal of Experimental Social Psychology, 48*, 1322–1328. http://dx.doi.org/10.1016/j.jesp.2012.05.014.

Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from the perceived status and competition. *Journal of Personality and Social Psychology, 82*, 878–902. http://dx.doi.org/10.1037/0022-3514.82.6.878.

Gergely, G., Nádasdy, Z., Csibra, G., & Bíró, S. (1995). Taking the intentional stance at 12 months of age. *Cognition, 56*, 165–193. http://dx.doi.org/10.1016/0010-0277(95)00661-h.

Goff, P. A., Eberhardt, J. L., Williams, M. J., & Jackson, M. C. (2008). Not yet human: Implicit knowledge, historical dehumanization, and contemporary consequences. *Journal of Personality and Social Psychology, 94*, 292–306. http://dx.doi.org/10.1037/0022-3514.94.2.292.

Gray, H. M., Gray, K., & Wegner, D. (2007). Dimensions of mind perception. *Science, 315*, 619. http://dx.doi.org/10.1126/science.1134475.

Gray, K., Knobe, J., Sheskin, M., Bloom, P., & Barrett, L. F. (2011). More than a body: Mind perception and the nature of objectification. *Journal of Personality and Social Psychology, 101*, 1207–1220. http://dx.doi.org/10.1037/a0025883.

Gwinn, J. D., Judd, C. M., & Park, B. (2013). Less power = less human? Effects of power differentials on dehumanization. *Journal of Experimental Social Psychology, 49*, 464–470. http://dx.doi.org/10.1016/j.jesp.2013.01.005.

Haque, S., & Waytz, A. (2012). Dehumanization in medicine: Causes, solutions, and functions. *Perspectives on Psychological Science, 7*, 176–186. http://dx.doi.org/10.1177/1745691611429706.

Harris, L. T., & Fiske, S. T. (2006). Dehumanizing the lowest of the low: Neuroimaging responses to extreme out-groups. *Psychological Science, 17*, 847–853. http://dx.doi.org/10.1111/j.1467-9280.2006.01793.x.

Harris, L. T., & Fiske, S. T. (2008). The brooms in fantasia: Neural correlates of anthropomorphizing objects. *Social Cognition, 26*, 210–223. http://dx.doi.org/10.1521/soco.2008.26.2.210.

Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology, 10*, 252–264. http://dx.doi.org/10.1207/s15327957pspr1003_4.

Haslam, N., & Bain, P. (2007). Humanizing the self: Moderators of the attribution of lesser humanness to others. *Personality and Social Psychology Bulletin, 33*, 57–68. http://dx.doi.org/10.1177/0146167206293191.

Haslam, N., Bain, P., Douge, L., Lee, M., & Bastian, B. (2005). More human than you: attributing humanness to self and others. *Journal of Personality and Social Psychology, 89*, 937–950. http://dx.doi.org/10.1037/0022-3514.89.6.937.

Haslam, N., Kashima, Y., Loughnan, S., Shi, J., & Suitner, C. (2008). Subhuman, inhuman, and superhuman: Contrasting humans with nonhumans in three cultures. *Social Cognition, 26*, 248–258. http://dx.doi.org/10.1521/soco.2008.26.2.248.

Haslam, N., & Loughnan, S. (2014). Dehumanization and infrahumanization. *Annual Review of Psychology, 65*, 399–423. http://dx.doi.org/10.1146/annurev-psych-010213-115045.

Heberlein, A. S., & Adolphs, R. (2004). Impaired spontaneous anthropomorphizing despite intact perception and social knowledge. *Proceedings of the National Academy of Sciences, 101*, 7487–7491. http://dx.doi.org/10.1073/pnas.0308220101.

Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *The American Journal of Psychology, 57*, 243–259. http://dx.doi.org/10.2307/1416950.

Iatridis, T. (2013). Occupational status differences in attributions of uniquely human emotions. *British Journal of Social Psychology, 52*, 431–449. http://dx.doi.org/10.1111/j.2044-8309.2011.02094.x.

Kahneman, D., & Knetsch, J. L. (1992). Valuing public goods: The purchase of moral satisfaction. *Journal of Environmental Economics and Management, 22*, 57–70. http://dx.doi.org/10.1016/0095-0696(92)90019-S.

Kelman, H. G. (1973). Violence without moral restraint: Reflections on the dehumanization of victims and victimizers. *Journal of Social Issues, 29*, 25–61. http://dx.doi.org/10.1111/j.1540-4560.1973.tb00102.x.

Koch, A., Imhoff, R., Dotsch, R., Unkelbach, C., & Alves, H. (2016). The ABC of stereotypes about groups: Agency/socioeconomic success, conservative-progressive beliefs, and communion. *Journal of Personality and Social Psychology, 110*, 675–709. http://dx.doi.org/10.1037/pspa0000046.

Kteily, N., Bruneau, E., Waytz, A., & Cotterill, S. (2015). The ascent of man: Theoretical and empirical evidence for blatant dehumanization. *Journal of Personality and Social Psychology, 109*, 901–931. http://dx.doi.org/10.1037/pspp0000048.

Kteily, N., Hodson, G., & Bruneau, E. (2016). They see us as less than human: Metadehumanization predicts intergroup conflict via reciprocal dehumanization. *Journal of Personality and Social Psychology, 110*, 343–370. http://dx.doi.org/10.1037/pspa0000044.

Lammers, J., & Stapel, D. A. (2011). Power increases dehumanization. *Group Processes & Intergroup Relations, 14*, 113–126. http://dx.doi.org/10.1177/1368430210370042.

Leach, C. W., Ellemers, N., & Barreto, M. (2007). Group virtue: The importance of morality (vs. Competence and sociability) in the positive evaluation of in-groups. *Journal of Personality and Social Psychology, 93*, 234–249. http://dx.doi.org/10.1037/0022-3514.93.2.234.

Leyens, J. P., Demoulin, S., Vaes, J., Gaunt, R., & Paladino, M. (2007). Infra-humanization: The wall of group differences. *Social Issues and Policy Review, 1*, 139–172. http://dx.doi.org/10.1111/j.1751-2409.2007.00006.x.

Leyens, J. P., Paladino, P. M., Rodriguez-Torres, R., Vaes, J., Demoulin, S., Rodriguez-Perez, A., & Gaunt, R. (2000). The emotional side of prejudice: The attribution of secondary emotions to ingroups and outgroups. *Personality and Social Psychology Review, 4*, 186–197. http://dx.doi.org/10.1207/S15327957PSPR0402_06.

Li, M., Leidner, B., & Castano, E. (2014). Toward a compre-hensive taxonomy of dehumanization: Integrating two senses of humannes, mind perception theory, and stereotype content model. *Testing, Psychometrics, Methodology in Applied Psychology, 21*, 285–300. http://dx.doi.org/10.4473/TPM21.3.4.

Liu, S., & Spelke, E. S. (2017). Six-month-old infants expect agents to minimize the cost of their actions. *Cognition, 160*, 35–42. http://dx.doi.org/10.1016/j.cognition.2016.12.007.

Loughnan, S., Haslam, N., Sutton, R. M., & Spencer, B. (2014). Dehumanization and social class. *Social Psychology, 45*, 54–61. http://dx.doi.org/10.1027/1864-9335/a000159.

Luo, Y., & Baillargeon, R. (2005). Can a self-propelled box have a goal? - Psychological reasoning in 5-month-old infants. *Psychological Science, 16*, 601–608. http://dx.doi.org/10.1111/j.1467-9280.2005.01582.x.

Maass, A., Suitner, C., & Nadhmi, F. (2014). What drives the spatial agency bias? An Italian–Malagasy–Arabic comparison study. *Journal of Experimental Psychology: General, 143*(3), 991–996. http://dx.doi.org/10.1037/a0034989.

Mayr, S., Erdfelder, E., Buchner, A., & Faul, F. (2007). A short tutorial of gpower. *Tutorial in Quantitative Methods for Psychology, 3*, 51–59. http://dx.doi.org/10.20982/tqmp.03.2.p051.

McAdams, D. P., Hoffman, B. J., Mansfield, E. D., & Day, R. (1996). Themes of agency and communion in significant autobiographical scenes. *Journal of Personality, 64*, 339–377. http://dx.doi.org/10.1111/j.1467-6494.1996.tb00514.x.

Morris, S. B. (2008). Estimating effect sizes from pretest-posttest-control group designs. *Organizational Research Methods, 11*(2), 364–386. http://dx.doi.org/10.1177/1094428106291059.

Morris, S. B., & DeShon, R. P. (2002). Combining effect size estimates in meta-analysis with repeated measures and independent-groups designs. *Psychological Methods, 7*, 105–125. http://dx.doi.org/10.1037//1082-989X.7.1.105.

Nadler, A. (2018). The human essence in helping relations: belongingness, independence, and status. In M. van Zomeren, & J. F. Dovidio (Eds.). *The Oxford handbook of the human essence*. Oxford: Oxford University Press.

Opotow, S. (1990). Deterring moral exclusion. *Journal of Social Issues, 46*, 173–182. http://dx.doi.org/10.1111/j.1540-4560.1990.tb00280.x.

Rodriguez-Perez, A., Delgado-Rodriguez, N., Betancor-Rodriguez, V., Leyens, J. P., & Vaes, J. (2011). Infra-humanization of outgroups throughout the world. The role of similarity, intergroup friendship, knowledge of the outgroup, and status. *Anales De Psicologia, 27*, 679–687.

Ryan, R. M., & Deci, E. L. (2000). Self-Determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78 (doi:10.1037110003-066X.55.1.68).

Saguy, T., Szekeres, H., Nouri, R., Goldenberg, A., Doron, G., Dovidio, J. F., ... Halperin, E. (2015). Awareness of intergroup help can rehumanize the out-group. *Social Psychological and Personality Science, 6*, 551–558. http://dx.doi.org/10.1177/1948550615574748.

Schaller, M., & Neuberg, S. L. (2012). Danger, disease, and the nature of prejudice(s). *Advances in Experimental Social Psychology, 46*, 1–54. http://dx.doi.org/10.1016/B978-0-12-394281-4.00001-5.

Scholl, B. J., & Tremoulet, P. D. (2000). Perceptual causality and animacy. *Trends in Cognitive Sciences, 4*, 299–309. http://dx.doi.org/10.1016/s1364-6613(00)01506-0.

Schroeder, D. A., & Graziano, W. G. (2018). Prosocial behavior as a human essence. In M. van Zomeren, & J. F. Dovidio (Eds.). *The Oxford handbook of the human essence*. Oxford: Oxford University Press.

Schultz, J., Imamizu, H., Kawato, M., & Frith, C. D. (2004). Activation of the human superior temporal gyrus during observation of goal attribution by intentional objects. *Journal of Cognitive Neuroscience, 16*, 1695–1705. http://dx.doi.org/10.1162/0898929042947874.

Shasteen, J. R., Sasson, N. J., & Pinkham, A. E. (2015). A detection advantage for facial threat in the absence of anger. *Emotion, 15*, 837–845. http://dx.doi.org/10.1037/emo0000090.

Shnabel, N., & Nadler, A. (2008). A needs-based model of reconciliation: Satisfying the differential emotional needs of victim and perpetrator as a key to promoting reconciliation. *Journal of Personality and Social Psychology, 94*, 116–132. http://dx.doi.org/10.1037/0022-3514.94.1.116.

Simion, F., Regolin, L., & Bulf, H. (2008). A predisposition for biological motion in the newborn baby. *Proceedings of the National Academy of Sciences, 105*, 809–813. http://dx.doi.org/10.1073/pnas.0707021105.

Simon, B., & Oakes, P. (2006). Beyond dependence: An identity approach to social power and domination. *Human Relations; Studies Towards the Integration of the Social Sciences, 59*, 105–139. http://dx.doi.org/10.1177/0018726706062760.

Sloan, L. M., Matyók, T., Schmitz, C. L., & Lester Short, G. F. (2010). A story to tell: Bullying and mobbing in the workplace. *International Journal of Business and Social Science, 1*, 87–97.

Stoecker, R. (2011). Three crucial turns on the road to an adequate understanding of human dignity. In P. Kaufmann, H. Kuch, C. Neuhaeuser, & E. Webster (Eds.). *Humiliation, degradation, dehumanization* (pp. 7–17). Springer Netherlands.

Tavares, P., Lawrence, A. D., & Barnard, P. J. (2008). Paying attention to social meaning: An FMRI study. *Cerebral Cortex, 18*, 1876–1885. http://dx.doi.org/10.1093/cercor/bhm212.

Tomasello, M. (2014). The ultra-social animal. *European Journal of Social Psychology, 44*, 187–194. http://dx.doi.org/10.1002/ejsp.2015.

Tremoulet, P. D., & Feldman, J. (2000). Perception of animacy from the motion of a single object. *Perception, 29*, 943–951. http://dx.doi.org/10.1068/p3101.

Turner, J. C. (2005). Explaining the nature of power: A three-process theory. *European Journal of Social Psychology, 35*, 1–22. http://dx.doi.org/10.1002/ejsp.244.

Vaes, J., & Paladino (2010). The uniquely human content of stereotypes. *Group Processes & Intergroup Relations, 13*, 23–39. http://dx.doi.org/10.1177/1368430209347331.

Vaes, J., Paladino, M. P., Castelli, L., Leyens, J. P., & Giovanazzi, A. (2003). On the behavioral consequences of infrahumanization: The implicit role of uniquely human emotions in intergroup relations. *Journal of Personality and Social Psychology, 85*, 1016–1034. http://dx.doi.org/10.1037/0022-3514.85.6.1016.

Vandello, J. A., & Puryear, C. (2018). Does aggression make us human? In M. van Zomeren, & J. F. Dovidio (Eds.). *The Oxford handbook of the human essence*. Oxford: Oxford University Press.

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software, 36*, 1–48. http://dx.doi.org/10.18637/jss.v036.i03.

Walker, M., Schönborn, S., Greifeneder, R., & Vetter, T. (2017). *The basel face database: A validated set of photographs reflecting systematic differences in Big Two and Big Five personality dimensions.* (Manuscript under review).

Walker, M., & Vetter, T. (2015). Changing the personality of a face: Perceived big two and big five personality factors modeled in real photographs. *Journal of Personality and*

Social Psychology, 110, 609. http://dx.doi.org/10.1037/pspp0000064.
Weijters, B., Baumgartner, H., & Schillewaert, N. (2013). Reversed item bias: An integrative model. *Psychological Methods, 18*, 320–334. http://dx.doi.org/10.1037/a0032121.
Weisman, K., Dweck, C. S., & Markman, E. M. (2017). Rethinking people's conceptions of mental life. *Proceedings of the National Academy of Sciences of the United States of America. 114. Proceedings of the National Academy of Sciences of the United States of America* (pp. 11374–11379). . http://dx.doi.org/10.1073/pnas.1704347114.
Wiener, R. L., Gervais, S. J., Brnjic, E., & Nuss, G. D. (2014). Dehumanization of older people: The evaluation of hostile work environments. *Psychology, Public Policy, and Law, 20*, 384–397. http://dx.doi.org/10.1037/law0000013.
Wojciszke, B. (1994). Multiple meanings of behavior: Construing actions in terms of competence or morality. *Journal of Personality and Social Psychology, 67*, 222–232. http://dx.doi.org/10.1037/0022-3514.67.2.222.
Wojciszke, B., Abele, A. E., & Baryla, W. (2009). Two dimensions of interpersonal attitudes: Liking depends on communion, respect depends on agency. *European Journal of Social Psychology, 39*, 973–990. http://dx.doi.org/10.1002/ejsp.595.
Ybarra, O., Chan, E., Park, H., Burnstein, E., Monin, B., & Stanik, C. (2008). Life's recurring challenges and the fundamental dimensions: An integration and its implications for cultural differences and similarities. *European Journal of Social Psychology, 38*, 1083–1092. http://dx.doi.org/10.1002/ejsp.559.
van Zomeren, M., & Dovidio, J. F. (2018). Human essence in conclusion: Why psychology needs a bigger picture and some suggestions on how to get there. In M. van Zomeren, & J. F. Dovidio (Eds.). *The Oxford handbook of the human essence*. Oxford: Oxford University Press.