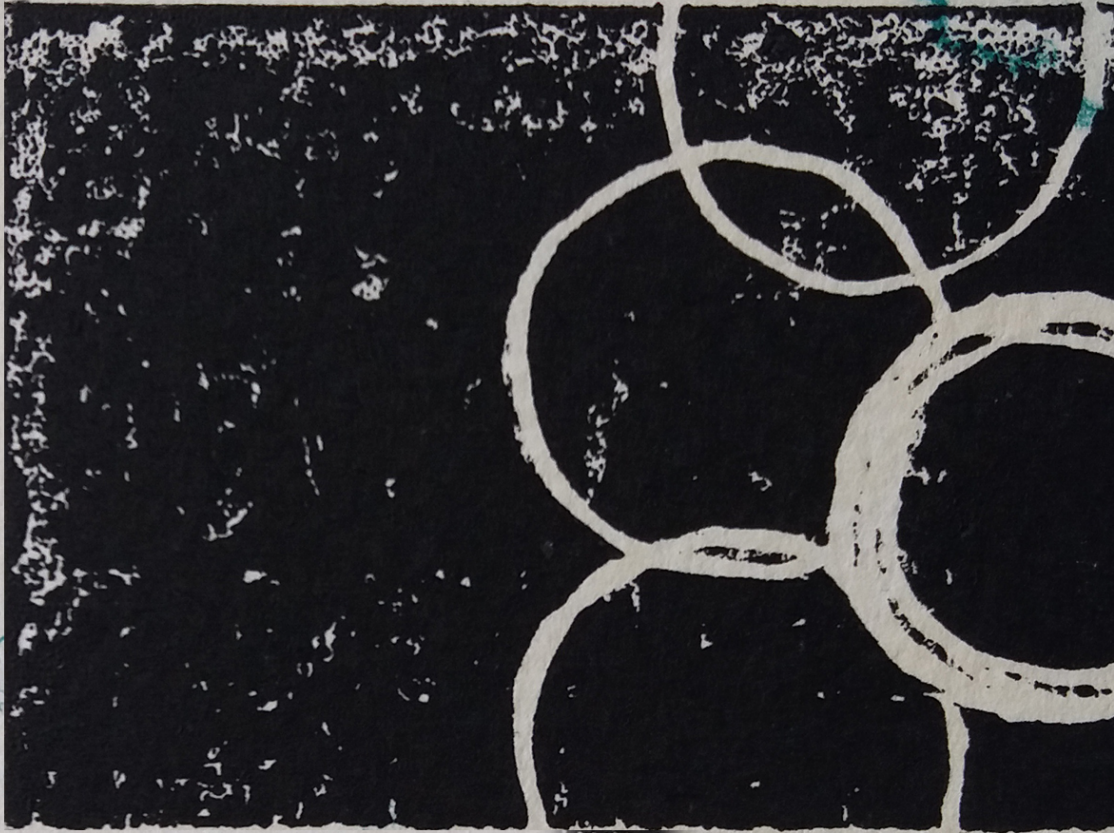


AN EMOTIONAL PATH TO OURSELVES



Self-Transcendent Emotions and Positive Effects of Collective Participation

José J. Pizarro Carrasco
September, 2019

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Self-Transcendent Emotions and Positive Effects of Collective Participation

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Abstract

Self-transcendence of the self has been approached theoretically and empirically in a variety of forms and can be experienced in the form of Self-Transcendent Emotions (STEs), such as *awe*, *elevation*, *kama muta*, etc. These different emotional episodes orientate ourselves towards other people's needs and welfare, and therefore, result of significance due to their psychological effects in interpersonal, intra- and intergroup relations. The present thesis focuses on these emotions and further extends on the study of collective instances where STEs can emerge (or result as an outcome thereof): Collective gatherings and rituals. Part I starts differentiating two STEs (i.e., *awe* and *elevation*) from positive affect (i.e., *mirth*), and shows how they motivate a greater socio-emotional connection with a highly inclusive superordinate identity and the wishes to celebrate it (Study 1). Subsequently, with the necessity of a more precise assessment instrument, an *awe* scale was created (Study 2) and then compared to other STEs (i.e., *elevation* and *kama muta*) focusing on their activation pattern and effects on human identification, and the willingness of collectively help others (i.e., collective action) (Study 3). From a collective perspective on the other hand, Part II centres on the study of psychological processes in collective gatherings in general, and rituals in specific. Study 4 explores online emotional expression and then, the effects of a shared emotional experience (Perceived Emotional Synchrony, PES) in accounting for the positive individual- (e.g., psychological well-being) and group-level outcomes (e.g., shared identities). Study 5 replicates previous results and besides PES, examines Shared Flow's effect on *compassion for others*, in a quasi-experimentally manipulated collective ritual. Finally, Part III presents the study of a social human emotion based on a fundamental form of social

relationship: Authority Ranking. The study describes an emotion felt in the presence of legitimate authority figures, deity or nature, and includes a revision of literature on culture, work, and evolutionary psychology, as well as the learning from the previous sections of this thesis (Study 5). To conclude, the final discussion centres on the implications of these results in future venues for research such as the promotion of the study of ethical global consciousness and a global socio-emotional identification, the influence of collective rituals in creating ingroup identities, and in the comprehensive study of human emotions based on a socio-relational theory.

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INTRODUCTION

Research Questions, Research Proposal, and a Way to Find Answers

*“Nothing in life is to be feared, it is only to be understood.
Now is the time to understand more, so that we may fear less”*

Maria Skłodowska-Curie

Why do some people engage in prosocial behaviours toward strangers? Why would *I* collectively participate and help *others*? How is it possible that someone identified herself with completely strangers, with *everyone* in the world?

Questions like these have deeply intrigued thinkers of social behaviour, and the topic of helping others, specially non-kin, has even been considered as the “altruism puzzle”, particularly when trying to explain how these behaviours evolved (e.g., Fehr & Fischbacher, 2003; Hamilton, 1964; Jensen, Vaish, & Schmidt, 2014; Van Gugt & Van Lange, 2006). In the same line, there have been different attempts which include bottom-up and top-down forces – i.e., naturally occurring phenomena, such as the proliferation of punishment (Boyd, Gintis, & Bowles, 2010), versus selective and institutionalized large-scale efforts (Henrich et al., 2010), and the interaction of both (Jensen et al., 2014)– which help us better understand these conducts. Nevertheless, while providing feasible ultimate¹ answers (i.e., the *why*), many of these lack the incorporation of different mechanisms based on interpersonal or intergroup relationships (i.e., the *how*), such as an emotional one. Even if they include it (e.g., Fehr & Gächter, 2002; see also Kuroda & Kameda, 2019), most of these attempts only focus on negative emotional experiences and thus, punishment-based frameworks are constantly cited and replicated.

In addition, even though there is large agreement in acknowledging the social functions emotions have (e.g., Keltner & Haidt, 1999; Niedenthal & Brauer, 2012; see also A. H. Fischer & Manstead, 2008), there is a general tendency to study them isolated

¹ In the study of human behaviour from an evolutionary perspective, Scott-Phillips, Dickins, and West (2011) propose that ultimate explanations relate to the purpose (i.e., the *why*), while proximate explanations, to the means (i.e., the *how*).

from the social world (A. H. Fischer & van Kleef, 2010)². However, a solely individualistic approach to emotions is not only unreal, but also, virtually all emotional experiences –including those in private– have an impact in social interactions (Rimé, 2007b, 2009).

The present thesis is an effort to answer the previously mentioned questions, as well as others regarding the nature of different psychosocial phenomena at an individual and collective level. This proposal mainly highlights the importance of the emotional experience at different stages of group formation and in different group dynamics, and emphasises the role of the experience of self-transcendence (ST, hereafter). Further, it includes theoretical convergence (see Crandall & Sherman, 2016) from studies on collective instances where these emotions, as well as other psychosocial mechanisms are intertwined, impacting on peoples' identity construction, solidarity and their participation with others.

Self-Transcendence

ST of the self appears mentioned in a great variety of philosophical, psychological and even religious books both directly and indirectly. Among the authors who have attempted to theorize it in detail, we can find Maslow (1964), who studied the capacity of people to reach higher states of self-development. As it was formulated in his famous work *Religions, Values, and Peak Experiences* (Maslow, 1964), as well as in latter interpretations (Koltko-Rivera, 2006), we can find the theorization of *peak experiences* as a generalized term to refer to situations where people can reach a highly positive state of self-transcendence and fulfilment, that include different spheres (e.g., social, religious, political, etc.)

² I do not seek –by any means– to argue against the necessity of continuing in the scientific advance of the study of human emotions through performing controlled experiments.

(see also Maslow, 1962). Originally theorized as a subsequent step in people's self-actualization and fulfilment (i.e., among those who had previously satisfied underlying needs), Maslow proposed that, through these instances, the individual self transcends with a sense of goodness, benevolence, and contact with everything that surrounds us.

In line with Maslow's framework, Frankl (1966) extends and posits that the particular experience of ST is inherent to human beings. In opposition to what was the mainstream Freudian conception of pleasure-seeking and homeostasis, Frankl states that people are not closed systems in a permanent search for balance. Rather, there is a deep-rooted tendency to fulfil the self and find reasons to transcend, which, in his words, should remain as an effect of meaning fulfilment. It can be inferred from Frankl's work that every person is able to live these instances, which is also present in Maslow's latter works (see Koltko-Rivera, 2006).

From another perspective, and contrary to a momentary-experience approach, there is also the position that explains ST as an individual orientation that receives the boost of different factors to take place. Therefore, the fact of theorizing ST should imply different individual differences, such as personality traits as openness to experience or extraversion (from the Big-Five, McCrae & John, 1992). This description of ST goes in line with what Schwartz' (1994) structured as a group of universal value and motivational orientations. After reviewing different models of personal values (e.g., Rokeach, 1973), and how they should be ordered (e.g., Schwartz & Bilsky, 1990), Schwartz (1994) introduced an aggrupation of universal human motivations, where hierarchies and affinities are established. In the particular case of ST, the author posits that it is an orientation that guide individuals to ideals of universality (e.g., justice for everyone), and benevolence (e.g., help and loyalty to close ones). Further, this dimension is directly opposite to those that imply self-enhancement,

as for instance, achievement values (i.e., “Personal success through demonstrating competence according to social standards”, pp. 22), and thus, there is a continuum that inexorably depends on the degree of involvement that one person’s individual self has (i.e., from enhancing ourselves to enhancing others).

Finally, and from a different theoretical approach, there is the work of Reed (1991), who centres in ST-related characteristics that can help people in the last stage of their lifespan. In other words, how well people adapt and cope, and ultimately, boost their well-being. Consequently, her model identifies ST clusters, where we can find – among others– altruistic involvement and helping others (*Generativity*), and the integration of the current capacities of the physical body (*Body Transcendence*). This particular orientation considers ST as a major developmental resource of aging and the search of meaning, and integration of one’s life experiences, which can be seen as a parallelism of spiritual and religious experiences (e.g., Emmons, 2005).

As it can be seen, the previous theories address ST of different ways. As a state boosted by the search of meaning and manifested in momentary experiences (Maslow, 1962, 1964; Frankl, 1966), as a set of value orientations (Schwartz, 1994), or as different characteristics product of the life development that can ultimately help us cope with the last stages of our life (Reed, 1991). However, they all share a vision of the individual self that is somehow outward oriented (e.g., to other people, the environment, etc.), an orientation that can take several forms, as Yaden, Haidt, Hood, Vago and Newberg (2017) argue. According to them, several experiences and psychological processes allow people to live ST-related states. Indeed, they focus on temporary states that can –even briefly– produce a reduction in the self-oriented goals and a greater sense of connection with what surrounds us. In their revision, they list how different instances of – for instance – Mindfulness, Flow, and Mystical experiences meet

these criteria and further, allow speculating about others more related to the practice of a religion. Particularly, as they point out and as it can be seen in the early studies of William James, Émile Durkheim and Rudolf Otto, the study of ST was dominated by religion during the first half of the XX century. Even though this was the mainstream position in this period in western history, their theorizations have still considerable implications and deserve to be noted.

In detail, the importance of religion is patent in the classical works of William James (1902: *The Varieties of Religious Experience: A Study in Human Nature*), Émile Durkheim (1912/1995: *The Elementary Forms of Religious Life*), or Rudolf Otto (1936: *The Idea of the Holy*). Even though the authors did not explicitly use the term ST, they all provide theorizations that fit the theoretical proposal of Yaden and colleagues (2017). In particular, they present and extend on James' (2009) proposal of mystical experiences and their effects, where he states a way of transcending the individual self through the experience of both religious and mystical experiences. In the same line, and from a sociological conception, Durkheim's (1912/1995) theorization of *collective effervescence* in modern collective rituals describes how individual selves are encouraged to form and connect with something bigger (i.e., a group of people or different collectives), due to processes of sharing attention, beliefs, and emotions³. Finally, Otto (1936) also described a highly emotional experience (i.e., *the numinous*) that can bring about a tendency to eliminate the individual self and transcend the physical reality.

Taking a highly integrating focus, the experiences of ST –as Yaden and colleagues (2017) posit– converge in the minimization of

³ Páez, Rimé, Basabe, Włodarczyk, and Zumeta's (2015) Perceived Emotional Synchrony is an attempt of measuring Durkheim's collective effervescence, and the main variable that explain several positive outcomes from participation in collective rituals and gatherings.

one's self. Therefore, they could be thought as a proximate explanation that can occur to increase the connection and integration with other people –particularly non-kin– and subsequently, lead to a greater inclusive fitness (i.e., ultimate explanation). In this sense, living momentary episodes of ST should be –at least– a positive experience that can be influenced by several personal orientations (e.g., universalism, set of values, personality traits) and collective processes (e.g., synchrony, implication), and should create or intensify connection with other persons and social groups. Without leaving aside what Yaden and colleagues (2017) proposed as different manifestations of ST (e.g., flow, mindfulness), this whole experience would undoubtedly produce an emotional state (i.e., as a precedent, simultaneously, or as a consequence thereof) that is a cornerstone of this particular proposal.

In this sense, and with the focus primarily set on these particular emotions, I will present how these can affect the nature and the outcomes of different social interactions. In order to do this, this thesis centres first on individual instances and then, it goes to different forms of social life where these emotions –along with other psychological processes– influence the form people relate to other people.

Self-Transcendent Emotions

Attributes and functions of STEs.

Self-Transcendent Emotions⁴ (STEs, hereafter) are defined as a classification of human emotions that orientate our personal selves towards *outside* (e.g., other peoples' needs, bigger social realities), and thus generate a change from our self-absorption, concerns and selfish goals (Van Cappellen & Rimé, 2014; Fredrickson, 2013;

⁴ Sometimes referred to as Moral Emotions (Haidt, 2003b) or appreciation emotions (see Van Cappellen, 2017).

Stellar, Gordon, Piff, et al., 2017). In line with the classic works of James, Durkheim and Otto, these emotions are thought to play a major role in the manifestation of spiritual and religious practices, as well as the search of meaning (Van Cappellen, 2017; see also Emmons, 2005).

In order to be differentiated from other emotions, STEs should demonstrate the previously mentioned characteristics. In other words, they should empirically prove a set of features that are recognized as ST, which mainly come around the point of diminishing one's own self-interested goals. In fact, the study of these emotions has received greater interest only recently, and their most differentiating characteristics are described in terms of two central attributes. Namely, i) they should be mainly elicited by stimuli that are not completely directed to the individual self (Haidt, 2003; Van Cappellen & Rimé, 2014; Stellar et al., 2017); and ii), they promote a connection or union with other people and groups. The latter could be manifested –for instance– in terms of increased prosocial behaviour tendencies (Haidt, 2003b; Stellar, Gordon, Piff, et al., 2017), care-taking behaviour of others (Van Cappellen & Rimé, 2014), or a socio-emotional identification with highly inclusive groups which can be sustained by collective participation in rituals (de Rivera & Carson, 2015; de Rivera, 2018).

Under these criteria, some emotions that have been considered part of this taxonomy are studied under the name of *Awe* (Keltner & Haidt, 2003), *Moral Elevation* (Haidt, 2003a; for a review, see Pohling & Diessner, 2016), *Gratitude* (for a meta-analytical review, see Ma, Tunney, & Ferguson, 2017), *Kama Muta* (in Sanskrit, being moved by love; Fiske, Schubert, & Seibt, 2016; see also Zickfeld et al., 2018), *Compassion* (for a review, see Goetz, Keltner, & Simon-Thomas, 2010; see also Strauss et al., 2016), or even some theorizations of *Admiration* (Onu, Kessler, & Smith, 2016; see also, Schindler, Zink, Windrich, & Menninghaus, 2013) (see table 1).

Table 1. Examples of Self-Transcendent Emotions.

Emotion	Definition	Primordial reference(s)
Awe	The emotional response to stimuli that is perceptually vast and overwhelms current mental structures.	Keltner and Haidt (2003), Shiota et al. (2007).
Moral elevation	The emotional response to models or actions that show moral beauty.	Haidt (2003a).
Compassion	The emotional response to “witnessing another’s suffering and that motivates a subsequent desire to help”.	Goetz et al. (2010, pp. 251).
Gratitude	The emotional response to having “benefited from the costly, intentional, voluntary action of another person”.	Stellar, Gordon, Piff et al., (2017), McCullough, Kilpatrick, Emmons, and Larson (2001).
Kama Muta	The emotional response to sudden intensifications of communal sharing relationships (see Fiske, 1991) (Sanskrit, “moved by love”).	Fiske et al., (2016; 2017).

Even though they have been shown to be the result of a diverse set of stimuli –in many cases–, all of them have proved to satisfy the two central attributes of STEs.

When analysing the ultimate reason of why these emotions occur, diverse authors agree on the fact that these emotions are able to boost a sense of connection with other people (e.g., Stellar et al., 2017; Van Cappellen & Rimé, 2014). Therefore, we would be able to experience STEs due to their facilitation effects on group-forming and commitment-maintenance processes, and consequently, one’s survival probability is higher. Due to the fact that human beings are

born with highly adaptive skills for social life (Herrmann, Call, Hernández-Lloreda, Hare, & Tomasello, 2007; Thomsen, Frankenhuys, Ingold-Smith, & Carey, 2011), it is natural to think that some emotions could motivate –while not being restrictive to them– behavioural patterns oriented to maximizing future instances of social integration and group cohesion, specially, when the groups are at early stages of constitution.

Currently, there is increasing evidence that provides support for this idea and there are several studies aimed at analysing the effects different STEs, such as Awe, Gratitude and Compassion.

Empirical research on STEs.

Indeed, all the previously mentioned emotions fulfil the criteria of shifting the attention away from one’s self-absorption and needs, and to promote (i.e., indirectly or directly) people to join and unite in larger groups (Stellar, Gordon, Piff, et al., 2017). Table 2 summarizes empirical findings of studies on these emotions (mainly experiments). As one can observe, virtually all of them are being elicited by stimuli that make people place their attention outside themselves; in other words, to put one’s immediate needs aside. These examples include the attempts of using the nature and space (i.e., in the case of Awe), people helping others or recognizing their importance (i.e., Moral Elevation), or the expression of thankfulness and appreciation to others (i.e., Gratitude).

Table 2. Review of the effects of STEs on the connection with others.

Emotion	Reference	Study, elicitors or measurement of interest	Effects on connection to others	Effect on behaviour	
				Direct	Indirect
Awe	Shiota et al. (2007).	S2: recalling event.	Greater perceptions of feeling small and connected to something bigger than one (e.g., the world around) feels.		X
	Schurtz et al. (2012).	S3: recalling event.	More frequency of self-reported goose bumps and a greater sense of vastness.		X
	Van Cappellen and Saroglou (2012).	S1: recalling event. S2: video of nature.	Greater willingness to visit a spiritual destination (S1), and to connect to others (S2), through the increase of religiosity and spirituality.		X
	Piff, Dietze, Feinberg, Stancato, and Keltner (2015).	S2: recalling event. S3: video of nature (from BBC's Planet Earth). S4: video of threatening phenomena, and coloured droplets in slow motion (from The Slow Mo Guys).	An increase of ethical thinking and helping behaviour (S2), more generosity in a dictator game (S3), and increased prosociality for resource allocation (in both awe conditions in S4).	X	X
	van Elk, Karinen, Stamkou, and Baas (2016).	S3: video of nature (from BBC's Nature).	Decreased perception of body size (i.e., more pronounced for those with higher scores in absorption in the video) (S3).		X

Joye and Dewitte (2016).	PS1b: computer-created building pictures. S1b: building pictures.	Greater behavioural freezing (PS1b and S1b).			X
Yang, Yang, Bao, Liu, and Passmore (2016).	S1, S2: recalling event. S3: video of nature (from BBC's Planet Earth).	Decreased self-reported aggressive behaviour (S1, S2, S3), and greater prosocial behaviour and motivations (S3).	X		X
Bai et al. (2017).	S2: daily reports. S3: Yosemite national park (field study). S4, S5: video of nature (from BBC's Planet Earth). S6: recalling event.	Greater perception of smaller self-size during the days when awe is more strongly felt (S2), when in a natural park (S3), and in the lab (S4, S5, S6). Also, a greater sense of connection with others (S6).			X
Stellar, Gordon, Anderson, et al. (2017).	S2: daily reports. S3: video of space. S4: recalling event. S5: monuments and city views (field study).	More reported humility the days of experiencing awe (S2), less self-enhancement (i.e., less personal strengths in S3, and more external forces in S4), and more humility (S5).			X
Pizarro et al. (2018).	S2: list of events and recalling event.	Greater associations with universality beliefs and identification with a global identity.			X
Guan, Chen, Chen, Liu, and Zha (2019).	S2, S3: video of nature, to elicit positive (S2, S3) and negative awe (only S3) (both from BBC's Planet Earth).	More intention to donate to help person in need (S2) and to help another researcher with the participants' time (S3).	X		

	Nelson-coffey, Ruberton, Chancellor, and Cornick (2019).	S2, S3: video of the earth zooming away with a selection of reads from Carl Sagan's book Pale Blue Dot.	Increased feelings of connectedness with all humanity and of feeling small	X	
	Johnson et al. (2019).	S2: video of six famous physicists marvelled by quantum and particle physics (Symphony of Science – the Quantum World!) S3: a video centred on the immensity of the universe (The Wonder of the Universe) and the complexity of a cell (The Wonder of a Living Cell)	Greater agreement with transcendent beliefs, which in turn, and different forms of mentally representing God, such as mystical (i.e., described as nature or cosmic), or ineffable (i.e., described as unknowable or incomprehensible).		X
Moral elevation	Silvers and Haidt (2008).	Video of a person paying tribute to a teacher (from the Oprah Winfrey Show).	Greater caring behaviour (mothers with their children).	X	
	Algoe and Haidt (2009).	S2a: boy who established a homeless shelter. S2b: daily reports.	Tendency to emulate moral actions, to be prosocial (S2a and S2b).		X
	Freeman, Aquino, and McFerran (2009).	S1: video of intergroup help (from 60 Minutes II). S2: reading news of forgiveness.	More disposition to donate a Black-oriented charity, and a decrease in group-based dominance (for those who had it high...over-ride it), and actual donating behaviour.	X	X

Schnall et al. (2010).	S1 and S2: video of a person paying tribute to a teacher (from the Oprah Winfrey Show).	Greater helping intention and improve personally (S1), and helping behaviour (S2).	X	X
Cox (2010).	Spring-break service trip (naturalistic study).	Greater frequency of self-reported times of having participated in similar voluntary work (1 week and 3 months after).	X	
Vianello, Galliani, and Haidt (2010).	S1: reading fictional leaders' descriptions. S3: recalling event.	Increased Organizational Citizenship Behaviour (OCB), more affective commitment to the organization (S1 and S2), and more willingness to behave altruistically (S2).		X
Aquino, McFerran, and Laven (2011).	S2: recalling event. S3: priming of moral identity and reading news of forgiveness. S4: video of donation to several charities (World on Fire).	S2: elevation emotions were associated to a greater motivation to help others S3: greater prosocial behaviour (modified dictator game).	X	X
Oliver, Hartman, and Woolley (2012).	Naming and rating a meaningful film they had watched (recalling).	Greater agreement with altruistic values, increased feelings of wanting to become a better person and do good things for others.		X
Thomson and Siegel (2013).	S2: reading a story of helping a person that was moral or immoral.	Increased donations (to a children charity) from the money participants received (S2). In addition, this help was greater when the behaviour was toward a person	X	X

	S3: recalling event of witnessing helping behaviours to different people. S4: imaging a story of one person helping other with different effort.	who needed (S3), and to when it was more difficult (S4).		
Thomson, Nakamura, Siegel, and Csikszentmihalyi (2014).	Reading a story of moral excellence.	More positive attitudes and mentoring behaviours.	X	X
Lai, Haidt, and Nosek (2014).	S1-4: video of a person paying tribute to a teacher (from the Oprah Winfrey Show). S2-4: video of example of sportsmanship. S3-4: news video of a person who saved another.	Reduction of implicit and explicit prejudice towards a sexual minority (i.e., gay men) (S1-4).		X
Siegel, Thomson, and Navarro (2014).	S1-S3: recalling event.	More positive views on humanity (S1), and greater donations to a children charity (S2 and S3).	X	X
Oliver et al. (2015).	Watching one of two inspiring videos (a person offering free hugs, or street musicians performing simultaneously).	Increased perceptions of shared goodness, greater overlap self-humanity, and more positive attitudes towards diverse groups of immigrants.		X

Van de Vyver and Abrams (2015).	S1 and S2: video of forgiveness to a perpetrator.	More donations to charity (S1), and increased prosocial motivations to engage in political actions (S2).	X	X
Erickson et al. (2017).	S1-S3: videos of virtuous actions (daily sent).	Less self-image related goals (S1-S3), and more compassionate-related goals (S1 and S2).		X
Tingey, Mcguire, Stebbins, and Erickson (2017).	Recalling helping behaviours subsequent to a school shooting in the US.	Elevation predicted increased perceptions of having been more oriented to others (i.e., helping, comforting) and post-traumatic growth after the shooting (the latter, after 8 months).	X	X
Cusi et al. (2018).	S2: list of events and recalling event.	Greater associations with universality beliefs and identification with a global identity.		X
Ding et al. (2018).	Recalling event.	More intentions to help, manifested in the time participants would dedicate to help another researcher –also, higher among those with a stronger moral identity.	X	
Yao and Enright (2018).	S1, S2: reading different stories of people helping others.	Increased prosocial intentions (S1), and the intention to donate what they might win after completing the study (S2).	X	
Rieger, Frischlich, and Oliver (2018).	Recalling event of having watched a meaningful movie.	Elevation reported for the recalled event predicted feelings of self-transcendence and subsequently, increased moral motivations.	X	

	Ellithorpe, Huang, and Oliver (2019).	S1, S2: watching an elevating video (political speech).	Higher intentions of participating in politics and to know more about who gave it (S1); it is replicated in study 2 (regardless the political orientation of the person who gave it), as well as a greater feelings of closeness of both ingroup and outgroup members.	X	
	Pohling, Diessner, Stacy, Woodward, and Strobel (2019).	Watching a morally uplifting video of a humble person helping others.	Higher amount of money allocated in the dictator's game (compared to control).	X	
	Zhang, Chen, Tao, Farid, and Ma (2019).	Participating in a public goods dilemma with a confederate who always contributed to the environment.	Increased amounts in the tokens participants would give to the environment fund, compared to control.	X	
Gratitude	Emmons and McCullough (2003).	S2: 16-day of daily reports of gratitude.	Greater self-reported likely of having provided emotional support (S2).	X	
	Barlett and DeSteno (2006).	S1, 2: Receiving help from a confederate so as to avoid a tedious task.	Measured in minutes of helping with a tedious task the person from which help was received (S1), and from strangers (S2).	X	
	Tsang (2006).	Having received a money during a money-distribution task.	More money allocated to their partners and a greater motivation to express appreciation .	X	X

Algoe, Haidt, and Gable (2008).	4-day program where mentors give presents to new members of a sorority.	Benefactor responsiveness predicted gratitude which predictive future outcomes in the relationship (feelings of integration).	X
Algoe and Haidt (2009).	S3: write a letter to tell when someone did good to them (gratitude).	Intention to give back something; greater likelihood of interacting with the moral model.	X
Lambert, Clarek, Durtschi, Finchman, Graham (2010).	S3: Individual expressions of gratitude to a partner (diary study).	Increased communal strength (i.e., motivations to attend the needs of a partner).	X
DeSteno, Barlett, Baumann, Williams, and Dickens (2010).	Receiving help from a confederate so as to avoid a tedious task.	More money given to benefactors and strangers (money allocation task).	X
Algoe, Gable, and Maisel (2010).	Daily accounts of gratitude to and from participants' romantic partners.	Increased satisfaction in relationship and subjective connection with one's partner.	X
Lambert and Fincham (2011).	S4: 3-week Program to increase the frequency to express gratitude to a friend.	A more positive perception of a friend, and more comfortable for addressing concerns.	X
Algoe and Stanton (2012).	Recalling person and event of gratitude.	Increased perceived social support (i.e., among women with low ambivalence over emotional expression).	X

Lambert, Fincham, and Stillman (2012).	S5: Think and write about ones opportunities and blessings S7: gratitude journal.	Less self-reported depressive symptoms (study 5); S7: (longitudinal) more positive emotions.			X
Algoe, Fredrickson, and Gable (2013).	Expressing gratitude to one's partner.	Association of perceived responsiveness of an expression of gratitude with happiness (T1 and T2, after 6 months).			X
Williams and Barlett (2014).	Receiving a note expressing gratitude in a mentoring program.	Perceived writers as more appreciative, warmer, higher affiliative intentions, and more people leaving contact information.	X		X
O'Leary and Dockray (2015).	Having a gratitude diary (listing and guided gratitude reflection).	Pre-post: less stress, depression, and more happiness (intraindividual variables).			X
Algoe, Kurtz, and Hilaire (2016).	S1, S2: expressing gratitude to their partners.	More self-reported positive emotions (among them, love) and expresser's responsiveness (S1 and S2).			X
Tsang and Martin (2017).	S3: Having received a present in a resource-distribution task.	More resources allocated to their partners and a greater expression of gratitude.			X
Bock, Eastman, and Eastman (2018).	Cross-sectional survey with participants who had volunteered or donated within the previous year.	Greater values motivation (i.e., concern of others) and helping intention to donate to charity.			X
Vayness and DeSteno (2018).	Recalling event of gratitude.	Greater third party punishment (in a dictator's game).			X

Com- passion	Sprecher and Fehr (2005).	S1-S3: self-reported measures of compassion (correlational).	Association with empathy (S1), intention to help others (S2), and social support offered to close people (S3).	X	X
	Sprecher, Fehr, and Zimmerman (2007).	Imagining having given or received a gift from others.	Compassion associated to expectations of feeling positive emotions, and interpersonal caring behaviors (e.g., verbal support, expression of empathy) (in both conditions).	X	X
	Crocker and Canevello (2008).	Weekly accounts of compassionate goals (diary study).	Compassionate goals were associated to beliefs of interconnectedness of people, less zero-sum views of success, and more social support, trust and beliefs in mutual caring, regarding other students.		X
	Condon and DeSteno (2011).	Observing a person crying due to her brother's medical condition.	Lesser punishment to a person who cheated and showed no remorse.	X	
	Valdesolo and DeSteno (2011).	Manipulating behavioral synchrony with a confederate.	Increased compassion for the a victim of a fairness-related transgression, which in turn, led to helping them for longer periods of time.	X	
	Sinclair, Fehr, Wang, and Regehr (2016).	S1 and S2: self-reported measures of compassion (correlational). S3: recalling event (selflessly gave of themselves to help others).	Negative associations between compassion and prejudice towards different social groups (S1 and S2), less prejudice (S3), and less intention to deduct money from an immigrant fund (S4).	X	

	Lim and DeSteno (2016).	S4: self-reported measure of compassion (correlational). S1: self-reported measure of dispositional compassion (correlational). S2: observing an ill person completing a tedious task.	Greater intentions of donations to a charity (S1), and more time helping a person with a tedious task (S2).	X	X
Kama Muta	Zickfeld and Schubert (2018).	Pictures of tearful people.	Increased kama muta (measured as feeling moved), which mediated how warm people were evaluated.		X
	Zickfeld et al. (2018).	Videos of intensifications of Communal Sharing relationships (Fiske, 1991).	Greater associations with empathic concern to others (as a trait).		X
	Seibt, Schubert, Zickfeld, and Fiske (2018).	S1 and S2: Videos of emotionally moving political campaigns.	Greater intention to support the political candidate (S1 and S2).		X
	Pierre (2019).	Analyses of a sample of Facebook posts on social movements.	Kama muta-related posts had higher probability of being engaged (i.e., likes, comments and sharing).	X	X

Note. The number of the particular study where each stimulus was used is referenced after the S; P included those that were referenced as Pilot studies in the published articles. Effects on behaviour are classified in terms of direct or indirect. That is, whether the main effects described would impact it directly (actual behaviour, such as amount of time devoted to help) or indirectly (tendency or motivation to, such as increases intention to help others).

Additionally, table 2 shows whether these effects can induce a connection with other people and groups. Specifically, these outcomes are classified in terms of producing effects on peoples' behaviours that might facilitate integration/solidarity/union or commitment to other people in a direct form (i.e., carrying out a behaviour that promotes future interactions), indirectly (i.e., preparing a disposition or motivation that might end up in further interactions at dyad- or bigger levels), or both. In this manner, we can see (for instance) a greater display of caring behaviours, and more altruistic distribution of resources (i.e., direct effects) (Silvers & Haidt, 2008; Tsang, 2006, for moral elevation and gratitude, respectively). Also, more self-reported perceptions of feeling small and connected to something bigger, and humility (i.e., indirect effects) (Shiota, Keltner, & Mossman, 2007; Stellar, Gordon, Anderson, et al., 2017, for awe). Finally, there are also those studies where the authors provide both direct and indirect evidence, such as the case of Schnall and colleagues' (2010) study, where the researchers show both a greater intention to improve *and* more time dedicated to help the experimenter, as a result of evoking moral elevation.

In all, STEs are examples of how different emotional experiences facilitate a psychological bond and commitment between people and thus, they may play a central role in certain stages of group formation- and maintenance-related process. Nevertheless, there are two points that need further clarification. First, many effects that are being reviewed here are not limited to this taxonomy of emotions (e.g., see Fredrickson, 2001, 2013). Due to this reason, STEs must at least be compared to other emotions and prove they have a greater –at least– explicative power in sustaining these effects (i.e., compared with non-STEs). And secondly, that human emotions do not occur in the vacuum, but a great deal of human life –and the nature of many of these emotions– are indeed social in nature (Fiske,

1991). Therefore, one should not take for granted the explicative power of STEs or of different experiences of ST without taking into account the social contexts where these experiences take part, as it can be seen in the pioneer works of James and Durkheim, previously described. In other words, STEs can be the outcome of different collective rituals and gatherings while these manifestations of social life have inherent properties, and further, cannot be reduced to a mere space where a particular taxonomy of emotions take place (von Scheve & Salmela, 2014).

For these reasons, and serving the purpose of introducing the series of studies from the following chapters, the following section centres on a functional approximation of emotions and a review of different forms of collective life, such as collective rituals and gatherings.

Instances that Promote STEs: Collective Rituals and Gatherings

From *I* to *we* and Beyond: Emotions and Collectives

Empirical studies conducted using a wide variety of methods and techniques support the premise that these emotions have an effect on people, orientating them towards others, and consequently, they facilitate processes of group formation and commitment. However, and at the same time, it should be taken into account that these outcomes are not solely restricted to STEs, and there are other mechanisms playing important roles during social interactions.

From a socially functional approach, emotions in general are better understood under the lens of social interactions at different levels (see Keltner & Haidt, 1999; Niedenthal & Brauer, 2012; Michael Lewis, Haviland-Jones, & Feldman Barrett, 2008) not only because of the circumstances that elicit them (e.g., in-person

witnessing a ceremony), but also, due to the consequences they produce in social relationships (e.g., bring people closer, terminating relations). To illustrate, the work of Rimé (2009) on the Social Sharing of Emotions presents a highly extended phenomenon across different cultures and ages (Rimé, Phillipot, Boca, & Mesquita, 1992; Rimé, Finkenauer, Luminet, Zech, & Phillipot, 1998), and at the same time, it highlights the socio-affective and cognitive functions that impact future social interactions. In other words, it supports the view that virtually every emotional experience *is* a social one. In the same line, empirical evidence shows that, for the case of Awe, even though not highly mentioned in free recall, more than 30% included social instances as instances where they would feel it (i.e., *Special social gatherings*) in a sample of university students from Chile, Mexico and Spain (Pizarro et al., 2018).

In addition, a functional approach contributes in understanding new venues on how to tackle different problems in the study of emotions (Frijda, 2000). Particularly, those including how emotions are manifested and should be investigated (Fiske et al., 2016; Gervais & Fessler, 2017; Scherer, 2005), those including the effects of different cultural orientations (Markus & Kitayama, 2010) and cross-cultural approximations (Shweder, Haidt, Horton, & Joseph, 2000), and also, how emotions can be incorporated in models of collective participation (Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015; van Stekelenburg & Klandermans, 2013; van Zomeren, Postmes, & Spears, 2008). Furthermore, analysing and evaluating the effects of emotions in general –and STEs in particular– in collective forms of social life represent a different perspective in the study of ST. Indeed, changing the perspective from individuals to groups allows us to centre in the results of what STEs sustain: the development of a particular social groups' life. Therefore, studying STEs considering the inherent properties and psychological processes that play a role

in collectives gives us a more complex –and real– picture of the nature of ST as well as social relationships.

As it seen, collective instances gain critical relevance in the study of STEs, and ST experiences in general, since the evoking and sustaining of emotions (e.g., different STEs), as well as several processes that take place within them (e.g., emotional contagion, individual and shared flow, etc.) (Fischer & Van Kleef, 2010). Nevertheless, in order to systematically present and organize the next section, it is imperative to consider a functional definition of ritual and collective gatherings. In this regard, the key point should be addressed in pointing out what these instances are, what elements they share in common, and what would be the centre of attention.

Collective Gatherings and Rituals

The concept of collective gathering is highly used for different social studies (e.g., Páez, Javaloy, Włodarczyk, Espelt, & Rimé, 2013; Páez et al., 2015; Zumeta, Basabe, Włodarczyk, Bobowik, & Páez, 2016), and by itself, it can comprise a wide variety of instances of contemporary social instances, such as music concerts and public demonstrations. Nonetheless, its description is indeed tautological, which makes it both an easy-to-use and descriptive term, as well as a non-defining concept.

From a psychological perspective, they represent instances in which there is an emergence of a group's subjective reality particularly given by the co-presence of people gathered around an objective and where collective behaviour can take place (McPhail & Wohlstein, 1983). Examples could go from public and often spontaneous demonstrations and protests, to more organized public celebrations and commemorations. In short, whatever social instances that includes a group of persons with a common objective (e.g., demonstrate, protest, celebrate, etc.).

On the contrary, *rituals* are more complex and difficult to define (Collins, 2004; Grimes, 2014; Whitehouse & Lanman, 2014). As social instances, they are included in the category of collective gathering (i.e., as a form of collectively being with others), but are more complex. They are deeply emotional instances where emotions are shared, intensified and transmitted (Rimé, 2009), and where groups can create and reinforce common identities (Neville & Reicher, 2011; van Kleef & Fischer, 2016). Among the theoretical definitions, there are those that focus on their goals and functions (e.g., Turner, 1967), their constitutive elements (e.g., Dulaney & Fiske, 1994), or both (e.g., Hobson, Schroeder, Risen, Xygalatas, & Inzlicht, 2018). Nevertheless, there is general agreement that rituals should also imply: a) pre-defined sequence of actions that express important value, and b), the steps often represent a sense of formality (e.g., stylization, exaggeration) and repetition, which do not necessarily represent a direct instrumental purpose⁵ (Hobson et al., 2018; see also Islam & Zyphur, 2009, and Smith & Stewart, 2011). As it can be inferred, rituals tend to be a more formal instance, with a higher possibility of being cyclically enacted, and whose behavioural patterns are formally established (Páez, Rimé, & Basabe, 2005; Whitehouse, 2005).

In this work, however, I will adopt a definition closer to what Collins (2004) proposed in the theory of interaction ritual. Based –at least in part– on the works of Durkheim and Goffman, he proposed rituals as “a mechanism of mutually focused emotion and attention producing a momentarily shared reality, which thereby generates

⁵ However straightforward, this particular point needs further attention. The fact that we attribute or detach a sense of instrumental purpose to different rituals, particularly among religious ones, should not be considered as a key characteristic of rituals. This is due to what matters is the psychological construction of the participants and not an external and instrumental evaluation of a particular set of behaviours that, in any case, is not enough to separate ritualistic practices from those which are not.

solidarity and symbols of group membership” (pp. 7). By means of this definition, I am able to describe a common element present in both highly ritualized behaviours (e.g., the celebration of a religious ceremony), as well as a collective activity with a lesser degree of ritualization (e.g., attending and moving to music during a rock concert), with the focus on the collectively shared process. What is more, this definition enables not to treat them as discrete categories, but rather, a continuum⁶ with an observable way of separating participants from those who are spectators.

Functions of and psychological mechanisms of collective rituals.

The fact that social life is one of the most complex objects of study has not been an impediment to a proper and systematic approach. In fact, despite its difficulty, different attempts have been conducted to analyse and explain several social outcomes collective rituals and social gatherings produce, such as the increasing of psychological well-being or the emergence and strengthening of group identities. Indeed, since the first efforts made by Durkheim to explain how societies hold together (1912/1995), many researchers have tried to operationalize them and provide integrative models that serve to explain their functions, as well as the mechanisms involved (e.g., Collins, 2004; Hobson et al., 2018; Watson-Jones & Legare, 2016).

As it happens with a great variety of collective gatherings, rituals bring people together in close proximity and determined spaces, which brings about a) shared attention toward one or several objects; b) a clear sense of differentiation with non-participants; c) greater agreement with common set of norms, beliefs and values; and d), greater possibility of coordination and synchronization (i.e., both

⁶ This way, it is possible to go from what we could call non-ritualized behaviour (e.g., walking down the street) to highly ritualized behaviour (e.g., marching in groups playing the drums, during the celebration of the *Danborrada*, in Donostia-San Sebastián, every 20 of January).

physical and psychological). Consequently, they promote union and cooperation among people, as a great variety of theoretical and empirical studies maintain (Hobson et al., 2018; Páez, Basabe, Ubillos, & González-Castro, 2007; Rimé, 2007a; Watson-Jones & Legare, 2016; Whitehouse, 2005; Whitehouse & Lanman, 2014).

As it can be inferred, collective rituals can be taken as instances where individuals are transcending their own individuality and needs in favour of the ones of the collective. As a gathering –assuming adequate forms of participation; for a more detailed account, see below– the group’s reality is the most salient, and participants’ are now part of something bigger than they individually are, and it is the rituals’ most important function: their implications in forming and sustaining social groups. Besides what could be found in a great variety of societies, such as celebration collective rituals, there are those that are mainly elaborated to elicit Admiration and Awe towards a –for instance– political figure and religious leader. Therefore, collective rituals’ functions can still be mapped in the development and sustaining social and common identities, while introducing the functions a particular institution (e.g., local, regional or national, regardless their nature) could exploit, such as the praise of a particular political figure, or the importance of the love to one’s nation. Indeed, the study of ST and specific emotional manifestations of it (i.e., STEs), have to be analysed from the instances where they could be experienced, and this form, we can approach them in a more comprehensive form. The fact that a given country selects a particular praising ritual would be in Freud’s (1922) words, an enactment of respect and admiration to the nation’s figure and, at the same time, love for the people who are under that figure. In other words, and while rituals’ functions are straightforward, they undoubtedly represent a way of transcending individuals’ selves.

Psychological mechanisms in collective rituals and other social gatherings.

Now, considering that it is possible that we transcend together due to its implications to one particular group (e.g., a political party) or institution (e.g., our national government), it is of major importance to bear in mind that these forms of participation happen collectively. In other words, the psychological reality is going to be affected by collective processes that also require further examination. Correspondingly, I would like to centre my attention on a particular mechanism that is most likely to co-occur in a wide variety of collective gatherings: the perceived emotional synchrony.

Perceived Emotional Synchrony (hereafter, PES), is an emotional experience lived by participants during group gatherings, representing the emotional experience of togetherness, and the feeling of unity with others (Rimé & Páez, 2019). People reporting PES feel synchronized with other participant in different facets, like shared attention, movement, gestures, expressions, etc., and this results not only from the experience of emotions lived together (i.e., Durkheim's collective effervescence), but also the whole experience of collective synchronization. It implies that people synchronize or coordinate their emotions, and that they feel something similar and intense (Páez et al., 2015). However, the content (i.e., the actual emotion that is being shared) is different from one collective gathering to another. One could be of grief and sadness, while, in another one, the predominant content could include glorification and pride, or exhilaration and joy.

This theorization is a modern version of Durkheim's (1912/1995) concept of collective effervescence, and emphasizes not only physical synchrony and the convergence of attention towards an object, but also emotional synchrony and convergence. Further, this psychological process, that is present in virtually every successfully conducted collective ritual, is theorized to take place due to different

proximal mechanisms such as emotional contagion (Hatfield, Cacioppo, & Rapson, 1992), and vicarious experiences and empathy (Preston & de Waal, 2002; de Waal, 2007). These in turn have as a base – at least to some extent – the activation of mirror neurons (Gallese, Fadiga, Fogassi, & Rizzolatti, 1996). Further, and even though PES is a psychological perception, behavioural synchrony has been proved to be associated to prosociality (Jackson et al., 2018; for a meta-analysis, see Rennung & Göritz, 2016), as well as increased cohesion with ingroup members (Fessler & Holbrook, 2016).

Several attempts have tried to assess the mechanisms that take place in collective rituals and gatherings. These attempts have focused on explaining mechanisms that take place in them (e.g., PES) (Páez et al., 2015; Pizarro, Telletxea, Bobowik, & Zumeta, 2017; Zumeta, Basabe, et al., 2016), and others, on the physical behaviours that facilitate their positive effects (Fischer, Callander, Reddish, & Bulbulia, 2013; Jackson et al., 2018), or the intensity of the experiences lived in these practices (Fischer et al., 2014; Whitehouse et al., 2017; Xygalatas et al., 2013). With the intention to provide an in-depth analysis of the emotional experiences that occur in these universally shared instances, table 3 provide a summary of concepts of different instances, and psychological mechanisms that play a role in collective rituals and gatherings.

Table 3. Emotional phenomena and psychological mechanisms that occur in collective gatherings and rituals.

Concept	Proposed definition	Examples
Perceived Emotional Synchrony	Emotional experience of togetherness and feeling of unity with others. It is characterized by a sensation of having felt something similar and intense (Rimé & Páez, 2019).	Feeling synchronized with others' emotional expressions, movements, gestures, (e.g., jump and sing in a concert), and the subsequent sensation of feeling part with the rest.
Shared Flow	A shared state of balance between the group's overall skills and the challenges. It is characterized by a high level of concentration, involvement, control of the situation, clarity of objectives, intrinsic motivation and a positive emotional state.	A collective and challenging action, where the groups' resources (e.g., cognitive abilities, physical skills) and what the situation demands are balanced (e.g., a group during a meeting, a football team, etc.) (Zumeta, Basabe, et al., 2016; Zumeta, Oriol, Telletxea, Amutio, & Basabe, 2016).
Group-based emotions	Emotions that are felt because of the identification to a particular group; they can be experienced individually or collectively.	Feeling negative affect after finding out of the harm my nation produced in the past (<i>collective guilt</i> ; Doosje, Branscombe, Spears, & Manstead, 1998).
Collective emotions	Emotions that are co-experienced and co-intensified by a group of people, and thus, experience the <i>same</i> emotion (see von Scheve & Salmela, 2014), which do not necessarily depend on group identification (Salmela & Nagatsu, 2016).	Being in ecstasy during a spiritual celebration; feeling uplifted and energized after a music concert; feeling anger during a protest (see Páez, Basabe, Ubillos, & González-Castro, 2007).

Emotional climate	The perception of how the majority of others feel regarding the group's current situation (de Rivera, 1992).	Perceiving a generalized <i>buzz</i> after the victory of the national team, or generalized sadness and anger after terrorist attacks (see de Rivera & Páez, 2007).
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Note. These elements can be present in a particular event at different extents and are not mutually exclusive.

The constructs presented in table 3 represent a summarized picture of important elements that take place during a collective ritual and or gathering. Besides PES, these collective experiences represent optimal experiences shared among participants and thus, triggers of flow (Csikszentmihalyi, 1990) and shared flow (Zumeta, Basabe, et al., 2016). This phenomenon is likely to occur when a group is fully absorbed by a collective action, and constitutes a shared state of balance between the group's overall skill and challenges (Salanova, Rodríguez-Sánchez, Schaufeli, & Cifre, 2014), and it can be defined as a state of mind characterized by a high level of concentration, involvement, situational control, clarity of objectives, intrinsic motivation, and a positive emotional state.

Finally, both being considered as mechanisms and outcomes of collective gatherings, there are the emotions people feel. In this context, it is important to differentiate different type of emotions that are going to be experienced, due to the influences they received (i.e., the factors that contribute to them) as well as the potential outcomes they will generate. It is worth mentioning at the same time, that this is not a matter of *content*, but a matter of *expression*. In other words, a particular emotion, such as joy (i.e., content-related) could be expressed in a variety of ways, such as collectively, group-based, or even, when there is a general agreement that they represent the atmosphere of a higher social group, like the nation.

In collective contexts, when emotions are co-experienced and co-intensified, they should be referred to as collective emotions (von Scheve & Salmela, 2014). If we think about the previously described

STEs, one might think they are examples of collective emotions due to people who experience them can be more related to a super-ordinate identity. Nevertheless, this is a matter of the form they are experienced (e.g., during a collective ritual) and not solely to the phenomenological experience or the outcomes they produce. In this regard, collective emotions should also be differentiated from group-based emotions, which are those felt based on the membership of a group (Lewis et al., 2008; von Scheve & Salmela, 2014). These emotions are highly related to the group's interests and its relationship to outgroups (Kessler & Hollbach, 2005) and play an important role in the formation of group identities (van Kleef & Fischer, 2016).

Taken the aforementioned into account, when individuals are in a group or collective context, affective convergence and intensification can take place. This can affect both the collectively felt emotion (i.e., collective emotions) as well as those whose primary source are the group identity (i.e., group-based emotions), and even other expressions of emotions, such as the emotional climate (de Rivera, 1992; de Rivera & Páez, 2007). The latter represents another form of emotional expression that can be treated as both a mechanism within collective gatherings, as well as an outcome. It corresponds to the perception of the socially built emotional mood of a large collective, which can be independent of an individual emotional experience (de Rivera & Páez, 2007) and also, might represent the accessibility of an emotional convention (Fernández-dols, Carrera, De Mendoza, & Oceja, 2007; see also Bar-tal, Halperin, & de Rivera, 2007).

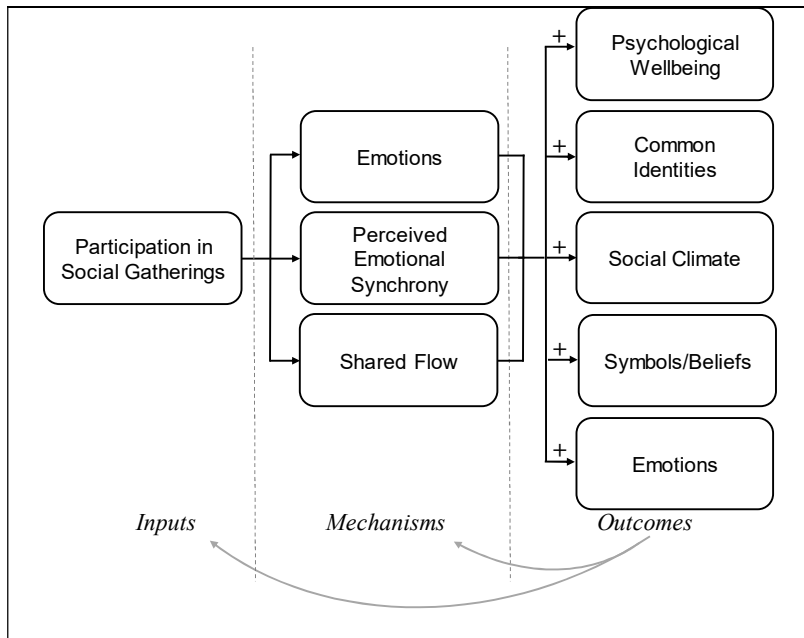


Figure 1. Psychosocial effects of participation of collective gatherings (adapted from Páez et al., 2015). The diagram depicts the path where the participation in social gatherings (inputs) produce different psychological mechanisms, which in turn, explain the outcomes. The model also includes a possible feedback represented by the curved arrows from the outcomes to the mechanisms, and subsequent inputs in a new loop.

In all, these inferences might represent one of the ideas proposed by Durkheim (1912/1995) who stated that, in different collective rituals, people could perceived a strong force of the collective, above their subjective perception of personal energy and participation. Finally, different collective manifestations of emotions, such as emotional climate, or collective emotions are part of the group and represent processes with emerging properties.

Psychological outcomes from participation in collective rituals and other social gatherings.

On the other hand, and maybe of greater generalizing importance, collective participation is able to generate a great deal of social outcomes, as it is described in figure 1. They can produce effects on collective identities, affectivity, self-esteem, and self-efficacy, social integration and also, the reinforcement of social beliefs and values (Durkheim, 1912/1995; Collins, 2004; Páez et al., 2015).

Several studies have showed the effects of participation on positive individual emotions (Neville & Reicher, 2011), and collective emotions (Páez et al., 2007, 2013), as well as psychological wellbeing (Tewari, Khan, Hopkins, Srinivasan, & Reicher, 2012). Furthermore, participation in collective gatherings *fuels* participants with energy and consequently, increases their sense of efficacy and self-esteem (Drury & Reicher, 2005; Páez et al., 2007; Zumeta, Basabe, et al., 2016; Zumeta, Oriol, et al., 2016). Specifically, participating in collective activities (e.g., manifestations, rituals) shows a facilitation effect towards social integration, such as the rise of positive social beliefs and cohesion, from situations as secular rituals (Páez et al., 2015), social movements (Drury & Reicher, 2000, 2005), or participation in instances of collective transitional justice after genocides (Kanyangara, Rimé, & Yzerbyt, 2007) or demonstrations against terrorist attacks (Páez et al., 2007).

Of great significance is that, while many rituals show a straight relationship between participation in collective rituals and wellbeing –for instance, in the form of social wellbeing (e.g., Livesey, Morrison, Clift, & Camic, 2012; Power, 2017)–, the content of rituals could also imply that *during* the activity, participants feel intense negative emotions, as its shown in the work of transitional rituals of reparative justice (Kanyangara et al., 2007; Rimé, Kanyangara, & Páez, 2012). In these cases, re-enacting past events could

undoubtedly make people live negative experiences again. Nevertheless, from an integrative model of rituals and collective participation (e.g., figure 1), this experience can signify an opportunity of empowerment for victims, a shift of the power (i.e., domination) and also, increasing perceptions of restoring control (Rimé et al., 2012).

With regard to collective identities, it has been shown that participation in collective gatherings increases identification with other co-present participants, as well as reinforcing a broader sense of social identity (i.e., ethnic identification, Gasparre, Bosco, & Bellelli, 2009), and social identity correlated with positive emotions during participation in a religious ritual (Khan et al., 2015). Furthermore, it has been postulated that rituals and collective gatherings may increase identity fusion with other members of the group (Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012). Identity fusion, or blurring of the self-others boundary between the personal and collective self, encourages people to channel their personal agency into group behaviour, motivating pro-group behaviour, both aggressive and altruistic (Fredman et al., 2015; Swann, Gómez, Seyle, Morales, & Huici, 2009). Sharing painful experiences produces identity fusion, motivating self-sacrifices and disposition to willingness to fight and die for the group (Whitehouse et al., 2017).

As a conclusion, collective rituals are not only instances where individuals transcend, but also represent highly complex social experiences which, under a functional approach (Durkheim, 1912/1995; Collins, 2004; Páez et al., 2005, 2015; Watson-Jones & Legare, 2016), have major implications for individuals and collectives, as well as having their own psychological reality.

As it is presented in figure 1, participating in collective rituals can be depicted by a process that receives feedback by itself, and thus, will affect the individuals who participate. As a form of clarifying

this effect, figure 1 not only depicts the mechanisms involve (e.g., PES) or the outcomes rituals generate (e.g., collective identities), but also, how these factors affect the whole sequence. These effects on subsequent participation can be seen in models that include motivational aspects of collective participation (van Stekelenburg & Klandermans, 2013; van Stekelenburg, Klandermans, & van Dijk, 2009), as well as how we share highly emotional experiences (Rimé, 2009) and thus, are in their constant influence. In other words, these effects are indeed long lasting and will undoubtedly have a greater – and often unconscious– impact in our following actions.

Concluding Remarks and Introduction of Studies

Why, therefore, can people feel that they are motivated to a) help other people, and b) might feel connected to everyone? We can now tackle this complex question with an approach that is centred in specific emotional reactions (i.e., STEs) and the complexities of participating in diverse social gatherings. Even though these questions are not simple in the sense that cannot be unequivocally answered with a straight response, and due to the complexity of human behaviour, I am now in a better position to start providing answers.

Considering the literature on STEs, participation in collective rituals, and the factors implied, we can see that we are in under the influence of different factors, which, often happen, outside our awareness. By feeling, let's say, Awe towards a magnificent leader or nation's hero, we are increasing our probability of approaching and feeling more connected with other people. Further, and if this particular emotion is boosted in the form of a collective ritual (e.g., commemorating past historical battles; e.g., Hativovic, 2017), different mechanisms will indeed boost these feelings and it is very likely that its effects extend to individual (e.g., *my* own willingness to further participate) and more collective spheres (e.g., *our* shared

sense of belonging). It is clearer now that emotions –and particularly STEs–, on the one hand, do not occur in a vacuum and should be analysed at different contexts and levels. On the other hand, collective instances play an enormous role in shaping the aforementioned emotional experiences, and hence, should be considered as well. When theorizing about our intention to help others, and to identify with them, we can see specific forces, mechanisms and instances whose effects on the prior are now more evident. Their influence affects the way we could both help members of my social group(s) as well as feeling good about it. The way people could let their particular needs on behalf a larger group of people, and the way these intentions can generalize to members of more distant group(s) as well.

In the following chapters, I will present 6 different studies that started with the topic of analysing the effects and outcomes of different STEs and participation in collective rituals and gatherings. As the structure of this introductory chapter, they are also organized from a focus centred on these emotions and their social outcomes; particularly, separating them from other positive emotional states (Study 1). Subsequently, I present the necessity of a better measurement instrument (Study 2) that is able to more accurately measure these emotions effects as well as comparing 3 emotions: Awe, Elevation, and Kama Muta (Study 3). Subsequently, the second section introduces 2 studies that analyse participation in collective gatherings and rituals from a macro- to a micro focus of attention. First, it is presented the analyses of the emotions surrounding the project European Capital of Culture DSS2016 from a sample of thousands of tweets, and subsequent, the analysis of self-reported data from participants in a large variety of collective rituals (i.e., with a different degree of ritualized behaviours) (Study 4). The attention is then focused on a more ritualized form of collective behaviour analysing the effect of participating in a highly synchronous

mindfulness program (Study 5). Finally, this thesis finishes with a theoretical proposal (Study 6) which presents the theorization of a particular social emotion, while incorporating the discussion and learnings from the previous studies during this endeavour.

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PART I

Self-Transcendent Emotions and their Social Effects

*“Tell them, dear, that if eyes were made for seeing,
Then Beauty is its own excuse for being”
The Rhodora – Ralph Waldo Emerson*

Study I

An Emotional Path to Ourselves: Self-Transcendent Emotions Motivate a Global Identification

Study Information

Collaboration

This study has been designed and conducted with the collaboration of Nekane Basabe, Darío Páez, and Saioa Telletxea, from the Social Psychology Department of the University of the Basque Country (UPV/EHU).

Status

This is the version that is currently under revision in a social psychology journal specialized in the study of emotions.

Abstract

Based on a growing literature that focuses on people's identification to an all-inclusive superordinate identity (i.e., global identity) and on the framework of self-transcendent emotions, we present the evaluation of an emotional approach to increase the global identification of participants. Through an experimental design, 175 university students received either self-transcendent (to elicit Awe or Elevation), or self-referent stimuli (Mirth), and then, responded self-reported measures, and an implicit-association task. Results showed that the activation of self-transcendent emotions of awe and elevation, in the self-transcendent conditions (in comparison to Mirth), enhances identification with a global identity and agreement to celebrate it. These emotions in turn, did not affect the identification towards a significant ingroup. In addition, implicit results indicate that, while still manifesting an ingroup bias (i.e., local group as warmth and competent), participants from self-transcendent conditions manifested a higher tendency to embrace a global identity (i.e., global group as warmth and competent). These results highlight the role of self-transcendent emotions on a global identity, and how, ultimately, they could facilitate intergroup cooperation and prejudice reduction.

Keywords: Superordinate Identities, Global Identity, Self-transcendent Emotions, Awe, Elevation.

As never in the history of human species, we are facing different social problems whose permanent solutions could be best reached by joint efforts of different governments, organization and international policies. From the effects of plastic waste in the marine environment (Derraik, 2002; Secretariat of the Convention on Biological Diversity, 2012) to the health- and social-related impact of air pollution (Simkovich et al., 2019), experts stress the importance of far-reaching, long-term oriented, multilevel actions to achieve global sustainability (e.g., de Coninck et al., 2018; Liu et al., 2015). Nevertheless, practices such as these represent costly endeavours and are social dilemmas. Even for members of the same social group, there is a general tendency to benefit oneself over common interest (see Kappeler & van Schaik, 2006), and there are also the biases product of group memberships, such as ingroup favouritism (Billig & Tajfel, 1973; Balliet, Wu, & De Dreu, 2014).

On this regard, the growing literature on identification with all humanity, internationalism, cosmopolitanism or identification with a *global community*, seems to be a research line that could be fruitful, since it highlights the importance of socio-emotional relationships among people from different backgrounds to boost cooperation and be able to deal with world-scale problems (de Rivera, 2018; de Rivera & Carson, 2015; Deutsch, Marcus, & Brazaitis, 1987; J. H. Liu & Macdonald, 2016; McFarland et al., 2019). Empirical research has shown that a strong identification with an all-inclusive superordinate identity (i.e., human identity) motivates cooperation that goes beyond the limits of the ingroup (Buchan et al., 2011; Buchan, Jeong, & Ward, 2017), and therefore, this perspective can eventually provide the base for future applications in a wide variety of social problems (e.g., intergroup prejudice, long-term cooperation, etc.).

The present study evaluates how an all-inclusive superordinate human identification can be boosted by means of an emotional experience. It reviews available literature on global identity, and then,

examines the explicit (i.e., self-reported measures) and implicit (i.e., response time in an implicit-attitude task) effects of self-transcendent emotions on this identification.

Global identification: Theoretical Background and Applications

Global identification has been mainly described using as a starting point a social identity approach (see Hornsey, 2008); that is, based on the Social Identity Theory (Tajfel & Turner, 1979), and its extension, the Self-categorization Theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Fundamentally grounded on the prior, Turner and colleagues (1987) developed the notion of different level of inclusiveness regarding one's self-construction in the process of categorization. According with this stratification, every person has access to three levels of identification: the personal, the social, and a superordinate one (i.e., the human level). Subsequent research influenced by these principles includes different models focusing – among others– on the way subgroup identities relate to themselves, and within a superordinate one (e.g., Hornsey & Hogg, 2000; Roccas & Brewer, 2002), or how the latter can help reducing intergroup conflict (e.g., Dovidio, Gaertner, Anastasio, Bachman, & Rust, 1993; Wenzel, Mummendey, & Waldzus, 2007).

Among the most widely models derived from literature on superordinate identities, it can be found the Common Ingroup Identity Model (Dovidio et al., 1993), which seeks to reduce intergroup biases by transforming the perceptions of group membership from an exclusive (i.e., *them* and *us*) to a more inclusive one (i.e., *we*). Among the tests and replications this model has received (for a revision of studies, see Gaertner & Dovidio, 2000), Nier and colleagues' (2001) study demonstrates not only an improvement in racial attitudes from Whites to Blacks, but also

suggests that this process of recategorization allowed group members to maintain a dual identity. In other words, they did not abandon their primary identification, but rather, were able to reorganize it nested in a more inclusive social identity (on different forms of interrelations between identities at the social level, see Hornsey & Hogg, 2000; Roccas & Brewer, 2002).

Dovidio and colleagues' (1993) model, as well as others that share similar principles such as the Ingroup Projection Model (Hewstone & Brown, 1986; Wenzel et al., 2007), have inspired further attempts to reduce intergroup conflict focusing on the highest level of self-categorization: the human level. For instance, Wohl and Branscombe's (2005) pioneer study showed a manipulation of the degree of inclusiveness from a social to a human level of self-categorization. Thus, when Jewish and Native Canadian participants were made salient of the human level of categorization in the description of past wrongdoings (i.e., the Holocaust and the treatment of Native Canadian as events where *humans* behave violently toward other *humans*), they reported more positive attitudes toward their historical perpetrator groups (i.e., Germans and White Canadians, respectively). In the same vein, Albarello and Rubini (2012) induced the saliency of human identification (after having manipulated a multiple versus simple categorization) and found significantly higher indicators of humanization of Blacks, measured through attribution of secondary emotions and inalienability of human rights.

Besides experimental data, there are several correlational studies suggesting the same overall pattern. For instance, Buchan and colleagues (2011) found that global social identity was significantly associated not only to concerns for global problems, but also was a significant predictor of the size of contributions for a global collective. In the studies of McFarland and colleagues (2012), the authors showed that identification with all humanity was associated to concerns for humanitarian needs, valuing ingroup and outgroup

members equally, and a greater disposition to help humanitarian organizations. Additionally, global citizenship identity was shown to be positively associated to different variables that can promote peace, such as forgiveness, concerns for human rights and for solving societal problems (Reysen & Katzarska-Miller, 2017), and consistently predicted intentions to celebrate rituals to promote a global sense of community (Basabe et al., 2018).

Concerning other significant social identities, a global identification does not seem to be incompatible with them, as it is the case of national identity. In fact, strong correlations were found with the nation-level of identification in U.S. participants (McFarland et al., 2012). In addition, Australian participants who identify simultaneously high in human identity and national identity were more favourable to asylum seekers (Nickerson & Louis, 2008), and, in the same line, there were reported higher levels of sustainable behaviour when both identities were highly activated, in samples from the U.S., China and Taiwan (Der-Karabetian, Cao, & Alfaro, 2014). As experimental and correlational data suggest, the most inclusive level of human identification is a salient identity that motivate people to concern and cooperate in issues that transcends immediate and close interests (see Buchan et al., 2011, 2017). Nevertheless, evidence also suggests that not every outcome resulting from increasing an all-inclusive superordinate identity is positive.

Unwanted Side Effects of Superordinate Identifications

Theoretically, the social identity approach predicts that people strive to find a positive identity and distinction from relevant outgroups (Tajfel & Turner, 1979; Turner et al., 1987). Furthermore, this process will be affected by –for instance– the salience of one’s social or personal identity, the relevance of the dimensions he or she takes into account (Brewer, 1993), and the perceived status (Hornsey & Hogg, 2002). The previous can be translated in greater resistance

to forming part of a superordinate group due to the importance of the primary one (e.g., Crisp, Stone, & Hall, 2006), or due to the lack of distinction subgroups' members perceive (Hornsey & Hogg, 2000). Therefore, different attempts that promote superordinate groups should take care of maintaining important characteristics of the subgroups in order to maximize the positive outcomes (Hewstone & Brown, 1986; Hornsey & Hogg, 2000; Dovidio, Gaertner, & Kawakami, 2003; Wenzel et al., 2007).

Besides these issues intrinsically related to superordinate categorizations, there are also unwanted effects that depend on the *content* of a human identification; in other words, with what being *human* implies. To illustrate, Greenaway and colleagues studies found that, when participants (i.e., Australian students) were made salient a shared humanity together with a benevolent view of the world, they tended to justify mistreatments from perpetrators to victims (i.e., Indigenous Australians) (Greenaway & Louis, 2010). Furthermore, and while self-identified Indigenous Australian increased the forgiveness towards perpetrators for past wrongdoings after human identity was made salient, they also found a decrease in the intentions to change their group's situation of inequality (Greenaway, Quinn, & Louis, 2011).

In sum, even though the motivational effects of the human level of identity seem to be positive and straightforward (e.g., greater disposition to forgive, greater acceptance of outgroup members), there are still doubts on how this level might (or not) produce social outcomes and relate to other levels of identity, such as the social level. For this reason, the next section reviews available definitions of global identity and elaborate on how emotions can play a role in its salience.

Identities and Emotions

Regarding available definitions of this level of categorization, different researchers have used distinct expressions to refer to it. In the literature it can be found the use of *Global Social Identity* (Buchan et al., 2011), *Identification with All Humanity* (McFarland et al., 2012), *Global Citizenship* (Reysen & Katzarska-Miller, 2013), and *Global Identity*, and *Global Community* (de Rivera, 2018; de Rivera & Carson, 2015). From the available definitions, Reysen and Katzarska-Miller (2013) propose that global citizenship is “awareness, caring, embracing cultural diversity, promoting social justice and sustainability, and a sense of responsibility to act for the betterment of the world” (pp. 406). Stressing an emotional function, de Rivera and Carson (2015) pay more attention to an emotional aspect: “We want to stress that it is the socio-emotional relationship involved in human fellowship, rather the intellectual or conceptual social cognition involved in group identification, that is the most essential element in social identity generally, and global communal identity in particular” (pp. 311-312). In the present study, we focus on the stress that is given to the emotional aspects of a subjective interconnection with other persons and peoples for the work of cultures of peace and reconciliation (de Rivera & Carson, 2015; de Rivera, 2018).

The particular interplay between emotions and identities has usually been approached from two different perspectives. The first focuses on the effects of identity on the experience of emotions. In other words, how the experience of specific emotions are product of individuals’ identification to certain groups (e.g., Doosje, Branscombe, Spears, & Manstead, 1998; Mackie, Devos, & Smith, 2000; Smith, 1993). On the contrary, the second approach pays attention to how emotional experiences can promote particular identifications (see Keltner & Haidt, 1999; Leary, 2007; Niedenthal & Brauer, 2012). For instance, how the experience of different

emotions can motivate people to adhere specific social groups. Centring in the latter, Thomas, McGarty and Mavor (2009) recognize the importance of emotions in creating a meaningful social identity, and therefore promoting sustainable collective action. Further, among the available reviews that show how emotional experiences help at different stages of group formation (e.g., Keltner & Haidt, 1999; Niedenthal & Brauer, 2012), there can be found several studies focusing on how emotions have a key role at different stages of groups formation. From positive and intense experiences' impact on group identification (e.g., Heise & O'Brien, 1993) to those that evaluate the effects of negative affect in instances of public demonstrations (Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015), collective violence (Jong, Whitehouse, Kavanagh, & Lane, 2015), or highly painful experiences (Whitehouse et al., 2017), extant evidence supports a functional view of emotions in group-forming processes. Nevertheless, how they might influence a global identification remains, to our knowledge, inexistent.

Taking from what we consider an unstudied area, we want to focus our attention on a taxonomy of emotions that has constantly been related to experiences of more intense identifications: self-transcendent emotions.

Self-transcendent emotions and higher levels of identity.

Self-transcendent Emotions (STEs, hereafter) are defined as a category of human emotions that generate a change from our self-absorption, concerns and selfish goals (Fredrickson, 2013; Van Cappellen & Rimé, 2014; Stellar, Gordon, Piff, et al., 2017), and thus, orientate our personal selves towards outside (e.g., other persons' needs, bigger social realities). They are thought to play a major role in the manifestation of spiritual and religious practices, as the search of meaning (Van Cappellen, 2017; see also Emmons, 2005), and are defined in terms of two central attributes: firstly, being elicited by stimuli not completely directed to the individual self (Haidt, 2003;

Van Cappellen & Rimé, 2014). Secondly, they promote a connection or union with other people and groups. Different manifestations of this connection are seen in increased prosocial behaviour tendencies (Haidt, 2003b; Stellar et al., 2017), care-taking behaviour of others (Van Cappellen & Rimé, 2014), or a socio-emotional identification with highly inclusive groups which can be sustained by collective participation in rituals (Basabe et al., 2018; Pizarro et al., 2018).

The particular emotions labelled under the name of *Awe* (Keltner & Haidt, 2003) and *Elevation* (Haidt, 2000, 2003a) are examples that fit the previously mentioned criteria. Awe has been conceptualized as a reaction towards stimuli that represents a sense of vastness and produce a decrease in the self-absorption, and a connection with larger realities (Keltner & Haidt, 2003; Shiota, Keltner, & Mossman, 2007). On the other side, elevation has been conceived as an emotional reaction towards actions or models of great moral beauty (Haidt, 2003a) which motivate people to morally improve (Algoe & Haidt, 2009). Finally, for both cases, there are empirical studies which show that they increase uninterested intentions towards others, such as more ethical thinking and prosociality in the case of awe (Piff, Dietze, Feinberg, Stancato, & Keltner, 2015), a greater disposition to help, in the case of elevation (Schnall, Roper, & Fessler, 2010; Schnall & Roper, 2012), and a greater willingness to boost a global identity for both (Cusi et al., 2018; Pizarro et al., 2018).

Objectives and Hypotheses

In the present study, we propose the evaluation of an emotional path that could only influence a global identity. In the process, we focused on the effects of these STEs (i.e., awe and elevation) would have on a global identification, which were compared to another positive emotion, namely humour or mirth (Martin, 2007). This particular emotion was used as a contrast because has been theorized

to be self-oriented and used for comparisons in different studies (Cappellen et al., 2013; Schnall et al., 2010; Strohminger, Lewis, & Meyer, 2011).

Specifically, we examined the effect of these emotions on different levels of self-categorization (i.e., social and human) by means of explicit (i.e., questionnaires) and implicit (i.e., analysis of response times) measures. As the main hypothesis, we expect that the activation of STEs will produce an intensification of the global identification of participants (H1). Despite the intention to analyse direct effects to assess the effectivity of the manipulation and the effect on the dependent variables, previous research on awe (Van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson, 2014) has shown indirect effects of this particular emotion. For this reason, we propose that the effect of the stimuli on a global identity will be mediated by the intensity of STEs (H1a). In addition, and due to STEs are theorized as emotions that are not inherently connected to selfish concerns (e.g., Van Cappellen & Rimé, 2014), we do not expect STEs affect the social level of self-categorization (i.e., a significant and close group at the social level of self-categorization) (H1b).

Besides data from participants' self-reports, we wanted to explore the effects of STEs on the response times of participants in a task that could a) provide a greater validity due to the stimuli selected (i.e., pictures and words; see below), and b), imply a more basic impact due to the less conscious control it implies (e.g., Nosek, Hawkins, & Frazier, 2011). Therefore, we expect that the effect of STEs will be noticeable in an implicit task. More specifically, we hypothesised that these emotions will facilitate people attribute positive characteristics to the global representation of identity more easily, in comparison to the control condition (H2).

Method

Design, Participants and Procedure

The sample consisted of 175 first-year university students (139 women, 35 men, and 1 person who preferred not to answer to the gender question; aged from 18 to 53, $M = 19.47$, $SD = 3.80$) who were recruited to participate in a study related to positive emotions⁷.

Each participant was randomly assigned to one of the three conditions, based on the stimuli they would receive: Awe ($N = 62$), Elevation ($N = 56$), and Mirth ($N = 57$). When assigned, participants watched an animated presentation of a set of pictures selected to elicit each emotion while listening to the song *Air* of Johann Sebastian Bach (constant for all conditions). In the case of Awe, the pictures depicted wonderful scenes (natural and human-created constructions and monuments). For the Elevation and Mirth conditions, the pictures showed well-known people (sex balanced) with short quotes referring to their moral achievements (e.g., being awarded with the peace Nobel award) (Elevation) or with short humorous quotes (Mirth).

After watching the presentation, participants completed the explicit scales (web-based; 15 min approx., through *Survey Monkey*) and finally, they started the implicit activity through the open software *OpenSesame* (Mathôt, Schreij, & Theeuwes, 2012). This activity was based in an IAT task (Greenwald, McGhee, & Schwartz, 1998) designed to assess local- vs. human-level favouritism. It consisted in evaluating two social groups (i.e., *people from where I live*, and *all the people from the world*) –each represented with a

⁷ The sample size was based on a power analysis using the software G*Power (Faul, Erdfelder, Lang, & Buchner, 2007), using as criteria a between-subject design with an expected power of .90 and effect size of .40, which showed an ideal sample of 138 participants. This analysis was conducted taking into account the explicit measurement; we therefore increased the sample for carrying out the implicit analyses.

picture (see figure 1)– with positive and negative adjectives (positive: *competent* and *warm*; negative: *ignorant* and *unpleasant*) taken from the stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002; Fiske, Xu, & Cuddy, 1999), in order to represent the dimensions of competence and warmth.

The task started with a 32-trial practice block for categorizing adjectives followed by a practice and experimental block (total of 10 and 38 trials, respectively). Both in the practice and experimental blocks, participants had to classify the incoming stimuli (i.e., adjectives or pictures), creating thus congruent and incongruent scenarios. The congruent consisted in attributing positive characteristics to *people from where I live*, and negative to *all the people of the world*, and vice versa, for the incongruent. Hence, this task represented a form to assess ingroup favouritism (see Balliet et al., 2014) versus human-level favouritism. The whole application of this experiment was in Spanish, took about 50 minutes, and all materials used (stimuli for conditions, the task in *OpenSesame*, as well as supplementary analyses) are available in supplementary materials online, at osf.io/x73ku.

All participants received information about the research project and signed an informed consent form. The study ensured both anonymity and compliance with the Personal Data Protection Act passed by the Research Ethics Committee.

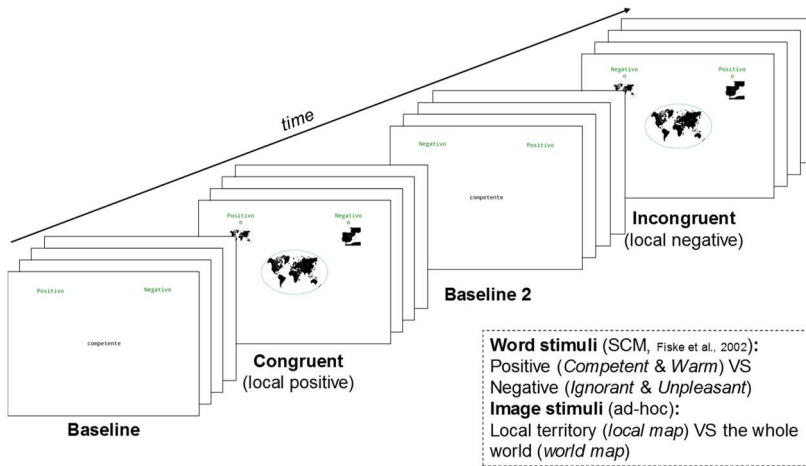


Figure 1. Schematic representation of the implicit task.

Instruments

Modified Differential Emotions Scale (mDES, Fredrickson, 2013; items originally from Izard, 1977). Participants responded the extent to which they felt 8 positive emotions, from 0 (Not at all) to 4 (Extremely). These items were then grouped creating the following dimensions: Self-reference (4 items; e.g., *What is the most amused, fun-loving, or silly you felt?*), and Self-transcendence (5 items; e.g., *What is the most awe, wonder, or amazement you felt?*, *What is the most inspired, uplifted, or elevated you felt?*). Reliability indexes were $\alpha = .700$ and $.875$, and $\omega = .702$ and $.879$, for Self-referent and Self-transcendent emotions, respectively.

Geneva Emotional Music Scale (GEMS; adapted from Zentner, Grandjean, & Scherer, 2008). As a second scale to measure emotions, participants answered 18 items (3 items per dimension) from the GEMS scale (Zentner et al., 2008), from the dimensions of Wonder (e.g., *Filled with wonder*), Transcendence (e.g., *Feeling of Transcendence*), Nostalgia (e.g., *Melancholic*), Peacefulness (e.g., *Calm*), Joyful Activation (e.g., *Joyful*) and Sadness (e.g., *Sad*). Each

item was rated from 1 (Not at all) to 5 (Very much). Reliability indexes α and ω were (respectively): .868 and .873 for Wonder; .785 and .734 for Transcendence; .779 and .750 for Nostalgia; .741 and .766 for Peacefulness; .792 and .818 for Joyful Activation; and .725 and .760 for Sadness.

Transcendence Beliefs (from the TCI, Cloninger, Przybeck, Syrakic, & Wetzel, 1994). From Cloninger and colleagues' (1994) personality model, we used five items that represent the beliefs associated to a transcendent idea of connection with everything that surrounds us (e.g., *I often feel a strong sense of unity with all the things around me*), rated from 1 (Strongly disagree) to 7 (Strongly agree). Reliability indexes were $\alpha = .762$ and $\omega = .764$.

Global Identity (Der-Karabetian & Ruiz, 1997). Participants answered seven items that measured a global identification with all the people around the world (e.g., *I feel that people around the world are more similar than different*, or *I think of myself as a citizen of the world*), in a scale from 1 (Disagree strongly) to 6 (Agree strongly). Reliability indexes were $\alpha = .724$ and $\omega = .737$.

Celebrations of Global Community (de Rivera, 2018). It evaluates the subjective connection to a supra-identity category that wants to include everything that surrounds us. In order to do it, each person had their agreement in participating in a global celebration where 8 different themes would be (e.g., *The goodness of our sun, plants, animals and earth*, or *The workers who produce what we need from the earth and in factories, here and around the world*). Each item was responded in a scale from 1 (Do not want) to 4 (Definitely want). Reliability indexes were $\alpha = .774$ and $\omega = .775$.

Ingroup Identification (Leach et al., 2008). 6 items from Leach's scale were used to evaluate the identification towards a significant social group like family or friends (e.g., *I feel a bond with [In-group]*, or *I am glad to be part of [In-group]*), from 1 (Totally

disagree) to 7 (Totally agree). Reliability indexes were $\alpha = .774$ and $\omega = .734$.

Data Analyses

In order to analyse the different scales' factorial structures, different CFAs were carried out with the package *lavaan* package (Rosseel, 2014) in R (R Core Team, 2014), and are available in supplementary materials online. The rest of the analyses were performed using SPSS 24.0 (IBM Corp., 2017).

First, we performed correlation analyses among the interest variables with Pearson's r . Second, ANOVA tests were conducted (with their respective effect size indexes, η^2_{partial}) to check the differences among the conditions, followed by paired comparisons (t tests and d , as an effect size index). Third, mediation analyses were done in order to see the indirect effects of the experimental conditions on different levels of social identification (i.e., celebration of global community, global identity and ingroup identification) through the emotional responses, with Hayes' (2013) PROCESS macro for SPSS (v3.1) and following the criteria proposed by Hayes and Preacher (2014). Standard errors and confidence intervals were calculated based on a bootstrap sampling distribution of 10000 samples. For these analyses, all mediators variables were centred, and every analysis was a simple mediation⁸. Correlations by conditions as well as full mediation paths can be seen in supplementary materials online.

With regard to the implicit task, we followed the criteria proposed by Greenwald, Nosek and Banaji (2003) and calculated the D algorithm. This index consists in the association power between the social category (i.e., ingroup and superordinate social category) and the attributes (i.e., adjectives). In the case of the present study,

⁸ We also conducted all analyses in separated simple mediations (i.e., with only one mediator), and with the variables not centred, and the results were the same.

and as a form of providing a greater generalizing validity, we represented the dimensions of warmth and competence (Fiske et al., 2002) for negative and positive adjectives. Therefore, the higher the score is, the more easily participants associated positive attributes to the human level of identification (i.e., facilitation towards global identity) in comparison with the positive evaluation of the ingroup⁹.

As selection criteria, we excluded from all analyses every participant with more than 40% of error trials, and for whom more than 10% of trials have response times less than 300 milliseconds. Also, the index was calculated without the response times that were less than 400 milliseconds and error trials were imputed, similarly as other studies (e.g., Greenwald et al., 2003; Lai, Haidt, & Nosek, 2014; Xu, Nosek, & Greenwald, 2014)

Results

Descriptive Statistics and Manipulation Check

Table 1 provides the descriptive statistics and the correlation analyses of the dependant measures for the whole sample. Results show that, for the emotion scales, Self-transcendent emotions scores (mDES) were more strongly associated to Wonder, Transcendence, Nostalgia, Peacefulness and Sadness (GEMS), than those of the self-referent emotions, which were more associated to the dimensions of joyful activation. In addition, Self-transcendent emotions (mDES) scores were positively associated to Global Identity and Celebrations of Global Community than those of Self-reference. A similar pattern can also be seen in the associations of the dimension of Transcendence (GEMS) with Transcendent Beliefs, Global Identity,

⁹ The direction of the association was due to the way the task was designed. Nevertheless, the authors also stipulate that by changing the order of the equation, the other possibility could also be measured (i.e., a higher value as a measure of ingroup-favouritism).

and Celebrations of Global Community, in comparison to the rest of dimensions of the GEMS scale.

Table 1. Descriptive analyses and correlations between the interest variables.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. mDES	2.49	0.72												
Self-reference														
2. Self-transcendence	2.57	0.82	.65**											
3. GEMS	3.59	1.06	.48**	.71**										
Wonder														
4. Transcendence	2.90	1.04	.37**	.65**	.79**									
5. Nostalgia	2.58	1.10	.22**	.46**	.53**	.56**								
6. Peacefulness	3.86	0.86	.09	.28**	.28**	.25**	.11							
7. Joyful Activation	3.51	0.88	.63**	.30**	.31**	.17*	.11	.18*						
8. Sadness	1.58	0.71	-.03	.21**	.20**	.24**	.39**	.15*	-.19*					
9. Transcendence Beliefs	4.13	1.34	.36**	.36**	.28**	.38**	.16*	.18*	.32**	-.02				
10. Global Identity	4.19	0.84	.21**	.22**	.14	.18*	.05	-.12	.18*	-.02	.49**			
11. Celebrations of Global Community	3.41	0.43	.32**	.37**	.22**	.26**	.19*	.09	.27**	.02	.49**	.41**		
12. Ingroup Identification	6.32	0.66	.17*	.12	.03	-.01	.03	-.04	.11	.15*	.17*	.29**	.18*	

Note. *M* and *SD* are mean and standard deviation, respectively. *, $p < .05$, **, $p < .001$ (bilateral).

When analysing the effects of the stimuli used in each condition (see table 2), direct effects were found as a result of the manipulation. In specific, participants from both Awe and Elevation conditions showed higher scores in the averages of Self-transcendent emotions from the mDES and GEMS scales, in comparison to those of the Mirth condition. Further, ST conditions (i.e., Awe and Elevation) had higher scores in the dimensions of Wonder, Nostalgia, and Sadness, compared to the Mirth condition, which in turn, presented higher scores in the dimension of Joyful Activation. Therefore, we concluded that the manipulation was successful (see figure 2 and 3).

Table 2. Comparisons of the criterion variables among the experimental conditions.

<i>Variables</i>	Condition			$F_{(2, 172)}$	p	partial η^2 [90% CI]
	Awe $M(SD)$	Elevation $M(SD)$	Mirth $M(SD)$			
mDES						
Self-reference	2.52(0.82)	2.51(0.70)	2.45(0.64)	0.165	.848	.002 [0, .02]
Self-transcend.	2.72(0.70) ^b	2.68(0.85) ^b	1.93(0.89) ^a	16.251	.001	.159 [.07, .24]
GEMS						
Wonder	3.24(0.55) ^b	3.05(0.52) ^b	2.60(0.48) ^a	23.995	.001	.218 [.13, .29]
Transcend.	3.41(0.93) ^b	3.11(0.86) ^b	2.14(0.89) ^a	32.069	.001	.272 [.18, .35]
Nostalgia	3.01(1.14) ^b	2.73(0.87) ^b	1.97(0.99) ^a	16.633	.001	.162 [.08, .24]
Peacefulness	4.26(0.58) ^b	3.68(0.94) ^a	3.61(0.90) ^a	11.340	.001	.116 [.04, .19]
Joyful Activation	3.50(0.89) ^{a,b}	3.19(0.87) ^a	3.84(0.77) ^b	8.240	.001	.087 [.02, .15]
Sadness	1.46(0.53) ^{a,b}	2.07(0.86) ^b	1.22(0.37) ^a	28.628	.001	.250 [.16, .33]
Transcend. beliefs	4.20(1.37)	3.96(1.39)	4.21(1.26)	0.645	.526	.007 [0, .03]
Global Identity	4.16(0.77)	4.21(0.93)	4.21(0.83)	0.059	.943	.001 [0, 0.01]
Celebrations of Global Community	3.42(0.41)	3.35(0.49)	3.46(0.37)	0.861	.425	.010 [0, .04]
Ingroup Identification	6.31(0.77)	6.24(0.59)	6.40(0.61)	0.773	.463	.009 [0, .04]

Note. Mean(Standard Deviation). [90% CI] are 90% confident intervals. Different superscript letters represent differences among the conditions ($p < .05$), based on Tukey's HSD tests.

Finally, there were no differences between the conditions in the dimensions of Transcendent Beliefs, Global Identity, Celebrations of Global Community or Ingroup Identification.

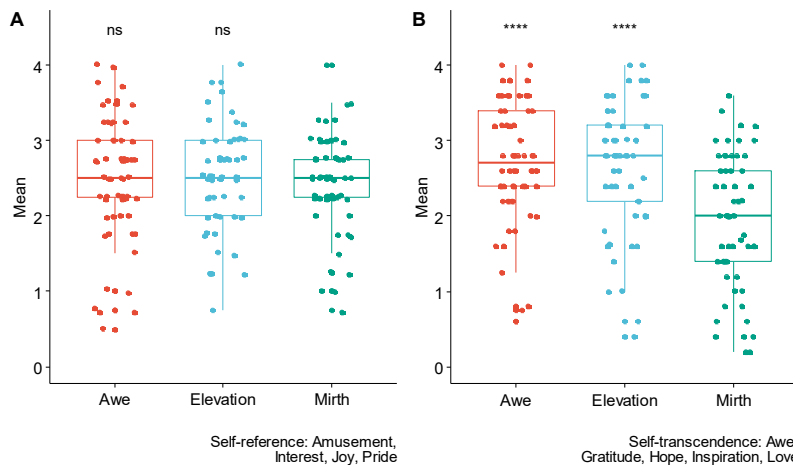


Figure 2. Comparison of mDES dimensions of self-referent (A) and self-transcendent emotions (B) by condition. ns, non-significant t-test comparisons ($p < .05$) with respect to Mirth condition. ****, significant t-test comparisons ($p < .0001$) with respect to Mirth condition.

Indirect Effects on the Levels of Identification

To analyse possible indirect effects of the conditions on the outcome variables through emotions, several mediation analyses were conducted (see figure 4). The analyses used the conditions as multicategorical independent variables and evaluated separately the effects of STEs and Self-referent ones, on Transcendent Beliefs, Global Identity, Celebrations of a Global Community and Ingroup Identification.

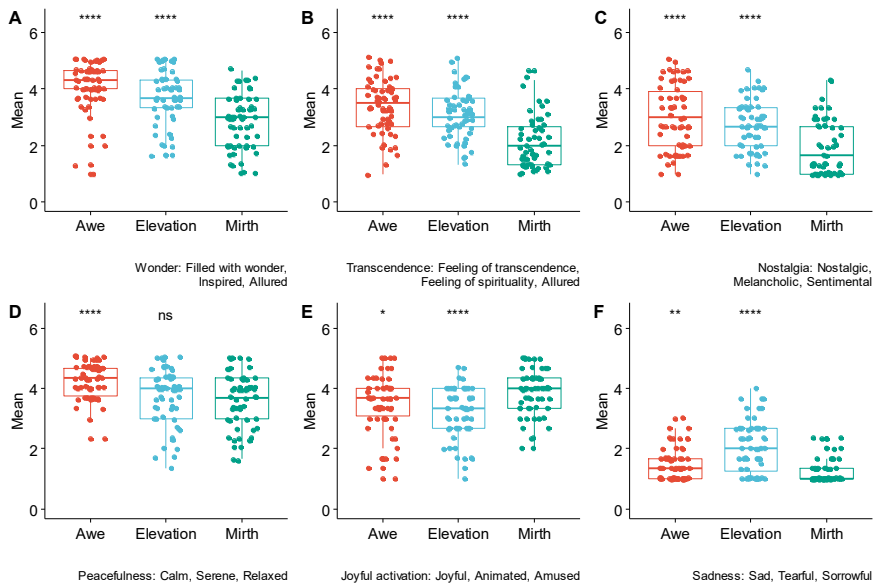


Figure 3. Comparison of GEMS dimensions of Wonder (A), Transcendence (B), Nostalgia (C), Peacefulness (D), Joyful activation (E), and Sadness (F) by condition. ns, non-significant t-test comparisons ($p < .05$) with respect to Mirth condition. *, **, ***, and ****, significant t-test comparisons (at $p < .05, .01, .001, .0001$, respectively) with respect to Mirth condition.

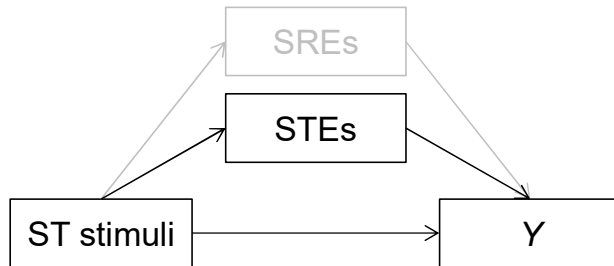


Figure 4. Theoretical model of mediation analyses to test the effects of the Self-transcendent stimuli of the Awe and Elevation conditions, on each dependent variable separately, and mediated by self-referent and self-transcendent emotions (SREs and STEs, respectively). A clearer path through SREs indicates weaker (if any) effects of mediation. The independent variable was used in the form of a multicategorical, where:
 X1: dummy coded variable (Mirth = 0; Awe = 1; Elevation = 0)
 X2: dummy coded variable (Mirth = 0; Awe = 0; Elevation = 1)

Results showed that, when the mDES dimensions were used as mediators, STEs mediated the effects (positive) of the conditions on: a) Transcendent Beliefs (X1 or Awe: $B = .303$, $SE = .104$ [.12, .53], and X2 or Elevation: $B = .277$, $SE = .104$ [.09, .51]); b), Global Identity (X1: $B = .196$, $SE = .107$ [.01, .42], and X2: $B = .179$, $SE = .105$ [.01, .41]); c), Celebrations of Global Community (X1: $B = .410$, $SE = .114$ [.19, .64], and X2: $B = .374$, $SE = .119$ [.17, .63]). Conversely, no indirect effects were found in the case of Ingroup Identification, and further, Self-referent emotions did not mediate any relation.

When the mediation models were tested using GEMS dimensions as mediators, it was found a highly similar pattern. Specifically, the Transcendence dimension was the only one that positively mediated the effects of the conditions on the variables that represent a self-transcendence: Transcendent Beliefs (X1: $B = .661$, $SE = .184$ [.33, 1.05], and X2: $B = .504$, $SE = .154$ [.24, .84]); b), Global Identity (X1: $B = .349$, $SE = .154$ [.08, .69], and X2: $B = .267$, $SE = .123$ [.06, .54]); and c), Celebrations of Global Community (X1: $B = .364$, $SE = .162$ [.09, .72], and X2: $B = .278$, $SE = .131$ [.06, .58]), and did not mediated the effects on Ingroup Identification.

In addition, Joyful Activation mediated the effects (negative) on Transcendent Beliefs (X1: $B = -.074$, $SE = .050$ [-.19, -.01], and X2: $B = -.141$, $SE = .072$ [-.30, -.02]), the dimension Peacefulness, on Global Identity (negative effect), but only in the Awe condition (X1: $B = -.150$, $SE = .072$ [-.30, -.01]), and the dimension Sadness, on Ingroup Identification (negative effect) (X1: $B = -.067$, $SE = .036$ [-.15, -.01], and X2: $B = -.243$, $SE = .105$ [-.46, -.04]). Both of these mediation analyses showed negative effects on the dependent variables, in contrast to the mediation using the Transcendence dimension as a mediator. In order to see the direct paths for every analysis conducted, see supplementary materials online.

Response Time Analysis

Finally, in order to analyse the emotional effects in an implicit way, we computed and compared the D scores for each group, and the results indicated a difference between the conditions ($F_{(2, 77)} = 4.227, p = .018, \text{partial}\eta^2 = .099$ [.01, .19]). Specifically, both Awe and Elevation conditions had scores significantly higher than the Mirth ($t_{(52)} = 2.732, p = .009, d = 0.744$ [.18, 1.29], and $t_{(50)} = 2.180, p = .034, d = 0.605$ [.036, 1.15], respectively), but they did not differ among themselves ($t_{(52)} = 0.423, p = .674, d = 0.115$ [-.66, .41]) ($M_{\text{awe}} = -0.029, SD_{\text{awe}} = 0.079; M_{\text{elevation}} = -0.039, SD_{\text{elevation}} = 0.086; M_{\text{mirth}} = -0.092, SD_{\text{mirth}} = 0.092$). The fact that the means of every condition were negative indicates that all participants, regardless the condition they were assigned to, attributed positive adjectives to the people from their geographical area more easily (i.e., ingroup favouritism), in comparison to all people from the world. Nevertheless, Awe and Elevation participants attributed more positive adjectives to the all the people of the world more easily, compared to Mirth participants.

Discussion

This study shows that it is possible to boost an all-inclusive superordinate identification (i.e., the human level of self-categorization) through the elicitation of STEs, which in turn, do not alter the identification towards a significant ingroup at the social level. In detail, STEs increased the identification to a superordinate identity and the wishes to celebrate it, but did not changed the ingroup identification (H1a and H1b, respectively). These results suggest first, that the stimuli used fulfils the criteria, and can be interpreted as STE elicitors. Even though the content varied considerably across the Awe (i.e., mostly nature and human made constructions) and Elevation conditions (i.e., moral exemplars), it indirectly produced a tendency to embrace and enhance a more inclusive human identity,

compared to Mirth. Second, the pattern of indirect effects was constant across the mediation analyses performed, being congruent with measures more associated to self-transcendence (e.g., Transcendent Beliefs), and opposite to those affected by Joyful Activation (i.e., an opposite effect on Transcendent Beliefs).

Regarding the identification to a highly important ingroup, we consider that STEs have not affected it, and this can be seen in the high means reported in the measure of Ingroup Identification, and the lack of indirect effects. Furthermore, since these effects were compared against mirth, they cannot be explained by the positivity of the emotions.

Although results confirmed that, the greater the activation of STEs is, the higher is the increase in global identity and related outcomes, the experimental manipulation did not produce direct effects on the self-reported answers regarding superordinate identity and the transcendence beliefs. Probably, these are central beliefs that brief manipulations such as these carried out do not manage to modify –see McFarland and colleagues’ (2019) revision to explore variables that affect self-reported measures.

In line with the pattern found in the analysis of the response times, STEs also increased a global identity outside one’s conscious control. Participants from the transcendent conditions significantly exhibited less ingroup bias (H2). The fact that the results in the implicit task were direct, though, can be due to the relationship on how different variable intervene in implicit associations (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005; Urbiola, Willis, Ruiz-Romero, & Moya, 2018), and it should be addressed that the experimental manipulation did not overrode the ingroup bias, but decreased it. In other words, at an unconscious level, participants continued manifesting an ingroup bias but were faster in considering all the people in the world as warm and competent. Nevertheless, this result should be taken with caution since the reduced sample size after

applying the elimination criteria proposed in past studies (i.e., $n = 80$).

In all, we consider this study highlights the differences between positive emotions and STEs, where the latter indirectly promotes a connection or union with others, as other authors postulates (Cappellen et al., 2013; Stellar et al., 2017; Van Cappellen & Rimé, 2014). Nevertheless, one of the limitations this study has was the fact that we did not identify participants in the implicit task, and therefore, are not able to link them to their scores in the self-reported measures. We consider this would be highly valuable to explore whether implicit responses are manifested in function of, for example, different levels of emotional (i.e., in the self-reports), or patterns of them. On the other hand, future explorations should also assess possible differences on more inclusive levels of social-levels of self-categorization, such as the national identification. For instance, while there is evidence of a congruence in national and global identities (e.g., Der-Karabetian et al., 2014), Reysen, Katzarska-Miller, Salter, and Hirko (2014) show that, in presence of threat, individuals increased their national identity and decreased their global identity, reducing consequently intergroup prosocial-related values and cooperation tendencies. From a different approach, empirical data also suggest a dual identity, embodying both nationalism and a sense of world citizenship, and that is compatible with patriotic obligations (Bayram, 2018). Nevertheless, both of these levels of identity can be still compatible and, from de Rivera's (2018) perspective, can be integrated under a sense of common and shared solidarity.

In addition, upcoming studies need to investigate differential effects between the transcendent emotions of awe and elevation. In this experiment, awe stimuli induced more Peacefulness, which also affected negatively on Global Identity. This suggests a possible inactivation pattern, where the Global Identity is more positively associated to both Joyful Activation and Transcendence, and

negatively to Peacefulness. These data are also expected to provide insights in the nature of future manipulations of emotional experiences and a human level of identification.

In sum, the impact of how different levels of the human identification relate and influence each other will continue capturing the attention of researchers, as well as law makers and public institutions, due to the implication they have for different social issues (de Rivera, 2018; J. H. Liu & Macdonald, 2016; Hermans & Dimaggio, 2007). The necessity of studying the psychological mechanisms that can ultimately boost cooperation is considered an important area of research, and STEs in particular, seem to be a promising line.

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Conflicts of Interest

The authors declare that there is no conflict of interest.

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Study 2

Asombro Maravillado, Temor Admirativo o Respeto Sobrecogido: Revisión Teórica y Validación de una Escala de Asombro en Castellano [Awe: Theory Review and Validation of an Awe Scale in Spanish]

Study Information

Collaboration

This study has been designed and conducted with the collaboration of Olaia Cusi Idigoras (UPV/EHU), Laura Alfaro-Beracoechea (University of Guadalajara, Ocotlán, México), Alexis González-Burboa and Aldo Vera-Calzaretta (University of Concepción, Chile), Pilar Carrera Levillain (Autonomous University of Madrid) y Darío Páez (UPV/EHU).

Status

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Resumen

Con el objetivo de elaborar una escala de asombro maravillado en castellano, se llevaron a cabo dos estudios. En el primero, se desarrolló un instrumento que recoge diversos eventos que originan la emoción a través del recuerdo libre. Posteriormente, a través de la clasificación de estos y de la revisión teórica, se desarrolló una lista de eventos que produce esta emoción auto-trascendente y una escala cerrada de 16 ítems (versión final) con un enfoque multidimensional. Con esta última escala, se presentan los análisis de fiabilidad y validez pertinentes, utilizando como criterios medidas de emociones (Fredrickson, 2009), valores de universalidad y de benevolencia (Schwartz, 2007), creencias de espiritualidad-religiosidad (Piedmont, 2004), identificación con una supra categoría de identidad (de Rivera & Carson, 2015), y bienestar (Hervás & Vázquez, 2013). Finalmente, se discuten las potencialidades y limitaciones del estudio, con el fin de fomentar líneas futuras de investigación en contextos hispanohablantes.

Palabras Clave: Asombro maravillado, Temor admirativo, Respeto sobrecogido, Auto-trascendencia, Emociones auto-trascentes, Escala.

Abstract

Two studies were carried out with the aim of elaborating a scale to measure awe in Spanish. In the first one, a scale to gather different events that elicit this emotion through free recall was created. Subsequently, through the classification of the mentioned events and the theoretical revision, there were created an eliciting event list and a 16-closed-item scale (final version) to measure this transcendent emotion by means of a multidimensional approach. With the latter, corresponding reliability and validity analyses are presented, using as criteria measures of emotions (Fredrickson, 2009), universality and benevolence values (Schwartz, 2007), spirituality-religiosity beliefs (Piedmont, 2004), identification with a supra ordinate identity category (de Rivera, 2016), and wellbeing (Hervás & Vázquez, 2013). Finally, these studies' potentialities and limitations are discussed in order to boost future research lines in Spanish-speaking contexts.

Keywords: Awe, Wonder, Contemplative fear-admiration, Self-transcendence, Self-transcendent emotions, Scale.

Resumo

Com o objetivo de elaborar uma escala de assombro maravilhado em espanhol, se realizaram dois estudos. No primeiro, se desenvolveu um instrumento que reúne diversos eventos que originam a emoção através do recorde livre. Posteriormente, através da classificação destes e da revisão teórica, se desenvolveu uma lista de eventos que produzem esta emoção auto transcendente e uma escala fechada de 16 itens (versão final) com um enfoque multidimensional. Com esta última escala, se apresenta as análises de fiabilidade e validade pertinentes, utilizando como critérios medidas de emoções (Fredrickson, 2009), valores de universalidade e benevolência (Schwartz, 2007), crenças de espiritualidade-religiosidade (Piedmont, 2004), identificação com uma supra categoria de identidade (de Rivera, 2016), e bem-estar (Hervás & Vázquez, 2013). Finalmente, com o objetivo de facilitar linhas futuras de investigação, se discutem as potencialidades e limitações do estudo, com o fim de fomentar linhas futuras em contextos de língua espanhola.

Palavras-chave: Assombro maravilhado, Temor admirativo, Respeito comovente, Auto transcendência, Emoções auto transcendentales, Escala.

“Lo único que se puede hacer es quedarse con asombro y maravilla al contemplar los misterios de la eternidad, la vida, la maravillosa estructura de la realidad. Es suficiente si alguien simplemente intenta comprender un poco de este misterio día a día”

Albert Einstein, *Old Man’s Advice to Youth: Never Lose a Holy Curiosity*
(2 Mayo, p. 64)

Desde la psicología social se caracteriza el asombro maravillado, temor admirativo o respeto sobrecogido (*awe* en inglés y de ahora en adelante asombro maravillado; ver Keltner & Haidt, 2003) como una emoción intensa que se desencadena ante la percepción de algo grandioso, sublime o extremadamente poderoso – como una maravilla natural, una experiencia percibida de lo divino o una extraordinaria acción humana (Schurtz et al., 2012). Las personas perciben una sensación de inmensidad que parece mucho más grande que el Yo y que excede las cosas a las que están acostumbradas. A su vez, como resultado de esta inmensidad, los estímulos inducen una necesidad de acomodación, dado que desafían el marco usual de referencia del observador, y obligan a ajustar nuestro esquema cognitivo para poder acomodar lo que se percibe (Keltner & Haidt, 2003; ver además Rudd, Vohs, & Aaker, 2012; Shiota, Keltner, & Mossman, 2007).

Como concepto, ha estado presente en distintas tradiciones espirituales; diversas culturas, como las tradicionales chinas, japonesas y griegas, están impregnadas de referencias hacia la experiencia del asombro, que se vincula con actitudes y comportamientos éticos como la humildad, la modestia, la reconciliación y la evitación de conflictos (Parkes, 2016; Ren, 2010; Woodruff, 2002). Dentro de la teología, filosofía y sociología, también ha existido un interés permanente sobre esta emoción (Shiota et al., 2007; Yang, Yang, Bao, Liu, & Passmore, 2016), y se puede

observar en las discusiones de pensadores eminentes como Burke (1757/1990), Kant (1788/1997), Emerson (1836/1982), e incluso en el libro “La Expresión de las Emociones en el Hombre y en los Animales” de Darwin (1897), donde se analiza una experiencia emocional cercana al asombro maravillado.

Desde la sociología, Max Weber (1836/1978) incluyó el asombro dentro de los análisis sobre el carisma y los líderes carismáticos, y señaló que en tiempos de crisis sociopolítica, una persona con estas características (e.g., Juana de Arco, Buda, Mandela, Jesús, Gandhi, Hitler) puede inspirar admiración y agitar las almas de miles de personas, reprogramándolas para llevar a cabo misiones heroicas y de auto-sacrificio, lo que va en línea con la teoría del liderazgo transformacional (e.g., Basabe & Páez, 2017). Adicionalmente, Emile Durkheim (1912/1995) también subrayó la importancia de emociones poderosas que intervienen en las creaciones de movimientos políticos, sociales y religiosos, haciendo hincapié en el efecto de emociones como estas en los colectivos. Por otra parte, también se incluyen aspectos relacionados al asombro maravillado en la teoría de las experiencias cumbre de Abraham Maslow (1962), las que incluyen elementos como la trascendencia del ego y el olvido de uno mismo.

Estímulos y Evaluaciones que Provocan Asombro

Maravillado

Los eventos que pueden desencadenar esta emoción suelen ser extensos, pero son a menudo unificados por un tema central: las percepciones de inmensidad que expanden el marco de referencia usual del observador (Shiota et al., 2007). Esta inmensidad es a menudo es una cuestión de tamaño físico y en estos casos, el asombro puede ser inducido por la proximidad a esta inmensidad física (ver Piff, Dietze, Feinberg, Stancato, & Keltner, 2015; Yaden et al., 2016). Sin embargo, también puede implicar *tamaños sociales* como la

fama, la autoridad y el prestigio (Keltner & Haidt, 2003), o una grandeza simbólica (e.g., descubrir una teoría unificadora; Valdesolo, Park, & Gottlieb, 2016; Yaden et al., 2016). De este modo, esta emoción puede emerger ante situaciones no sociales (e.g., elementos naturales), y del mismo modo, ante situaciones sociales (e.g., encuentros religiosos) (Keltner & Haidt, 2003). Es más, una revisión reciente estimó que alrededor de la mitad de los estímulos que evocaron asombro maravillado fueron esencialmente sociales (Piff et al., 2015).

El hecho de que los estímulos sociales tengan un rol tan preponderante es compartido por otras emociones auto-trascendentes (ver artículo de elevación moral en este mismo número). Claros ejemplos son las emociones de elevación, la compasión, la gratitud, el amor (Haidt, 2003) y el sentirse conmovido por amor (*kama muta*; ver Fiske, Schubert, & Seibt, 2016), las cuales, vistas desde una perspectiva funcional, permiten unir a los individuos en relaciones sociales mediante el fomento de la cooperación y pueden promover la estabilidad del grupo (e.g., Haidt, 2003). En este sentido, un reciente estudio transcultural –llevado a cabo en 15 idiomas– confirmó que estímulos audiovisuales que inducían *kama muta* (e.g., una historia en que niños pobres y personas mayores se ayudaban y relacionaban con gran generosidad en un contexto de vida o muerte) inducían con la misma intensidad asombro maravillado (Zickfeld et al., 2018).

No obstante, estas emociones también tienen características que los diferencian. En primer lugar, Keltner y Haidt (2003) clasifican el asombro maravillado como un ejemplo de estados relacionados a la sensación de asombro, pero que, a diferencia de la elevación, en esta emoción los eventos no son evaluados como acciones o modelos de gran belleza moral¹⁰, y, en segunda instancia, las evaluaciones de los

¹⁰ Ahora bien, ante líderes como Mandela o el Dalai Lama –o líderes más controvertidos como Yasir Arafat o el Che Guevara–, sentir maravilla ante

eventos varían. Por ejemplo, en la compasión se evalúa el sufrimiento de otra persona (Haidt, 2003), y, en la gratitud, el evento se valora como un acto de generosidad (Algoe & Haidt, 2009); sin embargo, en el asombro maravillado, el evento puede ser evaluado como algo inmenso y de difícil asimilación (Keltner & Haidt, 2003; Piff et al., 2015; Shiota et al., 2007).

Respuestas Afectivas Relacionadas con el Asombro

Maravillado

El asombro maravillado, evaluado positivamente, se considera parte de una gran clase de emociones que influyen en los procesos mentales más allá de simplemente proporcionar sentimientos agradables (Fredrickson, 1998, 2013; Haidt, 2000). Sus experiencias se describen como intensas, gratificantes (Bonner & Friedman, 2011), y a menudo como "experiencias punta" positivas que pueden ser eufóricas (Gabrielsson, 2011; Schneider, 2004, 2009). En concreto, se compone de varios subcomponentes o estados que se relacionan y difieren entre sí, como sentimientos de elevación, fascinación, maravilla (Silvia, Fayn, Nusbaum, & Beaty, 2015), ligeros sentimientos de belleza, admiración, alegría, estupor, reverencia y a veces miedo (Keltner & Haidt, 2003; Piff et al., 2015). En este sentido, es importante destacar que algunas emociones auto-trascendentes pueden involucrar valoraciones negativas que dan lugar a estados más complejos y mixtos. Es decir, el asombro maravillado se clasifica como una emoción positiva (Campos, Shiota, Keltner, Gonzaga, & Goetz, 2013), pero puede ser matizado con evaluaciones de amenaza, dado que puede incluir una valencia negativa (ver Chirico, Yaden, Riva, & Gaggioli, 2016; Gordon et al., 2016), y, por tanto, puede ser tanto placentera como incómoda o

la grandeza de su lucha se podría asociar a un juicio sobre su entrega moral a una gran causa humana o colectiva.

abrumadora (Krause & Hayward, 2015). Respecto a su aspecto negativo, autores como Keltner y Haidt (2003) proponen que algunas experiencias de asombro implican sentimientos asociados a la confusión, llegando a ser desorientadoras e incluso aterradoras y se debe a que producen que uno se sienta pequeño, impotente y confuso. En casos extremos, donde los intentos de adaptación quedan frustrados, el asombro puede ser asociado con el miedo y la ansiedad (Piff et al., 2015); no obstante, una vez procesada, suele implicar sentimientos de iluminación e incluso de renacimiento (Keltner & Haidt, 2003).

Respuestas Corporales

En marcado contraste con otras emociones positivas (e.g., la alegría), el asombro maravillado es una emoción definida como mixta, debido a la complejidad de la activación de respuestas corporales. Siendo reportada en una amplia variedad de culturas industrializadas y pre-industrializadas (Cordaro, Keltner, Tshering, Wangchuk, & Flynn, 2016), se teoriza que esta emoción se distingue por las cejas arqueadas, los ojos ensanchados, una mandíbula caída y una inhalación visible –señales generalmente asociadas con la expresión de la sorpresa–, y, según diversos autores (Campos et al., 2013; Shiota, Campos, & Keltner, 2003), por rasgos faciales universalmente reconocidos. En este sentido, Chirico y colaboradores (2017), a través de la inducción a través de realidad virtual, observaron que el asombro maravillado emerge con un patrón que involucra tonos musculares faciales tanto positivos como negativos, además de una mayor activación del sistema simpático (e.g., mayor conductancia en la piel). Otros marcadores fisiológicos son, por ejemplo, un patrón específico de vocalización (Cordaro et al., 2016; Simon-Thomas, Keltner, Sauter, Sinicropi-Yao, & Abramson, 2009), el llanto (Braud, 2001) y los escalofríos –estos últimos, visibles en forma de piel de gallina (Maruskin, Thrash, & Elliot, 2012)– y que

generalmente se dan en el cuero cabelludo, el cuello, la espalda y los brazos (e.g., Ekman, 2003; Keltner & Haidt, 2003; Schurtz et al., 2012; Shiota et al., 2007; Silvia et al., 2015).

Respuestas Cognitivo-Subjetivas

Los elementos típicos que caracterizan el asombro maravillado tienen relación con la conexión, el sentimiento de pequeñez y la trascendencia (Bonner & Friedman, 2011; Silvia et al., 2015). Las personas suelen describir estas experiencias como aquellas de mayor conexión con el resto, a veces, hasta el punto de sentirse inmersas en algo más grande que ellas (i.e., experiencia de auto-trascendencia; Yaden, Haidt, Hood, Vago, & Newberg, 2017), y, al mismo tiempo, describen la sensación de sentirse pequeño y abrumado frente al evento (Campos et al., 2013). Las personas se sienten elevadas de sus preocupaciones mundanas poniéndose en contacto con algo profundo (Schneider, 2004, 2009). Además, a menudo se describen las experiencias de asombro dándoles un sentido de perspectiva sobre la vida, las metas y propósitos (Bonner & Friedman, 2011; Schneider, 2009). Esto es consistente con la noción de que el cambio del Yo se produce cuando las personas satisfacen la necesidad de acomodación (i.e., cuando comprenden cognitivamente el estímulo; Silvia et al., 2015), y también al hecho de que la experiencia disposicional del asombro maravillado también se asocia con una baja necesidad de cierre cognitivo (i.e., preferencia de situaciones sin ambigüedad y con continuidad; Shiota et al., 2007).

Otras relaciones observadas son centrarse más en el aquí y ahora (Rudd et al., 2012), la ampliación de la atención (Chirico, Glaveanu, Cipresso, Riva, & Gaggioli, 2018) y la consciencia de los demás (Prade & Saroglou, 2016), una disminución de la estimación del tamaño corporal (van Elk, Karinen, Specker, Stamkou, & Baas, 2016), y también influir en la manera en que procesamos la información (Griskevicius, Shiota, & Neufeld, 2010).

Motivación y Tendencias de Acción

El asombro maravillado produce tendencias cognitivas y conductuales que facilita a los individuos incorporarse en grupos sociales colaborativos, participar en la acción colectiva y ser miembros efectivos de los colectivos sociales (e.g., Keltner, Kogan, Piff, & Saturn, 2014; Nowak, 2006; Sober & Wilson, 1998). Esto requiere una disminución del Yo y sus intereses, y a su vez, una mayor atención hacia aquellas entidades más grandes de las cuales uno es parte (e.g., grupos pequeños, comunidad, cultura, etc.) (Piff et al., 2015). En este sentido, dado que el asombro parece facilitar la propensión de uno a prestar atención a los problemas de los demás (Griskevicius et al., 2010), puede tener una cualidad de auto-trascendencia particularmente intensa (Yaden et al., 2017), con correlaciones conductuales que incluyen imitar comportamientos y la sumisión (Frijda, 1986; Keltner, Gruenfeld, & Anderson, 2003).

Siguiendo este razonamiento, diversos estudios dan cuenta del aumento de la conducta prosocial motivada por esta emoción, como el hecho de ayudar al experimentador con su tarea (Piff et al., 2015), o el sentirse menos impaciente y con más propensión a ofrecerse a una organización benéfica (Rudd et al., 2012). En relación a las funciones de estas conductas, se hipotetiza que estarían basadas en la suposición de que los individuos alcanzan metas y rechazan las amenazas con más éxito en grupos que solos (Dunbar & Shultz, 2007; Nowak, Tarnita, & Wilson, 2010; Sober & Wilson, 1998). Los individuos obtienen más beneficios al pertenecer a grupos sociales cohesivos y estables, lo que requiere reducir las motivaciones interesadas de cada miembro del grupo. Asimismo, las perspectivas evolutivas ponen de relieve la naturaleza adaptativa de las jerarquías sociales (e.g., Barkow, 1975; Boehm, 1999; Fiske, 1991; Haidt & Keltner, 2001) y sugieren que debe haber mecanismos adaptativos para asegurar una estabilidad suficiente en dichas jerarquías. Por tanto, se puede argumentar que posiblemente hay un mecanismo que

implique respuestas sumisas de los individuos subordinados ante la presencia de seres poderosos (e.g., de Waal, 1988; Gilbert, 1992; Keltner & Potegal, 1997), estableciendo una relación más vertical, lo que en conjunto facilitaría la interdependencia dentro del grupo. Sin embargo, esta explicación no consigue dar una respuesta completa a todo lo que implica esta emoción, como por ejemplo, la alta frecuencia e intensidad que se encuentra ante estímulos naturales como paisajes impresionantes.

Asombro Maravillado, Rasgos de Personalidad y

Constructos Vinculados

La evidencia sugiere que existen diferencias en el grado y la frecuencia con que las personas experimentan asombro maravillado (Razavi, Zhang, Hekiert, Yoo, & Howell, 2016; Shiota, Keltner, & John, 2006), en particular, la apertura a la experiencia (McCrae & Sutin, 2009). Las personas con un alto nivel, disfrutaban de experiencias estéticas, viven vidas más creativas, y, además, buscan y apoyan las artes. Por el contrario, las personas con un nivel bajo son más bien convencionales, prácticos, es decir, con “los pies en la tierra” (Conner & Silvia, 2015; Nettle, 2009; Swami & Furnman, 2014). La extraversión por su parte, también sirve para entender estados profundos como el asombro maravillado (Bonner & Friedman, 2011), ya que diversos estudios afirman que las personas extravertidas son mucho más propensas a experimentar estados positivos intensos, tales como la alegría y el entusiasmo (Fleeson, Malanos, & Achille, 2002; Lucas, Le, & Dyrenforth, 2008; Shiota et al., 2006). Un estudio reciente (Razavi et al., 2016) empleó muestras de cuatro países (Estados Unidos, Irán, Malasia y Polonia) –debido a sus diferencias en valores culturales– para la validación de una escala de asombro maravillado, encontrando que el país con los puntajes de extraversión más alta tenía la media de asombro maravillado disposicional más alta.

Por otra parte, y en relación con la auto-trascendencia, diversas emociones de esta familia (e.g., kama muta, elevación moral, asombro maravillado) convergen en un fomento hacia el bien común y en la preocupación por la mejora de los demás (Stellar et al., 2017). De esta forma, el asombro maravillado puede vincularse con valores de trascendencia de universalismo y de benevolencia, valores que enfatizan la comprensión, apreciación, tolerancia y protección de lo que nos rodea (Schwartz, 1994). Del mismo modo, la capacidad de esta emoción para orientar la visión hacia el mundo social –englobar el Yo en el nosotros– también puede asociarse con una conciencia de pertenecer a una comunidad global (de Rivera, 2018; de Rivera & Carson, 2015) y con las creencias espirituales y religiosas, como se ha visto en estudios anteriores (e.g., Saroglou, Buxant, & Tilquin, 2008; Van Cappellen & Saroglou, 2012); no obstante, cabe destacar que no es una emoción restringida a entornos y personas religiosas (Van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson, 2014).

Concluyendo críticamente, aun cuando existe un cuerpo teórico que aborda esta emoción, todavía quedan muchas incógnitas, como la diferenciación de otros estados (Keltner & Haidt, 2003), descripciones consensuadas sobre éstos (Chirico et al., 2017), además de sus funciones (Lazarus, 1991), la expresión física (Keltner & Haidt, 2003) y las maneras de manipularla en ambientes más controlados (Chirico et al., 2016; Ray & Gross, 2007; Silvia et al., 2015). En virtud de ello, este artículo presenta dos estudios que incorporan un enfoque global del asombro maravillado como un proceso psicológico multidimensional con estímulos, evaluaciones/valoraciones, respuestas afectivas, corporales, cognitivo-subjetivas y las tendencias de acción que comprende la vivencia de esta emoción. El objetivo es esclarecer los diversos eventos o acciones que inducen esta emoción, para tener una mejor comprensión de esta (estudio 1), y a su vez, crear y validar una escala

de asombro en castellano (estudio 2) que facilite esta tarea en el futuro.

Estudio 1

Método

Participaron 73 personas (68.49% mujeres) con edades entre los 18 a los 77 años ($M = 27.75$, $DE = 12.82$). Los participantes leyeron una pequeña descripción de la emoción y posteriormente se les pidió que describieran en detalle un evento en el que la hubiesen sentido (anexo 1), en la que tardaron aproximadamente 10 minutos.

Análisis

Las descripciones de los eventos fueron clasificadas en categorías temáticas por dos jueces independientes, siguiendo las indicaciones de codificación y análisis de Braun y Clarke (2006), donde en caso de discrepancia, decidía un tercer juez. En primer lugar, el análisis de las descripciones fue deductivo, con el objetivo de elaborar la lista de eventos que producen elevación (resumen de casos en tabla 1 y listado de eventos, anexo 2.1). En segundo lugar, se realizó un análisis inductivo, buscando en las descripciones elementos que representasen un modelo multidimensional de la elevación.

Resultados

Tabla 1. Clasificación de eventos en categoría a través de recuerdo libre y mención en lista cerrada.

	País Vasco ¹ (N = 73)	Lista cerrada ²	
		Mención (N = 258)	Evocación (N = 258)
1. Estar en la naturaleza y constatar su grandiosidad.	54.43	81.40	39.36
2. Estar ante monumentos, esculturas, arquitectura, ciudades, etc., grandiosas.	25.32	42.25	6.91
3. Obra de arte extraordinaria.	1.27	31.78	1.60
4. Música extraordinaria.	2.53	63.95	9.57
5. Narración o estímulo narrativo grandioso [†] .	0.00	59.69	7.98
6. Ser testigo de un logro de otra persona.	1.27	46.90	6.91
7. Encuentros sociales, reuniones grandiosas.	1.27	32.17	4.79
8. Encuentros sociales especiales	1.27	32.95	7.98
9. Grandes logros personales.	5.06	49.61	1.60
10. Intensa experiencia religiosa [†] .	0.00	20.93	5.32
11. Gran teoría, conocimiento [†] .	0.00	39.53	1.60
12. Tecnología grandiosa.	1.27	28.29	2.13
13. Nacimientos, partos.	3.80	19.38	4.26
14. Personas excepcionales	2.53	0.00 ³	0.00 ³

Nota. Lista basada en eventos presentes en Shiota et al., (2007) y extendida en el presente artículo. ¹, estudio 1: clasificación de eventos en función del recuerdo libre (anexo 1); ², estudio 2: porcentaje de haber vivido el evento durante los últimos 3 meses (anexo 2.1), donde cada participante podía marcar cuantos quisiera (columna central), y porcentaje de la muestra que eligió ese evento para describir una experiencia asociada a sentir la emoción (columna de la derecha). ³, no existen datos de la categoría en las listas cerradas debido a un error de impresión. [†], aun cuando estos eventos no fueron mencionados en el recuerdo libre, se añaden en consideración a la literatura que los ha empleado (e.g., Keltner & Haidt, 2003; Valdesolo & Graham, 2014).

Se observa que (tabla 1, primera columna) constatar la grandiosidad de la naturaleza es el tipo de evento más mencionado en

el recuerdo libre. El segundo tipo de evento más mencionado en el recuerdo libre es estar frente a monumentos, esculturas, arquitectura, etc., grandiosa, que es mencionado más del 40% en la mención de lista cerrada, mientras que los menos mencionados son las obras de arte, los logros de otra persona, los encuentros sociales (tanto reuniones grandiosas, como encuentros especiales) y la tecnología grandiosa (cada uno, con 1.27% de mención).

Estudio 2

Método

Participantes y procedimiento.

En el segundo estudio, participaron 258 personas (59.2% mujeres), con edades entre los 19 a los 77 años ($M = 28.34$; $DE = 12.63$). Cada una completó la escala de asombro maravillado (anexo 2) que se basa en una lista cerrada de eventos que producen esta emoción (anexo 2.1), la elaboración de un evento a partir de la lista, y la escala de 23 ítems (anexo 2.2). Posteriormente, las personas debían completar el resto de las escalas criterio. Los datos fueron recogidos por investigadores universitarios en Chile, México y España. La participación fue voluntaria y sin remuneración, y los participantes se demoraron en promedio, 40 minutos en completar las escalas.

Instrumentos.

Escala de Asombro Maravillado. La escala evalúa la experiencia emocional de asombro maravillado ante hechos o fenómenos, acciones o personas grandiosas a través de 23 ítems en formato Likert de 1 (Nada) a 7 (Mucho). La escala se elabora a partir de una revisión bibliográfica y debido a la falta de una medida que pudiera medir la experiencia desde un enfoque construccionista (ver Gendron & Barrett, 2009) y que no estuviese orientada en una

disposición a sentir esta emoción (e.g., Shiota et al., 2006). De esta manera, se crearon 23 ítems que pudiesen indicar los diversos aspectos que conlleva esta emoción y al igual que para la emoción de elevación moral (ver artículo en este mismo número), cada persona completaba en primera instancia una lista de eventos asociados a esta emoción (anexo 2.1), de los que elegía uno para elaborar el recuerdo en mayor detalle. Posteriormente, completaban la escala (anexo 2.2) en función del evento desarrollado. En la escala, las personas deben indicar (1 = Nada, 7 = Mucho) la intensidad en que sintieron la reacción emocional en relación a la valoración (*appraisal*) (2 ítems; e.g., “*Me siento en presencia de algo grandioso.*”), la respuesta afectiva (8 ítems; e.g., “*Me siento maravillado ante algo grandioso*”), la respuesta fisiológica (3 ítems; e.g., “*Siento temblor, estupor ante algo grandioso*”), la percepción cognitivo-subjetiva (6 ítems; e.g., “*Siento que formo parte de algo más grande, mayor que uno mismo*”) y tendencia de acción (4 ítems; e.g., “*Deseo formar parte de algo más grande que uno*”). La fiabilidad de la escala total fue $\alpha = .943$. Por dimensiones, valoración, $r = .147$ ($p = .010$); respuesta afectiva, $\alpha = .894$; respuesta fisiológica, $\alpha = .842$; cognitivo-subjetivo, $\alpha = .857$; tendencia de acción, $\alpha = .858$.

Test Positivity (Fredrickson, 2009). Compuesta de 20 ítems en un formato de respuesta de 5 puntos (0 = *Nada*; 4 = *Mucho*) la escala evalúa la intensidad en que las personas sienten ciertas reacciones emocionales que, a su vez, permiten crear las siguientes agrupaciones: emociones positivas (9 ítems; e.g., “*¿Cuán divertido, entretenido o chistoso te has sentido?*”), emociones negativas (11 ítems; e.g., “*¿Cuán enfadado, irritado o molesto te has sentido?*”), auto-referencia positiva (5 ítems; e.g., “*¿Cuán confiado, seguro de ti mismo u orgulloso te has sentido?*”) y auto-trascendencia positiva (5 ítems; e.g., “*¿Cuán maravillado, asombrado o sobrecogido te has sentido?*”). La fiabilidad total de la escala fue de $\alpha = .860$, y sus agrupaciones, $\alpha = .836$, $.863$, $.691$, y $.700$.

Valores de Universalidad y Benevolencia (Schwartz, 2007). Se emplearon 5 ítems correspondientes a universalismo (3 ítems, e.g., “*Es importante para él/ella que todos sean tratados justamente, incluso las personas que no conoce*”) y de benevolencia (2 ítems, e.g., “*Es importante para él/ella ser leal a sus amigos. Se entrega totalmente a las personas cercanas a él/ella*”) del modelo de valores y motivaciones de Schwartz, donde cada persona debía indicar qué tanto se parece a la persona descrita, en una escala de 1 (No se parece en nada a mí) a 6 (Se parece mucho a mí). La fiabilidad de las dimensiones fue de $\alpha = .794$ y $r = .355$ ($p < .001$). El total de los ítems (que conforman la dimensión de trascendencia) mostró una fiabilidad de $\alpha = .629$.

Espiritualidad-Religiosidad (escala ASPIRES, Piedmont, 2012; versión en castellano, Simkin, 2016). Se evaluó el acuerdo de los participantes con el nivel de reconocimiento de una dimensión transcendental de la realidad a través de 7 ítems (1 = Totalmente en desacuerdo, 7 = Totalmente de acuerdo) (Se excluyeron los ítems negativos: “*No existe un plano más elevado de conciencia o espiritualidad que una a todas las personas*”, y “*No tengo fuertes lazos emocionales con alguien que ha muerto*”, de las dimensiones de universalidad y conectividad, respectivamente). La escala se compone de 3 dimensiones: realización personal del rezo o meditación (e.g., “*Encuentro fuerza interior y/o paz en mis rezos y/o meditaciones*”), universalidad (e.g., “*Aunque algunas personas puedan ser difíciles, siento un vínculo emocional con toda la humanidad*”), y conectividad, que es la creencia de tener un vínculo con los antepasados (e.g., “*He hecho cosas en mi vida porque creí que eso le gustaría a un pariente o amigo ya fallecido.*”). La fiabilidad de la escala completa fue de $\alpha = .856$; y por dimensiones, $.949$, $r = .566$ ($p < .001$), y $r = .616$ ($p < .001$), respectivamente.

Celebración de comunidad global (de Rivera, 2018; ver también Basabe et al., 2018). A través de 8 ítems, se evaluó la

conexión subjetiva con una supra-categoría identitaria que busca englobar todo lo que nos rodea. Para esto, cada persona tenía que mencionar su acuerdo de participar en una celebración global en la que estarían presentes ciertos temas (e.g., “*Una bondad fundamental en el universo que quiere justicia para todos/as*”, o “*Los trabajadores que producen lo que necesitamos de la tierra y en las fábricas, aquí y en todo el mundo*”), en una escala de 1 (*No me gustaría nada*) a 4 (*Me gustaría mucho*); posteriormente, tenían que indicar su intención en participar, en una escala de 1 (*De ningún modo*) a 5 (*Seguro/a que sí*). La fiabilidad de los temas de celebración fue de $\alpha = .836$.

Bienestar (PHI, Hervás & Vázquez, 2013). A través de 11 ítems, se evalúan 4 dimensiones de bienestar en un formato de 10 puntos (0 = Totalmente en desacuerdo, 10 = Totalmente de acuerdo): bienestar general (2 ítems; e.g., “*Me siento muy satisfecho con mi vida*”), bienestar eudaimónico (6 ítems; e.g., “*Me siento capaz de resolver la mayoría de los problemas de mi día a día*”), bienestar afectivo (2 ítems; e.g., “*En mi día a día tengo muchos ratos en los que me siento mal*” [invertido]) y bienestar social (1 ítem; “*Siento que vivo en una sociedad que me permite desarrollarme plenamente*”). La fiabilidad de la escala completa fue de $\alpha = .871$; y por dimensiones: bienestar general, $r = .710$ ($p < .001$); bienestar eudaimónico, $.851$, y bienestar afectivo, $r = .236$ ($p = .014$).

Análisis.

Se realizaron análisis factoriales exploratorios y confirmatorios a través del software MPlus 7.1 (siguiendo las indicaciones de Muthén & Muthén, 2012) para analizar un modelo factorial de segundo orden, con una estimación robusta (para el ajuste Chi-cuadrado, Satorra & Bentler, 2010). El resto de análisis (pruebas de fiabilidad y correlaciones) fueron realizados a través del software SPSS 23.

Resultados

La tabla 1 muestra los porcentajes de la mención de eventos que provocan asombro maravillado, con la que se creó una lista de eventos en las que cada persona debía indicar si es que había vivido y también para que lo desarrollaran en detalle (columnas 2 y 3).

Para comprobar la estructura factorial, se evaluaron los 23 ítems para la creación de la escala (anexo 2.2) agrupados en las 5 dimensiones teóricas a través de un análisis factorial exploratorio, encontrando un ajuste adecuado ($X^2(137) = 229.352$; CFI como TLI $> .93$; RMSEA = .062, IC95% [0.050, 0.074], SRMR = .025). Sin embargo, al evaluar las cargas factoriales se encontró que los ítems de evaluación (appraisals) cargaban en factores diferentes. Tras analizar los eventos mencionados se encontró que, aun cuando la dificultad para entender es un factor recogido en la teoría, no se emplea como criterio para evaluar todos los eventos, por lo que se propone emplearlo sólo en aquellos eventos cuyo contenido sea valorado negativo. Además, debido a cargas altamente cruzadas, se eliminaron los ítems 4, 5 9 y 10 (de la dimensión de respuesta afectiva), los ítems 17 y 18 (de la dimensión respuesta subjetivo-cognitiva) y el ítem 23 (de la dimensión tendencia de acción).

La versión final de la escala se redujo a 16 ítems que presentan una fiabilidad total de $\alpha = .920$, con los siguientes ítems de la versión original: valoración (2 ítems: a1 y a2 [estos ítems, analizados de manera independiente y conjunta]; $r = .147$, $p = .010$), respuesta afectiva (4 ítems: a3, a6, a7 y a8; $\alpha = .909$); respuesta fisiológica (3 ítems: a11, a12, a13; $\alpha = .842$); respuesta cognitivo-subjetiva (4 ítems: a14, a15, a16 y a19; $\alpha = .813$), y tendencia de acción (3 ítems: a20, a21 y a22: $\alpha = .838$). En la tabla 2 se observan los ajustes de los modelos, en los que se ha excluido la dimensión de valoración, debido a que el análisis de las valoraciones se debe realizar en función del tipo de estímulo (e.g., ítem 2 es más indicado para eventos que susciten la emoción, pero con carga negativa). El modelo final,

(versión de 16 ítems; figura 1) muestra un ajuste cualitativamente mejor que el modelo hipotético (sin la dimensión de valoraciones; tabla 2), por lo que es el modelo propuesto y con el que se realizarán los análisis posteriores.

Tabla 2. Estadísticos de ajustes de las estructuras factoriales y de ecuaciones.

Estructura	X ²	gl	X ² /gl	RMSEA	IC 95% RMSEA	CFI	TLI	SRMR
Modelo hipotético	599.27	185	3.239	.094	.085, .102	.849	.829	.088
Modelo final (sin valoraciones)	181.93	73	2.492	.076	.062, .089	.938	.922	.058

Nota. El ajuste de los modelos fue realizado con la evaluación de diversos índices: X², Chi-cuadrado; gl, grados de libertad; X²/gl, ajuste de probabilidad; RMSEA, Error de aproximación; IC, Intervalo de confianza; CFI, índice de ajuste comparativo; TLI, índice Tucker-Lewis; SRMR, Error residual. Se presenta el modelo hipotético sin las valoraciones, debido a que el análisis muestra una falta de convergencia.

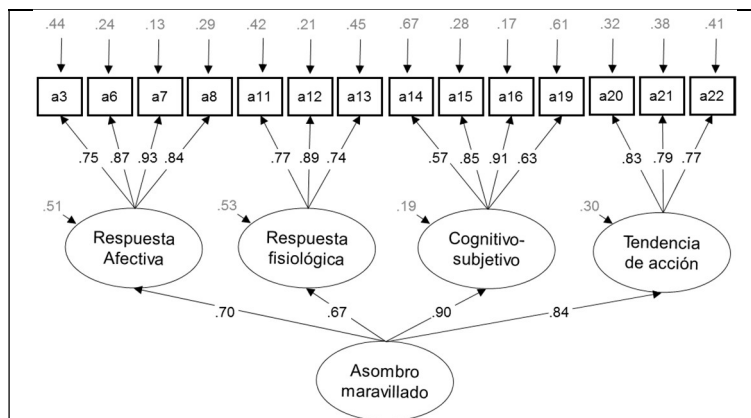


Figura 1. Análisis factorial confirmatorio de segundo orden del constructo asombro maravillado (modelo final).

Tabla 3. Estadísticos descriptivos por dimensión y su correlación con las valoraciones y el total de la escala.

Asombro Maravillado	M(DE)	Valoraciones			Total escala ¹
		Estímulo grandioso	Estímulo complejo	Ambos	
Valoraciones	4.20(1.34)	.728**	.790**	--	.641**
Grandiosidad (a1)	4.92(1.67)	.157*	--	.728**	.624**
Complejidad (a2)	3.48(1.86)	--	.157*	.790**	.353**
Respuesta Afectiva	5.10(1.47)	.764**	.208**	.613**	.660**
Fisiológico	3.62(1.74)	.316**	.356**	.439**	.580**
Cognitivo- Subjetivo	4.15(1.57)	.511**	.340**	.550**	.760**
Tendencia de Acción	4.70(1.58)	.445**	.293**	.476**	.686**
Total	4.40(1.24)	.675**	.437**	.718**	-

Nota. M(DE), Media (Desviación Estándar). ¹, el total de la escala es la agrupación de ítems sin la dimensión con la que se realiza la comparación. *, $p < .05$; **, $p < .01$ (unilateral).

La tabla 3 muestra las correlaciones entre cada dimensión (basados en el modelo final de 16 ítems) de la escala con los ítems de valoraciones, la dimensión de valoración y con el total de la escala. En las asociaciones con el total de la escala, la dimensión que más fuerte se asocia al total de la escala es la dimensión de respuesta cognitivo-subjetiva, seguida de la tendencia de acción y luego de las valoraciones ($r_s = .760, .686, \text{ y } .641$, respectivamente; $p_s < .01$). La tabla también indica que las valoraciones correlacionan con todas las dimensiones de manera significativa y de manera intensa (r_s entre .439 hasta .613, y .718 con el total de la escala; $p_s < .01$), y en todos los casos (a excepción de la dimensión de respuesta fisiológica) la asociación es más fuerte con la valoración de un estímulo que represente algo grandioso.

Tabla 4. Correlaciones entre la escala de asombro maravillado y sus dimensiones con el resto de variables criterio.

	1.	2.	3.	4.	5.	6.	7.	8.
1.Asombro								
Maravillado	--							
Valoración								
Grandeza								
2.Valoración	.147**	--						
Complejidad								
3. Valoraciones	.728**	.790**	--					
4. Respuesta	.764**	.208**	.613**	--				
Afectiva								
5.Respuesta	.316**	.356**	.439**	.436**	--			
Fisiológica								
6.Cognitivo-	.511**	.340**	.550**	.565**	.596**	--		
Subjetivo								
7.Tendencia de	.445**	.293**	.476**	.582**	.427**	.676**	--	
Acción								
8. Total	.675**	.437**	.718**	.810**	.743**	.876**	.800**	--
Correlaciones de la escala con las variables criterio								
9. Positivity								
Emociones	.294**	.072	.229**	.401**	.103	.255**	.322**	.330**
Positivas								
10.Emociones	-.081	-.34**	-.27**	-.090	-.42**	-.32**	-.134	-.29**
Negativas								
11.Auto								
Referencia	.279**	.020	.186*	.336**	.009	.160*	.262**	.239**
Positiva								
12.Auto								
Trascendencia	.266**	.089	.222**	.390**	.178*	.277**	.291**	.343**
Positiva								
13. Total	.092	-.205*	-.075	.141	-.25**	-.109	.060	-.049
14. Valores								
Justicia	.314**	-.070	.140*	.275**	.055	.208**	.204**	.231**
15. Naturaleza	.311**	-.061	.146**	.300**	-.007	.136*	.215**	.202**
16. Tolerancia	.169**	.066	.147**	.115*	.095	.188**	.240**	.198**
17. Ayuda	.142	-.081	.026	.140	.077	.229*	.109	.167

18. Lealtad	.235*	-.144	.023	.229*	.111	.116	-.042	.126
19.Valores Universalistas	.314**	-.025	.171**	.272**	.057	.211**	.261**	.250**
20.Valores Benevolencia	.228*	-.136	.029	.224*	.114	.210*	.041	.178*
21.Valores Trascendencia	.341**	-.044	.176**	.313**	.057	.222**	.264**	.266**
22.Espiritualidad								
– Religiosidad								
Realización en la Oración	.167**	.090	.168**	.270**	.207**	.348**	.314**	.341**
23. Universal.	.258**	.181**	.287**	.345**	.251**	.347**	.439**	.419**
24. Conectivid.	.035	.127*	.115*	.149**	.144*	.139*	.172**	.180**
25. Total	.192**	.156**	.231**	.321**	.251**	.362**	.384**	.396**
26.Celebración Comunidad Global	.351**	.063	.253**	.368**	.179**	.332**	.316**	.370**
Temas								
27.Intención de participar	.020	.024	.029	.022	-.067	-.028	.059	.002
28. Bienestar								
Bienestar General	.043	-.031	.001	-.040	-.107	.072	.064	-.007
29.Bienestar Eudaimónico	.047	-.046	-.007	-.055	-.021	.120	.109	.041
30.Bienestar Afectivo	.079	-.007	.036	.001	.094	.151	.149	.114
31.Bienestar Social	-.155	-.044	-.116	-.093	-.050	-.113	-.048	-.101
32. Total	.029	-.042	-.016	-.057	-.019	.102	.107	.034

Nota.¹, ítems recodificados. *, $p < .05$; **, $p < .01$ (unilateral). Esta tabla ha sido modificada por requisitos de espacio. La tabla original (completa), puede ser vista en Pizarro y cols. (2018).

Las correlaciones con las variables criterio (tabla 4) muestran que el total de la escala correlaciona de manera significativa y positivamente con las emociones positivas ($r = .330$; $p < .001$), negativas ($r = -.298$; $p < .001$), las emociones de auto-referencia positiva ($r = .253$; $p < .01$) y auto-trascendencia positiva ($r = .239$; p

= .003). Por dimensiones, las valoraciones tienen asociaciones diferenciadas; específicamente, la valoración de grandeza correlaciona con las emociones positivas ($r = .294; p < .001$) y también con las de auto-referencia como auto-trascendencia ($r = .279, p < .001$, y $r = .266, p = .001$, respectivamente) pero no así con las emociones negativas, mientras que la valoración de complejidad, lo hace sólo con las emociones negativas ($r = -.344; p < .001$). La respuesta afectiva se asocia a las emociones positivas ($r = .401; p < .001$) y, además, lo hace más fuertemente con las emociones de trascendencia ($r = .390; p < .001$) que con las de auto-referencia ($r = .336; p < .001$). En el caso de la respuesta fisiológica, que es la dimensión que más fuerte se asocia a las emociones negativas (inversamente, $r = -.421; p < .001$), lo hace también con las emociones de auto-trascendencia ($r = .178; p = .023$). Finalmente, tanto la respuesta cognitivo-subjetiva como tendencia de acción se asocian a las emociones positivas, a las emociones de auto-referencia y a las de auto-trascendencia (más fuertemente con esta última), y sólo la dimensión de respuesta cognitivo-subjetiva, con las emociones negativas (inversamente, $r = -.323; p < .001$).

En el caso de los valores, el total de la escala de asombro maravillado se asocia con los valores universalistas ($r = .250; p < .001$), y en menor medida, con los de benevolencia ($r = .178; p = .046$). Con excepción de respuesta fisiológica, todas las dimensiones se asocian a los valores universalistas (respuesta afectiva con mayor intensidad), pero sólo la respuesta afectiva y respuesta cognitiva lo hacen también con los valores de benevolencia (respuesta afectiva con mayor intensidad). En el caso de las valoraciones por separado, sólo la valoración de grandeza se asocia tanto a los valores universalistas como a los de benevolencia ($r = .314, p < .001$, y $r = .228, p = .016$, respectivamente).

El total de la escala se asocia también con todas las dimensiones de religiosidad-espiritualidad; de manera específica, lo hace más

fuertemente con la de universalidad ($r = .419; p < .001$), luego con la realización en la oración ($r = .341; p < .001$) y finalmente, con la dimensión de conectividad ($r = .149; p = .002$). Por dimensiones, la tendencia de acción es la que más fuertemente se asocia a las creencias de religiosidad-espiritualidad ($r = .384; p < .001$), mientras que la valoración de complejidad es la que menor asociación presenta ($r = .156; p = .006$). Además, se observa en general que las asociaciones más fuertes son aquellas con la dimensión de universalidad (rs entre .181 y .439) y las menores, con la dimensión de conectividad (rs entre .035 y .172).

Por otra parte, el total de asombro maravillado también se asocia con una supra categoría de identidad (i.e., los temas de celebración de una comunidad global) ($r = .370, p < .001$), pero no así con la intención de participar ($r = .002, p = .491$); en el caso de las dimensiones, todas las dimensiones (a excepción de la valoración de complejidad) se asocian significativamente con los temas de celebración, pero no así con la intención de participar. Finalmente, no existen asociaciones significativas entre ninguna dimensión de la escala con el bienestar subjetivo.

Conclusiones

El presente artículo muestra el desarrollo y validación de una escala multidimensional para medir la emoción de asombro maravillado en castellano, como también un protocolo para elaborar un evento pasado que haya inducido esta emoción. Es posible confirmar la estructura multidimensional de esta respuesta emocional, que incluye valoraciones, respuestas afectivas, fisiológicas, cognitivo-subjetivas y que orientan la conducta hacia una unión con el resto.

En el primer estudio, al constatar los eventos mencionados dentro de diversos contextos hispanohablantes (i.e., latino-europeo y latinoamericano), se observa que los más mencionados son los

estímulos relacionados con la naturaleza y los monumentos. Esto es coherente con una atribución externa de lo que implica esta emoción, una relación en la que la persona “recibe” lo que un evento externo proyecta (e.g., su grandeza, su magnitud, etc.) –ejemplificando una relación asimétrica vertical (e.g., Joye & Dewitte, 2016). En el caso de la lista cerrada (estudio 2), estos eventos se mantienen, pero también se mencionan ampliamente el arte y los logros personales; sin embargo, al examinar el evento que posteriormente desarrollan las personas, se aprecia que lo hacen en base a un evento externo, donde generalmente se cumple lo propuesto por Keltner y Haidt (2003): estos eventos implican un sentido de vastedad (i.e., riqueza perceptual, cierto grado de grandeza en el sentido amplio de la palabra) y, al menos hasta cierto grado, una necesidad de acomodación –probablemente, debido a que estos estímulos no son experimentados en el día a día de las personas, por lo que la interacción con ellos implica una necesidad de cambiar el sistema encargado del procesamiento de la información (e.g., Griskevicius et al., 2010; Rudd et al., 2012; Shiota et al., 2007).

Al igual que el estudio de elevación (en este monográfico), el perfil de auto-trascendencia positiva se ve manifestado en las asociaciones de esta emoción con las emociones de auto-trascendencia (test Positivity), los valores universalistas (escala de valores), como también la identificación con una supra categoría de identidad (celebración de una comunidad global). Se observa además que la vivencia de asombro maravillado no sólo hace referencia a la práctica de una religión (escala de religiosidad-espiritualidad), sino que también a su aspecto más universalista. Sin embargo, y contrario a nuestras expectativas, no se ha encontrado una relación con el bienestar subjetivo.

El conjunto de resultados sugiere que esta emoción desencadenaría las subsecuentes dimensiones (i.e., desde la valoración hasta la tendencia conductual) y que además es

mayormente afectivo-cognitiva y motivacional, al ser evocadas por recuerdos o estímulos audiovisuales. Probablemente, esto cambiaría en el caso de la participación en experiencias cumbres o rituales de fuerte carga simbólica y activación fisiológica, cuyos efectos serían más pronunciados (e.g., Beristain, Páez, & González, 2000; Kanyangara, Rimé, & Yzerbyt, 2007; Xygalatas et al., 2013), donde además se recomienda ver sus posibles efectos en el bienestar.

Por otra parte, la experiencia de asombro maravillado no es una emoción con un patrón tan claro como lo es una emoción más básica, porque también implica patrones culturales específicos (e.g., Shweder, Haidt, Horton, & Joseph, 2000) al igual que ocurre en otras emociones auto-trascendentes (e.g., Cusi et al., 2018; Fiske et al., 2016; Zickfeld et al., 2018).

En relación con las limitaciones de este estudio y de la teorización de esta emoción, queremos señalar que, primero, no hay una conceptualización unívoca y clara –como muestra el hecho que debimos elaborar una escala ya que no existía ninguna que integrara todos los aspectos. Esto limita la comparabilidad de los estudios correlacionales existentes, además de las limitaciones intrínsecas de los estudios retrospectivos por cuestionario. Segundo, muchos estudios utilizan inducciones breves más de cambio de estado de ánimo que de inducción de una emoción intensa. Además, en contra de la argumentación del carácter social de esta emoción, generalmente se utilizan estímulos naturales y no sociales. Tercero, los estímulos que evocan esta emoción también evocan inspiración o elevación, y algunos de contenido social evocan *kama muta* (ver Zickfeld et al., 2018). Estas emociones comparten algunas respuestas físicas, como los escalofríos, nudo garganta, estados afectivos como sentirse conmovido asombro y tendencias prosociales a sentirse unido a algo más grande, la naturaleza y los congéneres. Es por esta razón que consideramos vital llevar a cabo más trabajo teórico y empírico para poder perfilar y desentrañar la familia de

estados y de emociones de trascendencia de las que esta emoción hace parte, como también sus funciones sociales.

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Study 3

Self-Transcendent Emotions and their Social Effects: Awe, Elevation, and Kama Muta Encourage Helping and a Greater Connection to Others

Study Information

Collaboration

This study has been designed and conducted with the collaboration of Nekane Basabe (UPV/EHU), Itziar Fernández (the National Distance Education University), Pilar Carrera Levillain (Autonomous University of Madrid), Pedro Apodaca (UPV/EHU & Pontifical Catholic University of Ecuador, and Darío Páez (UPV/EHU).

Status

This is the final version that will be submitted to a monographic volume focused on solidarity in a social psychology journal.

Abstract

In the study of collective forms of engaging in prosocial behaviours towards others, negative emotions (e.g., anger) have constantly been addressed as powerful motivators and under certain models, as pre-requisites of shared identities that can subsequently promote collective action. Here, however, we propose an alternative approach based on the role of self-transcendent emotions as (positive) emotions that can orientate the individual self towards the needs and welfare of others. With a total sample of 1063 participants from 3 universities, we elicited Awe, Elevation, and Kama Muta (each with a selection of prototypical stimulus), and analysed their activation pattern and their effects on willingness of collectively engage in helping others and a superordinate identification (i.e., with everyone in the world). Results show that magnificent nature, the role of a moral figure, and an intensification of communal sharing relationship produce emotional responses that both increase collective action intentions and at the same time, a greater psychological connection with all the people in world. While they are difficult to differentiate, the results support different theorizations of self-transcendence, and show the role of an intrinsically emotional experience that orientate individuals toward others, and is manifested in collective forms of prosociality and a psychological sense of belonging and solidarity with everyone. The results are discussed in concordance with its implications for the study of the functionality of emotions as well as the study of the interplay between emotions and identities for promoting solidarity.

Keywords: Self-Transcendent Emotions, Collective Action, Superordinate Identities, Awe, Elevation, Kama Muta.

Why do some people engage in prosocial behaviours toward strangers? Why would *I* feel motivated to participate and help *others*? Questions like these have deeply intrigued thinkers of social behaviour, and the topic of helping others, specially non-kin, has even been considered an “altruism puzzle”, particularly when trying to explain the factors that have influenced these behaviours to evolve (e.g., Fehr & Fischbacher, 2003; Hamilton, 1964; Jensen, Vaish, & Schmidt, 2014; Van Gugt & Van Lange, 2006). From a collective perspective, prosociality toward others (i.e., to mobilize personal resources to help non-ingroup members such as the underprivileged, social minorities, etc.) has been largely studied under the form of different forms of collective action (i.e., collectively behave with a common objective), and a great deal of theoretical and empirical works have been oriented to analyse its antecedents, processes and consequences (Klandermans & Roggeband, 2010).

Regarding the factors that create, shape, and result from collective action, different studies can be found analysing beliefs of group efficacy (Bandura, 2000; Klandermans, 1984), collective identities (Drury & Reicher, 2005; Neville & Reicher, 2011a), and emotions (Jasper, 1998; van Troost, van Stekelenburg, & Klandermans, 2013) (to review comprehensive models, see van Zomeren, Postmes, & Spears, 2008; also, Thomas, McGarty, & Mavor, 2009). Nevertheless, when centring the attention on the role of emotions on promoting this form of helping, more often than not negative emotions have been analysed (e.g., anger), while positive ones (e.g., love), have receive less attention. Rather, they have been usually addressed as possible mediators or mechanisms that arise in collective participation (Jasper, 1998; van Troost et al., 2013).

Here, an alternative proposal is presented with the role of positive emotional experiences that can ultimately encourage uninterested help and concern toward others, based on different theories about Self-Transcendence, and the role of Self-Transcendent

Emotions (see Stellar, Gordon, Piff, et al., 2017). In specific, how the latter –experienced in individual settings– are able to orientate the individual self to concerns and the welfare of others, and ultimately, motivate collective action to promote greater good and a common social identification.

Emotions and Solidarity

Within different approaches and theories of human emotion, there is a great consensus with the functionality they have in human life (Fischer & Manstead, 2008; Keltner & Haidt, 1999; Lench, 2018; Niedenthal & Brauer, 2012). These functions help propitiating automatic and adaptive responses with the ultimate goal of increasing human survival. Since the pioneer works of William James and Charles Darwin, the study of emotions has varied considerably (for a historical perspective, see Gendron & Barrett, 2009). Nevertheless, it is possible to conceptualize them as an automatic and brief affective reactions that unchain a multi-componential response (e.g., physiological changes, action tendencies, affective responses) which includes diverse human systems (Frijda, 2000; Scherer, 2005, 2009; Moors, Ellsworth, Scherer, & Frijda, 2013). On the different functions they are operationalized, several researchers and thinkers have oriented their attention to functions such as, moral amplifiers (Haidt, 2003c; Horberg, Oveis, & Keltner, 2011; Tangney, Stuewig, & Mashek, 2007), regulators of social relationships (Fiske, 2002; Gervais & Fessler, 2017), and more related to social movements, as accelerators or amplifiers of human behaviour (van Stekelenburg & Klandermans, 2007).

In this particular setting centred on prosociality and collective action, appraisal theories gain greater relevance (van Troost et al., 2013). One of the differential aspects of these theories is the person-environment relationship, and the appraisal of the relevance of different events (i.e., elicitors) for well-being (for a review, see

Moors et al., 2013). In this manner, it is possible to explain for instance, why *some* but not *everyone* can feel admiration towards the figure of a political martyr, or anger due to the lack of political and instrumental efforts regarding the climate crisis.

Taking into account that virtually every emotional experience –including those lived individually– has an impact in subsequent social interactions (Rimé, 2007, 2009), the study of how different stimuli generate diverse emotions, and subsequently motivate human behaviours is still a significant research line that better helps us understand human nature and promote collective action.

Negative Emotions and Collective Action

In different attempts that seek to explain how emotions can be related to the pursuit of collective gains (i.e., over individuals’), several researchers tend to point to the importance of punishment-based approaches as the proximal mechanisms in the evolution of particularly non-kin altruism (e.g., Fehr & Gächter, 2002; Boyd, Gintis, & Bowles, 2010; Yamagishi, 1986). Thus, it is the negative affect (e.g., avoidance of punishment in the form of fear) that can serve as a motivator, but also, as a disruptor of coordinated efforts that maximize gain in a dyadic task (Kuroda & Kameda, 2019).

Analysing how negative emotions can affect, on the other side, collective action, a great deal of attention has been given to the role of anger (for a review, see van Troost et al., 2013). For instance, this particular emotion has been proved a strong motivator of different forms of collective action, such as signing a petition (Miller, Cronin, & Garcia, 2009), at the beginning of the 1989 Chinese Student Movement (G. Yang, 2000), in the collective participation subsequently the *suicide protest* in South Korea in 1991 (Kim, 2002), or even in the context of US and British occupation in Iraq (Iyer, Schmader, & Lickel, 2007).

Another negative emotion that has received attention in the context of outgroup solidarity is guilt (for an operationalization, see Tangney, Stuewig, & Mashek, 2007): in particular, collective guilt, which is subjected to the identification a person has to a specific social group (Doosje, Branscombe, Spears, & Manstead, 1998). For example, this emotion has been shown as an important predictor of willingness to repair the past wrongdoings of one's particular group in different settings, such as the Mapuche conflict in Chile (Brown, González, Zagefka, Manzi, & Čehajić, 2008), or regarding the role of one's country in the current climate crisis (Ferguson & Branscombe, 2010).

Other forms of how negative emotions' effect on collective action are the theories based on morality and people's ethical principles. In these, negative affect also has a predominant role—even though not always explicitly stated. For instance, diverse studies highlight the intense and persistent emotional responses felt in cases of perceptions of injustice experienced by underprivileged people (i.e., moral outrage) (Hoffman, 1987; Montada & Schneider, 1989)—see also (Jasper, 2010), and, as a pure form of anger, the work of Batson and colleagues (2007). Another example is through a motivational principle based on one's own morality which, in case of not being satisfied, could entail a high personal cost (i.e., moral obligation) (Sabucedo, Dono, Alzate, & Seoane, 2018). As these research lines implicitly suggest, collective participation could also be conceptualized in function of avoiding or minimizing negative emotions (i.e., in the case of moral outrage), or preventing its future appearance (i.e., moral obligation).

In all, these approaches go in line with different emotion reviews, such as that of Haidt (2003c), or Keltner and Lerner (2010) who show how different emotions contribute—among other functions—to align one's attention to moral concerns such as human rights, justice and benevolence.

Positive Emotions and Collective Action

The case of the study of positive emotions one collective action, conversely, has not received considerable attention as one might expect and has even yielded contradictory results. For instance, two emotions that might be intuitively associated to promote collective action –due to their cognitive and motivational effects– are compassion for others (Goetz, Keltner, & Simon-Thomas, 2010; Strauss et al., 2016) and hope (Snyder, 2002; McGeer, 2004). Despite these emotions can motivate to help other’s suffering, and promote agency thinking to achieve desirable goals (respectively), there are not many studies that analyse their role in promoting collective action –for notable exceptions, see Pagano and Huo (2007).

In studies focusing on the role of hope and collective action engagement, for example, this emotion¹¹ has been proved to be a facilitator of collective action but only when is high (Cohen-Chen & Van Zomeren, 2018; see also Westoby & McNamara, 2019), or as a sequential prerequisite to canalise anger, which in turn increases the willingness to collectively participate (Włodarczyk, Basabe, Páez, & Zumeta, 2017). At the same time, the coping functions of hope could back-fire and even decrease helping intention and resources mobilization in the context of the current climate crisis (van Zomeren, Pauls, & Cohen-Chen, 2019).

Overall, the role of emotions is undisputable in the study of collectively helping others. Nevertheless, greater attention has been constantly attributed to the role of negative ones. In the following section, different theorizations of Self-Transcendence are presented with the intention to introduce Self-Transcendent Emotions (respectively, ST and STEs, hereafter) which are proposed as a

¹¹ Though described as an emotion, it is presented here as an affective manifestation. To analyse how hope can be theorized as a sentiment (i.e., as a functional network of attitudes and emotions), see Gervais and Fessler (2017).

taxonomy of positive emotions that can motivate human behaviour toward the needs and promotion of welfare of others, and thus, have important implications in collective action.

Self-Transcendence

In the theorization of ST, we can find Maslow's (1964) peak experiences (see also Koltko-Rivera, 2006) as a generalized term to refer to situations where people can reach a highly positive state of self-transcendence and fulfilment, that include different spheres (e.g., social, religious, political, etc.) (see also Maslow, 1962). Through these instances, the individual self transcends with a sense of goodness, benevolence, and contact with everything that surrounds us, which were also considered inherent to human beings (Frankl, 1966) extends and posits that the experience of ST is inherent to human beings.

Contrary to this momentary-experience approach, there is also the position that explains ST as a process that receives the boost of different factors to take place. This description of ST goes in line with what Schwartz' (1994) theorized as a group of universal value and motivational orientations. After reviewing different models of personal values (e.g., Rokeach, 1973), and how they should be ordered (e.g., Schwartz & Bilsky, 1990), Schwartz (1994) creates an aggrupation of different human motivations, where hierarchies and affinities are established. In the particular case of ST, the author posits that it is an orientation that guide individuals to ideals of universality (e.g., justice for everyone), and benevolence (e.g., help and loyalty to close ones). This dimension is orthogonal to those that imply self-enhancement, as for instance, achievement values (i.e., "Personal success through demonstrating competence according to social standards", pp. 22), and thus, there is a continuum that inexorably depends on the degree of involvement to one's self (i.e., from enhancing ourselves to enhancing others). Furthermore, several

studies have found their role in enhancing different forms of prosocial behaviours (e.g., Oceja & Salgado, 2013; Daniel, Bilgin, Brezina, Strohmeier, & Vainre, 2015; Bayram, 2016).

In all, both approaches share the assumption that the individual self that is somehow outwards oriented (e.g., other peoples, the environment, etc.), and, as Yaden, Haidt, Hood, Vago and Newberg (2017) argue, this orientation can take several forms. According to these authors, several experiences and psychological processes allow people to live ST-related states. Indeed, they focus on temporary states that can –even briefly– produce a reduction in the self-oriented goals and a greater sense of connection with what surrounds us. In their revision, they list how different instances of – for instance – Mindfulness, Flow, and Mystical experiences meet these criteria and further, as well as STEs.

Self-Transcendent Emotions

Attributes and functions of STEs.

STEs can be defined as a classification of human emotions that orientate our personal selves towards *outside* (e.g., other peoples' needs), and thus generate a change from our self-absorption, concerns and selfish goals (Van Cappellen & Rimé, 2014; Fredrickson, 2013; Stellar, Gordon, Piff, et al., 2017). These emotions are thought to play a major role in the manifestation of spiritual and religious practices, as the search of meaning (Van Cappellen, 2017; see also Emmons, 2005).

The study of these emotions has received greater interest quite recently, and their most differentiating characteristics are described in terms of two central attributes. Namely, i) they should be mainly elicited by stimuli that are not completely directed to the individual self (Haidt, 2003; Van Cappellen & Rimé, 2014; Stellar et al., 2017); and ii), they promote a connection or union with other people and groups. The latter could be manifested –for instance– in terms of

increased prosocial behaviour tendencies (Haidt, 2003c; Stellar, Gordon, Piff, et al., 2017), care-taking behaviour of others (Van Cappellen & Rimé, 2014), or a socio-emotional identification with highly inclusive groups which can be sustained by collective participation in rituals (de Rivera & Carson, 2015; de Rivera, 2018).

Under these criteria, some emotions that have been considered part of this taxonomy are studied under the name of *Awe* (Keltner & Haidt, 2003), *Moral Elevation* (Haidt, 2003a; for a review, see Pohling & Diessner, 2016), *Gratitude* (for a meta-analytical review, see Ma, Tunney, & Ferguson, 2017), *Kama Muta* (in Sanskrit, being moved by love; Fiske, Schubert, & Seibt, 2016; see also Zickfeld et al., 2018), *Compassion* (for a review, see Goetz, Keltner, & Simon-Thomas, 2010; see also Strauss et al., 2016), or even *Admiration* (Onu, Kessler, & Smith, 2016; see also, Schindler, Zink, Windrich, & Menninghaus, 2013).

When analysing the ultimate reason of why these emotions occur, diverse authors agree on the fact that these emotions are able to boost a sense of connection with other people (e.g., Stellar et al., 2017; Van Cappellen & Rimé, 2014). This way, experiencing a STE promotes group-forming and commitment-maintenance processes with specific objectives, and consequently, one's survival probability is higher. Due to the fact that human beings are born with highly adaptive skills for social life (Herrmann, Call, Hernández-Lloreda, Hare, & Tomasello, 2007; Thomsen, Frankenhuys, Ingold-Smith, & Carey, 2011), it is natural to think that some emotions could motivate –while not being restrictive to them– behavioural patterns oriented to maximizing future instances of social life and group cohesion, specially, when the groups are at early stages of constitution. Empirically, we can group a large body of evidence that provide support for this idea, being many of those, different forms of prosocial behaviour.

Empirical research on STEs.

Indeed, all the previously mentioned emotions fulfil the criteria of shifting the attention away from one's self-absorption and needs, and to promote (i.e., indirectly or directly) people to join and unite in larger groups (Stellar, Gordon, Piff, et al., 2017). Table 1 summarizes empirical findings of studies on these emotions (mainly experiments). As one can observe, virtually all of them are being elicited by stimuli that make people place their attention outside themselves; in other words, to put one's immediate needs aside. These examples include the attempts of using the nature and space (i.e., in the case of Awe), people helping others or recognizing their importance (i.e., Moral Elevation), or the expression of thankfulness and appreciation to others (i.e., gratitude).

Additionally, table 1 shows an evaluation on whether the impact of these results in the connection with others. Specifically, these outcomes are classified in terms of producing direct effect on peoples' behaviours that facilitates integration/solidarity/union or commitment to others (i.e., carrying out a behaviour that promotes future interactions at dyad- or bigger levels), indirect effects (i.e., preparing a disposition or motivation that might end up in further interactions at dyad- or bigger levels), or both. In this manner, we can see (for instance) a greater display of caring behaviours, and more altruistic distribution of resources (i.e., direct effects) (Silvers & Haidt, 2008; Tsang, 2006, for moral elevation and gratitude, respectively). Also, more self-reported perceptions of feeling small and connected to something bigger, and humility (i.e., indirect effects) (Shiota, Keltner, & Mossman, 2007; Stellar, Gordon, Anderson, et al., 2017, for Awe).

Table 1. Review of the effects of STEs on the connection with others.

Emotion	Reference	Study, elicitors or measurement of interest	Effects on connection to others	Effect on behaviour	
				Direct	Indirect
Awe	Shiota et al. (2007).	S2: recalling event.	Greater perceptions of feeling small and connected to something bigger than one (e.g., the world around) feels.		X
	Schurtz et al. (2012).	S3: recalling event.	More frequency of self-reported goose bumps and a greater sense of vastness.		X
	Van Cappellen and Saroglou (2012).	S1: recalling event. S2: video of nature.	Greater willingness to visit a spiritual destination (S1), and to connect to others (S2), through the increase of religiosity and spirituality.		X
	Piff, Dietze, Feinberg, Stancato, and Keltner (2015).	S2: recalling event. S3: video of nature (from BBC's Planet Earth). S4: video of threatening phenomena, and coloured droplets in slow motion (from The Slow Mo Guys).	An increase of ethical thinking and helping behaviour (S2), more generosity in a dictator game (S3), and increased prosociality for resource allocation (in both awe conditions in S4).	X	X
	van Elk, Karinen, Stamkou, and Baas (2016).	S3: video of nature (from BBC's Nature).	Decreased perception of body size (i.e., more pronounced for those with higher scores in absorption in the video) (S3).		X

Joye and Dewitte (2016).	PS1b: computer-created building pictures. S1b: building pictures.	Greater behavioural freezing (PS1b and S1b).			X
Yang, Yang, Bao, Liu, and Passmore (2016).	S1, S2: recalling event. S3: video of nature (from BBC's Planet Earth).	Decreased self-reported aggressive behaviour (S1, S2, S3), and greater prosocial behaviour and motivations (S3).	X		X
Bai et al. (2017).	S2: daily reports. S3: Yosemite national park (field study). S4, S5: video of nature (from BBC's Planet Earth). S6: recalling event.	Greater perception of smaller self-size during the days when awe is more strongly felt (S2), when in a natural park (S3), and in the lab (S4, S5, S6). Also, a greater sense of connection with others (S6).			X
Stellar, Gordon, Anderson, et al. (2017).	S2: daily reports. S3: video of space. S4: recalling event. S5: monuments and city views (field study).	More reported humility the days of experiencing awe (S2), less self-enhancement (i.e., less personal strengths in S3, and more external forces in S4), and more humility (S5).			X
Pizarro et al. (2018).	S2: list of events and recalling event.	Greater associations with universality beliefs and identification with a global identity.			X
Guan, Chen, Chen, Liu, and Zha (2019).	S2, S3: video of nature, to elicit positive (S2, S3) and negative awe (only S3) (both from BBC's Planet Earth).	More intention to donate to help person in need (S2) and to help another researcher with the participants' time (S3).	X		

	Nelson-coffey, Ruberton, Chancellor, and Cornick (2019).	S2, S3: video of the earth zooming away with a selection of reads from Carl Sagan's book Pale Blue Dot.	Increased feelings of connectedness with all humanity and of feeling small	X	
	Johnson et al. (2019).	S2: video of six famous physicists marvelled by quantum and particle physics (Symphony of Science – the Quantum World!) S3: a video centred on the immensity of the universe (The Wonder of the Universe) and the complexity of a cell (The Wonder of a Living Cell)	Greater agreement with transcendent beliefs, which in turn, and different forms of mentally representing God, such as mystical (i.e., described as nature or cosmic), or ineffable (i.e., described as unknowable or incomprehensible).		X
Moral elevation	Silvers and Haidt (2008).	Video of a person paying tribute to a teacher (from the Oprah Winfrey Show).	Greater caring behaviour (mothers with their children).	X	
	Algoe and Haidt (2009).	S2a: boy who established a homeless shelter. S2b: daily reports.	Tendency to emulate moral actions, to be prosocial (S2a and S2b).		X
	Freeman, Aquino, and McFerran (2009).	S1: video of intergroup help (from 60 Minutes II). S2: reading news of forgiveness.	More disposition to donate a Black-oriented charity, and a decrease in group-based dominance (for those who had it high...over-ride it), and actual donating behaviour.	X	X

Schnall et al. (2010).	S1 and S2: video of a person paying tribute to a teacher (from the Oprah Winfrey Show).	Greater helping intention and improve personally (S1), and helping behaviour (S2).	X	X
Cox (2010).	Spring-break service trip (naturalistic study).	Greater frequency of self-reported times of having participated in similar voluntary work (1 week and 3 months after).	X	
Vianello, Galliani, and Haidt (2010).	S1: reading fictional leaders' descriptions. S3: recalling event.	Increased Organizational Citizenship Behaviour (OCB), more affective commitment to the organization (S1 and S2), and more willingness to behave altruistically (S2).		X
Aquino, McFerran, and Laven (2011).	S2: recalling event. S3: priming of moral identity and reading news of forgiveness. S4: video of donation to several charities (World on Fire).	S2: elevation emotions were associated to a greater motivation to help others S3: greater prosocial behaviour (modified dictator game).	X	X
Oliver, Hartman, and Woolley (2012).	Naming and rating a meaningful film they had watched (recalling).	Greater agreement with altruistic values, increased feelings of wanting to become a better person and do good things for others.		X
Thomson and Siegel (2013).	S2: reading a story of helping a person that was moral or immoral.	Increased donations (to a children charity) from the money participants received (S2). In addition, this help was greater when the behaviour was toward a person	X	X

	S3: recalling event of witnessing helping behaviours to different people. S4: imaging a story of one person helping other with different effort.	who needed (S3), and to when it was more difficult (S4).		
Thomson, Nakamura, Siegel, and Csikszentmihalyi (2014).	Reading a story of moral excellence.	More positive attitudes and mentoring behaviours.	X	X
Lai, Haidt, and Nosek (2014).	S1-4: video of a person paying tribute to a teacher (from the Oprah Winfrey Show). S2-4: video of example of sportsmanship. S3-4: news video of a person who saved another.	Reduction of implicit and explicit prejudice towards a sexual minority (i.e., gay men) (S1-4).		X
Siegel, Thomson, and Navarro (2014).	S1-S3: recalling event.	More positive views on humanity (S1), and greater donations to a children charity (S2 and S3).	X	X
Oliver et al. (2015).	Watching one of two inspiring videos (a person offering free hugs, or street musicians performing simultaneously).	Increased perceptions of shared goodness, greater overlap self-humanity, and more positive attitudes towards diverse groups of immigrants.		X

Van de Vyver and Abrams (2015).	S1 and S2: video of forgiveness to a perpetrator.	More donations to charity (S1), and increased prosocial motivations to engage in political actions (S2).	X	X
Erickson et al. (2017).	S1-S3: videos of virtuous actions (daily sent).	Less self-image related goals (S1-S3), and more compassionate-related goals (S1 and S2).		X
Tingey, Mcguire, Stebbins, and Erickson (2017).	Recalling helping behaviours subsequent to a school shooting in the US.	Elevation predicted increased perceptions of having been more oriented to others (i.e., helping, comforting) and post-traumatic growth after the shooting (the latter, after 8 months).	X	X
Cusi et al. (2018).	S2: list of events and recalling event.	Greater associations with universality beliefs and identification with a global identity.		X
Ding et al. (2018).	Recalling event.	More intentions to help, manifested in the time participants would dedicate to help another researcher –also, higher among those with a stronger moral identity.	X	
Yao and Enright (2018).	S1, S2: reading different stories of people helping others.	Increased prosocial intentions (S1), and the intention to donate what they might win after completing the study (S2).	X	
Rieger, Frischlich, and Oliver (2018).	Recalling event of having watched a meaningful movie.	Elevation reported for the recalled event predicted feelings of self-transcendence and subsequently, increased moral motivations.	X	

	Ellithorpe, Huang, and Oliver (2019).	S1, S2: watching an elevating video (political speech).	Higher intentions of participating in politics and to know more about who gave it (S1); it is replicated in study 2 (regardless the political orientation of the person who gave it), as well as a greater feelings of closeness of both ingroup and outgroup members.	X	
	Pohling, Diessner, Stacy, Woodward, and Strobel (2019).	Watching a morally uplifting video of a humble person helping others.	Higher amount of money allocated in the dictator's game (compared to control).	X	
	Zhang, Chen, Tao, Farid, and Ma (2019).	Participating in a public goods dilemma with a confederate who always contributed to the environment.	Increased amounts in the tokens participants would give to the environment fund, compared to control.	X	
Gratitude	Emmons and McCullough (2003).	S2: 16-day of daily reports of gratitude.	Greater self-reported likely of having provided emotional support (S2).	X	
	Barlett and DeSteno (2006).	S1, 2: Receiving help from a confederate so as to avoid a tedious task.	Measured in minutes of helping with a tedious task the person from which help was received (S1), and from strangers (S2).	X	
	Tsang (2006).	Having received a money during a money-distribution task.	More money allocated to their partners and a greater motivation to express appreciation .	X	X

Algoe, Haidt, and Gable (2008).	4-day program where mentors give presents to new members of a sorority.	Benefactor responsiveness predicted gratitude which predictive future outcomes in the relationship (feelings of integration).	X
Algoe and Haidt (2009).	S3: write a letter to tell when someone did good to them (gratitude).	Intention to give back something; greater likelihood of interacting with the moral model.	X
Lambert, Clarek, Durtschi, Finchman, Graham (2010).	S3: Individual expressions of gratitude to a partner (diary study).	Increased communal strength (i.e., motivations to attend the needs of a partner).	X
DeSteno, Barlett, Baumann, Williams, and Dickens (2010).	Receiving help from a confederate so as to avoid a tedious task.	More money given to benefactors and strangers (money allocation task).	X
Algoe, Gable, and Maisel (2010).	Daily accounts of gratitude to and from participants' romantic partners.	Increased satisfaction in relationship and subjective connection with one's partner.	X
Lambert and Fincham (2011).	S4: 3-week Program to increase the frequency to express gratitude to a friend.	A more positive perception of a friend, and more comfortable for addressing concerns.	X
Algoe and Stanton (2012).	Recalling person and event of gratitude.	Increased perceived social support (i.e., among women with low ambivalence over emotional expression).	X

Lambert, Fincham, and Stillman (2012).	S5: Think and write about ones opportunities and blessings S7: gratitude journal.	Less self-reported depressive symptoms (study 5); S7: (longitudinal) more positive emotions.			X
Algoe, Fredrickson, and Gable (2013).	Expressing gratitude to one's partner.	Association of perceived responsiveness of an expression of gratitude with happiness (T1 and T2, after 6 months).			X
Williams and Barlett (2014).	Receiving a note expressing gratitude in a mentoring program.	Perceived writers as more appreciative, warmer, higher affiliative intentions, and more people leaving contact information.	X		X
O'Leary and Dockray (2015).	Having a gratitude diary (listing and guided gratitude reflection).	Pre-post: less stress, depression, and more happiness (intraindividual variables).			X
Algoe, Kurtz, and Hilaire (2016).	S1, S2: expressing gratitude to their partners.	More self-reported positive emotions (among them, love) and expresser's responsiveness (S1 and S2).			X
Tsang and Martin (2017).	S3: Having received a present in a resource-distribution task.	More resources allocated to their partners and a greater expression of gratitude.			X
Bock, Eastman, and Eastman (2018).	Cross-sectional survey with participants who had volunteered or donated within the previous year.	Greater values motivation (i.e., concern of others) and helping intention to donate to charity.			X
Vayness and DeSteno (2018).	Recalling event of gratitude.	Greater third party punishment (in a dictator's game).			X

Com- passion	Sprecher and Fehr (2005).	S1-S3: self-reported measures of compassion (correlational).	Association with empathy (S1), intention to help others (S2), and social support offered to close people (S3).	X	X
	Sprecher, Fehr, and Zimmerman (2007).	Imagining having given or received a gift from others.	Compassion associated to expectations of feeling positive emotions, and interpersonal caring behaviors (e.g., verbal support, expression of empathy) (in both conditions).	X	X
	Crocker and Canevello (2008).	Weekly accounts of compassionate goals (diary study).	Compassionate goals were associated to beliefs of interconnectedness of people, less zero-sum views of success, and more social support, trust and beliefs in mutual caring, regarding other students.		X
	Condon and DeSteno (2011).	Observing a person crying due to her brother's medical condition.	Lesser punishment to a person who cheated and showed no remorse.	X	
	Valdesolo and DeSteno (2011).	Manipulating behavioral synchrony with a confederate.	Increased compassion for the a victim of a fairness-related transgression, which in turn, led to helping them for longer periods of time.	X	
	Sinclair, Fehr, Wang, and Regehr (2016).	S1 and S2: self-reported measures of compassion (correlational). S3: recalling event (selflessly gave of themselves to help others).	Negative associations between compassion and prejudice towards different social groups (S1 and S2), less prejudice (S3), and less intention to deduct money from an immigrant fund (S4).	X	

	Lim and DeSteno (2016).	S4: self-reported measure of compassion (correlational). S1: self-reported measure of dispositional compassion (correlational). S2: observing an ill person completing a tedious task.	Greater intentions of donations to a charity (S1), and more time helping a person with a tedious task (S2).	X	X
Kama Muta	Zickfeld and Schubert (2018).	Pictures of tearful people.	Increased kama muta (measured as feeling moved), which mediated how warm people were evaluated.		X
	Zickfeld et al. (2018).	Videos of intensifications of Communal Sharing relationships (Fiske, 1991).	Greater associations with empathic concern to others (as a trait).		X
	Seibt, Schubert, Zickfeld, and Fiske (2018).	S1 and S2: Videos of emotionally moving political campaigns.	Greater intention to support the political candidate (S1 and S2).		X
	Pierre (2019).	Analyses of a sample of Facebook posts on social movements.	Kama muta-related posts had higher probability of being engaged (i.e., likes, comments and sharing).	X	X

Note. The number of the particular study where each stimulus was used is referenced after the S; P included those that were referenced as Pilot studies in the published articles. Effects on behaviour are classified in terms of direct or indirect. That is, whether the main effects described would impact it directly (actual behaviour, such as amount of time devoted to help) or indirectly (tendency or motivation to, such as increases intention to help others).

Finally, there are also those studies where the authors provide both direct and indirect evidence, such as the case of Schnall and colleagues' (2010) study, where the authors show both a greater intention to improve *and* more time dedicated to help the experimenter, as a result of evoking Moral Elevation.

STEs, inclusive identities, and collective action.

A great deal of empirical studies suggests that these emotions can have an important role in predicting a collective form of prosocial behaviour towards others and to motivate a greater sense of identification with others as well. In this regard, an approximation on the effects of shared identities should be done, with emphasis on how they can contribute shaping different forms of collective action.

At the basis of different forms of collective forms of behaviours, there are the social identities. Based on the Social Identity Theory (Tajfel & Turner, 1979), Turner, Hogg, Oakes, Reicher, and Wetherell (1987) developed the notion of different levels of inclusiveness in the process of individual self-categorization. This approach (i.e., the Social Identity Approach, see Hornsey, 2008) has been taken into account in theoretical and empirical studies on collective action (for a review of identities and collective action, see van Stekelenburg & Klandermans, 2007) and it continues to influence different models of this form of prosocial behaviour. The influence of shared identities in different forms of collective participation has been studied as prerequisites (Thomas et al., 2009), outcomes (Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015) or both (Drury & Reicher, 2005), and as moderators of several relationships in the literature (e.g., Shepherd, Spears, & Manstead, 2013; Krauth-Gruber & Bonnot, 2019).

In the context of a highly inclusive human identification (Turner et al., 1987), studies consistently show that this form of self-categorization is associated to different forms of prosocial behaviours (see McFarland, Brown, & Webb, 2013; Buchan, Jeong, & Ward,

2017; McFarland et al., 2019), where both the *helper* and the *helpee* could be the members of the same group. Therefore, the study of ST related to superordinate identities raises a question about the nature of the motivation to engage in collective action toward the common good: Is a shared identity a pre-requisite?

With this question, it would be possible to integrate a part of highly extended models of collective action that include –many times as a necessary condition– a shared identity (van Zomeren et al., 2008). Nevertheless, even though STEs could motivate a highly inclusive human categorization that is not explained by the positivity of these emotions (e.g., Pizarro, Basabe, Páez, & Telletxea, 2019), the context of superordinate identities does not necessarily correspond to the contingencies of classic literature of collective action. Specifically, because this context is not usually that of ingroups and outgroups (e.g., Klandermans, Sabucedo, Rodriguez, & de Weerd, 2002; Drury & Reicher, 2005; Neville & Reicher, 2011b), but a highly inclusive one that might not be frame the way different social identities are (see Roccas & Brewer, 2002). Therefore, while a higher degree of human identification is indeed a precursor of prosocial behaviours to others, and at the same time, STEs are able to enhance it, there is not enough evidence to establish specific hypotheses suggesting that this identification is a pre-requisite to mediate the effects of STEs on prosociality.

Objectives and Hypotheses

The main objectives of this study are twofold: it is aimed at analysing the pattern of STEs responding to different stimuli, and then, the psychosocial outcomes they produce. Specifically, we want to evaluate Awe, Elevation and Kama Muta responses to prototypical elicitors used in previous studies and subsequently, to evaluate their predictive power on the willingness to engage in different collective

action forms, and on a superordinate category of identity (i.e., fusion of identity with everyone in the world).

Considering the frameworks these emotions have been theorized from (i.e., Keltner & Haidt, 2003; Haidt, 2000; A. P. Fiske, Schubert, & Seibt, 2017, respectively), we predict that (H1) emotional responses measured with specific scales will be most intense and result in a distinguishing pattern, when each emotion is provoked by its prototypical elicitor. In other words, the vastness of nature, a virtuous and moral example, and an intensification of a communal sharing relationship will provoke the most intense reactions for Awe, Elevation and Kama Muta, respectively.

Further, and based on previous studies (e.g., Cusi et al., 2018; Pizarro et al., 2019, 2018), we predict that in all these congruent scenarios people will show a higher intention of engaging on collective action and a highly inclusive human identification (H2). Finally, regarding how socially shared identities are included in different forms of collective action, we wanted to explore whether it is possible as well that these emotions increase the willingness to help others *through* the superordinate identity.

Method

Participants and Procedure

1063 university students from 3 universities participated in the study (53.5% women) with ages from 18-69 ($M = 32.13$, $SD = 12.12$); according to the university:




- UPV (University of the Basque Country, Spain), $n = 112$, 74.1% women, aged 18-40 ($M = 20.19$, $SD = 3.48$).
- PUCE (Pontifical Catholic University of Ecuador), $n = 256$, 52% women, aged 18-62 ($M = 21.36$, $SD = 4.29$).
- UNED (National Distance Education University, Spain), $n = 695$, 50.8% women, aged 18-69 ($M = 37.63$, $SD = 10.99$).

They were randomly assigned to one of three conditions, according to the emotional scale they would have to complete¹²: Awe (n = 359; 56.8% women; aged 18-60, $M = 31.84$, $SD = 11.79$), Elevation (n = 338; 51.8% women, aged 18-69, $M = 32.65$, $SD = 12.49$), and Kama Muta (n = 366; 51.9% women, aged 18-67, $M = 31.92$, $SD = 12.18$). In each condition (which could be thought as independent intra-subject studies), participants watched three videos aimed at eliciting Awe, Elevation and Kama Muta (randomized order), based on a prototypical stimulus, and, after watching each one, they completed the scale assigned to their condition. The selection of stimuli was in concordance with empirical studies published under the name of each emotion. In the case of Awe and Elevation, the reviews took into account Keltner and Haidt's (2003), and Haidt's (Haidt, 2000, 2003b; Algoe & Haidt, 2009) (respectively) theoretical and empirical descriptions, as well as a series of studies based on free-recalling previous experiences of both emotions (Pizarro et al., 2018; Cusi et al., 2018, respectively). For the case of Kama Muta, the stimulus was selected based on a prototypical intensification of a Communal Sharing (CS, hereafter) form of relationship (Fiske, 1991, 1992), which had been already used in a cross-cultural study aimed at measuring Kama Muta (Zickfeld et al., 2018). Hence, having an intra-subject approach, we were able to both analyze a differentiating pattern among them (H1), as well as to examine their effects on criterion variables (H2).

¹² The sample size was calculated a priori using the software G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) and using two different criteria. The first, predicting a multiple linear regression predicting the dependent variables for each condition: two-tailed, with an effect size (f^2) = .15, $\alpha = .01$, power = .90, and accounting for 4 predictors = 4, the analysis showed a resulting sampling of 103 participants (for condition) and 309 in total. The second analysis, predicting goodness-of-fit for each condition, was based on a predicted effect size (W) = .40, $\alpha = .05$, power = .90, and degrees of freedom = 100, which results in 309 participants (for condition) and 927 total. Taken both criteria into account, we stopped data collection when we surpassed the 1000 participant limit.

After each video and the emotional scale, participants answered items that measure their Helping Intention to others, a pictorial item that measure their Identity Fusion with all humanity.

Table 2. Overview of the stimuli and scales used.

Feature	Stimuli		
	Awe (n = 359)	Elevation (n = 338)	Kama Muta (n = 366)
Characteristics of the video	 Focused on the nature, aerial shots of horse-riders in Mongolian meadows with a final zoom out. Little or non-existing social interactions (3:29 length. Available at: https://bit.ly/2kBcfaC).	 Story of Nelson Mandela's life and achievements. Animated series of pictures with text focusing on his life. Little or non-existing social interactions (4:42 length. Available at: https://bit.ly/2m7Rowb).	 Intensification of a communal sharing relationship. A doctor cancels his patient's medical bill because of the gratitude he had showed him years before (3:02 length. Available at: https://bit.ly/2kEGtcU).
Scales	Multi-component experience (16 items, 1-7 scale) (Pizarro et al., 2018).	Multi-component experience (19 items, 1-7 scale) (Cusi et al., 2018).	Multi-component experience (23 items, 0-6 scale) (Zickfeld et al., 2018).
Scale description	Appraisals (2; positive and negative), Affective response/labels (3), Physiological response (3), Cognitive-subjective response (4), Action tendency (3).	Appraisals (2), Affective response/labels (5), Physiological response (4), Cognitive-subjective response (4), Action tendency (4).	Tears (2), Chills (2), Warmth (2), Speaking difficulties (3), Enthusiasm (3), Appraisals (4), Motivations (4), Emotion labels (3).
Example of distinguishing elements	Affective response/ labels: <i>admiration, wonder, in-awe, amazed.</i>	Affective response/ labels: <i>inspired, elevated, enthusiastic, illuminated.</i>	Labels: <i>heartwarming, moved, touched.</i>

Finally, after concluding the three videos and measures participants filled the final section, which consisted in Transcendent Values and general demographic information. The application was conducted online (Qualtrics), in Spanish, and took about 35 minutes to be completed.

Instruments

Awe scale (Pizarro et al., 2018). 16 items were used that evaluate an awe-eliciting experience based on Keltner and Haidt's (2003) definition and a free-recall of past event, from a multi-faceted orientation. The scale includes Appraisals (e.g., *I feel in the presence of something grand*), Affective response/labels (e.g., *I'm in awe before something grand*), Physiologic responses (e.g., *I feel the shivers*), Cognitive-subjective response (e.g., *I feel small*), and Action tendencies (e.g., *I wish to be part of something bigger than myself*). $\alpha = .946$, and $\omega = .954$ (Affective response/labels), $\alpha = .871$, and $\omega = .867$ (Physiologic response), $\alpha = .859$, and $\omega = .885$ (Cognitive-subjective response), and $\alpha = .863$, and $\omega = .865$ (Action tendencies); the total of the scale was $\alpha = .950$, and $\omega = .932$.

Elevation scale (Cusi et al., 2018). Participants answered 19 items that evaluate the experience of elevation towards great exemplars of morality (Haidt, 2003a) and a free-recall of past event, through a multi-faceted scale. The scale includes Appraisals (e.g., *I'm in the presence of an exceptionally kind and moral person*), Affective response/labels (e.g., *I feel inspired, elevated by him/her*), Physiologic responses (e.g., *I feel a nice and warm sensation in the stomach*), Cognitive-subjective response (e.g., *I feel optimistic after witnessing a virtuous person*), and Action tendencies (e.g., *I wish to be a better person after witnessing this example*). $\alpha = .920$, and $\omega = .923$ (Appraisals), $\alpha = .949$, and $\omega = .952$ (Affective response/labels), $\alpha = .905$, and $\omega = .913$ (Physiologic response), $\alpha = .903$, and $\omega = .911$

(Cognitive-subjective response), and $\alpha = .959$, and $\omega = .961$ (Action tendencies); the total of the scale was $\alpha = .964$, and $\omega = .969$.

Kama Muta Multiplex Scale - KAMMUS (Zickfeld et al., 2018). Participants answered 23 items oriented at measuring an emotional response to intensification of communal sharing relationships; they had to indicate the extent they felt different sensations in the dimensions of Tears (e.g., *Moist eyes*), Chills (e.g., *Chills or shivers*), Warmth (e.g., *A warm feeling in the center of the chest*), Speaking difficulties (e.g., *A lump in the throat*), Enthusiasm (e.g., *Refreshed, energized, or exhilarated*), Appraisals (e.g., *A unique kind of love spring up*), Motivations (e.g., *I felt like telling someone how much I care about them*), and Labels (e.g., *I was moved*). $\alpha = .867$, and $\omega = .871$ (Tears), $\alpha = .888$, and $\omega = .888$ (Chills), $\alpha = .877$, and $\omega = .877$ (Warmth), $\alpha = .828$, and $\omega = .834$ (Speaking difficulties), $\alpha = .616$, and $\omega = .638$ (Enthusiasm), $\alpha = .914$, and $\omega = .915$ (Appraisals), $\alpha = .912$, and $\omega = .914$ (Motivations), and $\alpha = .836$, and $\omega = .866$ (Labels). The total reliability of the scale¹³ was of $\alpha = .947$, and $\omega = .955$.

Transcendence values (Schwartz, 2007). 5 items were used representing the dimension of self-transcendence values. Each participant had to indicate how much he or she felt they looked like a person (e.g., *She thinks it is important that every person in the world be treated equally. She believes everyone should have equal opportunities in life*) in a scale from 1 (Not at all like me) to 6 (Very much like me). $\alpha = .751$, and $\omega = .759$.

Help Intention in different NGOs (ad-hoc items). Participants indicated their agreement with 4 items that expressed the intention to carry out different collective actions oriented at helping others or the

¹³ Even though the authors of the original scale generally conduct analyses without a global measure of kama muta (see Zickfeld et al., 2018), in the present study we have also conducted an aggregated version of the KAMMUS.

nature (e.g., ...*participating in collective demonstrations [e.g., street demonstrations] to support humanitarian issues?* or ...*collaborating with an NGO regarding humanitarian help?*), in a scale from 1 (Not at all) to 5 (Very much). Reliability indexes for the congruent stimulus-scale were $\alpha = .817$, and $\omega = .823$ (Awe condition); $\alpha = .813$, and $\omega = .821$ (Elevation condition); $\alpha = .831$, and $\omega = .837$ (Kama Muta condition).

Identity Fusion (adapted from Swann, Gómez, Seyle, Morales, & Huici, 2009). A pictographic single-item measure was used to assess identity fusion with people in general. The main instruction was: “Please select the drawing that best describes your relationship with people in general”. This picture is represented in a 5 point Likert scale where the highest point represents the total inclusion of the personal self in the highest-level group (i.e., everyone in the world).

Data Analyses

First, several CFA analyses were conducted with the *lavaan* package (Rosseel, 2014) to evaluate the factorial structure of the scales (using only the congruent condition), and then, we analyzed the trends in the responses to every video from each condition. Subsequently, Pearson *rs* were calculated to explore the relationship of the emotional experience (by dimension and total) with the criterion variables. Afterwards, we meta-analyzed the correlations between the having felt each emotion with Helping Intention and Identity Fusion with all humanity (i.e., from the congruent conditions) with the *metaphor* package (Viechtbauer, 2015), in order to obtain a better estimated effect sized of each relationship in the 3 universities, and to evaluate possible sources of heterogeneity. After that, we performed several hierarchical multiple regressions predicting the two dependent variables by the emotions. In this analyses (steps 1 and 2), we included the sex and age (due to the characteristics of the samples), and transcendent values (in order to

exclude personal orientations that might explain the outcome variables). Finally, we analyzed this prediction through SEM models (with the *lavaan* package) so as to have better estimators that include the measurement level, and to explore possible indirect effects through fusion of identity with everyone in the world (Buchan et al., 2011; Reysen & Katzarska-Miller, 2013). All analyses were carried out in R (R Core Team, 2014) with R Studio (RStudioTeam, 2015).

Results

The analyses were conducted for the published structures and were performed in the congruent situations; that is, when the scale meets the prototypical stimulus for each particular emotion (see table 2 for detailed information about the stimuli and the dimensions of the scales). With each CFA, adequate goodness-of-fit indexes were found ($X^2_{(73)} = 190.88$, CFI = .962, RMSEA = .067, 95% CI[.058, .067] for Awe after watching the nature-related video; $X^2_{(145)} = 395.85$, CFI = .949, RMSEA = .071, 95% CI[.064, .078], for Elevation after watching Mandela's video; and $X^2_{(222)} = 551.48$, CFI = .927, RMSEA = .064, 95% CI[.058, .069]), for Kama Muta after watching Thai Dr. video) (for full descriptions and fit indexes, see supplementary materials online).

Observing the trends of responses from the conditions regarding each video (figure 1), we can observe that, as a whole, the Thai Dr. video was the one which induced the highest scores in every condition. While originally aimed at eliciting Kama Muta more strongly, this intensification of a communal sharing relationship also provoked the highest means for every condition.

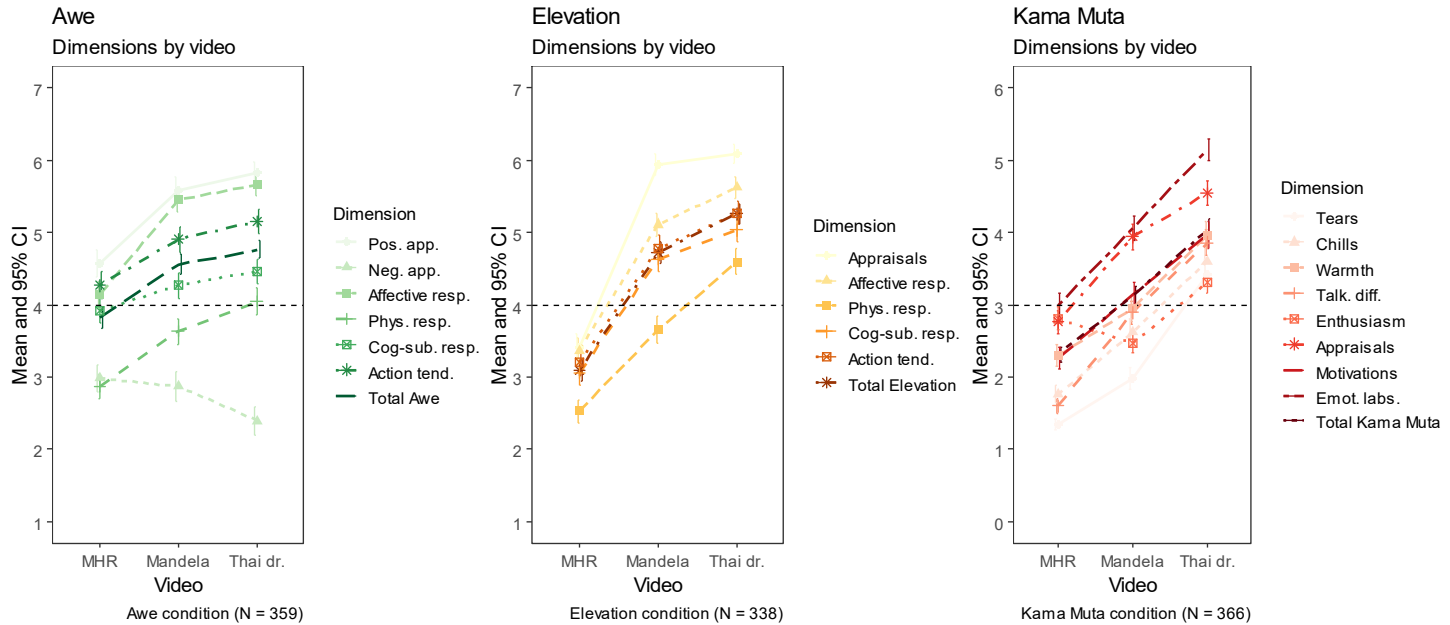


Figure 1. Means and 95% CI for Awe (left), Elevation (center), and Kama Muta (right) dimensions' reactions to each video. The black dotted line from the y-axis represents the center point for each scale. MHR, Mongolian Horse Riders. Mandela, Mandela's story. Thai dr., a Doctor who helps a family due to past gratitude.

Table 3. Descriptive and correlation analyses of interest variables in the Awe condition.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Sex	1.57	0.50												
2. Age	31.84	11.79	-.09											
3. Pos. App.	4.57	1.86	.09	.05										
4. Neg. App.	2.98	1.85	-.00	-.06	.09									
5. Labels	4.14	1.78	.06	.05	.83**	.13*								
6. Phy. Resp.	2.87	1.58	.02	-.05	.52**	.28**	.64**							
7. Cog.-Sub. Resp.	3.92	1.70	.09	.01	.68**	.19**	.80**	.70**						
8. Act. Tend.	4.27	1.79	.10	-.03	.65**	.14*	.74**	.59**	.85**					
9. Awe Total	3.83	1.46	.08	.00	.79**	.27**	.91**	.80**	.94**	.88**				
10. Trans. Values	5.24	0.68	.25**	.04	.24**	.01	.27**	.15**	.29**	.35**	.30**			
11. Help Intention	3.49	0.99	.33**	-.10	.32**	.11*	.35**	.26**	.40**	.40**	.40**	.36**		
12. ID Fusion	3.67	1.13	.06	.14**	.25**	.04	.23**	.19**	.29**	.27**	.28**	.19**	.16**	

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Table 4. Descriptive and correlation analyses of interest variables in the Elevation condition.

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Sex	1.52	0.50											
2. Age	32.65	12.49	-.04										
3. Appraisals	5.95	1.41	.23**	.09									
4. Labels	6.39	1.83	.22**	.06	.71**								
5. Phy. Response	3.65	1.70	.09	.14*	.39**	.64**							
6. Cog.-Sub. Resp.	4.63	1.55	.23**	.05	.54**	.79**	.65**						
7. Act. Tend.	4.78	1.61	.18**	-.00	.53**	.75**	.55**	.83**					
8. Elevation Total	4.72	1.34	.21**	.08	.69**	.92**	.79**	.91**	.88**				
9. Trans. Values	5.18	0.71	.24**	.06	.34**	.41**	.26**	.40**	.36**	.41**			
10. Help Intention	3.44	0.94	.33**	-.03	.34**	.47**	.33**	.50**	.48**	.50**	.39**		
11. ID Fusion	3.66	1.09	.08	.15**	.19**	.24**	.21**	.29**	.27**	.29**	.17**	.21**	

Note. M and SD are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

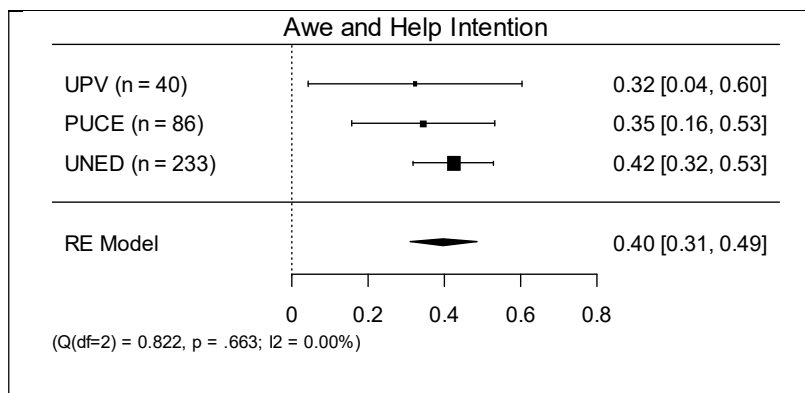
Table 5. Descriptive and correlation analyses of interest variables in the Kama Muta condition.

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	14	15	16
1. Sex	1.52	0.50														
2. Age	31.92	12.18	-.21**													
3. Tears	3.43	2.02	.12*	.16**												
4. Chills	3.60	2.01	.09	-.00	.50**											
5. Warmth	3.97	1.80	.09	-.04	.50**	.46**										
6. Diff. Talking	3.86	1.75	.10	.12*	.65**	.56**	.55**									
7. Enthusiasm	3.31	1.54	.01	-.02	.28**	.36**	.51**	.41**								
8. Appraisals	4.55	1.68	.06	.06	.47**	.39**	.56**	.59**	.57**							
9. Motivations	3.97	1.79	.09	-.04	.38**	.38**	.49**	.57**	.49**	.74**						
10. Labels	5.15	1.43	.09	.05	.58**	.49**	.62**	.69**	.55**	.75**	.61**					
11. KM Total	4.04	1.34	.10*	.04	.68**	.64**	.74**	.82**	.68**	.86**	.81**	.86**				
14. Trans. Values	5.04	0.85	.17**	-.06	.18**	.18**	.25**	.19**	.16**	.37**	.24**	.31**	.31**			
15. Help Intention	3.41	1.00	.22**	-.09	.20**	.23**	.31**	.23**	.23**	.37**	.30**	.33**	.37**	.39**		
16. ID Fusion	3.65	1.09	.01	.12*	.20**	.19**	.20**	.23**	.19**	.36**	.24**	.27**	.31**	.17**	.26**	

Note. M and SD are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

In the case of the Awe condition, participants had the highest scores of the nature-related video (above or closest to the scale's midpoint). The tendency of the Elevation condition, while similar, had the lowest scores (as a whole) for the nature video and then, increased with Mandela and Thai Dr. videos. Finally, for every condition, the self-reported physiological changes were generally the lowest, showing the highest responses (i.e., above the midpoint in each scale) only with the Thai Dr. video.

Regarding descriptive and correlation analyses, tables 3 to 5 show the means of activation of all variables (means and standard deviations), as well as their relationships, each focused on each condition and using scale-stimulus congruency. It can be seen in the correlation analyses that, in every condition, the multi-component emotional experience is associated to the Transcendent Values, Helping Intention and Identity Fusion with all humanity. In the Awe condition, the strongest associations with the dependent variables were with the dimensions Cognitive-Subjective Response, and Action Tendencies, besides the Total of the scale ($r_s > .40$). For Elevation, with Labels, Cognitive-Subjective Response, and Action Tendencies, besides the scale's total ($r_s > .47$). Finally, Kama Muta's dimensions of Motivation, Labels, and Appraisals, besides the Total of the scale showed the strongest associations ($r_s > .30$).



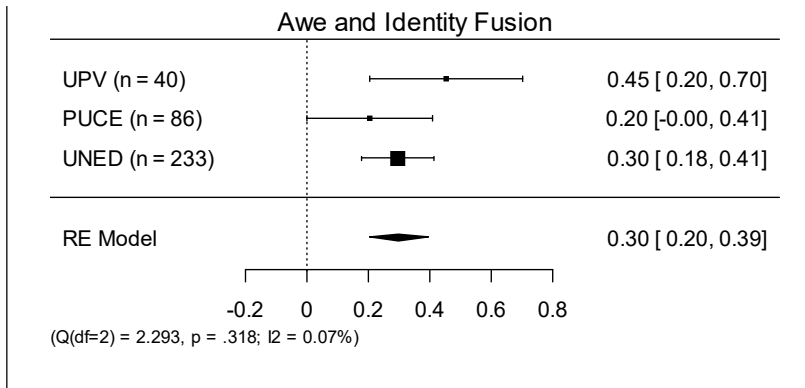
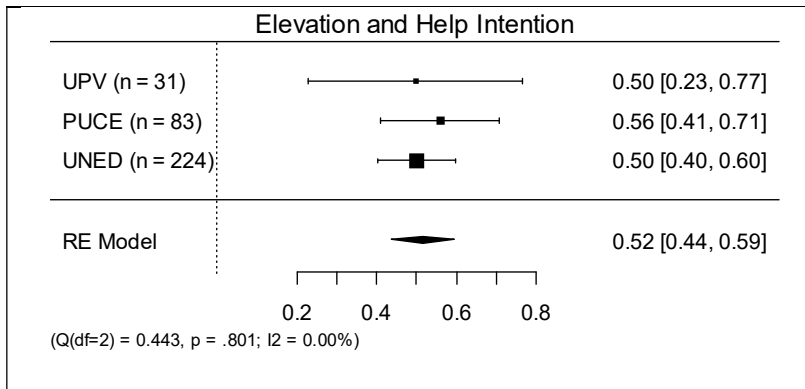


Figure 2. Random effects meta-analysis of the correlation between Awe (total) and Help Intention (top), and Identity Fusion (down) for the 3 samples. Effect size is Pearson's r [95% CI].

The random effects model used to meta-analyze the correlation between the manifestation of each emotion and the dependent variables showed that each emotion does relate significantly with both Helping Intention and Identity Fusion with all people (figures 1 to 3).



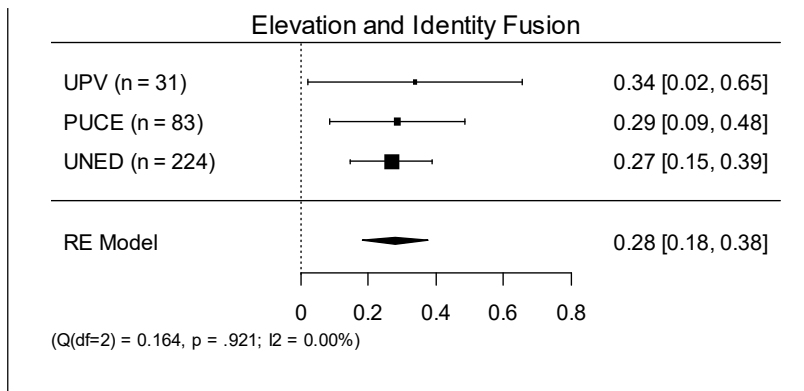


Figure 3. Random effects meta-analysis of the correlation between Elevation (total) and Help Intention (top), and Identity Fusion (down) for the 3 samples. Effect size is Pearson's r [95% CI].

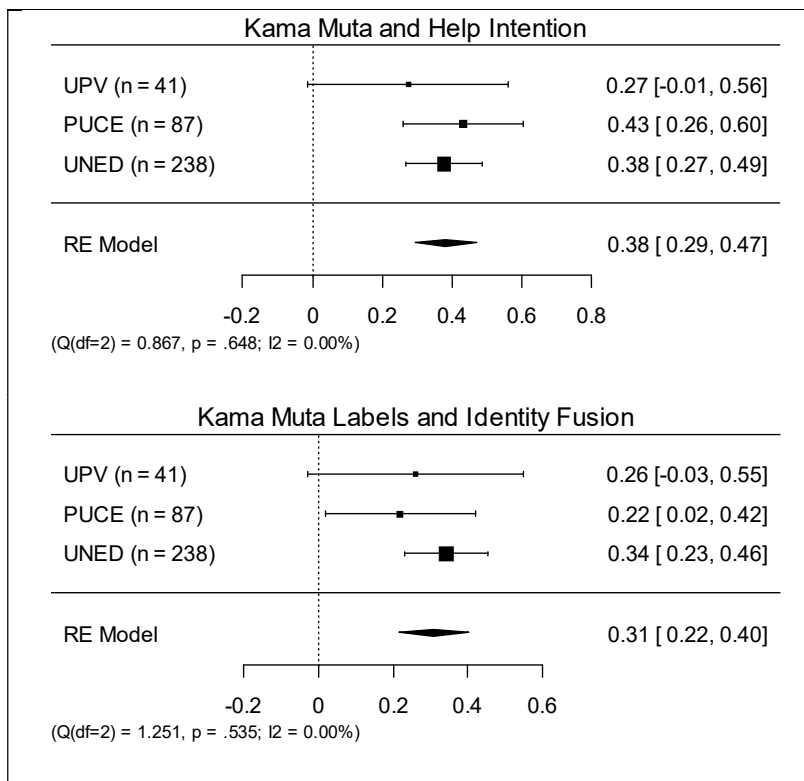


Figure 4. Random effects meta-analysis of the correlation between Kama Muta (total) and Help Intention (top) and Identity Fusion (down) for the 3 samples. Effect size is Pearson's r [95% CI].

Specifically, the analyses confirmed that the emotional manifestation of the emotion is more strongly associated to Helping Intention to others, than to Identity Fusion. In specific, Elevation was the most strongly and constant emotion that is associated to Helping Intention (*pooled r* = .52), while Awe and Kama Muta showed a similar patten and overall effect (*pooled rs* = .40 and .38, respectively). In the case of Identity Fusion, the association were of similar size and pattern in every condition (*pooled rs* = .30, .28, and .31, respectively). In addition, the analyses showed that there is not a significant source of heterogeneity in the three samples for every analysis conducted ($Qs < 2.29$, $ps > .50$; $I^2s < 0.08\%$).

Table 6. Hierarchical regressions that explain Help Intention and Identity Fusion by Awe.

	Predictor	Help Intention (ONG)		Identity Fusion (people)	
		<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>b</i>	<i>b</i> 95% CI [LL, UL]
1	(Intercept)	2.69**	[2.24, 3.13]	2.93**	[2.40, 3.47]
	Age	-0.01	[-0.01, 0.00]	0.01**	[0.00, 0.02]
	Sex	0.62**	[0.42, 0.83]	0.17	[-0.07, 0.41]
		$R^2 = .105^{**}$ 95% CI[.05, .17]		$R^2 = .026^*$ 95% CI[.00, .06]	
2	(Intercept)	0.59	[-0.19, 1.38]	1.52**	[0.56, 2.49]
	Age	-0.01	[-0.02, 0.00]	0.01**	[0.00, 0.02]
	Sex	0.47**	[0.28, 0.67]	0.07	[-0.17, 0.31]
	Trans. Values	0.46**	[0.31, 0.60]	0.31**	[0.13, 0.48]
		$R^2 = .197^{**}$ 95% CI[.12, .26] $\Delta R^2 = .092^{**}$ 95% CI[.04, .15]		$R^2 = .058^{***}$ 95% CI[.01, .11] $\Delta R^2 = .032^{**}$ 95% CI[-.00, .07]	
3	(Intercept)	0.50	[-0.23, 1.23]	1.45**	[0.51, 2.39]
	Age	-0.01	[-0.01, 0.00]	0.01**	[0.00, 0.02]
	Sex	0.46**	[0.28, 0.65]	0.06	[-0.18, 0.30]
	Trans. Values	0.31**	[0.17, 0.45]	0.18*	[0.00, 0.36]
	Awe Tot	0.23**	[0.17, 0.29]	0.19**	[0.11, 0.27]
		$R^2 = .300^{**}$ 95% CI[.22, .37] $\Delta R^2 = .104^{**}$ 95% CI[.05, .16]		$R^2 = .113^{***}$ 95% CI[.05, .17] $\Delta R^2 = .054^{**}$ 95% CI[.01, .10]	

Note. *b* represents unstandardized regression weights. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Table 7. Hierarchical regressions that explain Help Intention and Identity Fusion by Elevation.

Predictor	Help Intention (ONG)		Identity Fusion (people)	
	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>b</i>	<i>b</i> 95% CI [LL, UL]
1 (Intercept)	2.57**	[2.17, 2.98]	2.91**	[2.42, 3.39]
Age	-0.00	[-0.01, 0.01]	0.01**	[0.00, 0.02]
Sex	0.60**	[0.41, 0.79]	0.21	[-0.02, 0.44]
	$R^2 = .105^{**}$ 95% CI [.05, .17]		$R^2 = .033^{**}$ 95% CI [.00, .08]	
2 (Intercept)	0.67	[-0.08, 1.43]	2.03**	[1.08, 2.98]
Age	-0.00	[-0.01, 0.00]	0.01**	[0.00, 0.02]
Sex	0.48**	[0.29, 0.66]	0.15	[-0.08, 0.39]
Trans. Values	0.41**	[0.27, 0.55]	0.19*	[0.01, 0.37]
	$R^2 = .187^{**}$ 95% CI [.11, .26] $\Delta R^2 = .082^{**}$ 95% CI [.03, .14]		$R^2 = .046^{**}$ 95% CI [.01, .09] $\Delta R^2 = .013^*$ 95% CI [-0.01, .04]	
3 (Intercept)	0.58	[-0.12, 1.27]	1.96**	[1.04, 2.89]
Age	-0.00	[-0.01, 0.00]	0.01*	[0.00, 0.02]
Sex	0.38**	[0.21, 0.56]	0.09	[-0.14, 0.32]
Trans. Values	0.22**	[0.08, 0.36]	0.05	[-0.13, 0.23]
Ele Tot	0.28**	[0.21, 0.35]	0.20**	[0.10, 0.29]
	$R^2 = .317^{**}$ 95% CI [.23, .38] $\Delta R^2 = .129^{**}$ 95% CI [.07, .19]		$R^2 = .095^{**}$ 95% CI [.04, .15] $\Delta R^2 = .049^{**}$ 95% CI [.00, .09]	

Note. *b* represents unstandardized regression weights. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Table 8. Hierarchical regressions that explain Help Intention and Identity Fusion by Kama Muta.

Predictor	Help Intention (ONG)		Identity Fusion (people)	
	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>b</i>	<i>b</i> 95% CI [LL, UL]
1 (Intercept)	2.88**	[2.41, 3.35]	3.14**	[2.61, 3.66]
Age	-0.00	[-0.01, 0.00]	0.01*	[0.00, 0.02]
Sex	0.42**	[0.21, 0.63]	0.10	[-0.14, 0.33]
	$R^2 = .050^{**}$ 95% CI [.01, .10]		$R^2 = .016$ 95% CI [.00, .05]	
2 (Intercept)	0.65	[-0.04, 1.34]	2.00**	[1.18, 2.82]
Age	-0.00	[-0.01, 0.00]	0.01*	[0.00, 0.02]
Sex	0.28**	[0.09, 0.48]	0.03	[-0.21, 0.26]
Trans. Values	0.48**	[0.36, 0.59]	0.24**	[0.11, 0.38]
	$R^2 = .199^{**}$ 95% CI [.13, .27] $\Delta R^2 = .149^{**}$ 95% CI [.08, .22]		$R^2 = .049^{**}$ 95% CI [.01, .09] $\Delta R^2 = .033^{**}$ 95% CI [.00, .07]	

3	(Intercept)	0.43	[-0.24, 1.10]	1.76**	[0.96, 2.56]
	Age	-0.00	[-0.01, 0.00]	0.01*	[0.00, 0.02]
	Sex	0.25*	[0.06, 0.43]	-0.02	[-0.24, 0.21]
	Trans. Values	0.38**	[0.26, 0.50]	0.13	[-0.01, 0.27]
	KM Labels	0.21**	[0.13, 0.28]	0.23**	[0.14, 0.31]
		$R^2 = .265^{**}$ 95% CI[.18, .33]		$R^2 = .117^{**}$ 95% CI[.05, .17]	
		$\Delta R^2 = .066^{**}$ 95% CI[.02, .11]		$\Delta R^2 = .069^{**}$ 95% CI[.02, .12]	

Note. *b* represents unstandardized regression weights. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Then, the total expression of each emotion was used to analyze their predictive power in explaining Helping intentions and Fusion of identity with all humanity through several hierarchical regression analyses. For statistical control, in all these analyses participants' sex and age were included (step 1), as well as transcendent beliefs (step 2). As the last step (step 3), the emotion totals were used to predict Helping Intention and Identity Fusion with all people. The analyses show that, for every condition, the emotions are significant predictors of Helping intention and Identity Fusion. In detail, in the prediction of Helping Intention and Identity fusion, when controlling for sex and age (step 1), and Transcendent values (step 3), the inclusion of the emotions added a significant of explained variance (see ΔR^2 for every model).

We concluded examining these set of relationships through SEM models in the case where latent variables could be estimated (i.e., the emotion scales' dimensions, Transcendent Values, and Helping Intention). The models were constructed aimed at regressing Helping Intention on Transcendent Values and the emotion, which were calculated using a 2nd order factorial structure. The results showed that, in the three cases, the models had adequate fit indexes ($X^2_{(223)} = 506.88$, CFI = .938, RMSEA = .060, 95% CI[.053, .066], for Awe; $X^2_{(342)} = 753.08$, CFI = .935, RMSEA = .060, 95% CI[.055, .065]), for Elevation; $X^2_{(453)} = 969.39$, CFI = .917, RMSEA = .056,

95% CI [.051, .060], for Kama Muta), and, each particular emotion (together with Transcendent Values) significantly predicted the Helping Intention. The standardized effects of regressing Helping Intention on Transcendent Values and Awe were $B = .27$, and $.36$, respectively. In the case of Elevation, $B = .25$ and $.44$, respectively. For Kama Muta, $B = .33$, and $.28$, for Transcendent Values and the emotional total, respectively.

Finally, when alternative SEM models were examined using Identity Fusion as a mediator of the influence of each emotion on the intention to help –and leaving the rest of the model as the previous –, the results show highly similar fit indexes in the three congruent conditions. Nevertheless, only in the case of Kama Muta Identity Fusion was a significant mediator (standardized $B = .14$), while Transcendent Values and Kama Muta continued explaining collective action intentions.

Discussion

Answering unequivocally to the questions presented at the beginning of this study is not a simple task. However, this research shows that a possible way is through STEs, which are capable of increasing the willingness of collectively help others and, at the same time, the psychological perception of being connected to everyone in the world. The path observed is stable through different stimuli and all converge in suggesting a common profile of ST (Van Cappellen & Rimé, 2014; Stellar, Gordon, Piff, et al., 2017). In other words, that Awe, Elevation, and Kama Muta can orientate people towards the needs of others, and they can do it through a collectively shared way, in the form of collective action and a highly inclusive identification. What is more, the analyses presented here show that the effects of these emotions are indeed emotional in nature and do not depend on a personal and stable orientation since transcendent value orientations

were also controlled in the hierarchical regressions and in the SEM models.

Regarding H1, these results show that the emotional reactions in the congruent conditions (i.e., prototypical stimulus and scale) were not as predicted for the case of the Awe scale, and in part, for the Elevation scale. In detail, the Awe scale (Pizarro et al., 2018) reacted more strongly to the moral figure of Mandela (i.e., prototypical for Elevation) and more to an intensification of a communal sharing relationship (i.e., Kama Muta prototypical stimulus). This suggests that social stimuli that emphasize benevolence, morality and intense relationships based on solidarity and unity (i.e., communal sharing) are stronger –compared to nature– elicitors of an emotional reaction characterized by a sense of grandness and amazement (Keltner & Haidt, 2003; Pizarro et al., 2018). In the case of Elevation, on the other hand, a similar pattern is found that is more congruent with Elevation framework (e.g., Haidt, 2000). The Elevation scale (Cusi et al., 2018) performed somewhat similarly and the strongest reactions were found in the communal sharing video, which emphasizes solidarity and helping as form of solidarity in connection. Finally, for Kama Muta, the KAMMUS-Two scale (Zickfeld et al., 2018) showed an activation pattern in full concordance with the Kama Muta framework (see A. P. Fiske, Seibt, & Schubert, 2017). In all, even though we were not able to fully distinguish these three emotions (see the following section), the reactions measured to the prototypical stimuli did show effects in line with the theorization of STEs.

This can be seen in the congruent conditions from where the main analyses were conducted. In detail, the focus on magnificent landscapes and nature, the history of Mandela, and an intensification of communal sharing relationships were proved to provoke a ST pattern (H2) in the form of willingness to engage on collective action and to identify to a superordinate identification. Besides supporting

the ST hypothesis, these results have important implications for the study of prosociality and the paradigm of highly inclusive identities.

Considering extended frameworks of collective action such as the SIMCA model (van Zomeren et al., 2008) and the EMSICA (Thomas et al., 2009) which treat emotional experiences as prerequisites for a shared identification and its further enhancement of collective action, the present results from STEs propose a different one. Here, the results show that STEs can directly motivate both intentions to engage on collective action and at the same time, a common and shared identity that in all, are more congruent with a theorization of ST experiences (Yaden et al., 2017; Stellar, Gordon, Piff, et al., 2017). This form, the social functionality of these emotions is seen in motivating individuals towards others' needs and provoking a sense of connection to them. What is more, the themes used in eliciting them (i.e., nature, a moral leader, and intense connection and solidarity) are highly used themes present as core elements of different social movements all over the world. Therefore, and even though our manipulation was in the lab, we could also hypothesize about their presence in ongoing forms of collective practices, since they are also proved as elicitors of these emotions in the form of social gatherings in the form of recalling eliciting events for Awe (see Pizarro et al., 2018).

Furthermore, these emotions can also center the attention on the role of positive emotions in analyzing the motivators in the study of collective action, where negative emotions (e.g., anger) are constantly addressed. These results show how these emotions can explain intentions to collectively help others (i.e., Elevation, Awe, and Kama Muta, in descending order) and to psychologically feel connected with them (i.e., Kama Muta, Awe, Elevation, in descending order), that is not explained by individual differences of value orientations.

Alternative Hypotheses

Considering hypothesis contrast for the results found, one possibility for it would be suggesting that these three emotion are intrinsically similar manifestations of an underlying emotion, and therefore, they react in a highly similar way across different stimuli. Nevertheless, at least in the case of Kama Muta and Awe, Zickfeld and colleagues (2018) have shown particular differences in the responses of both across a large 15 different languages. Further, the reactions in the intensity of responses to the nature-related video shows that the Awe scale more intensively react to it, compared to the responses of Elevation and Kama Muta, which even though not the strongest, provoked a similar pattern congruent to ST theorizations. Nevertheless, the frameworks of Awe and Elevation might be heavily anchored in the language with a focus on different stimuli that could indeed increase the intensity but do not differentiate from others emotions and further, treat them as sufficient criteria to prove their existence.

Another competing hypothesis could be the fact that all these three emotions can motivate a superordinate identification, as it has been empirically proved with Awe and Elevation (Pizarro et al., 2019), and through that, the helping intention in the form of collective action is possible. However, and even though the path including a superordinate identity and prosociality has been demonstrated (e.g., Buchan et al., 2017; McFarland et al., 2019), the present study shows direct effects of these emotions on collective action intentions. This suggests that, in the case of superordinate identity, helping intentions are not intrinsically identity-dependent. Rather, this identification might work as another path increasing the intention to help. Nevertheless, it should be noted that in the case of Kama Muta, this emotion produces both collective action intentions and a shared connection with everyone and the latter is another source of prosociality. The findings through SEM analyses suggests that in the

case of this emotion, the shared sense of solidarity and connection to others can also be a path to increase the intention to help others.

Future Perspectives

Focusing on different forms of positive affect under the form of STEs can be a promising research line in the framework of collective action. Their proved effects on behavior could be a form of engaging people from individual settings to more collective ones that are align to benevolence and justice. Further, the themes eliciting STEs (i.e., nature, morality, and strong solidarity-based links) are indeed themes present in different forms of social protests and demonstrations. This way, these particular emotions could be though as amplifiers of individual tendencies to help and promote the welfare of others, which can have an active role in producing and increasing future engagements. Furthermore, this research shows also clear effects on a superordinate sense of identification, which as has been shown in past research, have important connotations in the interplay of human behavior in nowadays-increasing sense of connection to others.

In all, an emotional perspective to boost helping others and connecting to everyone is significant, important and pertinent in the study of emotions, collective action and inclusive identities.

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Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the

institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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PART II

Participation in Collective Gatherings and Rituals: Effects on Individuals, Collectives and Groups

“Yet, then, one question poses itself urgently: [...] Is it our duty to seek to become a rounded, complete creature, a whole sufficient unto itself or, on the contrary, to be only a part of the whole, the organ of an organism?”

Émile Durkheim (1893/1984)

Study 4

Emotion Trajectories Online and Perceived Emotional Synchrony: Psychosocial Effects of Participation in the Celebration of the European Capital of Culture DSS2016

Study Information

Collaboration

This study has been designed and conducted with the collaboration of Nekane Basabe, Darío Páez, Larraitz Zumeta, Silvia da Costa, and Anderson Mathias, from the Social Psychology Department of the University of the Basque Country (UPV/EHU). In addition, retrieving and further examination of the tweets were possible due to a collaboration with members of the IXA lab from the Faculty of Informatics of the same university, and the Elhuyar Foundation.

Status

This is a non-definite version that will be further explored (first part) with members of the IXA lab for future submission.

Abstract

When collectively participating in rituals and gatherings, people experience highly charged emotional instances with profound effects peoples' social life. Though varied in nature, the perception of having felt similar and intense emotions (i.e., Durkheim's *collective effervescence*) is a psychological mechanism that plays a major role in. The present work is contextualized in the celebration of the Capital of Culture in Donostia/San Sebastian (DSS2016), a multi-event project that is yearly held in different cities (each different) with the aim of celebrating the richness and diversity of cultures within Europe. In detail, this research was conducted to explore the emotions that are present in the projects axes' (i.e., Lighthouses) tweets gathered during the project (S1) and to evaluate the role of Perceived Emotional Synchrony (PES) in the psychosocial outcomes regarding Well-being, Common Identities, Social Climate and the Emotions participants self-report (S2). Study one shows that the emotions (i.e., lexicon-based evaluation) present in the tweets vary along time and relate to the project's Lighthouses, being the Peace Lighthouse that of greater negative affect-related terms. In study 2, multilevel analyses show that PES explains the individual- (Well-being, Emotions) and collective-level variables (Social Identities, Social Climate) in a sample of 49 different type of events. These results highlight the importance of emotional mechanisms in collective gatherings, the spreading properties of in psychosocial outcomes, and in the similarities of collective rituals and gatherings.

Keywords: Collective Gatherings, Collective Rituals, Emotions, Perceived Emotional Synchrony, Common Identities.

Through participation in collective rituals and gatherings, emotions are shared, intensified and transmitted (Durkheim, 1912/1995; Collins, 2004; Rimé, 2009), and as a result, group identities are created and reinforced (Hobson, Schroeder, Risen, Xygalatas, & Inzlicht, 2018; Watson-Jones & Legare, 2016). In addition, group settings are intrinsically marked by emotional activity (van Kleef & Fischer, 2016; see also A. H. Fischer & van Kleef, 2010), and likewise, virtually every emotional experience –included those that occur in private– has an impact in subsequent social interactions (Rimé, 2007, 2009).

In his pioneer work studying religious rituals, Émile Durkheim (1912/1995) suggested that the core element of these instances resulted by collectively sharing emotions in a context of shared stimulation (i.e., collective effervescence). Since then, his work has inspired theoretical and empirical studies centred on the functions of a variety of collective rituals, with an emphasis on the role of the emotions in them. For example, the role of the emotions during and after participation in rituals of transitional justice (Kanyangara, Rimé, & Yzerbyt, 2007; Rimé, Kanyangara, & Páez, 2012), in collectively celebrating diverse social gatherings (Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015; Zumeta, Basabe, Włodarczyk, Bobowik, & Páez, 2016), and even more indirect forms of collective engagement and interaction, such as online (Alvarez, Garcia, Moreno, & Schweitzer, 2015; Garcia & Rimé, 2019).

Overall, the role of emotions is manifest and they can be approached in several forms in the study of collective behaviours within social groups. For instance, taking them as antecedent, consequences, and regulators of group dynamics (A. H. Fischer & Manstead, 2008; Lench, 2018; van Kleef & Fischer, 2016), centring on shared emotional experience (i.e., collective emotion) (von Scheve & Salmela, 2014; see also Shteynberg et al., 2014), or the perception of having experienced the same and intense emotion (i.e.,

Perceived Emotional Synchrony; PES, hereafter) (Páez et al., 2015; Zumeta, Oriol, Telletxea, Amutio, & Basabe, 2016; Pizarro et al., 2019).

The present work is centred in the latter: the PES, an empirical measurement of what Durkheim hypothesised over 100 years ago – under the name of emotional effervescence– in a wide variety of collective gatherings. It constitutes a replication of its measuring and evaluating the effects this mechanism facilitates. In detail, we analyse participation in a large selection of collective gatherings and pay central attention to an emotionally shared experience among them that is able to explain –among others– the improvement of well-being, as well as the intensification of different social identities. This way, we want to advance in the study of emotional mechanisms in people’s social life and, at the same time, shed light to a central and yet unanswered question: What is a collective ritual?

Participation in Collective Rituals and Gatherings

From an anthropological and psychological point of view, collective rituals can be thought of the social glue that unite people within societies (Collins, 2004; Durkheim, 1995; Whitehouse & Lanman, 2014) and thus, participation in these instances fulfils diverse social functions (R. Fischer, Callander, Reddish, & Bulbulia, 2013; Hobson et al., 2018; Islam & Zyphur, 2009; Smith & Stewart, 2011; Watson-Jones & Legare, 2016). Studies based on ethnographic data suggest that different forms of collective rituals, such as high-arousal and low-arousal rituals (being the latter more frequent), are also linked to important socio-structural changes in societies (Atkinson & Whitehouse, 2011), as the stratification of social classes within a society (Watts, Sheehan, Atkinson, Bulbulia, & Gray, 2016). Focusing on the individuals who collectively participate in them, on the other hand, diverse studies have shown –among others– that rituals increase group cohesion, prosociality, and well-being (R.

Fischer et al., 2013; Khan et al., 2015b; Sohi, Singh, & Bopanna, 2018; Xygalatas et al., 2013).

Many of these effects –on group identities, values, beliefs, etc.– can be seen in the literature under the name collective action (i.e., actions collectively conducted to improve the conditions of a given group; see Klandermans & Roggeband, 2010). Particularly, there are striking similarities that can be found, especially those oriented at measuring the effects on collective identities. For instance, collective action has a positive impact on shared identities and allow participants to accept the “us” more easily (Jetten et al., 2017; see also Polleta & Jasper, 2001). This particular effect can be observed in different forms of collective action, such as non-normative forms (e.g., anti-roads occupation) (e.g., Drury & Reicher, 2005), as well as more traditional ones (Páez, Basabe, Ubillos, & González-Castro, 2007; Páez, Javaloy, Wlodarczyk, Espelt, & Rimé, 2013) –for a meta-analytical synthesis, see van Zomeren, Postmes, and Spears (2008). In all, different theoretical frameworks (i.e., from collective rituals, gatherings, collective action, organizational rituals) that have addressed the role of emotions in the processes and outcomes of participation in collective gatherings suggest that they indeed share common elements.

Nevertheless, and acknowledging the difficulties in defining what a ritual is (Collins, 2004; Grimes, 2014; Whitehouse & Lanman, 2014), we adopt the perspective of Collins (2004) who, based on the work of Durkheim and Goffman, describes rituals as “a mechanism of mutually focused emotion and attention producing a momentarily shared reality, which thereby generates solidarity and symbols of group membership” (pp. 7). Therefore, and separating from models that include a set of features that makes rituals unique (e.g., Hobson et al., 2018), we are thus able to include a large proportion of studies focusing on different collective gatherings that undoubtedly represent collective behaviours with a different degree

of ritualization. With this, we are able to include in our theorization different rituals such as those occurring in work environments (Smith & Stewart, 2011), or even activities which are not marked by important ideological content (i.e., only based in physical activity) (Jackson et al., 2018; Zumeta, Oriol, et al., 2016), that altogether share core aspects defined by Durkheim; particularly, an emotionally charged and shared experience, that can take place in every collective ritual and gathering previously mentioned.

The Role of Perceived Emotional Synchrony

When focusing on the processes involved during participation, figure 1 presents a theoretical model that theorizes how participating in a high variety of collective gatherings can produce. In specific, it describes how different mechanisms (e.g., collective emotions, perceived emotional synchrony and shared flow) can occur during collectively participating with others, which in turn, explain the outcomes described previously. In the model, PES (Páez et al., 2015) is an emotional experience lived by participants during group gatherings, representing the emotional experience of togetherness, and the feeling of unity with others (Rimé & Páez, 2019). People reporting PES feel synchronized with other participant in different facets, like shared attention, movement, gestures, expressions, etc., and this results not only from the experience of emotions lived together, but also the whole experience of collective synchronization. It implies that people synchronize or coordinate their emotions, and that they feel something similar and intense (Páez et al., 2015).

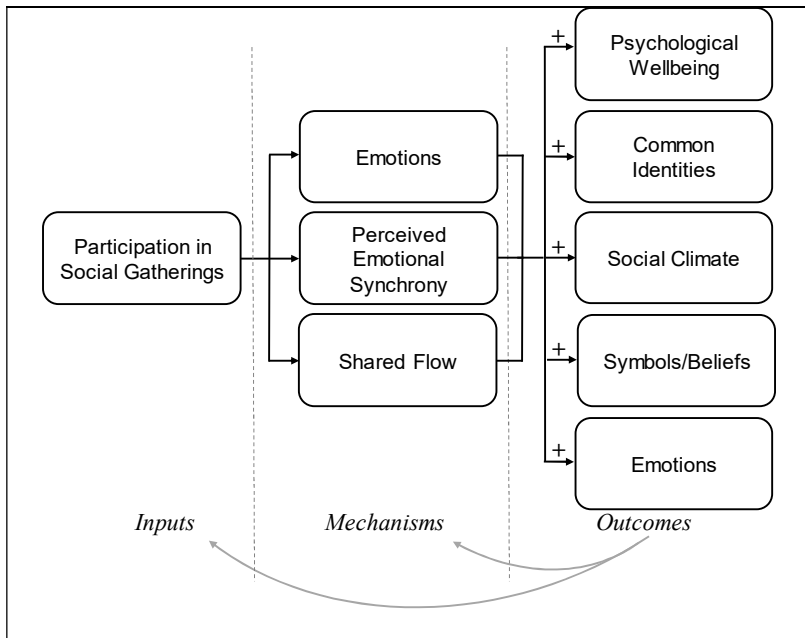


Figure 1. Psychosocial effects of participation of collective gatherings (adapted from Páez et al., 2015). The diagram depicts the path where the participation in social gatherings (inputs) produce different psychological mechanisms, which in turn, explain the outcomes. The model also includes a possible feedback represented by the curved arrows from the outcomes to the mechanisms, and subsequent inputs in a new loop.

This modern version of Durkheim’s (1912/1995) concept of collective effervescence emphasizes not only physical synchrony and the convergence of attention towards an object, but also emotional synchrony and convergence. Further, this psychological process, that is present in virtually every successfully conducted collective ritual, is theorized to take place due to different proximal mechanisms such as emotional contagion (Hatfield, Cacioppo, & Rapson, 1992), and vicarious experiences and empathy (Preston & de Waal, 2002; de Waal, 2007), which in turn have as a base – at least to some extent – the activation of mirror neurons (Gallese, Fadiga, Fogassi, & Rizzolatti, 1996). Further, and even though PES is a psychological

perception, behavioural synchrony has been proved to be associated to prosociality (Jackson et al., 2018; for a meta-analysis, see Rennung & Göritz, 2016), as well as increased cohesion with ingroup members (Fessler & Holbrook, 2016).

The role of PES has been empirically examined in a wide variety of collective events with a high ideological significance, such as public political demonstrations (Páez et al., 2015, study 3), a low-arousal mindfulness-based synchronic meditation program (Pizarro et al., 2019), or spontaneous gatherings after terrorists attacks; both face-to-face (Pelletier, 2018), or online (Garcia & Rimé, 2019). In addition, PES, as well as other psychological mechanisms (e.g., shared flow), has also been shown to take place in sport activities (e.g., Zumeta, Oriol, Telletxea, Amutio, & Basabe, 2016), and thus, it is plausible to ask whether different forms of collective life (e.g., collective rituals, gatherings, concerts, sport events, workshops, etc.) are inherently similar. In other words, whether they share the same basic psychological mechanisms that can explain how different social outcomes (e.g., increased psychological wellbeing, heightened shared identities, reinforcing social values, etc.) are produced.

New Sources of Emotional Influence: Online Emotions

Besides face-to-face shared emotional experiences, there are other settings charged with emotional experiences that can be seen as new influencers of human behaviours. These have become new sources of emotional life, where collective processes such as social sharing of emotions (Rimé, 2009), or collective emotions (von Scheve & Salmela, 2014) can take place. Due to the steady increase in usage (Perrin, 2015; Kemp, 2019) and influence of social media in human behaviour (e.g., Bond et al., 2012; Barberá, Jost, Nagler, Tucker, & Bonneau, 2015; Goldenberg, Gross, & Garcia, 2018), the analysis of online data (e.g., communication, sharing information, replying to different sources) has gain more and more attention in the

last years. The widespread of different techniques, tools, and guidelines that help retrieving, pre-processing and analysing online data (e.g., Chen & Wojcik, 2016; Murphy, 2017) has provided a new venue of analyses where actual human behaviour (e.g., sharing online content) can be used as an indicator of following human behaviour (e.g., the intensity of subsequent social sharing of emotions).

Particularly connected to the role of emotions in general, and the specific function of PES, studies conducted using Twitter data show the way people's interactions influence involvement and different facets of collective participation. In detail, Alvarez and colleagues (2015) found that sharing more intense negative affect – congruent with the core emotional climate in the demonstrations of the 15M in Spain– was related to a higher integration of participant in the movement. In the same vein, Garcia and Rimé (2019) have shown how sharing a strong emotional experience online (i.e., PES) has an impact in regulating the affect and transmitting liberty-related values after the terrorist attacks on Charlie Hebdo in Paris, 2015.

Taken altogether, these studies highlight the importance of emotional processes in collective behaviours and, what is more, provide a an indirect measure of the feelings of the majority of a collective regarding a particular object (i.e., emotional climate; de Rivera, 1992a). Therefore, expression of emotions online can provide an illustration of the emotional dynamics in specific forms of collective gatherings.

Objectives and Hypotheses

The two studies presented here were aimed at evaluating the effects of the emotional experiences that take place in collective gatherings. Thus, we are interested in knowing if under different collective gatherings –including concerts, workshops, theatre, etc.– there happen the same social mechanisms hypothesised by (Durkheim, 1912/1995), and subsequently measured and

corroborated by Páez and colleagues (2015). In detail, through different methods and instruments, we want to explore the emotional dynamics online and then, assess PES and its effects on several social outcomes (e.g., psychological wellbeing, ingroup solidarity), in the context of the celebration of the Capital of Culture in Donostia/San Sebastián (Basque Country, Spain) organized by the European Commission (more information at https://ec.europa.eu/programmes/creative-europe/actions/capitals-culture_en) during the year 2016 (hereafter, DSS2016). Study 1 was conducted to explore the dominant emotions, as well as the emotional trends that can be detected in tweets gathered previously, during, and after the main events of DSS2016 took place. The objective of study 1 was exploratory.

In the case of study 2, and based on previous studies regarding the effects of ritual participation on Well-being (Zumeta, Basabe, et al., 2016) and Identities (Páez et al., 2015), we expected that (S2H1) PES reported by participants in collective gatherings will be positively associated to the dependant variables (i.e., Well-being, Local and European Identity, and Positive Social Climate). Further, PES will be a unique predictor of the aforementioned.

Study 1: Emotions in Tweets of DSS2016

Procedure

This study was conducted in collaboration with members of the IXA research team of the Faculty of Informatics of the University of The Basque Country, and the Elhuyar foundation, who developed an automatic tool to gather and classify tweets about the project DSS2016. The tool's name is *Behagunea*, an automated tweet processor that classified and saved the tweets posted regarding three axes, or thematic blocks: the Lighthouse of Peace, Voices and Life. Each of them represented a gathering of events people could assist,

and the project gathered tweets written from September 2015 to November 2017 (to see the website of the project, as well as access to the classifications, visit <http://behagune.elhuyar.eus/>).

For this particular study, we focused on the Spanish tweets for each thematic axis of DSS2016. The information regarding each Lighthouse is:

- Lighthouse of Peace: It gathered the events fostering and sustaining coexistence, dignity and human rights as fundamental strategies for solving conflicts and creating new forms of government. The number of Spanish tweets were 773, and were from June 2016 to October 2017.
- Lighthouse of Voices: It gathered the events aimed at transmission, connection, and communication among people, in different forms (e.g., direct, artistically, etc.). The number of Spanish tweets were 5550, from December 2015 to November 2017.
- Lighthouse of Life: Finally, this lighthouse gathered events focused at teaching new forms of relating within a society, our relationship with the environment and the ideal transition to citizens who can enjoy and grow. The number of Spanish tweets were 4345, from September 2015 to November 2017.

Data Analyses

All the data analyses were conducted in R (R Core Team, 2014) with R Studio (RStudioTeam, 2015), using the NRC lexicon (Mohammad & Turney, 2010). This lexicon, based on an international collaboration for noting valences and scores, allows giving each word an emotional value in order to “map” 8 emotions from text: Anger, Anticipation, Disgust, Fear, Joy, Sadness, Surprise, and Trust. After preprocessing text techniques, we conducted the analyses through the R packages *quanteda* (Benoit et al., 2018), and *syuzhet* (Jockers, 2017). The first was used to conduct a WordCloud

of the most frequently mentioned terms, while the second, to estimate the total of emotions and their trajectories through time, based on the scores provided by the NRC lexicon.

Results

The WordCloud for each Lighthouse (figure 2) revealed that, from the total of tweets used to pre-process and their subsequent analyses, the majority corresponded to informative tweets regarding the events that would take place within each Lighthouse.

As it can be seen in figure 2, the most mentioned word for each Lighthouse was the name of an event. For the Peace Lighthouse, the event was *Paredes que Hablan* [Speaking Walls], a collective project that sought to make intervention in different walls of the city Donostia-San Sebastián with the aim of transmitting the value of coexistence. For the Lighthouse of Life, *Dialogos Europeos* [European Dialogues], a series of debates, reflexions and conversations focused on the challenges and transformations that Europe is currently living, such as migration and refugees, women on politics, or sport and collective identities (more info, at <http://www.europeandialogues.eu/en/program-of-events-2016/>). Finally, for the Voices Lighthouse, the event *De Ida y Vuelta* [Going and Back] corresponds a series of walking tours that travel all the Basque Country and oriented at discovering its natural routes and culture.

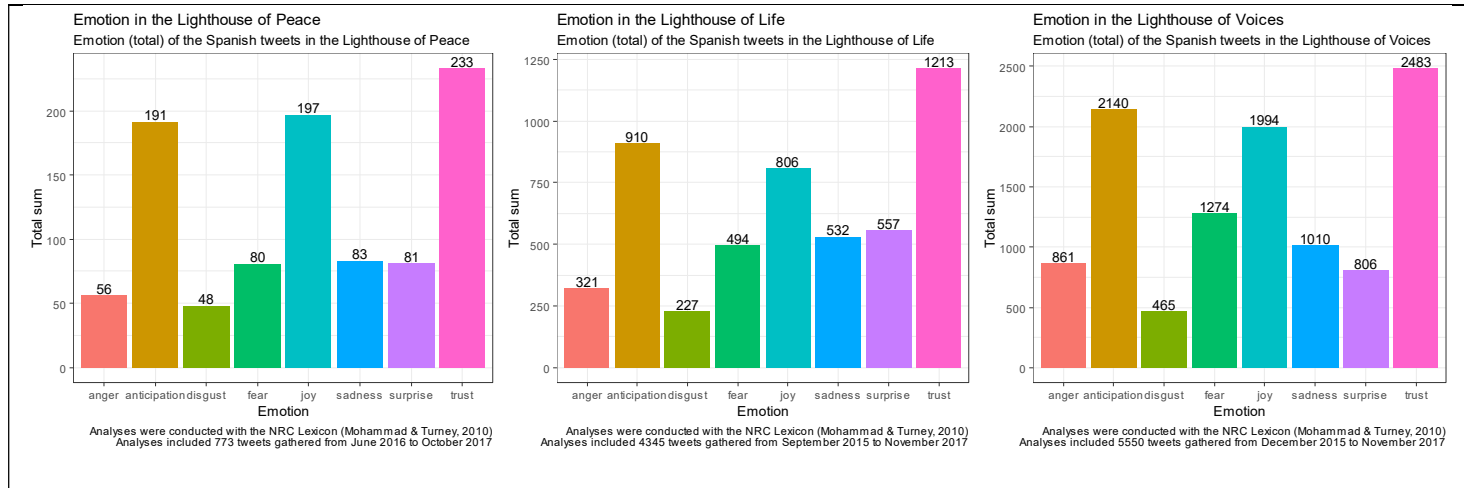


Figure 3. Analyses were conducted using the NRC Lexicon (Mohammad & Turney, 2010) on the tweets gathered from the Lighthouses of Peace (left, $n = 773$), Life (centre, $n = 4345$), and Voices (right, $n = 5550$). The order of the emotions are: anger, anticipation, disgust, fear, joy, sadness, surprise, and trust.

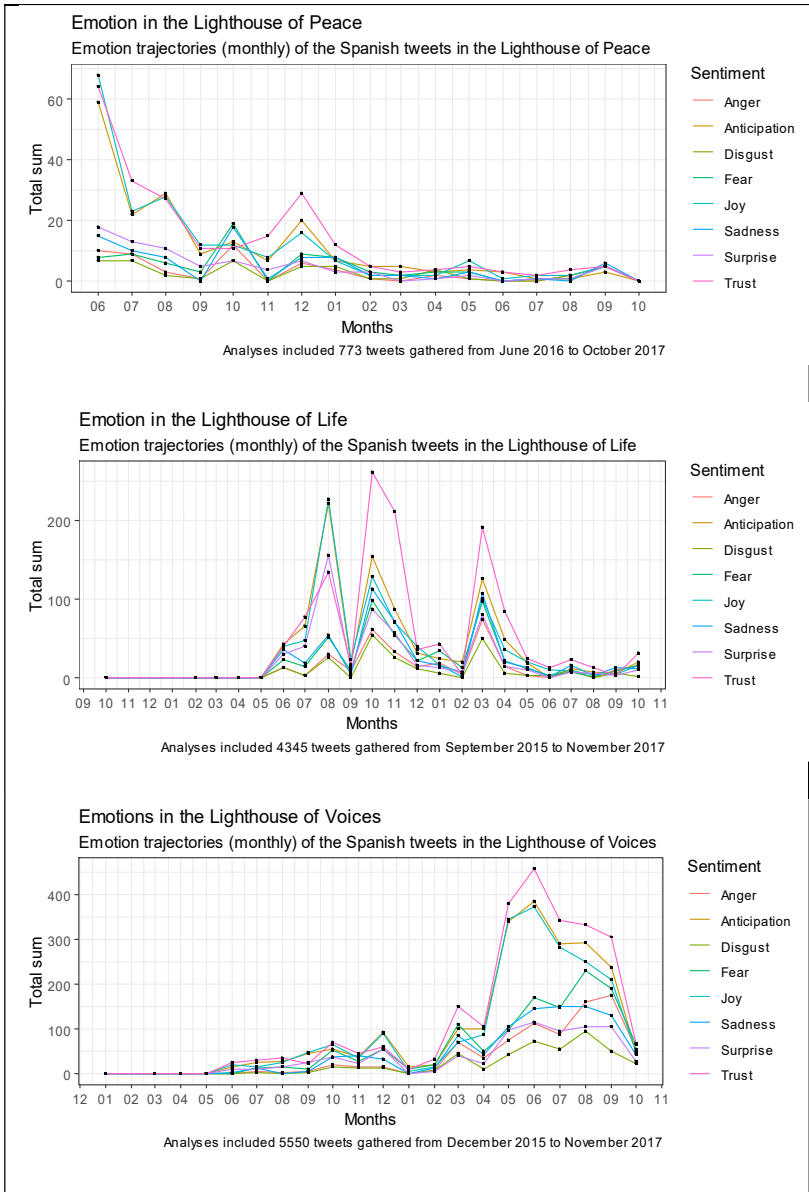


Figure 4. Analyses were conducted using the NRC Lexicon (Mohammad & Turney, 2010) on the tweets gathered from the Lighthouses of Peace (upper, $n = 773$), Life (centre, $n = 4345$), and Voices (down, $n = 5550$).

Among the rest of the words of each WordCloud, it can be seen the high frequency of peace-related terms in the Peace Lighthouse, and sub-classifications (e.g., peace treaty, the mile of peace, etc.), while, for the rest of Lighthouses, these terms are not represented by means of a high frequency in mentioning.

Evaluating the dominant emotions (i.e., total sums in the whole data) from the tweets of each Lighthouse (figure 3), we can see that, globally, the patterns of overall emotions detected are highly similar across the thematic axes. The analysis show that the most dominant emotions are Trust (with terms like *inclusion, measure, credible*), Anticipation (*audience, develop, inaugural*), and Joy (*mirth, fulfil, satisfied*). Regarding the least detected emotions there are Anger (*dispute, disrespect, prejudicial*) and Disgust (*impunity, degrade, ignorant*).

Conversely, when analysing the pattern of these emotions aggregated in each month, the tweets were gathered (figure 4) and the results provide different patterns of emotional activation. While positive emotions are more dominant as a whole, there can be seen different peaks of increased negative affect. In the case of the Peace Lighthouse, an increase of Sadness and Fear is evident during October 2016. For the Lighthouses of Voices and Life, a peak of Anger and Fear, and Fear and Anticipation are seen during the months of August and December, respectively.

Discussion Study 1

The analysis of indirect methods to identify emotions within the celebration of DSS2016 reveals that a great deal of what we share and interact with is indeed emotional, and thus can be analysed under the lens of an expression of emotional climates (de Rivera & Páez, 2007; Páez et al., 1997). This information is mainly transmitted in the forms of communications and details about the events of each Lighthouse and its trends are dynamics in the sense that they vary in time, which

suggest possible influences in the forms people participate and relate regarding the themes of DSS2016.

Considering the fact that online emotions generate subsequent ones and different reactions toward them –such as the quality of the engagement (Chmiel et al., 2011; Stieglitz & Dang-Xuan, 2013)–, the analysis of tweets suggests that these online interactions can provoke emotional patterns such as forms of dominant emotional atmospheres or climates. These predominant emotions, thus, should be taken into account in the overall measurement of these collective gatherings due to their possible implications on –for instance– the way people relate and affect future participation attempts (see figure 1).

Nevertheless, these conclusions should be taken in a careful manner, particularly considering the characteristics of the information (i.e., informative, predominantly), the fact that this approach is indirect and nature (i.e., lexicon based), and finally, that we cannot identify further information from the creators of these tweets. Nevertheless, we have now another source of information that highlights emotional trajectories and put the stress in how they might have an impact in self-reported data that is the main objective of study 2.

Study 2: Participation in Collective Gatherings

Method

Participants and procedure.

The design of this study is cross-sectional and based on self-reports of a total sample of 1353 people who were interviewed immediately after finishing a given finishing assisting in a selection of representative events including the three Lighthouses described in study 1. From the total, the final sample was composed by 722 participants who answered the measure of PES in the questionnaires

(59% women, aged from 14 to 88 years; $M = 43.71$, $SD = 15.87$), from a sample of 49 different events (e.g., concerts, roundtables, interactive plays, dancing workshops, etc.). All participants were assisted by trained pollsters and the surveys could be answered in Spanish (83.3%), Basque (12.1%), English (3.6%), or French (0.9%), and took from 20 to 30 minutes approximate. The number of questionnaires by Lighthouse, concurrence, and level of participation, can be seen in the Annexes.

Instruments.

Quality of Participation - QoP (Páez et al., 2015). Two items were used to evaluate the perception of participation and implication in the activity (e.g., How important it has been for you?), in a scale from 1 (Not at all) to 7 (Very much). $r = .70$, $p < .001$.

Perceived Emotional Synchrony - PES (Páez et al., 2015). One item was used to assess the psychological perception that participants from a given collective gathering shared similar, intense emotions. The item was “We felt a strong shared emotion”, and was answered in a scale from 1 (Not at all) to 7 (All the time).

Psychological Well-being (Ware & Sherbourne, 1992; Spanish version of Alonso, Prieto, & Anto, 1995). Participants answered three items from the SF-36 (version 2) from the dimension Vitality (e.g., Have you felt full of vitality? Have you had a lot of energy?), in a scale from 1 (Never) to 6 (Always). Alpha, .830.

Local and European Identity (ad-hoc items). Participants responded 4 items to measure local and European identification. For both identities, they responded to what extent they personally identified (To what extent you identify yourself with [Donostia/San Sebastián and Europe]?) and their perception of how much people identified (To what extent you think people identify with [Donostia/San Sebastián and Europe]?), in a scale from 1 (Not at all) to 7 (A lot). Reliability indexes were $r_s = .549$ and $.614$, respectively.

Social Climate (de Rivera, 1992; version from Techio et al., 2011). We used 4 items asking the evaluation of the society's emotional climate (Do most people respect each other enough in order to not be violent in case of a conflict?), in a scale from 1 (No) to 7 (Completely). Alpha was of .754.

Modified Differential Emotional Scale (mDES, Fredrickson, 2013; items originally from Izard, 1977). Participants answered to which extent they felt 3 positive (e.g. What is the most hopeful, optimistic, or encouraged you felt?) and 2 negative emotions (e.g., What is the most sad, downhearted, or unhappy you felt?), in a scale from 0 (Not at all) to 4 (Extremely). Reliability indexes were Alpha of .785, and $r = .691$ ($p < .001$), for positive and negative emotions, respectively.

Data analyses.

We employed multilevel linear regression analyses (Kreft & de Leeuw, 2004), which is an adequate approach due to the hierarchical structure of these data; this is, individual perceptions of outcomes variables (level 2 variables) are nested in the events they participated in (level 1 variables). For each model presented, we are testing the predictive capacity of PES, in order to test the model in figure 1. Therefore, for each dependent variable, we created 3 models: the null model consisted of predicting the dependant variable including only the intercept, and thus, having the baseline comparison. The second model included control variables at the individual level that are used only as control; the variables are Sex, Age, and Lighthouse of Peace, which is the selection of variables included under the thematic of forgiveness, culture of peace and human rights. We decided to include it due to the effects an increase in negative affect might produce (e.g., Páez et al., 2015) in comparison to events from other Lighthouses. Finally, the third model included the PES, and the approach was of random intercepts and slopes. The analyses were conducted using the package *lme4* (Bates, Mächler, Bolker, &

Walker, 2014), in R (R Core Team, 2014) with R Studio (RStudioTeam, 2015).

Results

Table 1 shows descriptive and correlation analyses of the variables of interest. The associations between each Lighthouse (i.e., in the form of dummy-coded variables) and the criterion variables show that the kind of event have low to moderate effects on the variables of study. In specific, the Lighthouse of Peace is the one that is associated to more criterion variables in a significant way –all negative– and the strongest correlation can be seen with Collective Climate ($r = -.18$). Quality of Participation, on the other hand, was strongly associated to PES ($r = .71$), but only PES show an association to both Sex (i.e., being woman) and Age (both positive), as well as the rest of criterion variables. The associations are significant and go from $r = -.10$ (with negative emotions) to $r = .54$ (with positive emotions).

Analysing the pattern of association of PES and the rest of criterion variables, and taking into account every event data was gathered from (figure 5), it can be seen clear trends of associations and, also, that these relationships are event-dependant. In other words, even though there is a general tendency –being the least strong with Negative Emotions–, the slopes are not fixed at a single point in the y-axis, and there are many events where PES is negatively associated to the criterion variable. This pattern confirms the hierarchical structure of data and the random intercept and random slope approach to be included in the multilevel analyses.

Table 1. Descriptive and correlation analyses of interest variables.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Sex ¹	0.62	0.48												
2. Age	42.90	15.73	-.02											
Lighthouse ²														
3. of Peace	-	-	-.01	-.07*										
4. of Voices	-	-	-.04	-.03	-.24**									
5. of Life	-	-	.04	-.01	-.24**	-.17**								
6. QoP	4.72	1.67	.05	.08**	-.07*	-.04	.04							
7. PES	4.47	1.87	.10**	.09*	-.06	.11**	.05	.71**						
8. Psy. Well-being	4.56	1.25	.00	.10**	-.12**	-.04	.02	.33**	.38**					
9. Local ID	5.22	1.57	.04	.19**	-.08**	-.07*	-.08**	.28**	.25**	.22**				
10. Eur. ID	4.56	1.68	.01	.21**	-.07*	-.01	-.07**	.27**	.26**	.19**	.46**			
11. Soc. Climate	4.13	1.35	-.01	.06*	-.19**	-.00	-.11**	.27**	.25**	.29**	.22**	.28**		
12. Pos. Emotions	2.84	0.99	.01	.00	.00	-.06*	.04	.47**	.54**	.40**	.23**	.25**	.30**	
13. Neg. Emotions	1.36	1.29	.01	-.09**	-.00	.04	.03	-.14**	-.10**	-.21**	-.06*	-.08**	-.03	-.14**

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. 1, values were 0 (men) and 1 (women). 2, represent dummy-coded variables were each Lighthouse takes the value 1, and 0 for the rest. * indicates $p < .05$. ** indicates $p < .01$.

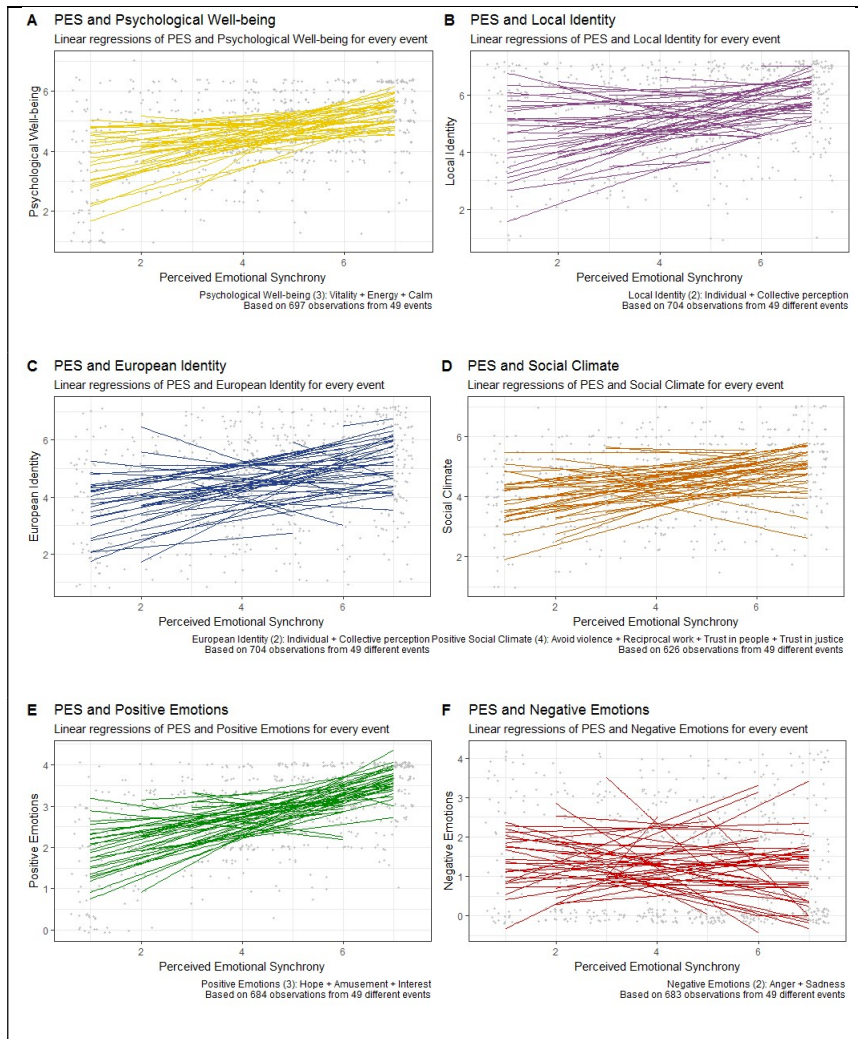


Figure 5. Effects of Perceived Emotional Synchrony (PES) on Psychological Well-being (A), Local Identity (B), European Identity (C), Social Climate (D), Positive (E), and Negative Emotions (F). Each line represent a linear regression of PES on the dependent variables.

Multilevel regression models are presented in tables 2 to 7, and all of them include PES in the last step. As a whole, the inclusion of PES always resulted as a significant predictor of the criterion variables, having controlled Sex, Age, and the Lighthouse of Peace in the previous steps. In detail, the amount of explained variance (R^2c) from intercept-only model in each shows values that go from .021 (with negative emotions) to .145 (with Local Identity). This indicates that the hierarchical structure of the data leaves a considerable amount of variance to be explained in subsequent steps. For the following step (i.e., inclusion of Sex, Age and Lighthouse of Peace), a comparison of models was conducted (i.e., Δ of $-2 \times \text{Log}(lh)$) and the results shows that, though these variables are predictors of the criterion (e.g., tables 1, 3, 5), the overall model is not significantly better than the null model. The final step (i.e., inclusion of PES) on the contrary, shows improvements of models ($ps < .001$) with exception of the prediction of negative emotions, where, nevertheless, PES is a significant predictor (i.e., negatively predicting Negative Emotions). Leaving negative emotions aside, PES is a positive and significant predictor of the criterion variables, and the final models' explained variances go from .159 (for Social Climate) to .314 (for Positive Emotions).

Regarding the prediction of Negative Emotions, this shows a divergent pattern, similar to the one seen in the correlation analyses. Even though at a model level the inclusion of PES does not improve the overall fit (Δ of $-2 \times \text{Log}(lh) = 0.81$), PES remains the only predictor of Negative Emotions, with a negative relationship. Finally, of special interest is the relationship between PES and different levels of social identities.

Table 2. Multilevel-linear regressions: PES and Psychological Well-being.

Variable	Null Model			Model 1			Model 2		
	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>
Intercept	4.65	0.06	73.49***	4.37	0.20	21.66***	3.54	0.21	17.06***
Sex				0.04	0.09	0.48	-0.05	0.09	-0.51
Age				0.00	0.00	2.20*	0.00	0.00	1.28
Lighthouse of Peace ^a				-0.41	0.15	-2.67*	-0.32	0.16	-2.06*
PES							0.24	0.02	10.38***
AIC	2220.48			2230.65			2138.61		
BIC	2234.12			2257.93			2170.44		
-2 x Log(lh)	2214.48			2218.65			2124.61		
<i>df</i>	3			6			7		
Δ of -2 x Log(lh)				4.17			94.04***		
<i>R</i> ² _m	-			.021			.156		
<i>R</i> ² _c	.048			.047			.192		

Note. PES, Perceived Emotional Synchrony; *R*²_m and *R*²_c represent marginal and conditional *R*², respectively. ^aDummy coded variable representing events under the thematic of peace and coexistence (1 = events of that Lighthouse; 0 = rest of events). The analyses were based on 697 observations grouped in 49 different events. * *p* < .05; ** *p* < .01; *** *p* < .001.

Table 3. Multilevel-linear regressions: PES and Local Identity.

Variable	Null Model			Model 1			Model 2		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	5.27	0.09	55.34***	4.66	0.23	20.30***	3.94	0.24	16.35***
Sex				0.08	0.09	0.82	0.00	0.09	0.01
Age				0.01	0.00	4.29***	0.011	0.00	3.74***
Lighthouse of Peace ^a				-0.67	0.24	-2.86**	-0.62	0.24	-2.58*
PES							0.21	0.02	8.03***
AIC	2380.09			2373.94			2320.06		
BIC	2393.76			2401.28			2351.96		
-2 x Log(lh)	2374.09			2361.94			2306.06		
df	3			6			7		
Δ of -2 x Log(lh)				12.16			55.87***		
R ² m	-			.053			.132		
R ² c	.145			.160			.253		

Note. PES, Perceived Emotional Synchrony; R²m and R²c represent marginal and conditional R², respectively. ^aDummy coded variable representing events under the thematic of peace and coexistence (1 = events of that Lighthouse; 0 = rest of events). The analyses were based on 704 observations grouped in 49 different events. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4. Multilevel-linear regressions: PES and European Identity.

Variable	Null Model			Model 1			Model 2		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	4.58	0.09	52.86***	3.77	0.25	15.08***	2.95	0.26	11.14***
Sex				0.11	0.11	1.03	0.03	0.11	0.29
Age				0.02	0.00	4.49	0.01	0.00	3.92***
Lighthouse of Peace ^a				-0.36	0.22	-1.59	-0.29	0.24	-1.22
PES							0.23	0.03	8.02***
AIC	2531.54			2527.84			2474.27		
BIC	2545.21			2555.18			2506.16		
-2 x Log(lh)	2525.54			2515.84			2460.27		
df	3			6			7		
Δ of -2 x Log(lh)				9.70			55.57***		
R ² m	-			.036			.118		
R ² c	.076			.099			.204		

Note. PES, Perceived Emotional Synchrony; R²m and R²c represent marginal and conditional R², respectively. ^aDummy coded variable representing events under the thematic of peace and coexistence (1 = events of that Lighthouse; 0 = rest of events). The analyses were based on 704 observations grouped in 49 different events. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 5. Multilevel-linear regressions: PES and Social Climate.

Variable	Null Model			Model 1			Model 2		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	4.48	0.07	67.97***	4.39	0.21	20.89***	3.79	0.22	16.88***
Sex				0.06	0.09	0.62	0.00	0.09	-0.07
Age				0.00	0.00	0.74	0.00	0.00	0.06
Lighthouse of Peace ^a				-0.58	0.15	-3.74***	-0.51	0.18	-2.86**
PES							0.18	0.03	6.98***
AIC	1987.81			1995.43			1958.31		
BIC	2001.13			2022.07			1989.39		
-2 x Log(lh)	1981.81			1983.43			1944.31		
df	3			6			7		
Δ of -2 x Log(lh)				1.6			39.12***		
R ² m	-			.029			.101		
R ² c	.052			.050			.159		

Note. PES, Perceived Emotional Synchrony; R²m and R²c represent marginal and conditional R², respectively. ^aDummy coded variable representing events under the thematic of peace and coexistence (1 = events of that Lighthouse; 0 = rest of events). The analyses were based on 626 observations grouped in 49 different events. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 6. Multilevel-linear regressions: PES and Positive Emotions.

Variable	Null Model			Model 1			Model 2		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	2.83	0.05	57.13***	2.86	0.12	24.14***	1.83	0.12	15.39***
Sex				0.12	0.07	1.74	0.03	0.06	0.57
Age				0.00	0.00	-0.66	-0.00	0.00	-2.19*
Lighthouse of Peace ^a				-0.25	0.13	-1.89	-0.16	0.11	-1.53
PES							0.28	0.02	16.01***
AIC	1825.93			1840.94			1632.02		
BIC	1939.52			1868.11			1663.71		
-2 x Log(lh)	1819.93			1828.94			1618.02		
df	3			6			7		
Δ of -2 x Log(lh)				9.01			210.93***		
R ² m	-			.013			.291		
R ² c	.050			.058			.314		

Note. PES, Perceived Emotional Synchrony; R²m and R²c represent marginal and conditional R², respectively. ^aDummy coded variable representing events under the thematic of peace and coexistence (1 = events of that Lighthouse; 0 = rest of events). The analyses were based on 684 observations grouped in 49 different events. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 7. Multilevel-linear regressions: PES and Negative Emotions.

Variable	Null Model			Model 1			Model 2		
	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>	Estimate	SE	<i>t</i>
Intercept	1.28	0.07	17.87***	1.43	0.16	8.69***	1.69	0.19	8.73***
Sex				0.05	0.09	0.57	0.08	0.09	0.79
Age				-0.01	0.00	-1.69	-0.00	0.00	-1.48
Lighthouse of Peace ^a				0.32	0.19	1.69	0.29	0.19	1.59
PES							-0.08	0.02	-2.49*
AIC	2247.80			2261.95			2263.13		
BIC	2261.38			2289.11			2294.82		
-2 x Log(lh)	2241.80			2249.95			2249.13		
<i>df</i>	3			6			7		
Δ of -2 x Log(lh)				8.15			0.81		
<i>R</i> ² _m				.011			.021		
<i>R</i> ² _c	.021			.068			.075		

Note. PES, Perceived Emotional Synchrony; *R*²_m and *R*²_c represent marginal and conditional *R*², respectively. ^aDummy coded variable representing events under the thematic of peace and coexistence (1 = events of that Lighthouse; 0 = rest of events). The analyses were based on 683 observations grouped in 49 different events. * *p* < .05; ** *p* < .01; *** *p* < .001.

Integrating both the activation means (table 1), as well as the predictive power of PES for both Local and European Identities (tables 3 and 4), it can be seen that participants felt more prone to identify locally (i.e., means in table 1), and while the correlations of both with PES are very similar ($r_s = .25$, and $.26$, respectively), the amount of explained variance is greater for Local compared to European Identity.

Discussion Study 2

Emotional processes that take place in collective gatherings and rituals have implications and direct consequences for individuals (e.g., increased well-being), as well as for groups (e.g., social identities). This study empirically shows how a shared psychological process can modulate a great deal of results in the context of collectively participating in diverse collective gatherings. In special, how having participated with others –co-presence and a shared attentional object– can cause the perception of experiencing an intense and shared emotions, which in turn produces psychosocial outcomes at different social levels.

The results corroborate the attempt of having operationalized Durkheim’s *collective effervescence* (i.e., PES) (Páez et al., 2015), which increases participants’ subjective perceptions of well-being, different social identities, positive perceptions of the social climate within the society, as well as positive and negative emotions caused in the events. Besides replicating these results in a diverse variety of collective gatherings –which include concerts, performances, guided activities, workshops, etc.– this study shows not only the importance of PES as an important facilitator of psychosocial positive outcomes (e.g., Pelletier, 2018; Zumeta, Oriol, et al., 2016) but also, it addresses a central point relating interpersonal and intergroup relationships: mere assistance does not necessarily entails positive outcomes (e.g., Pizarro et al., 2019).

As it can be seen, it is PES the variable that explain the results having, in this case, the strongest effects on Positive Emotions and Well-being (i.e., both from correlational as well as multilevel analyses). Even though one might suggest that, the participation would account for the effects (e.g., Khan et al., 2015a; Tewari, Khan, Hopkins, Srinivasan, & Reicher, 2012), in this case, as well as previous research (Pizarro et al., 2019; Pizarro, Telletxea, Bobowik, & Zumeta, 2017) show that the in-participation processes (PES) are responsible of affecting to a great length the outcomes find. The present study includes convergent as well as divergent supporting evidence, and the particular case with Negative Emotions has an important role. In this case, both conspiring the differential effects positive and negative emotions entail (Fredrickson, 2001; Kuppens, Realo, & Diener, 2008; Lewis, Haviland-Jones, & Feldman Barrett, 2008), as well as how negative affect will be activated in certain collective settings. For instance, the diffuse pattern of association of PES and Negative Emotions (figure 5) might indicate some instances where different negative emotions (in this study: anger and sadness) which are individually felt, are reactions to i) a sense of shared and intense experience (PES), ii) a particular response to the content of the activity, or iii) situations where people felt negatively due to different stimuli (i.e., not what was expected in the gathering). Even though it was not an objective of this study, the particular source of influence in these associations indicate that, more strongly with negative affectivity, PES can and will associate in different forms regarding Negative Emotions.

In all, this suggests that PES is not a construct that associates with indiscriminate criterion variables, but also its measure shows certain sensitivity regarding the relationship it has with other variables that are undoubtedly affected by the content and the dispositions of a given collective gathering.

Finally, the analyses conducted in this study confirms the model of participation presented in figure 1, and highlight the similitudes between the literature of collective rituals (e.g., Tewari, Khan, Hopkins, Srinivasan, & Reicher, 2012; Xygalatas et al., 2013) with those under the name of collective gatherings (e.g., Páez et al., 2015; Zumeta, Basabe, et al., 2016; see also Páez & Rimé, 2014). In all, it seems that the co-presence, as well as an attentional focus (i.e., characteristics presented in every event surveyed) represent to some extent a ritualistic form of participation (Collins, 2004), where emotions, as well as emotional processes, have an important role.

Conclusion

At first glance, attending to an interactive play, concert or roundtable might be seen as intrinsically different from actively participating in a ritual such as marching in synchrony during several hours (i.e., *Danborrada*, every January in Donostia/San Sebastian), or walking in the fire (i.e., *Fiestas de San Juan*, in the summer solstice in San Pedro Manrique). Nevertheless, all of these can be considered as well as different forms of collective ritualized behaviour (Collins, 2004; von Scheve, 2011), with similar processes and effects (see Páez et al., 2015), where the subjective perception of convergence in feelings and emotions plays a pivotal role. Indeed, PES is a processes that is present in a large variety of collective gatherings and rituals, and as in the case of different previous studies, it has the power to explain both individual-level variables (i.e., increases of psychological well-being and particular emotions) as well as group-level (i.e., common identities).

The two studies presented here show that, in the context of the celebration of the Capital of Culture in Donostia/San Sebastian, emotions are constantly shared, and vary across the different axes of the project through time (S1). Even though the particular cause may differ (e.g., amount and characteristics of the events within each

Lighthouse), the indirect methods to analyse emotions surrounding different events (i.e., a lexicon-based approach; see Mohammad & Turney, 2010) inform about the emotional climate that is present and that will intervene –among others– in the valence of the emotions that can be felt, as well as the importance of controlling for these effects for statistical purposes (i.e., the inclusion of the Lighthouse of peace in S2). On the other hand, analyses of self-reported measures concerning a wide variety of collective gatherings (S2) show that the mere fact of attending does not necessarily brings about psychosocial outcomes, but it is the PES (i.e., in this case) the mechanism that facilitates them. Among the results, PES contributes in enhancing both Emotions and Psychological Well-being (individually), and common social identities, and a more positive perception of respect in the society.

These results contribute in suggesting that emotional dynamics are present, shape and facilitate different social outcomes from collective gatherings and rituals. They contribute in facilitating group forming- and enhancing-processes (Durkheim, 1912/1995; Collins, 2004; Hobson et al., 2018; Watson-Jones & Legare, 2016), and also, many outcomes can transcend to more ample social systems (Bronfenbrenner, 1979), such as the collective identities and a more positive evaluation of the society. I do not intend to rest importance to other specific psychological processes that might intervene in these collective gatherings (i.e., shared flow), but to reinforce the idea that PES is a central one.

Finally, these results also reinforce the hypothesis of graduation of ritualistic behaviour (e.g., Collins, 2004; von Scheve, 2011), with an emphasis on the role of the emotions lived in them.

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Study 5

The Mediating Role of Shared Flow and Perceived Emotional Synchrony on Compassion for Others in a Mindful Dancing Program

Study Information

Collaboration

This study has been designed and conducted with the collaboration of Nekane Basabe, Alberto Amutio-Kareaga, Saioa Telletxea and Miren Harizmendi (UPV/EHU), and William Van Gordon (Human Sciences Research Centre, University of Derby, UK).

Status

This represents a pre-copy-edited version of the manuscript currently available in *Mindfulness* (ref: Pizarro, Basabe et al., 2018).

Abstract

While there is a growing understanding of the relationship between mindfulness and compassion, this largely relates to the form of mindfulness employed in first-generation mindfulness-based interventions such as Mindfulness-Based Stress Reduction. Consequently, there is limited knowledge of the relationship between mindfulness and compassion in respect of the type of mindfulness employed in second-generation mindfulness-based interventions (SG-MBIs), including those that employ the principle of working harmoniously as a ‘secular sangha’. Understanding this relationship is important because research indicates that perceived emotional synchrony (PES) and shared flow – that often arise during participation in harmonised group contemplative activities – can enhance outcomes relating to compassion, subjective well-being, and group identity fusion. This pilot study analysed the effects of participation in a mindful dancing SG-MBI on compassion and investigated the mediating role of shared flow and PES. A total of 130 participants were enrolled into the study that followed a quasi-experimental design with an intervention and control group. Results confirmed the salutary effect of participating in a collective mindful-dancing program, and demonstrated that shared flow and PES fully mediated the effects of collective mindfulness on the *kindness* and *common humanity* dimensions of compassion. Further research is warranted to explore whether collective mindfulness approaches, such as mindful dancing, may be a means of enhancing compassion and subjective wellbeing outcomes due to the mediating role of PES and shared flow.

Keywords: Mindful dancing, Second-generation mindfulness-based interventions, Compassion, Shared flow, Perceived emotional synchrony, Well-being.

Studies of mindfulness and compassion have largely focussed on the form of mindfulness employed in first-generation mindfulness-based interventions (FG-MBIs) such as Mindfulness-Based Stress Reduction (Shonin et al., 2015; Van Gordon et al., 2015a). However, in recent years, a novel interventional approach to mindfulness, known as second-generation mindfulness-based interventions (SG-MBIs), has been formulated and empirically investigated (Van Gordon et al., 2015a). Relative to FG-MBIs, SG-MBIs teach mindfulness in a manner that is still secular but that makes greater use of the practices and principles that are traditionally understood to underlie effective and authentic mindfulness practice. More specifically, SG-MBIs differ from FG-MBIs because they (i) are overtly psycho-spiritual (but still secular) in nature, (ii) explicitly teach ethics as a component of mindfulness practice, (iii) employ an active rather than non-judgemental form of mindful awareness, (iv) teach mindfulness in conjunction with other meditative practices and principles (e.g., loving-kindness, compassion meditation, investigative/emptiness meditation), and (v) acknowledge the importance of support from, and harmonious practice with, other mindfulness practitioners (sometimes referred to as a ‘Sangha’ of practitioners in traditional meditation texts) (for a detailed overview of SG-MBIs, see Van Gordon et al. 2015a). Some examples of SG-MBIs include the eight-week Meditation Awareness Training intervention (Van Gordon et al., 2014) as well as Mindfulness-Based Positive Behavior Support (Singh et al., 2014).

In FG-MBIs, mindfulness is often depicted as a purely intrapersonal practice, and yet, interconnectedness and compassion as living beings is a central tenet of the wisdom traditions that inform mindfulness practice (de Sousa and Shapiro, 2018; Shonin et al. 2014). Although, FG-MBIs acknowledge the importance of interconnectedness and compassion as a facet of mindfulness (Shonin

et al. 2017), there is limited understanding of the relationship between mindfulness and compassion in FG-MBIs, including those that employ the principle of working harmoniously as a ‘secular sangha’ (Van Gordon et al., 2015a). ‘Sangha’ refers to the community of meditation practitioners who ‘walk together’ on the path of mindful awareness (Van Gordon et al., 2018a). According to Nhat Hanh (1999), when a group of individuals practice together in harmony and awareness (including even for a short period of time), they embody the principles and meaning of a Sangha. Nhat Hanh (1999) asserted that harmonious contemplative practice as a Sangha can help individuals elicit greater levels of awareness and insight compared to practising as an individual (or to practicing as a group of individuals that do not embody the principles of collective mindfulness practice).

Movement has always been an important part of traditional contemplative practices (Nhat Hanh, 1999). Indeed, preliminary studies offer insight into the benefits of mindful movement that is understood to help individuals maintain mindful awareness in work, family, and leisure time contexts (de Sousa and Shapiro, 2018). In particular, mindful dancing is a creative form of mindfulness practice that can foster a sense of equanimity, interconnectedness, heartfulness, and bodily presence (de Sousa and Shapiro, 2018). Some applications of dance to mindfulness include *Dancing Mindfulness* (Marich and Howell 2015) and *Dancing Movement Therapy (DMT)* (Bräuninger 2014). Mindful dancing is understood to not only enhance awareness of what is happening to and within the individual’s body, but to also enhance awareness of energetic exchange between bodies within the same space as well as nonverbal forms of communication such as group synchronization (Bräuninger, 2014; Marich and Howell, 2015). Indeed, the use of music and dance for bonding in groups larger than nuclear families is understood to have been a significant discovery made by our remote ancestors (Woolhouse and Tidhar 2010).

Empirically evaluating the benefits and applications of an SG-MBI approach to mindful dancing would help to advance scientific understanding of the mechanisms of action that are thought to underlie salutary changes elicited by these techniques. In particular, there is a need to confirm the mechanistic role of perceived emotional synchrony (PES) and shared flow, which have both been posited as key beneficial processes that are active during participation in harmonized group contemplative activities (Amutio et al., 2018; Yaden et al., 2017). More specifically, it is understood that during collective gatherings and rituals, participants' focused attention in shared coordinated behaviors (e.g., moving) and expressive gestures (e.g., dancing together with synchronized movements) can lead to a shared experience of flow. Shared flow facilitates focused attention in the here and now, behavioural synchrony, and a positive communal emotional state. According to Csíkszentmihályi (1996), collective gatherings that are inclined towards eliciting shared flow constitute "affordances that a society offers to its members in order to allow them to meet optimal experiences under socially desirable forms" (p. 432). While flow has traditionally been studied from the perspective of the individual's experience (Jackson and Csíkszentmihályi, 1999), in recent years research into optimal experiences has started to embrace the concept of shared or collective flow (Magyaródi and Oláh, 2015; Salanova et al., 2014; Walker 2010). Shared flow is a positive communal emotional state and its construct validity has been validated in collective leisure, physical-sport activities, and folkloric macro-rituals (Zumeta et al. 2016a, 2016b).

Shared flow links to perceived emotional synchrony (PES) because sharing a common focus of attention, synchronization of behaviors, and mutual stimulation can give rise to emotional consonance (Collins, 2004). In this sense, PES has been defined as a sense of emotional connection, emotional fusion and reciprocal compassion that arises as the result of the collective emotional

stimulation generated during group emotional gatherings (Páez et al., 2015). Experimental manipulations of synchrony—from finger tapping, dancing, to full-body marching and stomping—have been shown to increase group-affiliation (Hove and Risen 2009), compassion (Valdesolo and DeSteno, 2011), cooperation (Wiltermuth and Heath 2009), and team performance (Davis et al., 2015), especially when group synchrony is part of the goal (Reddish et al., 2013).

In the context of shared flow and PES, collective gatherings can foster intense emotional experiences that generate compassionate connection between participants (Van Cappellen and Rimé, 2014) and reinforce social networks (Rimé 2011). Although a collective gathering might be devoid of direct instrumental purpose, they have a purpose or meaning for participants that is often related to compassionate self-transcendence and/or spirituality (Hobson et al., 2017; Simkin and Piedmont, 2018). Social collective gatherings can be conceived of as frameworks of structured and norm-regulated interaction with repetitive and stereotyped sequences or behaviors. They arise within a given space and time frame, and elicit intra-group values (Collins, 2004; Hobson et al., 2017).

Previous studies on both secular and religious collective gatherings have shown a positive relationship between shared flow, PES, and transcendent emotions, including compassion (Páez et al., 2015; Zumeta et al., 2016a). Furthermore, a recent study showed that participation in an eating-based collective gathering attended by different ethnic families resulted in improvements in subjective wellbeing (SWB) including an improved sense of gratitude, hope, optimism, inspiration, love or closeness to other people in general, and social and spiritual connection towards group members (Zumeta, 2017). Another study showed that participation in a Zen Buddhist retreat or Catholic mass elicited an experience of shared flow, and activated emotions of calm and serenity when compared with a

secular Sunday group activity (Rufi et al., 2015). In line with these findings, de Rivera and Carson (2015) argue that reflecting on humanitarian principles in a group gathering could promote a sense of both group and global identity, as well as compassionate intentions towards humanity.

A range of studies have shown the salutary psychosocial effects of participating in collective gatherings including (for example) social and religious ceremonies (Páez et al., 2017; Xygalatas et al., 2013), everyday secular collective gatherings (Páez et al., 2015), harmonized family celebrations (Kiser et al. 2005), commemorations (Collins, 2004), and demonstrations (Włodarczyk et al., 2016). Furthermore, previous studies have reported the effects of shared flow and PES on individual, collective and symbolic levels, highlighting their mediating role on the positive effects relating to participation in collective gatherings. Examples of such positive effects include increases in SWB, collective efficacy, identity fusion, in-group solidarity, social integration, and beliefs of transcendence (Páez et al., 2018; Zumeta et al., 2016a, 2016b).

Collective gatherings may fuel fusion of identity with others members of the group. Identity fusion is the feeling of oneness with the group, associated with highly permeable borders between the personal and the social self (Swann et al., 2012). This blurring of boundaries between the personal and the collective self can encourage people to channel their personal agency into group behaviors, raising the possibility that the personal and social self will combine synergistically to motivate compassionate group behaviors (Gómez et al., 2011; Swann et al., 2012). For example, a study focusing on shared physical activities such as dancing and marching demonstrated the importance of group identification in its different forms (in-group identification and fusion with the group), and well as the likely role of perceived emotional synchrony and shared flow as predictors of group effects (Zumeta et al., 2016b).

Notwithstanding the aforementioned findings, there remains limited evidence supporting the positive effects of self-transcendent experiences in collective gatherings. Furthermore, although an increasing number of studies have explored the synergy between mindfulness and compassion, no studies have explored this synergy using SG-MBIs that embrace the principles of fostering group harmony and support through ‘sangha-based’ ideals. Likewise, ‘dance’ has not been incorporated into mindfulness-based interventions as a form of mindful movement. In addition, it should be noted that empirical studies have tended to focus on the use of mindfulness for cultivating self-compassion as opposed to more other-focused forms of compassion (Amutio et al., 2018; Lindahl et al., 2017).

Accordingly, the present pilot study sought to address this knowledge gap by exploring the effects of participation in a newly-designed SG-MBI mindfulness-dancing program on compassion, identity fusion, and SWB, including investigating whether shared flow and PES exert a mediating influence. The following hypotheses were formulated: *H1*: Participation in a SG-MBI mindful dancing collective gathering will increase compassion for others (CFO), Identity Fusion, and SWB versus an inactive control condition. *H2*: Shared flow and PES will mediate the effects of participation in the intervention on CFO, Identity Fusion, and SWB.

Method

Participants

A total of 130 students from a university in Spain agreed to participate in the study, of which 67 comprised the intervention group, 44 comprised an inactive control group, and 19 were excluded from the study due to not providing post-intervention assessment data. The intervention group participants were recruited from a class

of students who had enrolled to partake in a "mindful dancing" exercise. Recruitment was by way of class- and programme-level announcements inviting students to sign up in the study. Individuals in the control group were selected from a demographically-matched group of university students completing the same university programme. Randomisation was not employed because some students (i.e., those in the control group) were unavailable to attend the mindful dancing class due to pre-planned commitments (but had expressed an interest in doing so at a later time point). Participants of both groups were from the same year of study and there were no significant differences in age ($t_{(109)} = -0.174, p = .862$), sex ($\chi^2 = .727, p = .394$), or any of the outcome variables used in this study (all $p > .05$). The final sample comprised 111 participants aged between 18 and 34 ($M = 20.26, SD = 2.45$; of which 79% were female). None of the participants had previous experience of mindfulness or similar techniques. The final sample satisfied the requirements of a sample size estimate (conducted using G*Power software; Faul et al. 2009) which indicated that 88 participants would be required to obtain an effect size (Cohen's d) of .80, medium Pearson's correlation of .30 (using the brief measure of CFO as criterion variable), an α of .05, and a power ($1-\beta$) of .90.

Procedure

Participants in the mindful dancing group received the intervention described below. Both the intervention and control group completed a battery of psychometric scales one week before the intervention (T1), and one week following the intervention (T3). In the case of the intervention group, they also completed an additional evaluation, immediately after they finished the intervention (T2). The control group was offered a workshop on relaxation once the study was completed. Ethical approval was

provided by the research ethics committee of the researchers' academic institution.

Intervention.

Every participant in the intervention group was given a numerical code and was randomly assigned to one of four (identical) SG-MBI mindful dancing sub-groups (16-17 participants per group) through the SPSS 25.0 program. Randomisation was employed to minimize bias due to a dynamic caused by groups of friends electing to join the same intervention sub-group. All sessions were led by a licensed psychologist with more than six years of experience in meditation teaching. The sessions were held in a gym and comprised guided mindfulness exercises accompanied by music. Participants were guided to work synchronously as a group and perform a series of movements that consisted of (for example) mindfully extending and contracting the arm and legs (right side of the body first) while following the rhythm of music for the Karunesh Heart Chakra Meditation played using a CD player. The *Heart Chakra Meditation* is an active mindfulness exercise based on an ancient traditional Sufi dance. It is a basic exercise involving sustained simple focus on a series of coordinated body-movements, while following both the breath in and out as well as the rhythm of the music. After three series of movement (each of seven minutes of duration), participants return to a base position (standing with their legs together and with both hands placed in the center of their chest), while remaining aware of the natural flow of their breath.

All movements were synchronised in the four cardinal points creating a harmonious feeling of "belonging to a whole". In order to execute the exercises in a manner conducive to the cultivation of shared flow, the following conditions were implemented as much as possible: i) adequate space between participants such that they could move their body in all directions; ii) standing in a comfortable position with the eyes open but relaxed; iii) movements of the body

synchronised with the rhythm of the in-breath and out-breath; iv) movements of the body and breathing synchronised with the rhythm of the music; v) each participant's movements synchronised with the movements of each other participant in the group.

At the end of the mindful dancing exercise the whole group sat in a circle, closed their eyes and relaxed for a few minutes. The session was then terminated and participants answered the psychometric tests (i.e., T2). The entire session lasted for approximately 45 minutes and both the evaluation after the activity, as well as the feedback, were standardized and supervised by a researcher of this study in order to ensure that the implementation was the same across the four intervention sub-groups.

Measures

Compassion for Others Scale (Spanish-validated version; CFO-S; Amutio et al., 2018). The CFO-S comprises 16 items and evaluates relational compassion. The scale is based on previous work by Neff (2003), Neff and Pommier (2013), and employs the following three of the six dimensions of Pommier's Compassion Scale (2010): "Kindness" (e.g., "I like to be there for others in times of difficulty"), "Common Humanity" (e.g., "It is important to recognize that all people have weaknesses and no one is perfect"), and "Mindfulness" (e.g., "I pay careful attention when other people talk to me."). Additionally, the scale expands the compassion conceptualization by taking into account the relational and love aspects of compassion (Hacker, 2008; Sprecher and Fehr, 2005), as well as a fourth dimension relating to "Non-Judgemental Forgiveness" (e.g., "I try not to criticize the weaknesses or mistakes of others"). Each item is scored from 1 (almost never) to 5 (almost always). The scales' construct validity was estimated in a previous cross-cultural study (Amutio et al., 2018). In this study, omega indexes of reliability (Zinbarg et al., 2006) were .879 (for the total scale), and .818, .808,

.653, and .757, for each dimension, respectively. Second order factorial analysis for CFO-S was performed in this sample ($CFI = .914$, $RMSEA = .071$ [.04, .09]).

Compassion for Others (brief measure of CFO-S). A brief version of the scale was completed by the intervention group only immediately completion of the mindful dancing session. The scale comprised five items that were selected by three expert judges and that represented the same four dimensions as the complete CFO-S. The omega index was .795.

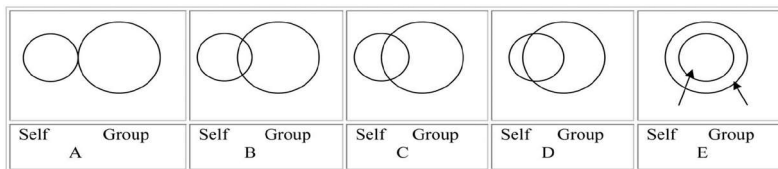


Figure 1. Item example for Identity Fusion (adapted from Swann et al. 2009).

Identity Fusion. A pictographic measure was used twice to assess identity fusion with classmates and with people in general (see Figure 1). The main instruction was: “Please select the drawing that best describes your relationship with your class group / people in general”. This instrument was based on a pictorial measure that was originally developed by Aron and colleagues (1992), and tested by Swann and colleagues (2009). The measure comprises five drawings that each has two circles corresponding to ‘self’ and ‘group’. Scores range from one to five and a greater degree of overlap between the two circles corresponds to a greater level of identity fusion (i.e., as well as a higher score). The measure has been used in previous studies of collective gatherings (Páez et al., 2015; Zumeta et al., 2016a, 2016b).

Subjective Wellbeing - SWB (The Pemberton Happiness Index (PHI, Hervas and Vázquez, 2013). The scale is composed of 11 items measuring three dimensions of wellbeing (general, hedonic, and eudaimonic). Reliability and validity have been confirmed in more

than 15 countries. For the purposes of this study, a single item measuring vitality was selected from the Spanish-validated version of the scale (“I have the energy to accomplish my daily tasks”).

Level of Involvement (Páez et al., 2015). In order to assess acceptability of the new intervention, participants in the intervention group were asked to evaluate their involvement in the activity in respect of the following four aspects: importance, intensity, satisfaction, and involvement (e.g., “How intense was your participation in the activity?”). The scale consists of 4 items scored from 1 (not at all) to 7 (very much). The omega index was .933.

Shared Flow short form (Zumeta et al., 2016a, 2016b). The 9-item short-form version of the scale was used in the current study. On a 7-point Likert scale (from 1 = never, to 7 = always), participants were required to indicate their agreement with sentences that evaluated the subjective perception of collective immersion in the task (e.g., “We were totally centered in what we were doing”). The omega index was .823.

Perceived Emotional Synchrony short form (PES; Páez et al., 2015). Perceived emotional synchrony using the PES has been analyzed in collective gatherings showing good reliability and predictive validity (Páez et al., 2015; Zumeta et al., 2016a). For the current study, a short-form version comprising five items was used. Participants evaluated how much they experienced a condition of emotional effervescence (e.g., “We all felt a strong emotion”) using a Likert scale from 1 (not at all) to 7 (all of the time). The omega index was .943.

Reliability indexes (Cronbach’s alphas) for all the instruments in this study were acceptable and are shown in Table 1.

Statistical Analyses

In order to analyse the CFO scale’s factorial structure, CFA was carried out via the *lavaan* package (Roseel, 2012) in R (R

Development Core Team, 2012; Team, 2015), using a robust estimation (Satorra and Bentler, 2010) along with omega reliability indexes (*semTools* package in R; Jorgensen et al., 2018). Also, Chronbach's alphas and correlations, ANOVAs, Student's *t* tests, as well as their respective effect sizes (partial eta squares and Cohen's *d*, for ANOVAs and *t*-tests, respectively) were calculated using SPSS 25.0 (IBM Corp., 2017). For mediational analyses, PROCESS macro for SPSS was used (Hayes, 2013) to test the indirect effect of shared flow and PES on the criterion variables (model 4). Standard errors and confidence intervals were based on a bootstrap sampling (5000) distribution.

Results

Reliability indexes (Cronbach's alphas), descriptive statistics (means and standard deviations) and correlations between the variables under study are reported in Table 1 (for descriptive analyses at every evaluation point, see Table 2). There were positive and strong relationships between compassion (total measure), the specific dimensions of compassion ($r_s > .74$), and the brief form ($r = .59$), but no association with identity fusion measures or subjective wellbeing. Furthermore, compassion (total) and the dimensions of *Kindness* and *Mindfulness* correlated positively with quality of participation (involvement), shared flow and PES. *Non-Judgemental Forgiveness* and *Common Humanity* were related positively to shared flow, and all of the dimensions of compassion correlated with PES, except for *Non-judgemental Forgiveness*.

Repeated measures ANOVAs were carried out to evaluate between-group differences in pre (T1) and post-intervention (T3). No significant differences were found between the experimental and control groups at pre-test in any of the study variables ($ps > .05$). Regarding compassion measures (*HI*), there were no significant interaction effects on levels of *Compassion* (Total) between group

conditions ($F_{(1, 109)} = .651, p = .422, \eta_p^2 = .006$). There were likewise no significant differences for any of the dimensions *Kindness* ($F_{(1, 109)} = 1.495, p = .224, \eta_p^2 = .014$), *Common Humanity* ($F_{(1, 109)} = 0.016, p = .899, \eta_p^2 < .001$), and *Non-Judgemental Forgiveness* ($F_{(1, 109)} = 0.408, p = .524, \eta_p^2 = .004$). However, there was a significant effect of the intervention on *Mindfulness* ($F_{(1, 109)} = 4.277, p = .041, \eta_p^2 = .038$; see Figure 2), with a significant post-test increase in the experimental group ($t_{(66)} = -3.245, p = .002; d = 0.489$), while there were no changes in the control group ($t_{(43)} = 0.268, p = .790; d = 0.052$). Finally, there were no significant interaction effects between allocation conditions on *Identity Fusion* with classmates ($F_{(1, 109)} = 1.141, p = .288, \eta_p^2 = .010$) or with people in general ($F_{(1, 109)} = 2.249, p = .137, \eta_p^2 = .020$), nor with SWB ($F_{(1, 109)} = 0.116, p = .735, \eta_p^2 = .001$), so hypothesis 1 was partially supported.

To assess the maintenance and development of effects of mindful dancing between T2 and T3, several analyses of repeated measures were conducted for the intervention group. Firstly, the analysis showed a quadratic effect for *Compassion* (Brief) ($F_{quadratic(1, 66)} = 16.395, p < .001, \eta_p^2 = .199$; see figure 3) which increased from T1 to T2 ($t_{(66)} = -4.354, p < .001; d = 0.532$) and changed significantly from T2 to T3 ($t_{(66)} = 2.891, p = .005; d = 0.353$). Furthermore, the level of *Compassion* in T3 remained significantly greater than at T1 ($t_{(66)} = -2.256, p = .027; d = 0.276$; $M_{T1} = 4.20, SD_{T1} = 0.43$; $M_{T2} = 4.44, SD_{T2} = 0.50$; $M_{T3} = 4.30, SD_{T3} = 0.45$).

Table 1. Descriptive statistics, reliabilities and correlations between variables under study.

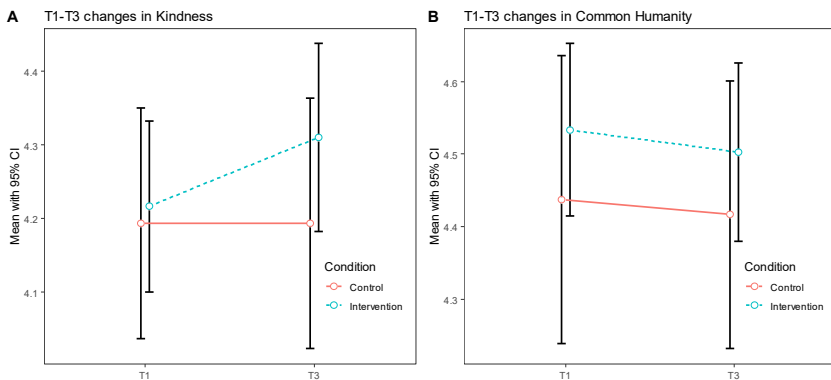
Variables	M(SD)	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CFO (total)	4.25(0.41)	.876	-													
2. Kindness	4.26(0.54)	.814	.854**	-												
3. Common Humanity	4.47(0.55)	.773	.740**	.493**	-											
4. Mindfulness	4.31(0.42)	.643	.750**	.625**	.352**	-										
5. Not Judge-Forgiveness	3.95(0.56)	.734	.808**	.578**	.440**	.493**	-									
6. CFO (brief)	4.44(0.50)	.761	.598**	.651**	.438**	.355**	.422**	-								
7. ID fusion Class	3.81(0.96)	-	-.001	-.035	-.014	.106	-.036	.175	-							
8. People	3.30(0.88)	-	.097	.169	-.005	.122	.033	.054	.510**	-						
9. SWB	7.39(1.73)	-	.170	.175	.133	.025	.178	.011	.236*	.403**	-					
10. Level of Involvement ¹	5.07(1.26)	.936	.325**	.366**	.212	.241*	.207	.187	.036	.065	.028	-				
11. Shared Flow ¹	4.97(0.99)	.826	.448**	.495**	.389**	.279*	.251*	.477**	-.015	.060	.084	.557**	-			
12. PES ¹	3.76(1.55)	.942	.371**	.423**	.274*	.342**	.155	.205	.011	.045	-.009	.711**	.627**	-		
13. Identity fusion Class ¹	3.78(0.97)	-	.030	-.010	-.083	.225	.011	.083	.740**	.518**	.062	.210	.063	.121	-	
14. People ¹	3.42(0.96)	-	.010	.037	-.029	-.005	.025	-.017	.222	.724**	.298*	-.014	-.094	.009	.397**	-

Note. ¹ Time 2 (T2) measures (immediately after having finished the ritual). For all the rest, alphas are post measures (omega indexes are included in the description of the scales). CFO = Compassion For Others. SWB = Subjective Well-Being. PES = Perceived Emotional Synchrony. *, $p < .05$, **, $p < .01$.

Table 2. Descriptive analyses for T1, T2 and T3 between conditions.

Variables	Means (Standard Deviations)				
	Intervention group (<i>n</i> = 67)			Control group (<i>n</i> = 44)	
	T1	T2	T3	T1	T3
CFO (total)	4.21(0.34)	-	4.29(0.39)	4.16(0.40)	4.18(0.43)
Kindness	4.22(0.47)	-	4.31(0.52)	4.19(0.51)	4.19(0.56)
Common Humanity	4.53(0.49)	-	4.50(0.50)	4.44(0.65)	4.42(0.61)
Mindful.	4.21(0.39)	-	4.35(0.40)	4.25(0.38)	4.23(0.43)
Non-Judgem.	3.88(0.47)	-	3.98(0.54)	3.74(0.52)	3.90(0.59)
Forgive.					
Brief version	4.19(0.43)	4.44(0.49)	4.29(0.45)	4.16(0.48)	4.17(0.43)
ID fusion Class	4.00(0.97)	3.96(0.93)	4.00(0.90)	3.29(0.85)	3.11(0.84)
People	3.43(0.86)	3.63(0.98)	3.43(0.89)	3.30(0.85)	3.11(0.84)
SWB	7.36(1.89)	8.00(1.46)	7.55(1.75)	6.84(2.15)	7.14(1.69)
Level of Involvement	-	5.07(1.26)	-	-	-
Shared Flow	-	4.97(0.99)	-	-	-
PES	-	3.76(1.55)	-	-	-

Note. Time 2 (T2) measures (immediately after having finished the activity) only in the Intervention group. CFO = Compassion For Others. SWB = Subjective Well-Being. PES = Perceived Emotional Synchrony. *, $p < .05$, **, $p < .01$.



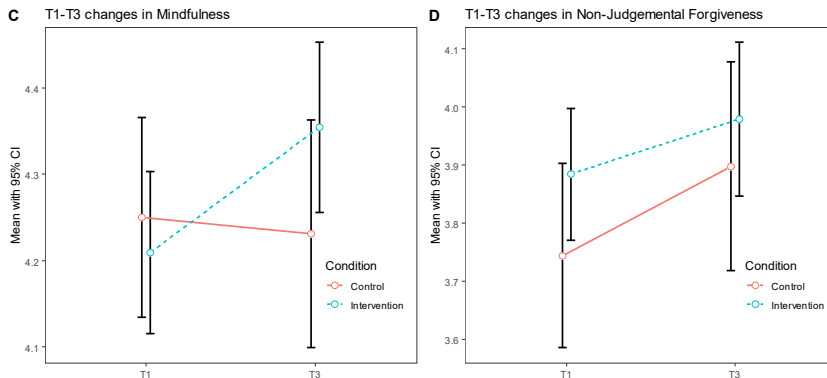


Figure 2. Changes from T1 to T3 in CFO dimensions of Kindness (A), Common Humanity (B), Mindfulness (C), and Non-Judgemental Forgiveness (D), between the two conditions.

Fusion with people also had a quadratic effect ($F_{quadratic} (1, 66) = 5.648, p = .020, \eta_p^2 = .079$) and increased from T1 to T2 ($t_{(66)} = -2.028, p = .047; d = 0.248$) but decreased from T2 to T3 ($t_{(66)} = 2.264, p = .027; d = 0.277; M_{T1} = 3.38, SD_{T1} = 0.85; M_{T2} = 3.63, SD_{T2} = 0.98; M_{T3} = 3.31, SD_{T3} = 0.88$). There were no differences between T1 to T3 ($t_{(66)} = 1.209, p = .229; d = 0.083$). In the case of *Fusion with the class group*, there were no quadratic effects ($F_{quadratic} (1, 66) = .330, p = .568, \eta_p^2 = .005$). Finally, a quadratic effect was also shown for *SWB* ($F_{quadratic} (1, 66) = 8.529, p = .005, \eta_p^2 = .114$; figure 3). More specifically, results showed a significant increase in the intervention group from T1 to T2 ($t_{(66)} = -2.855, p = .006; d = 0.381$) and a decrease from T2 to T3 ($t_{(66)} = 2.459, p = .017; d = 0.279; M_{T1} = 7.36, SD_{T1} = 1.89; M_{T2} = 8.00, SD_{T2} = 1.46; M_{T3} = 7.39, SD_{T3} = 1.73$). There were no significant differences between T1 and T3 ($t_{(66)} = -1.612, p = .110; d = 0.016$), although scores were higher after the participation in the program (see Figure 3).

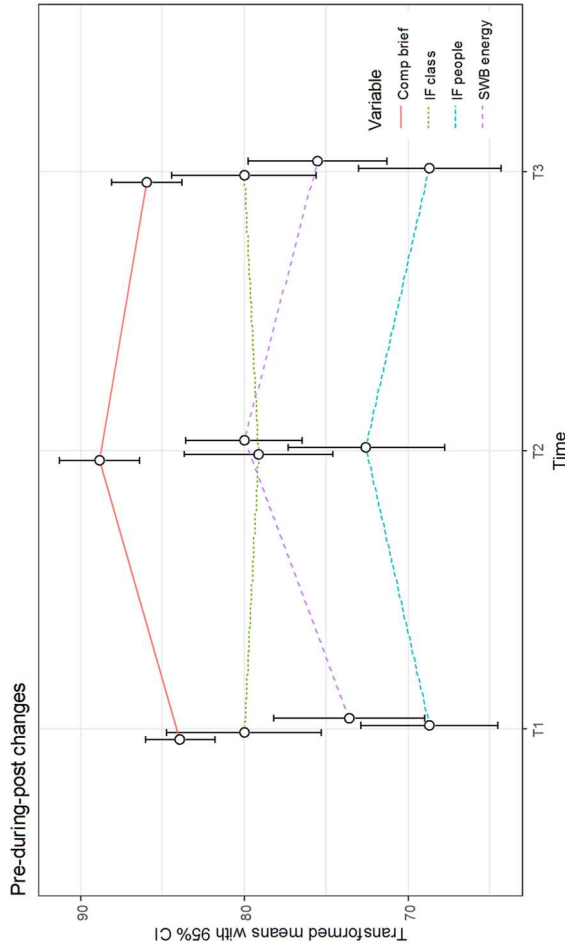


Figure 3. Changes from T1 to T2 and T3 in CFO (brief), Identity Fusion with people in general and the class group, and SWB in the intervention group ($n = 67$). All the scores are transformed to a 0-100 scale.

Mediation analyses were conducted to evaluate the direct and indirect effects on CFO and its dimensions ($H2$). The theoretical model is shown in Figure 4. The model predicted that greater participation (i.e., greater involvement) in the SG-MBI mindful dancing collective gathering increases compassion through Shared

Flow (left side) and PES (right side) while controlling for compassion at T1. In the case of *Shared Flow* (see Table 3), results showed a full mediation effect on *Compassion* (total scale) ($B = .172, SE = .084$ [.030, .368]). For the *Kindness* and *Common Humanity* dimensions, there were full mediation effects of Shared Flow ($B = .1734 SE = .0910$ [.0102, .3703]; $B = .169, SE = .721$ [.051, .335], respectively), but there were no significant effects for *Mindfulness* or *Non-Judgemental-Forgiveness* ($B = .015, SE = .022$ [-.019, .070]; $B = .070, SE = .043$ [-.007, .162], respectively).

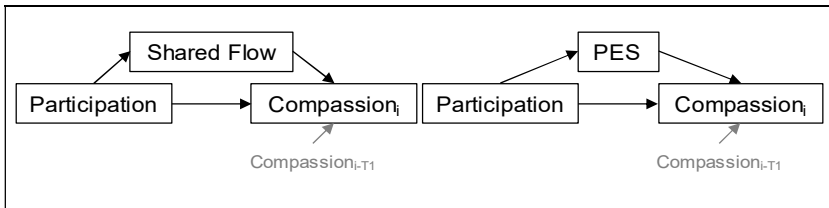


Figure 4. Theoretical model of the effects of the participation in the mindfulness collective ritual on CFO through Shared Flow (left) and PES (right).

Table 3. Effects of Participation in the SG-MBI mindful dancing collective gathering on CFO and its dimensions mediated by Shared Flow.

Antecedent		Effects on Shared Flow (M)			Effects on Compassion Total			
		Coeff.	SE	p	Coeff.	SE	p	
Participation (X)	a	0.388	0.089	< .001	c'	-0.030	0.033	.365
Shared Flow (M)		--	--	--	b	0.106	0.041	.012
Pre (T_1)	p_{1Y}	0.447	0.327	.171	p_{2Y}	0.741	0.107	< .001
constant	i_1	1.123	1.265	.378	i_2	3.824	0.190	< .001
$R^2 = 0.330$				$R^2 = 0.553$				
$F(2, 63) = 15.508$				$F(3, 62) = 25.524$				
Antecedent		Effects on Shared Flow (M)			Effects on Kindness			
Participation (X)	a	0.384	0.085	< .001	c'	0.003	0.038	.943
Shared Flow (M)		--	--	--	b	0.126	0.050	.013

Pre (Y_{T1})	p_{1Y}	0.440	0.226	.056	p_{2Y}	0.750	0.091	< .001
constant	i_1	1.172	0.911	.203	i_2	0.504	0.363	.170
$R^2 = 0.349$				$R^2 = 0.643$				
$F(2, 63) = 16.904$				$F(3, 62) = 37.234$				
Effects on Shared Flow (M)				Effects on Common Humanity				
Antecedent		Coeff.	SE	p		Coeff.	SE	p
Participation (X)	a	0.401	0.085	< .001	c'	-0.046	0.044	.301
Shared Flow (M)		--	--	--	b	0.132	0.057	.023
Pre (Y_{T1})	p_{1Y}	0.332	0.218	.134	p_{2Y}	0.646	0.100	< .001
constant	i_1	1.437	0.961	.140	i_2	1.153	0.440	.011
$R^2 = 0.334$				$R^2 = 0.493$				
$F(2, 63) = 15.829$				$F(3, 62) = 20.094$				
Effects on Shared Flow (M)				Effects on Mindfulness				
Antecedent		Coeff.	SE	p		Coeff.	SE	p
Participation (X)	a	0.405	0.084	< .001	c'	0.015	0.040	.713
Shared Flow (M)		--	--	--	b	0.039	0.052	.452
Pre (Y_{T1})	p_{1Y}	0.417	0.273	.132	p_{2Y}	0.546	0.114	< .001
constant	i_1	1.164	1.121	.303	i_2	1.782	0.464	< .001
$R^2 = 0.335$				$R^2 = 0.333$				
$F(2, 63) = 15.845$				$F(3, 62) = 10.315$				
Effects on Shared Flow (M)				Effects on Not-Judge Forgiveness				
Antecedent		Coeff.	SE	p		Coeff.	SE	p
Participation (X)	a	0.468	0.087	< .001	c'	-0.068	0.056	.230
Shared Flow (M)		--	--	--	b	0.151	0.067	.029
Pre (Y_{T1})	p_1	-0.230	0.239	.338	p_2	0.670	0.128	< .001
constant	i_1	3.491	0.879	< .001	i_2	0.965	0.521	.069
$R^2 = 0.320$				$R^2 = 0.355$				
$F(2, 63) = 14.834$				$F(3, 62) = 11.373$				

Note. All F s, $p < .001$. Coeff.= coefficient of the model; SE = standard error. Lower case letters represent the paths of each equation: a = effect from the independent variable to the mediator; b = effect from the mediator to the dependent variable; c' = direct effect from the independent variable to the dependent variable; p = effect from the pre-measure of the dependent variable (control); I = constant of the equation.

Table 4. Effects of Participation in the SG-MBI mindful dancing collective gathering on CFO and its dimensions mediated by PES.

Antecedent		Effects on PES (M)			Effects on Compassion Total			
		Coeff.	SE	p	Coeff.	SE	p	
Participation (X)	a	0.849	0.120	< .001	c'	0.995	0.423	.022
PES (M)		--	--	--	b	0.054	0.031	.088
Pre (Y_{T1})	p_{1Y}	0.239	0.441	.590	p_{2Y}	0.775	0.109	< .001
constant	i_1	-1.563	1.702	.362	i_2	0.995	0.423	.022

R ² = 0.506 F(2, 63) = 32.261					R ² = 0.527 F(3, 62) = 23.010				
Antecedent		Effects on PES (M)			Effects on Kindness				
		Coeff.	SE	p	Coeff.	SE	p		
Participation (X)	a	0.817	0.114	< .001	c'	0.013	0.047	.782	
PES (M)		--	--	--	b	0.047	0.038	.226	
Pre (Y _{T1})	p _{1Y}	0.475	0.303	.122	p _{2Y}	0.784	0.094	< .001	
constant	i ₁	-2.398	1.224	.055	i ₂	0.765	0.383	.050	
R ² = 0.522 F(2, 63) = 34.436					R ² = 0.615 F(3, 62) = 32.994				
Antecedent		Effects on PES (M)			Effects on Common Humanity				
		Coeff.	SE	p	Coeff.	SE	p		
Participation (X)	a	0.875	0.114	< .001	c'	-0.063	0.099	< .001	
PES (M)		--	--	--	b	0.080	0.042	.064	
Pre (Y _{T1})	p _{1Y}	0.007	0.296	.982	p _{2Y}	0.689	0.099	< .001	
constant	i ₁	-0.720	1.302	.582	i ₂	1.399	0.439	.002	
R ² = 0.504 F(2, 63) = 31.966					R ² = 0.479 F(3, 62) = 18.977				
Antecedent		Effects on PES (M)			Effects on Mindfulness				
		Coeff.	SE	p	Coeff.	SE	p		
Participation (X)	a	0.837	0.112	< .001	c'	-0.078	0.047	.704	
PES (M)		--	--	--	b	0.058	0.038	.134	
Pre (Y _{pre})	p _{1Y}	0.484	0.365	.190	p _{2Y}	0.535	0.112	< .001	
constant	i ₁	-2.532	1.498	.096	i ₂	1.782	0.464	< .001	
R ² = 0.517 F(2, 63) = 33.732					R ² = 0.351 F(3, 62) = 11.168				
Antecedent		Effects on PES (M)			Effects on Not-Judge Forgiveness				
		Coeff.	SE	p	Coeff.	SE	p		
Participation (X)	a	0.923	0.116	< .001	c'	-0.032	0.068	.639	
PES (M)		--	--	--	b	0.038	0.052	.473	
Pre (Y _{T1})	p _{1Y}	-0.364	0.239	< .001	p _{2Y}	0.649	0.133	< .001	
constant	i ₁	0.480	1.165	.682	i ₂	1.472	0.483	.003	
R ² = 0.514 F(2, 63) = 33.301					R ² = 0.308 F(3, 62) = 9.193				

Note. All *F*s, *p* < .001. Coeff.= coefficient of the model; SE = standard error. Lower case letters represent the paths of each equation: *a* = effect from the independent variable to the mediator; *b* = effect from the mediator to the dependent variable; *c'* = direct effect from the independent variable to the dependent variable; *p* = effect from the pre-measure of the dependent variable (control); *I* = constant of the equation.

For *PES* (see Table 4), there was only a significant mediation effect on *Common Humanity* (*B* = .224, *SE* = .108 [.013, .439]). All other indirect effects were not significant (*Kindness*, *B* = .038, *SE* = .032 [-.019, .106], *Mindfulness*, *B* = .049, *SE* = .031 [-.007, .114], and

Non-Judgemental Forgiveness, $B = .035$, $SE = .055$ [-.077, .140]). In summary, *Shared Flow* was found to fully mediate the positive effect of participation in the intervention on the *Kindness* and *Common Humanity* dimensions of CFO. Furthermore, *PES* was found to fully mediate the positive effects of intervention on the *Common Humanity* dimension of CFO. No significant mediation effects were found for *Identity Fusion* or *SWB* and, therefore, hypothesis 2 was partially supported.

Discussion

The current quasi-experimental pilot study found that compared to a control condition, adults that participated in the SG-MBI mindful dancing collective gathering demonstrated significant improvements in the mindfulness dimension of Compassion for Others that were maintained one week after the intervention (CFO; H1). Furthermore, mediation analysis demonstrated that the *Kindness* and *Common Humanity* dimensions of CFO were explained by shared flow and PES. No mediating effects were observed for the other dimensions of compassion (H2).

Other studies have shown that the yoga component used in certain mindfulness interventions is associated with greater improvements in measures of mindfulness and well-being compared to body scanning or sitting meditation (Carmody and Baer, 2008). Furthermore, the inclusion of more physically dynamic elements in dance is reported to heighten the experience of awareness and well-being (Marich and Howell, 2015). For people with little or no experience in the practice of mindfulness, such as the students in our sample, it may be easier to bring mindful attention to body movements compared to remaining staying still as part of sitting meditation. This is in line with findings from studies of students were movement classes have been shown to elicit significant increases in

mindfulness, as measured using the Five Facet Mindfulness Questionnaire (Caldwell et al., 2010).

The observation in the current study of increased common humanity derived from participating in the mindful dancing group SG-MBI is consistent with findings from a recent study where mindfulness and compassion training elicited significant improvements in identification with humanity (Brito-Pons et al., 2018). The effect of PES on compassion through common humanity is also consistent with a model proposed by Valdesolo and DeSteno (2011), which posits that synchronous movements may serve as a cooperation-enhancing mechanism, seemingly binding individuals together into a larger whole and, thus, facilitating reciprocal empathic and altruistic responses amongst them. There is also evidence indicating that collective synchrony increases willingness to help an out-group member as well as pro-sociality towards out-group members more generally (Reddish et al., 2016; Van Cappellen, 2017). More specifically, understanding and embracing the principles of harmonized ‘sangha-based’ mindfulness appears to facilitate identifying with a sense of global human identity (de Rivera and Carson 2015), universality (Piedmont, 2012), as well as increased motivation to participate in collective gatherings (Basabe et al., 2018). This is in line with the fact that in the current study, the mindful dancing SG-MBI increased fusion with other people in general but did not increase within-group fusion. Furthermore, these results suggest that mindful dancing embodies elements of symbolic behavior that elicits feelings of common humanity, including the tendency to orient oneself towards a larger and transcendent reality as well as belief in the unitary nature of existence (Emmons, 2005).

During collective optimal and/or flow experiences, it appears that participants can begin to transcend their ego, intensify perceptions of similarity and unity, and start to “feel one” with other people (Csíkszentmihályi 1996; Zumeta et al., 2016a). As this

process unfolds, it has been proposed that emotional synchrony stimulates additional perceived similarity and further consolidates social ties (Thomas et al., 2009). This is consistent with findings from the current study, which showed that *shared flow* explained the compassion effects of participating in the intervention (i.e., increased social ties through *Kindness* and a greater sense of shared *Common Humanity*). According to Hobson et al., (2017), the beneficial effects of collective gatherings on emotion regulation and social connection arise because synchronous harmonized movement focuses attention and facilitates feedback and task control. This appears to help foster behavioral synchrony, automatic imitation, and shared normative behaviors, which in turn promote perceptions of unity and cohesiveness, as well as a satisfactory emotional experience. Furthermore, group feedback and sharing of collective meaning can create feelings of self-transcendence that go beyond ego-based thoughts and promote a sense of connection with other people and with the world in general (Basabe et al., 2018; Van Gordon et al., 2015b, 2018b). Based on findings from this study concerning increased ID fusion with the people in general, this appears to happen without altering in-group identification. In this sense, dance and movement appear to facilitate a shift in locus from personal identity and self-centeredness to self-transcendence (Coquoz, 2017).

Similarly, shared emotional states may help to shift people's attentional focus from themselves towards a sense of openness and connection with the world (Stellar et al., 2017; Van Cappellen and Rimé, 2014). Recently, Fiske and colleagues (2017) proposed the Sanskrit term *Kama-muta*, which might be understood as "being moved by love". Based on communal sharing relations (Fiske 1991, 1992), the authors consider that *kama-muta* is an emotion that can emerge in collective gatherings and activate altruistic sentiments, including motivation to help strangers. This is in line with findings from the current study demonstrating that CFO can result from a

collective gathering based on SG-MBI mindfulness techniques, as well as with the fact that these salutary outcomes were mediated by shared flow and PES. Accordingly, future mindfulness research could focus on clarifying further how social connectedness and group cohesion may augment compassion- and wellbeing-related outcomes (Lim et al., 2015; Valdesolo and DeSteno, 2011).

Limitations and Future Research

Although a four-dimension scale with a goodness of fit index was used, the mindful dancing SG-MBI failed to change all dimensions of CFO. This could be a function of the SG-MBI, or it could reflect issues with the construct validity complexity of CFO. Furthermore, although only short-term effects of the SG-MBI were observed (and assessed) in the current study (i.e., CFO increased from baseline [T1 to T2] with a medium effect size but these effects were diluted one week after the session [T3]), it should be remembered that the experimental intervention was a punctual mindful dancing SG-MBI delivered in a single 45-minutes session. Indeed, the short-lived nature of the effects is in line with other collective gathering studies that have also suggested brief temporal effects (Páez et al., 2015; Rimé et al., 2009). These findings happen to be comparable to other brief relaxation and mindfulness interventions that have been shown to improve self-reported anxiety and fatigue (Chad-Friedman et al. 2017; Dundas et al., 2017). Finally, the lack of randomization and absence of an active control group means that non-specific unknown mechanistic factors may have influenced the findings (e.g., even though no significant differences were found between the experimental and control groups at pre-test in any of the study variables, the groups could have differed on variables that we chose not to assess as part of this pilot design). In addition, the randomization of participants in the intervention group to the different dance groups does not guarantee that bias due to

dynamics caused friends joining the same intervention subgroup was completely removed.

According to Sze et al., (2010), inherent levels of emotional coherence may be improved by movement and dance training, which tends to enhance somatic awareness (muscle, tension, balance, posture). This is likely to be particularly the case where dance training includes mindfulness exercises specifically focused on enhancing somatic and visceral awareness (i.e., breath, heartbeat). Greater emotional coherence is associated with increased positive affect and well-being, of which social connectedness is understood to be a mediating factor in university student populations (Mauss et al., 2011). Furthermore, mindful movement exercises may not only increase positive affect, but may also improve the accuracy with which internal emotional states are communicated to others. Indeed, Cho and colleagues (2018) concluded that group participation leads to a social-tuning effect supported by between-participant neural synchrony.

In conclusion, this pilot study demonstrated that even a brief mindful dancing SG-MBI can lead to positive psychological and self-transcendent outcomes that are mediated through shared flow and PES. This type of mindful collective gathering appears to cultivate compassion for others by fostering “other-centeredness” as well as an open attentional focus on others’ movements. It appears that through the experience of shared flow and emotional synchrony, a mindful dancing SG-MBI can promote individual well-being as well as a sense of global human identity. As de Sousa and Shapiro concluded “It is the coming together with each other, but also with ourselves, that mindful movement offers, an opportunity to merge our inner and outer worlds – nurture the container and its contents – to achieve the integration that underlies an authentic and fulfilling life” (p. 126). Other mediating mechanisms for the observed effects on compassion and well-being are likely to be stress reduction and relaxation

(Amutio et al., 2018; Bräuninger, 2014), although this mechanism was not assessed in the current study.

Given the ease of delivery and low burden nature of the mindful dancing intervention, the short and long-term effects on compassion of occasional and long-term mindfulness collective gatherings warrant further investigation. In particular, it will be helpful to explore ways of integrating dance into already existing mindfulness-based intervention programs as well as investigate the utility of mindful dancing among different populations. Further longitudinal research investigating the mechanisms through which these effects occur is also warranted.

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Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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PART III

*A Critical Reflection on the Study
of Emotions and the Authority
Ranking Emotion*

*Voy camino
a la poblada montaña
la de espíritus palpables
que quiero ver
y no conozco*

*[I'm on my way
to the crowd mountain
that of palpable spirits
I want to see
and I do not know]*

Decisión [Decision] – Jaqueline Caniguán

Study 6

The Subordinate's Emotion: Sudden Recognition of Legitimate Authority Produces a Social Emotion

Study Information

Collaboration

This study has received the influence and direct collaboration of different people since its origins in 2018. Mainly, Alan P. Fiske (Anthropology Department, University of California, Los Angeles, USA), Thomas Schubert, Beate Seibt and Olivia Pitch (Psychology Department, University of Oslo, Norway), and Darío Páez and Nekane Basabe (Department of Social Psychology, University of the Basque Country).

Status

This study is a non-definite version that is aimed to be published as a theoretical contribution in a social psychology journal.

Abstract

Based on the model of relationship Authority Ranking (AR, from Relational Models Theory), we theorize the existence of a social emotion that results from and intense recognition of legitimate authority from a bottom-up comparison (i.e., the subordinate's perspective). This intrinsically social emotion facilitates the sustenance and maintenance of leader-follower relations and follows the principles of AR, being able to be expressed with a set of appraisals, motivations and manifestations shaped by cultural manifestations and evolution. Drawing from literature from social psychology, anthropology and evolutionary sciences, we provide a detailed justification of how this emotion should have evolved, and how it is manifested. Further, we review literature on awe and admiration with the intention to exemplify different problems associated to the study of this emotion and closer approximations. Overall, the AR emotion framework is able to unify and reconcile these problems, provide testable hypothesis, and advances in the knowledge of social human emotions.

Keywords: Authority Ranking, Social Hierarchy, Social Emotions, Relational Models Theory, Social Awe.

*And in days to come, when Siddhartha would become a god,
when he would join the glorious, then Govinda wanted to follow him
as his friend, his companion, his servant, his spear-carrier, his
shadow.*

Siddhartha – Herman Hesse (1922)

As can be seen in Hesse's (1922) excerpt from his novel, there is an evident asymmetrical relationship between Siddhartha and Govinda, being at the top and bottom of an implicit hierarchy in their social relationship. What it is more surprising, though, is that by reading the first chapters one can infer that Govinda does not seek to change this form of connecting with the protagonist; on the contrary, he seems to be motivated to follow him and maintain this form of social relation.

However fictional, this extract accurately represents the proposal of this article: the existence of a social emotion that appears in legitimately perceived Authority Ranking relationships from the subordinate's perspective. Based on Relational Models Theory (RTM; Fiske, 1991, 1992), we define a social emotion that has been constantly reported in the presence of remarkable leaders, religious figures, deities, and even towards nature all over the world, analysing literature from a variety of domains (e.g., sociology, social psychology, work psychology, evolutionary sciences). In addition, this analysis addresses several constructs and research lines that notably overlap with this theorization, such as those under the name of *Awe*, *Admiration*, and *Adoration* (e.g., Keltner & Haidt, 2003; Onu, Kessler, & Smith, 2016; Schindler, Zink, Windrich, & Menninghaus, 2013). The main purpose presented here is to test and unify what we consider is a social emotion based on a particular relational model, and separate folk and particular cultural uses from a psychological construct (e.g., Scherer, 2005; Gervais & Fessler, 2017; Fiske, Schubert, & Seibt, 2016).

An Elementary Form of Human Relationships: Authority

Ranking

Following the principle that humans use a fixed number of elementary forms to establish social relationships, and after reviewing well-known sociological, anthropological and psychological formulations (e.g., Max Weber, Jean Piaget, Émile Durkheim), Fiske (1991) proposed his theory on elementary forms of human relations, and described four models people use to organize their social life. The forms were named Communal Sharing (CS), Authority Ranking (AR), Equality Matching (EM), and Market Pricing (MP), and each of them can be thought as schemata that govern social interactions regardless their content and the context. Briefly, under CS we perceive people as undifferentiated members in a particular category; in AR, we can rank individuals within a linear hierarchy representing a particular dimension; in EM, people focus on additive intervals differences to achieve and maintain balance; finally, in MP, there is the use of ratios to make comparisons of otherwise non-comparable goods or commodities.

In short, these forms represent the elementary particles¹⁴ of social relationships in the broadest sense, and are manifested through visible behaviour, motivational principles, metaphorical representations, and so forth (for a comparative overview, see table 1).

¹⁴ This metaphor is taken from elementary or fundamental particles (particle physics), whose substructure –if having– is unknown.

Table 1. Manifestations and features of the four elementary relational models.

Domains	Communal Sharing	Authority Ranking	Equality Matching	Market Pricing
Reciprocal exchange	People give what they can and freely take what they need from pooled resources. What you get does not depend on what you contribute, only on belonging to the group.	Superiors appropriate or preempt tribute from inferiors. Conversely, superiors have pastoral responsibility to provide for inferiors who are in need and to protect them.	Balanced, in-kind reciprocity. Give and get back the same things in return, with appropriate delay	Pay (or exchange) for commodities in proportion to what is received, as a function of market prices of utilities.
Contribution	Everyone gives what they have, without keeping track of what individuals contribute. “What’s mine is yours.”	<i>Noblesse oblige</i> : superiors give beneficently, demonstrating their nobility and largesse. Subordinate recipients of gifts are honored and beholden.	Each contributor matches each other’s donations equally.	People assessed according to a fixed ration or percentage (e.g., tithing, sales, or real estate taxes).
Meaning of things	Heirlooms, keepsakes, sacred relics that are metonymic links to people with whom a person identifies.	Prestige items and emblems of rank. Conspicuous consumption to display superiority. Conversely, sumptuary laws that forbid inferiors to own these items.	Tokens of equal, independent status, one for each. For example, a bicycle, a car, a weapon, a trophy, a set of tools, or a house when each peer must have one to be coequal with the others.	Commodities produced or purchased to sell for profit; productive capital and inventory. Products developed and presented in terms of marketing considerations. Also, private property valued because of its cost.

Significance of time	Relationships are idealized as eternal (e.g., solidarity that is based on descent or common origin). Perpetuation of tradition, maintaining corporate continuity by replicating the past.	Sequential precedence marks status by serial ordering of action or attention according to rank. Temporal priority to superiors, often determined by age or seniority.	Oscillation of turns, of hosting, or other reciprocation at appropriate frequency. Synchrony of action or alignment of intervals to equate participants' efforts or opportunities.	Calculus of rates of interest, return, pay, or productivity per unit of time. Concern with efficient use of time, spending it effectively, and with the opportunity cost of wasted time.
Social identity and the relational self	Membership in a natural kind. Self defined in terms of ancestry, race, ethnicity, common origins, and common fate. Identity derived from closest and most enduring personal relationships.	Self as revered leader or loyal follower; identity defined in terms of superior rank and prerogative, or inferiority and servitude.	Self as a separate but co-equal peer, on a par with fellows. Identity dependent on staying even, keeping up with reference group.	Self defined in terms of occupation or economic role: how one earns a living. Identity a product of entrepreneurial success or failure.
Aggression and conflict	Racism, genocide to "purify the race". Killing to maintain group honor. Riots based on deindividuation. Equivalence of all "others". Terrorists and rioters indiscriminately kill all members of opposed ethnic group.	Wars to extend political hegemony. Execution of people who fail to accept the legitimacy of political authorities or who commit <i>lèse majesté</i> . Also political assassination and tyrannicide.	Eye-for-an-eye feuding, tit-for-tat reprisals. Revenge, retaliation.	Mercantile wars, slaving, exploitation of workers. Killing to protect markets or profits. Robbery and extortion. War strategies based on kill ratios.

Note. From Fiske (1992).

Having been largely tested (e.g., Fiske, Haslam, & Fiske, 1991; Fiske, 1993; Haslam, 1995; Fiske & Haslam, 1997; Haslam & Fiske, 1999, and more¹⁵), RMT predicts that, when human relationships take place under the form of AR, we manage and organize our relationships following principles of hierarchy. Therefore, some individuals are ranked relative to each other such as parents relative to their children, ancestors relative to their living descendants, authorities relative to their subordinates, deities relative to their worshippers, and so on. Other manifestations of AR are the way persons relate to representatives of their national institutions (i.e., formal protocols in front of authorities), how privileges are understood (e.g., members of some monarchies cannot be prosecuted in the same way ordinary people are), or how hierarchy can be expressed as one principle of moral judgment (Fiske, 1991; Rai & Fiske, 2011).

Regarding the way AR is constituted, Fiske says “the conformation of AR maps orderings in space, time, magnitude and force onto social hierarchies, and vice versa. People tend to think, constitute, and communicate AR with this social physics, and arrive in the world expecting to find and use it” (2004, pp. 95). Supporting evidence shows that –for instance– people consistently recognize verticality as a signal of power differences among people (Schubert, 2005; Giessner & Schubert, 2007). Further, key aspects of what constitutes charismatic leadership (i.e., being at the top of the hierarchy of different work groups and organizations) are manifestations of AR, such as physical height, verticality and loudness (Reh, Van Quaquebeke, & Giessner, 2017), which in turn, can be positively associated to a motivation to follow (Jackson,

¹⁵ In the following link, readers will find a large bibliography on works that have used RMT in a substantial way:
http://www.sscnet.ucla.edu/anthro/faculty/fiske/RM_PDFs/RM_bibliography.htm

Meyer, & Wang, 2013). In this sense, the great variety of forms AR can manifest constantly indicates the importance of hierarchy as a guiding principle in social human relationships. Nevertheless, it is important to note that in the theorization of a social emotion derived from AR, we refer neither to every possible manifestation of AR, nor to the complete relational network that takes place when human behaviour takes place. Rather, the objective of this article is to describe a social emotion that occurs when legitimate and intense manifestations of AR take place and the focus of attention is bottom-up. In other words, from the perspective of the follower and not otherwise.

The importance of the subjective perception of legitimacy in the AR manifestation implies that the authority figure is not perceived to be using a coercive method to sustain this relationship, and, in the case of theorizing a social emotion, this has an important implication. If we think on how different social human hierarchies are formed and sustained, one could think on different paths to achieve the same result, such as different behaviours based on dominance (i.e., on coercion, intimidation) or prestige (i.e., on recognition and respect). Nevertheless, dominance is generally manifested through violence, while prestige is earned (Henrich & Gil-White, 2001; Cheng, Tracy, & Anderson, 2014). Therefore, even though both could represent AR manifestations, they would elicit highly differentiated emotional reactions, such as fear and admiration, respectively.

On the other side, regarding the relational network of an AR-based relationship, a sudden manifestation of AR will undoubtedly create different emotional outputs depending which perspective is taken into account. For instance, in a typical leader-subordinate relationship, the legitimate and intense perception of AR will cause the emotion we theorize in this article but only from the perspective of the subordinate (i.e., bottom-up perspective). On the contrary (i.e.,

top-down), the leader will most likely feel pride due to their perceived entitlement and responsibility (Rai & Fiske, 2011).

The Subordinate’s Emotion

Considering the previous reflections, we propose that sudden and legitimate intensifications of AR relationships produce a social emotion from the perspective of the subordinate. These intensifications can be manifested in different ways (e.g., the sudden recognition of my leader’s power, my God’s unquestionable omnipotence) and in all of them, there is an abrupt positioning of one person at the bottom of the relationship, who is thus willing to maintain and sustain the AR relationship. Since this form of relationship described in RMT is the principle of this emotion, we can also hypothesize how a multidimensional expression of this will occur, considering specific appraisals, motivations, labels (i.e., verbal manifestations in different languages), physical/physiological reactions, and moral motives. All of these can be seen in table 2.

Table 2. Characteristics of the AR emotion.

Feature	Description	Sources and examples in the literature
Appraisals	The perception of being in the presence of legitimate authority on a domain that is evaluated as significant for the self (e.g., political and religious leaders, great depiction of power, etc.), which produces a quick submission from the perception of the subordinate (e.g., feeling small).	Charismatic leadership (Conger, 1993; Riesebrodt, 1999); Follower’s characteristics (e.g., line-up with values) and emotional process (Weierter, 1997) early conceptualizations of <i>admiration</i> (Schindler et al., 2013). Feeling small to nature (Piff, Dietze, Feinberg, Stancato, & Keltner, 2015; Bai et al., 2017).
Physiological responses	Goosebumps, behavioral freezing, prolonged staring	Goosebumps to power/talent (Schurtz et al., 2012), to admired people (Algoe &

	at the object (e.g., contemplation).	Haidt, 2009), to nature/space (Quesnel & Riecke, 2018). Behavioral freezing (Joye & Dewitte, 2016), prolonged staring (Joseph Henrich & Gil-White, 2001)
Motivation / Action tendencies and Moral motive	To create, maintain or reinforce an AR-based relationship ¹ with the object of authority (e.g., with the leader, with the athlete, the mountain, etc.).	Maintain and sustain the AR relationship as a form of relationship regulation (Rai & Fiske, 2011; Fiske & Rai, 2014), and/or promoting the “value” (Archer, 2018)
Emotional labels, manifestations and co-occurrence	Cultural manifestations would undoubtedly have an influence on it and therefore, the same emotional experience is expressed through different ways that are not completely comparable.	<i>Respeto, admiración</i> (Spanish), <i>Ehrfurcht</i> (German), <i>Admiração, honra</i> (Portuguese), <i>in-awe, awed</i> (English).
Possible co-occurrence with other emotions	Co-occurrence with negatively appraised states such as <i>fear</i> . It has also been stated as a similar emotion to <i>being moved</i> and <i>kama muta</i> .	Mixed with negative affect (McDougall, 1919/2001; Otto, 1936; Gordon et al., 2016). Related to <i>kama muta / being moved</i> (Seibt, Schubert, Zickfeld, & Fiske, 2017; Zickfeld et al., 2018; Zickfeld, Schubert, Seibt, & Fiske, 2019).

Note. 1, this motivation can be –but not necessarily– manifested in terms of emulation as it has been argued in the work of Archer (2018) and also explained in the work of Henrich and Gil-White (2001). Further, this motivation could be expressed as an urge to tell others about the characteristics of the authority person/object.

As it can be seen, table 2 presents a multi-component experience of emotion guided by AR principles described in RMT. In specific, we reviewed available literature under the name of AR (e.g., Fiske, 1991; Fiske & Rai, 2014) and also, have included from different frameworks and theoretical approximations that included

the principles of AR as previously described. Some of them include approximations from work psychology (e.g., Conger, Kanungo, & Menon, 2000), or emotion research lines (e.g., Algoe & Haidt, 2009; Onu et al., 2016). In fact, and even though we present a highly integrative attempt to describe it, several other researchers and emotions theorists have approached this emotional experience from different theoretical frameworks, and under different names. For instance, an early approximation of what we consider the same emotion can be seen in McDougall's (1919/2001) definition of *admiration*. When describing the motivational outcomes elicited towards an admired person, he stated, "We approach it slowly, with a certain hesitation; we are humbled by its presence, and, in the case of a person whom we intensely admire, we become shy, like a child in the presence of an adult stranger. [...] Now, this instinct and this emotion are primarily and essentially social" (pp. 95).

A similar emotional reaction can be seen in Rudolf Otto's (1936) conceptualization of numinous experiences. Deeply rooted in religious and spiritual experiences, Otto described them as highly intense events where a person's self is outwardly oriented and fulfilled with the greatest moral significance because of the apprehension of an incredibly superior being. Interestingly, Otto theorized the possibility of being intertwined with negative affect (i.e., fear, dread), and furthermore, the necessity of including a new term that could refer to this experience without being influenced by cultural artefacts. From a similar perspective, Maslow's (1964) descriptions of peak experiences, he noted that "...I can now tell the high plateau-experience always has a noetic or cognitive element, which is not always true for peak experiences, which can be purely and exclusively emotional" (pp. 11). Furthermore, these intense experiences of B-cognition can occur in a large variety of contexts, such as mystical experiences, and emotional reactions towards nature (see Koltko-Rivera, 2006).

One can observe in these examples that McDougall's, Otto's and Maslow's conceptualization did indeed share core formulation of how AR manifests; specifically in terms of the perception of magnitude of the stimuli, the perceived psychological distance represented in a linear order (i.e., above the subordinate), and how this experience ultimately will motivate people to maintain and sustain AR-based relationships. These manifestations of AR, as well as the predicted motivations are in the same line evident in several subsequent theorizations of *admiration*, *reverence*, *awe*, and even *moral elevation* (for a larger discussion, see below).

It is worth mentioning that we, by no means consider the mentioned examples as the same psychological experience. Rather, we propose that in all of them –at least to some extent– there are present constituent elements and principles of AR, which are particularly evident in social contexts, and overlap extensively with the present proposal. To illustrate, witnessing people exceeding standards of both competence (i.e., *admiration*) (Algoe & Haidt, 2009; see also Onu et al., 2016), or morality (i.e., coined as *moral elevation*) (Haidt, 2000; see also Thomson & Siegel, 2017) can induce people to rank themselves relatively to the one on the top. This is also evident in research lines that have focus on whether it is possible to achieve what the figure of excellence has accomplished (i.e., *adoration*) (Schindler et al., 2013), or whether is the feeling from a low status towards a powerful one (i.e., *awe*) (Keltner & Haidt, 2003) (see below).

Culture and evolutionary influences.

Cultural influences on the expression of the AR emotion.

The analysis of different religious/spiritual traditions is an adequate starting point to realize the reach of culture on the psychological processes that explicitly and implicitly affects, and particularly to theorization of this emotion, because they constantly refer to AR. Indeed, analysing how subordinates express their

relation with their God(s) and/or their authorities not only highlights the importance and universality of AR manifestations, but also, how desirable patterns of expression vary across cultures (Markus & Kitayama, 1991, 2010). In addition, these manifestations have also been emphasized by institutional structures (e.g., religious institutions, governments) throughout human history, and thus, can be traced in the tradition of a great variety of religious and philosophical texts.

In the case of the Islam for instance, when referring to Allah, many names can be used, including The First (*Al-'Awwal*), The Sovereign Lord (*Al-Malik*), and The Guide to the Right Path (*Ar-Rasheed*). From the Quran:

"He is Allah, the One; Allah, the Eternal, Absolute; He begets not, and neither is He begotten; And there is nothing that can be compared to Him." (Quran 112:1-4). "Call Upon Allah, or call upon Rahman: By whatever name you call upon Him, (it is well): For to Him belong the Most Beautiful Names." (Quran 17:110).

From a different tradition, Xiao (孝) or filial piety –also translated as “being good to parents”– is a highly extended construct in the Chinese culture with a significant value, and often considered the foundation of the Confucian ethics (Zi, 505-436 BC/2008):

“*Xiao* is the foundation of virtue, and is what all teaching grows of”. (pp. 3). “Take from how one serves his father to serve one’s mother and the love is the same. Take from how one serves his father to serve one’s Lord and the respect is the same. [...] Thus when serving the lord in accordance with xiao one is loyal; when serving elders in accordance with respect one is compliant. Not losing loyalty and compliance when

serving one's superiors, one can preserve one's position and maintain one's sacrifices. That is the xiao of the Officers" (pp. 8).

From a Christian tradition (the Bible) on the other side, when Paul, a prosecutor of Christians, hears and sees God he remains absolutely perplexed (excerpt also described in Keltner & Haidt, 2003):

"...suddenly a light from heaven flashed about him. And he fell to the ground and heard a voice saying to him, 'Saul, Saul, why do you persecute me?' And he said, 'Who are you, Lord?' And he said, 'I am Jesus, whom you are persecuting; but rise and enter the city, and you will be told what you are to do' The men who were traveling with him stood speechless, hearing the voice but seeing no one" (Acts 9: 3-7).

As noted above, and particularly when a deity is involved, we can see that the social relationship with the supreme entity is expressed in terms of an absolute and undeniable hierarchy. In these, there is an evident manifestation of submission from the point of view of the subordinate: the supreme entity will be always above, have greater power and wisdom, and as a witness, I cannot remain indifferent from this relationship. In other words, there is a sense of unquestionable and legitimate superiority that seems to motivate people to create, maintain, or sustain this relationship.

From a different source, cross-cultural studies provide evidence suggesting that different cultural settings influence people to have distinct notions and internalized scripts when dealing with AR-related information. For example, Hofstede's (1983, 1984) studies show how *power distance* is a manifestation of culture that varies from country to country. That is, people hold different notions concerning the acceptance of unequal distributions of power within groups, organizations, nations, etc., that can, nevertheless, be

structured in the form of AR. In a similar vein, one value orientation in Schwartz' (1994, 2007) human values model (i.e., *tradition values*) measures the subjective importance to respect, accept, and commit to traditional ideas. Many of these can be translated to customs that are passed from generation to generation and the importance of religious dogmas. Another construct that can provide a lens to approach manifestations of AR is *status differentiation* (Matsumoto, 2007), which is the individually evaluation of status-related behaviours and attribution of power to others.

All of these examples convey in showing that there are culturally dependent dispositions to respond toward top-down manifestations of AR, and while present in virtually every culture, they are not enacted in the exact same way. Rather, they vary between peoples and cultures, and can serve as variables that might enhance, or be prerequisites (Markus & Kitayama, 2010) to single experiences of emotions (see also Shweder, Haidt, Horton, & Joseph, 2000). Even though there may be universally innate strategies in the way people tend to identify emotions (Scherer, Banse, & Wallbott, 2001), in the expression of emotion however, the influence of cultural paradigms is undeniable (Butler, Lee, & Gross, 2007; Rychlowska et al., 2015), and therefore, they should be taken into account when studying emotions in general, and the AR emotion in particular.

Evolutionary influences and AR relationships.

AR relationships are ubiquitous and social hierarchies can be studied from a wide variety of theories, models and sciences (North & Fiske, 2014). In fact, the degree to which AR in general and social hierarchies in particular affect people's life has been extensively systematized. Hierarchy itself has even been suggested as a mechanism that could have influenced evolution in different mammal species (i.e., the specific role of subordination in intraspecific competition) (Christian, 1970; Udvardy & Christian, 1970; see also Qu, Ligneul, Van der Henst, & Dreher, 2017). In addition, a large

body of evidence shows the effects that hierarchy and other forms of AR not only have an impact in the perception of status, but also could produce physiological changes and health-related outcomes. Different manifestations such as dominance within groups, socio-economic status, etc., have serious implications to health, and in virtually all cases, those at bottom have it worse. For instance, a wide variety of studies on primates show that hierarchy-related stress affects negatively different systems and can result in hypertension, high cholesterol, and coronary heart disease (for a review, see Sapolsky, 2005). In humans, on the other side, data suggest the same overall tendency (Sapolsky, 2004), and social inequality (i.e., taken as a non-legitimate and rigid AR manifestation within a society) has been related to be determinant to a great variety of health related problems, varying from mental illness to greater drug abuse (Link & Phelan, 1995; Wilkinson, 2006; Wilkinson & Pickett, 2009).

Given the relevance and pervasiveness of the influence of social hierarchies in primates –including humans– and other social animals, it is possible to gather a large body of evidence that explores the neurophysiological mechanisms that are involved (for a review, see Pornpattananangkul, Zink, & Chiao, 2014). Even though the expression and modulation of particular genes and their relationship with culture is still a difficult task that needs further work (Chiao, 2010), these studies acknowledge the importance to recognize, anticipate, and modulate behaviour according to the expression of hierarchies (i.e., AR) for survival. Therefore, it seems plausible to consider as well, different proximal mechanisms –such as an emotional reaction towards legitimate manifestations of AR– which, shaped by natural selection, can increase the survival possibilities of those who were more prone to identify and correctly respond towards powerful figures.

This particular thesis has been also stated by different scholars in the theoretical conceptualization of *awe* and *admiration* (Keltner

& Haidt, 2003; Schindler et al., 2013, respectively) centring in the functionality of adapting to powerful and highly skilled role models, respectively. Even though that, in the particular case of *awe*, the nature-first approach has also been proposed (Chirico & Yaden, 2018), theoretical and empirical studies seem to validate the idea that an emotional response to top-ranked individuals in hierarchies has an evolutionary constituent based on social relationships. This argument is supported by the advantages affiliating them entails, such as the access to resources, protection and learning possibilities (e.g., Henrich & Gil-White, 2001).

The Interplay of Culture and Biology

From Hamilton's (1964a, 1964b) pioneer work proposing the influence of organisms' interaction in their gen adaptation, to more recent theories on gen and culture co-evolution (e.g., Fiske, 2000; see also Caporael, 2001; Lehman, Chiu, & Schaller, 2004), there seems to be an agreement in that psychological proximal mechanisms have evolved under the influence of culture. In specific, to the thesis that evolutionary propensities (e.g., psychological mechanisms) have required congruent cultural paradigms to be subsequently favoured by natural selection (Fiske, 2000).

In the particular domain of AR (i.e., the co-evolution of recognition-reaction to and interaction with high-ranked individuals), Henrich & Gil-White (2001) proposed that prestige –legitimate authority– emerged through cultural transmission, and that has had a direct impact in the individuals and group learning capacities. After 20 years of Henrich and Gil-White's theory, available research seems to confirm that a) people use different cues to identify prestige individuals, which also depend on the importance of the domain, and b), people –under specific conditions– tend to copy more the actions of prestige individuals (for a review, see Jiménez & Mesoudi, 2019).

On the other hand, it is highly likely that these propensities have been accumulated over time, and now, we come to the world with a set of highly adaptive skills that allow us to understand and navigate AR relationships. Besides our predisposition to maximize our resources in tasks related to social cognition (Herrmann, Call, Hernández-Lloreda, Hare, & Tomasello, 2007), humans have developed specific skills for AR information processing. For instance, Thomsen, Frankenhuis, Ingold-Smith, and Carey (2011) show that infants at 10- to 13-month-old use size clues to predict social outcomes between novel agents. In addition, data of four studies suggest that 15-month-old toddlers (and 12-month olds, to a lesser extent) infer social dominance of agents based on social interactions (Mascaro & Csibra, 2012). Furthermore, the latter has been replicated and extended by Thomas, Thomsen, Lukowski, Abramyan, and Sarnecka (2018). In a series of experiments, the researchers found that toddlers between 21-31 months use social information to infer the “winner” of a conflict between new agents, and also, that they were less interested in interacting when the winner had used physical force. In other words, that they showed a strong preference for high-ranking individuals that was also affected by how they came on the top of the hierarchy.

As it is evident, different cultural paradigms have influenced several proclivities in humans that start being manifested in childhood and represent adaptive responses to AR principles. Nevertheless, this is not conclusive for the approximation to a human emotion that is expected to be shaped by different forces, including culturally expressed forms of AR. Therefore, evidence suggesting the same overall trend (i.e., adaptive responses of human behavior to AR) is also being examined in the literature of work psychology, under the form of charismatic leadership.

The interplay in a naturalistic environment: Charismatic leadership's effects

Considering the complexity of human behaviour including motivators, homeostatic principles and multiple social relationships, analyses of naturalistic settings can be useful in the present proposal. They can provide convergence and support of the hypothesis that human beings emotionally react to legitimate high-ranked individuals and the abundant literature in work psychology under the name of charismatic leadership represent an interesting venue to analyse.

Indeed, these studies examine the relationships between propensities and reactions to different people who are in the top of a perceived hierarchy by examining the effects of charismatic leadership on people's feelings, behaviours and organizational outcomes. Fundamentally based on one of Weber's (1922/1978) conceptualization of authority, charismatic leaders were those who, due to their personal attributes (i.e., almost defined as super-human) are superior to the rest, and they could be seen as a force of change in organizations (see Conger, 1993).

Some pioneer theories on charisma in the workplace (e.g., House, 1976) tended to overlook the role of followers' motivations (Shamir, House, & Arthur, 1993; Yukl, 1994) and left them as mere empty vases with could be filled with the grandiosity of the leader. Nevertheless, subsequent theories such as that of Conger and Kanungo (1987), started treating charisma as an attributional process –i.e., the degree of legitimacy was appraised bottom-up– and opened the possibility of further expansions, such as considering the possible alignment of the value orientations between the follower and the leader (e.g., Shamir et al., 1993).

Studying the way charismatic leaders motivate and engage their followers, the review by Reh and colleagues (2017) show that charisma is expressed by several forms of embodied signals including those of power (e.g., body posture), competence, and morality (e.g.,

physical appearance) (i.e., AR). Further, these leaders are highly useful expressers of emotions and can affect followers' affective states (Bono & Ilies, 2006; Cherulnik, Donley, Wiewel, & Miller, 2001) and produce, among others, *compassion* and *admiration*, and *trust* (Sy, Horton, & Riggio, 2018), which in turn, can mediate the effects of this kind of leadership on different forms of commitment (Podsakoff, MacKenzie, Moorman, & Fetter, 1990) –i.e., motivation to create and maintain the relations.

With the particular emphasis in the relationship between charismatic leadership and commitment, different meta-analyses can be found. In particular, Jackson and colleagues' (2013) found a positive relationship between this form of leadership and affective and normative commitment to the organization. Further, these results are congruent with a previous one that had showed that this relationship was stronger at group level (pooled $r = .49$) compared to the individual level (pooled $r = .31$) (DeGroot, Kiker, & Cross, 2000).

In all, taking charismatic leadership as a legitimate form of AR, the extensive literature from work psychology serves as conceptual replications (i.e., based on ideas; see Crandall & Sherman, 2016) and provide support to the motivational effects the AR emotion can produce in natural settings. Charisma thus represents an attribute of people at the top of a social hierarchy that is socially agreed upon (i.e., legitimate) and has a powerful influence on the behaviour of their followers, which has been analysed in diverse settings such as the educational (Kirby, Paradise, & King, 1992), politics (House, Spangler, & Woycke, 1991), and even military (Shamir, Zakay, Breinin, & Popper, 1998).

Nevertheless, we are aware that this might not be sufficient criteria to validate the existence of a positive and social emotion. Even though it goes in line with the predictions made from RMT, in many cases the effects of charismatic leaderships are not taken under an emotion-paradigm, which is considered fundamental in this

theorization. In other words, many outcomes and effects are not measured in terms of a sudden recognition of legitimate AR, but rather a constant influence of it that is more likely to reflect their effects on attitudes and sentiments, compared to emotions (see Gervais & Fessler, 2017).

In the same line, approaching the study of emotions has intrinsic problems associated (e.g., Scherer, 2005), which might be greater when considering the influence of culture (e.g., Shweder et al., 2000). This is particularly evident in this case due to the nature of the elicitors that produce this emotion and the social consequences it has. In particular, to the fact that authority itself will undoubtedly manifest differently across people and cultures, and to the fact that sustaining the AR relationship can be manifested in a large variety of forms, and because the revision of charismatic literature suggests that it is in the eye of the beholder. For this reason, the following section reviews available literature conducted under the name of *awe* and *admiration* as an effort to clarify specific misconceptions might have influenced the lack of attention to a unified theory of the subordinate emotion. Finally, the ending section offers a summary of the presented information and a set of guidelines for subsequent study of this emotion.

Previous Attempts of Studying this Emotion

One of the biggest problem of previous attempts to characterize this social emotion resides in conceptualizations developed in the folk use of affective terms in a given language (e.g., Schubert, Seibt, Zickfeld, Blomster, & Fiske, 2017). Indeed, the use of language manifestations of different “emotions” does not imply that a person is indeed experiencing a given emotion. This has affected the way different scholars have tried to theorize and make clear distinctions of allegedly different emotions that involve a sense of ranking with one’s own self, which in turn, has produced a great degree of overlap.

It is possible that the role of appraisal theories of emotion (for a review, see Moors, Ellsworth, Scherer, & Frijda, 2013), that put forward the importance of the environment-individual relationship for triggering emotions, has influenced the way different researchers have conducted their studies. In specific, because selecting specific stimuli in concordance with some theoretical definitions might have led scholars to employ them as a validation of different frameworks without acknowledging shared communalities, or even alternative explanations.

Let's take as an example, the case of one video that has been used in different studies to induce *moral elevation* (e.g., Silvers & Haidt, 2008; Schnall, Roper, & Fessler, 2010; Lai, Haidt, & Nosek, 2014). The clip, taken from the U.S. TV show *The Oprah Winfrey Show*, shows a musician plays an emotive tribute to his mentor who had helped him escape from a gang life (video provided by Lai et al., 2014, together with the whole study; here, the link to that video: <https://osf.io/zv2eq/>). In this particular case, the clip not only could be evaluated as an adequate elicitor of *elevation*, but also for other emotions that are conceptually differentiated (see Onu et al., 2016). For instance, according to Algoe and Haidt (2009), the protagonist's action can be an example of great moral beauty, and thus be a prototypical elicitor of elevation. Nevertheless and highly anchored in the use of language, English speakers could use words such as *awed/in awe*, *magnificent* and/or *wonderful* to describe the protagonist or his actions –as it has been done in different studies (e.g., Shiota, Keltner, & Mossman, 2007; Rudd, Vohs, & Aaker, 2012; Schindler, Paech, & Löwenbrück, 2015). Consequently, this video might evoke passive contemplation and submission from the viewer, which would correspond to *awe* (Keltner & Haidt, 2003). Finally, another lens to assess the video would be the one proposed by Schindler and colleagues' (2013) definition of *adoration*, in the case that this stimuli was evaluated as non-attainable excellence.

In addition to this, and even though it does not include an upward comparison, the video also depicts an intensification of a CS relationship in its climax, a mode of social relations described by Fiske (1991; see table 1). Therefore, it could be evaluated as prototypical elicitor of *kama muta* (from Sanskrit, being moved by love) (Fiske et al., 2016; see also Zickfeld et al., 2018).

The case of awe and admiration.

In the study of different emotions, several scholars have largely addressed the “language” issue regarding emotion theorization and measurement. Particularly, many emotion theorists agree in stating that verbal labels from a given language should not be adequate criteria to distinguish emotions (e.g., Frijda, 2000; Scherer, 2005; Fiske et al., 2016; Gervais & Fessler, 2017). Some of the arguments are related to the fact that language –understood within one particular cultural setting– will affect people’s affective phenomenology and the attributed significance words have in the expression of emotion (e.g., Shweder et al., 2000), or that folk psychology of emotions shapes self-report and others’ reports of emotion (e.g., Fiske et al., 2016).

Analysing once again Otto’s (1936) core aspects of the numinous, he was aware of the high degree of overlapping of different terms such as *awe*, *fascination*, *wonder*, and *dread*, including also the cultural aspects. This is also evident in cross-cultural comparisons of studies centring on the evaluation or recognition of emotions. For instance, Hejmadi, Davison and Rozin (2000) study comparing free and fixed responses to videos. In order to test the recognition of the *Natyasastra* emotions¹⁶, the authors found a high accurate in the Indian and US Americans’ use of the words *wonder*, *amazement*, *astonishment*, and *awe*. Nevertheless, in a Spanish context –with participants from Chile, Mexico, and Spain

¹⁶ A Hindu treatise of dramatic arts dated sometime between the V and the III century, which is generally attributed to the musicologist Barata Muni.

–, other authors have preferred to a wider translation of terms that can represent this emotion, such as *astonishment*, *respect*, and *reverence* (Pizarro et al., 2018). From a time perspective, the historical uses of the Latin terms *admirari* and *adoratio* (to wonder at, and adoration, respectively) indeed represented words to respect to a superior figure, but nowadays are treated differently, regarding the outcomes they produce (Schindler et al., 2013; Onu et al., 2016).

Besides the clear implications of using emotional proxies based on the language, there is another one, which is related to the possibility of testing its motivational pattern. Reviewing the literature of *awe*, one can find that the most prominent stimuli used. Keltner and Haidt's (2003) conceptualization of this emotion as a result of a sense of vastness and need for accommodation with an intrinsically social origin, yet most of the studies have been guided using the nature as the most repeated stimuli. This is particularly important considering the authors' theorization of the possible origins of this emotion –a response to power and powerful people. Nevertheless, subsequent research on it has consistently focused different stimuli other than the social ones, as it is presented in table 3.

Table 3 includes a revision of empirical works conducted under the name of *awe*, or instances that fit in Keltner and Haidt's definition. In particular, it can be seen that nature and space represent the most used stimuli in the elicitation of *awe*. The second most used set of stimuli comes from recalling events (from the category "other"), and the social one, which is arguable the origin of this emotion, was the least used. In all, one can see that most of empirical studies under this conceptualization have been greatly oriented to measuring responses toward the nature as well as being highly anchored in the use of the word itself (e.g., recalling events).

Table 3. Content of awe-eliciting stimulus from empirical studies.

Study	I. Nature / Non-human		II. Social Relations	III. Human-made		IV. Other
	Landscapes / Animals	Space	Ability-skill / Leadership / Power	Architecture / Art	Human Advances	Awe (word), definition, face expression, recalling experience ¹
Hekmadi et al. (2000)						H1
Shiota, Campos, and Keltner (2003)						S1
Shiota et al. (2007)	S2, S3					S1
Rudd et al. (2012)	R1, R3	R1		R3		R2
Schurtz et al. (2012)			S2			
Van Cappellen and Saroglou (2012)	V1, V2					
Valdesolo and Graham (2014)	V1, V2, V3, V4					
Piff et al. (2015)	P2, P3, P4, P5					
Silvia, Fayn, Nusbaum, and Beatty (2015)	S1.1	S1.1			S1.1	S1.2
van Elk, Karinen, Specker, Stamkou, and Baas (2016)	v1	v3		v4		
Joye and Dewitte (2016)				Jp1a, Jp1b, J1a, J1b		
Valdesolo, Park, and Gottlieb (2016)	V1, V2					
Gordon et al. (2016)	G2b, G3, G5	G3				G1, G2a, G2b, G4
Preston and Shin (2016)						P1, P2, P3, P4
Yang, Yang, Bao, Liu, and Passmore (2016)	Y3					Y1, Y2

Prade and Saroglou (2016)	P1, P2				
Silvia et al. (2015)		S1		S1	
Bai et al. (2017)	B3, B4, B5				B2, B6
Stellar et al. (2017)	S5	S3			S4
Zickfeld et al. (2018)	Z1		Z1	Z1	
Chirico, Glaveanu, Cipresso, Riva, and Gaggioli (2018)	C1				
Pizarro et al. (2018)					P1, P2
Quesnel and Riecke (2018)	Q1	Q1			
Zhao, Zhang, Xu, Lu, and He (2018)	Z3		Z3		Z2
Taylor and Echida (2019)					T1, T2
Li et al. (2019)					L2
Guan, Chen, Chen, Liu, and Zha (2019)	G2, G3				
Nelson-coffey, Ruberton, Chancellor, and Cornick (2019)		N1, N2			N1, N2
Johnson et al. (2019)		J2, J3		J2, J3	J3

Note. Every study is depicted with the first letter of the first author's last name; different numbers after a point indicate different phases in of the same study; the lowercase letter *p* defines a pilot study and lowercase *a* and *b* different studies as presented in the original articles. The categories are not mutually exclusive and one single stimulus (e.g., a set of pictures, video) can contain elements from different classifications. For instance, the set of pictures used by Silvia and colleagues (2016, first phase of their study) depicts the sky, the space and an astronaut, which can be appraised in terms of nature/non-human (I), and/or as the important technological advances made by humankind. ¹, this category includes any other stimulus provided, such as a word (e.g., *awe*, *wonder*; Shiota et al., 2003, S1), a definition and expected outcomes (e.g., Rudd et al., 2012, S2), or a video portrayal (Hejmadi et al., 2000).

The analysis of the stimuli used in this research line clearly shows a deviance from the social theorization of this emotion towards the analysis to –mainly– natural settings. For this reason, the feasibility of the hypothesis of awe as a response to power individuals (i.e., Keltner & Haidt, 2003) cannot be tested within the *awe* literature.

On the other hand, a somehow similar pattern can be seen in the literature of *admiration*. Here, the main issues relate to different definitions that first, come from the folk use of the word *admiration*, and are then based solely on the kind of stimuli that should provoke it. This form, *admiration* has been conceptualized as an emotional response to models that exceed standards that are not moral (Algoe & Haidt, 2009), to both moral and excellence-related (Robinson et al., 2016; Sarapin, Christy, Lareau, Krakow, & Jensen, 2014), or even as a cluster that include –among others – *elevation* and *inspiration* (Schindler et al., 2013). In a comprehensive attempt to review admiration and to separate it from other emotions, Onu and colleagues (2016) summarize theoretical and empirical works and present them in terms of –among others– prototypical elicitors, action tendencies, etc. However, as can be seen in their article, their distinctions are mainly based on appraisals’ categorizations with an underlying pattern centred on an AR principle: an upward comparison, as it presented in table 4 (as it is published in their original review).

As it is presented in table 4, the definitional approaches and prototypical elicitors reviewed by Onu and colleagues from different frameworks convey in constantly highlighting an implicit comparison from the perspective of the observer.

Table 4. Admiration and related emotions: Summary.

Related emotion	Distinction from admiration					
	Theoretical implications			Empirical evidence		
	Valence	Elicitors	Actions	Valence	Elicitors	Behaviors
Elevation	Same valence (positive).	Elevation is elicited by moral excellence, while admiration by nonmoral excellence (Algoe & Haidt, 2009).	Elevation motivates being kind to others, while admiration motivates self-improvement (Algoe & Haidt, 2009).	Algoe and Haidt (2009).	Algoe and Haidt (2009).	Algoe and Haidt (2009).
Gratitude	Same valence (positive).	Gratitude is elicited by being beneficiary of another's moral excellence, while admiration and elevation are elicited by excellence witnessed, but not targeted to the self (Algoe & Haidt, 2009).	Gratitude motivates repaying the benefactor, while admiration only motivates praising the admired to others (Algoe & Haidt, 2009).	Algoe and Haidt (2009).	Algoe and Haidt (2009).	Algoe and Haidt (2009).
Awe	Same valence (positive).	Admiration is elicited by excellence in others, while awe is elicited by ability so extraordinary that it is difficult to grasp (Keltner & Haidt, 2003).	While admiration motivates self-improvement, awe motivates passive contemplation and submission (Keltner & Haidt, 2003).	<i>No empirical evidence.</i>	<i>No empirical evidence.</i>	<i>No empirical evidence.</i>
Envy	Opposite valence (envy as a	Authors agree that both envy and admiration are elicited by the competence of	Admiration is either viewed as an energizing emotion, motivating self-	Van de Ven et al. (2011).	- Admiration occurs in attainable	- Admiration is energizing: Algoe and Haidt

	negative valence).	others, but some authors believe that admiration is triggered by believing the admired target's ability is attainable for the self (e.g., Smith, 2000), while others support the opposite view (van de Ven et al., 2011).	improvement, as opposed to envy (Immordino-Yang, 2011; Smith, 2000); or as a passive emotion, opposed to envy which motivates improvement (van de Ven et al., 2011).		conditions: Onu et al. (2015). - Admiration occurs in unattainable conditions: van de Ven et al. (2011).	(2009); Immordino-Yang et al. (2009). - Admiration is passive, envy is energizing: van de Ven et al. (2011). Schindler et al. (2015).
Adoration	Same valence (positive).	Admiration elicited by attainable excellence, while adoration by excellence not attainable or fully understood (Schindler et al., 2013).	Admiration leads to emulation, while adoration elicits the desire to affiliate and unite to the target (Schindler et al., 2015).	Schindler et al. (2015).	Schindler et al. (2015).	Schindler et al. (2015).

Note. From Onu and colleagues (2016).

Thus, different contrasts based on individuals' attributions of a person's moral excellence (contrast with *elevation*), or an ability that is so extraordinary that is difficult to grasp (contrast with *awe*), or excellence not attainable or fully understood (contrast with *adoration*) would be the core defining elements of *admiration*. While it seems plausible at first, these comparisons resemble more to post-hoc attributions of stimuli rather than clear and comparable criteria to define admiration. Further, these comparisons would necessarily require implicit and automatic attributional processes when different people are in the presence of these elicitors, which in turn does not seem feasible¹⁷.

What most of these frameworks convey in is the fact that there is a constant manifestation of an AR principle, which is appraised as a legitimate superior in a determined area. This particular overlapping could even explain some mixed results in particular studies, as it happens with clearly differentiating from other emotions. For instance, many studies have relied on definitions based on the word *admiration* or experiences where participants had seen an admired person as sufficient criteria to separate it from other emotions. This can be seen in studies 2a and 2b from Algoe and Haidt's (2009) elicitation of *elevation* and *admiration*, as well as study 2 from Schindler and colleagues' (2015) attempt to separate *admiration* from *adoration* and *awe*. In these cases, the comparison pattern does not provide a clear difference, which in all can be attributed to the overlapping of the stimuli highly representative of different facets of AR. Furthermore, and taking these elicitation methods a step further,

¹⁷ This conceptualization would require that, when one is in an *admiration*-eliciting social scenario, the person automatically detect and differentiate the characteristics of the *admired* competence, being morally beautiful –such as the history of Nelson Mandela, and thus eliciting *elevation*– or being due to skills –such as watching an outstanding performance of a sport player, and thus eliciting *admiration*.

the problems also reach the area of motivation, which is discussed in the following section

The AR Emotion and the Motivation to Create and Sustain the Relationship

As it is predicted from RMT (also depicted in table 2), the sudden and legitimate intensification of an AR relationship from the perspective of the subordinate will motivate people to engage in an AR-based relationship with the person of authority (i.e., in social interactions). This motivation can be manifested in a wide variety of forms that are shaped by cultural and individual forces, including deference, manifesting respect, following, asking for guidance, and even trying to emulate the behaviour of the person that has “earned” her or his position. This motivational hypothesis has been examined in a revision of studies focused on upward social comparisons in a variety of frameworks, including –besides *admiration*, *awe*, or *elevation*– studies on *Malicious* and *Benign Envy* (e.g., van de Ven, Zeelenberg, & Pieters, 2009, 2012) or *Schadenfreude*¹⁸ (e.g., Lange & Boecker, 2019).

For the most part, cultural mechanisms (i.e., reinforcing evolved and experientially learned proclivities) that shape our responses toward AR figures should, as a rule, boost a constitution of relationships based in principles of space, time and magnitude (Fiske, 2004). In this sense, legitimate authority can be appraised in the relationship one has with their God(s), a powerful leader, and exceptional athletes, but this also represents elements that can arise

¹⁸ While reviewed, literature on *schadenfreude* conveys in stating that as a fundamental element for feeling satisfaction from another’s misfortune is the valuation that the position of authority is not legitimate. This can be seen in the work of Feather and Sherman (2002) and also in the studies of Lange and Boecker (2019) under the name of deservingness. Particularly, the last posits that it is under dominance-based relationships, which do not constitute legitimate AR.

as being in the presence of magnificent nature, splendid architectural monuments and so forth. Consequently, the motivational approach of the AR emotion must predict as well motivations that respond to non-social stimuli. Taking into account the patterns of motivation in the literature of emotional responses to upward comparisons, there is a quite dominant perspective stating that these emotions should predict a sense of personal promotion –for a notable diverging point of view, see Archer (2018)– and hence, they configure the emulation hypothesis. This hypothesis is stated in the framework of *admiration* (Onu et al., 2016; Schindler et al., 2013), *elevation* (Pohling & Diessner, 2016), but also in the work of *benign envy* (van de Ven et al., 2009, 2012), and yet, results are not straightforward in the literature.

In a comprehensive theorization of the motivational aspects of admiration, Archer (2018) provides evidence suggesting that the emulation hypothesis does not hold in empirical studies, due to emulation is not realistic in every case even though the individual could be experiencing the emotion. The fact that one can genuinely feel the AR emotion towards, let's say, the extraordinary talent of a sport player does mean that one would necessarily feel motivated to emulate her behaviours, neither that one feels an urge to improve. This is also supported by the analysis of prestige-based relationships in the work of Henrich and Gil-White (2001). Here, the authors explicitly state the necessity and advantages of learning from prestige individuals in terms of cost-saving gains. Nevertheless, and based in a model of the way these behaviours are accumulated and transmitted (Joe Henrich & Boyd, 1998), they are aware that copying the behaviours is not always the best alternative due to "...a small reliance on individual learning prevents individuals from getting stuck on the wrong behaviour in spatially and temporally varying environments." (Joseph Henrich & Gil-White, 2001, pp. 175).

The previous analyses suggest that the motivational tendencies from the AR emotion can reconcile these reviewed mixed outcomes found in the literature. Further, and while maintaining an evolutionary psychological perspective, can still provide an explanation of the motivations that people feel from non-social experiences of the AR emotion¹⁹. Specifically, this motivational approach (i.e., creating, maintaining or reinforcing AR relationships) is able to explain why people emotionally driven by the non-social AR figures –particularly nature– might feel a sense of diminished self (e.g., Bai et al., 2017; van Elk, Karinen, Specker, Stamkou, & Baas, 2016), and can increase a psychological connection to nature (e.g., Van Cappellen & Saroglou, 2012; Yang, Hu, Jing, & Nguyen, 2018).

Conclusion

The sudden recognition of a legitimate form of authority produces a social emotion that motivates submission in an AR-based relationship. This submission can manifest in variety of forms, such as humility, imitation, following, feeling small, etc., and has as ultimate purpose creating, maintaining or reinforcing social relationships based on the principles of AR (e.g., leader-follower, master-apprentice, guide-guided, etc.).

Following the conceptualization of AR as a fundamental form of social relationships, this emotion is theorized as a multi-component experience that has received cultural and evolutionary influences, and, in addition, has been approached under different names. The evidence presented here is a thorough review of diverse frameworks and theoretical attempts that, as a whole, validate the existence of this emotion predicted by AR as a part of RMT. In conclusion, this view of conceptualizing and predicting this social

¹⁹ In words of Archer (2018), a promotion of the value of *admiration*.

emotion unifies a common theoretical guidance and advances in the scientific study of human emotions.

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FINAL DISCUSSION

Research Answers, Implications and Final Comments

*“The search for truth is a cooperative, unending endeavor.
We can, and should, engage in it to the extent we can and
encourage others to do so as well, seeking to free ourselves from
constraints [...], and numerous other obstacles.”*

Noam Chomsky (2007)

Why do some people engage in prosocial behaviours toward strangers? Why would *I* collectively participate and help *others*? How is it possible that someone identified herself with completely strangers, with *everyone* in the world?

With the promise of trying responding the questions presented at the beginning of this thesis, I am now able to propose a way that can, to certain extent, provide evidence-based answers. However, and despite the great efforts this endeavour has entailed, I am fully aware that these responses may take the form of a path to follow, rather than an unequivocal definite solution. This way, the study of self-transcendent emotions alongside the importance of individually and collectively felt emotional experiences take the form of a route that shortens the knowledge gap.

At the same time, and like every scientific endeavour, this project has received feedback from itself, which has caused that some of the initially planned methods and actions to change in order to answer the questions that I have been eager to answer –and I expect to have transmitted to the readers as well. Therefore, these efforts begin with the study of self-transcendence, continue with the positive effects of participating in social gatherings and rituals, and finish with an attempt to channel the study of a human emotion based on an authority-subordinate relationship. This whole path can tell us a great deal about human relationships and motivations in general, and at the same time, helps us understanding the way we orientate to others, cooperate and relate with our immediate environments.

Self-Transcendent Emotions

The central line presented in this thesis, and particularly in the first part, is the study of self-transcendence expressed in an emotional manner, with the construct of self-transcendent positive emotions (STEs) (Stellar et al., 2017; Van Cappellen & Rimé, 2014). The studies described here show that emotional responses towards diverse

stimuli such as magnificent nature, the figure of moral leaders, as well as a story of solidarity, compassion and gratitude, can orientate ourselves towards other people. This orientation takes the form of a highly inclusive identification hypothesised more than 30 years ago under the name of Social Human Identity (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) (see Introduction, and Studies 1-3), but also in an attempt to collectively collaborate with others and thus promote and help the conditions of other people (Studies 2 and 3).

Study 1 shows that STEs –and not the positivity of the emotions elicited– help increasing a sense of global identification, as well as the wishes to celebrate it while they do not affect a more proximate and stronger social identification (neither directly, nor indirectly). In other words, magnificent nature and human-made monuments (i.e., to elicit *awe*), and different moral leaders (i.e., to elicit *elevation*) produces emotional responses that orientate ourselves to psychologically connect to everyone in the world. This pattern –of self-transcendence; see Yaden, Haidt, Hood, Vago and Newberg (2017)–, tested through self-report (i.e., questionnaires) and implicit measures (i.e., response times in an IAT task) opens the door to examine the interplay of different levels of social identities (see Hornsey & Hogg, 2000; Roccas & Brewer, 2002), and the role of the most inclusive one in exploring varied forms to tackle relevant social issues (de Rivera, 2018; Hermans & Dimaggio, 2007; Liu & Macdonald, 2016), from the perspective of STEs.

Subsequently, and due to the necessity of a more precise way to measure these emotions, Study 2 describes the conceptualization and creation of a scale to measure both nature- and social-*awe* (Pizarro et al., 2018). The scale proposed (final version of 16 items) is a multi-componential conceptualization of this emotion from the study of its core elements (Keltner & Haidt, 2003; Bai et al., 2017; Shiota, Keltner, & Mossman, 2007), and was designed from the analyses of past experiences people had, including an event list that

improves the recalling of a past eliciting event. The scale comprises the analysis of appraisals, affective responses/labels, physiologic reactions, cognitive-subjective responses, and action tendencies. The examination of a second-order factorial structure was provided regarding criterion variables showing associations with values' profiles (Schwartz, 2007), spirituality and religious beliefs (Simkin, 2017), and the socio-emotional connection with a superordinate identification (de Rivera, 2018; de Rivera & Carson, 2015). Overall, having a more precise measure helps providing better assessment that allow more clearly distinguishing different STEs and also, analysing their psychosocial effects, as it was presented in Study 3.

Study 3 shows that 3 different²⁰ STEs –i.e., *awe* (Keltner & Haidt, 2003), *elevation* (Haidt, 2003), and *kama muta* (Fiske, Schubert, & Seibt, 2017)– can individually orientate peoples toward a greater connection with a superordinate social identity (replicating Study 1) and increase the willingness to collectively engage to help others. Though this study did not yield a sharp distinction based on prototypical stimuli (i.e., the nature, the figure of a social leader, and a story of solidarity and compassion), the effects from these three STEs showed a ST pattern motivating an identification with everyone in the world, and a willingness to engage in collective action tested with university students from three universities (two from Spain, and one from Ecuador; total $N = 1063$). These results not only replicate those found in the previous studies, but also extend on how these emotions could be thought in terms of their functions in creating and reinforcing collectively shared identities. These social functions gain even greater importance analysing these outcomes in the lens of the literature of Collective Action. This is because different

²⁰ With this point, I do not intend to make a case about proposing emotions are indeed natural and discrete entities. Rather, it is the presentation of the first known study that tested the ST properties of three emotion frameworks that fit the criteria proposed in the classification of STEs (see Van Cappellen & Rimé, 2014).

comprehensive models on the roles of emotions hardly ever include positive forms of emotions as facilitators of collective action (van Zomeren, Postmes, & Spears, 2008; see also Klandermans & Roggeband, 2010), and here, evidence is provided supporting both direct and indirect emotional effects²¹ in what could be considered the basis of the intentions to subsequently promote collective action.

Part 1 as a whole show that, while particular emotions can be experienced in an individual manner, they may be considered as a mechanism that can lead us –or motivate in part– to take part in more collective forms of social life, such as collective experiences. STEs can be thought as positive forms of transcending one’s own absorption as it is theorized (Van Cappellen & Rimé, 2014), and help understating the dynamics, antecedents, and consequences of what is presented as the object of study in the next section: collective gatherings and rituals.

Implications from the Study of STEs

The implications derived from this part are diverse and can be joined in different lines of study mainly for social psychology, but also for political sciences, anthropology and the study of human nature in general. This is because STEs have a practical implication in the way we feel part of different social groups (i.e., social identities), in the way we orientate individual and collective efforts to help others (i.e., prosociality), and in their possible role in the study of intergroup conflict as well.

Some hypothetical examples of this could be proposed in terms of the emotions a group feels towards an ingroup martyr (see the case of the suicide protests in North Korea in 1991, Kim, 2002), how

²¹ These results are considered particularly relevant since these are the effects controlling more stable orientations people hold towards universality and benevolence (i.e., Transcendent Value orientations), and because a shared common identity is not a pre-requisite (see the discussion of Study 3).

different nations increase the *kama muta* we feel for ingroup members at the expense of the anger promoted towards outgroup members (see Hativovic, 2017), and also, how we can fuel shared common identities based on the principles of benevolence and welfare promotion (Basabe et al., 2018; de Rivera, 2018).

Even though these findings suggest a common and shared form of ingroup solidarity through STEs and further desires to promote, care and mobilize resources to cooperate, these findings should not be evaluated under a complete positivity-based approach. The fact that these emotional experiences facilitate outcomes that connect oneself within a superordinate level of identity does not rule out possible scenarios of, for instance, manifesting a strong will to fight and die for your own country in the case of a war (Bayram, 2018). In fact, data from studies in this thesis has shown that these two identities are not in direct opposition, while still, they can relate. In addition, since many STEs are constantly shared in spiritual and religious practices (see Emmons, 2005), they could also play a role in increasing parochial altruism (i.e., self-sacrifice to sustain the ingroup, and promotion to damage or hurt outgroups). Extant data from Ginges, Hansen, and Norenzayan (2009) show that assistance to religious practices –and not the individual frequency of praying– positively predicts parochial altruism in a multi-religious sample. Further, the symbolisms and elements constituting strong public manifestations of totalitarian regimes can also be boosted through the elicitation of STEs in public demonstrations of the power of a nation/group/regime, etc., since they constitute physical and symbolic manifestations of principles that can constitute leader-follower relationships (Fiske, 2004).

A fruitful avenue for avoiding many of possible side effects have already been proposed in several studies (e.g., Hermans & Dimaggio, 2007; Liu & Macdonald, 2016). In specific, it ought to increase the efforts to advocate for a social psychology of

cosmopolitanism that uses ethical principles as guiders (Liu & Macdonald, 2016) and better understands the relations and principles different social identities (Roccas & Brewer, 2002) –including a superordinate one– so as to minimize potential intergroup conflict (Dovidio, Gaertner, & Validzic, 1998; Hornsey & Hogg, 1999).

Collective Rituals and Gatherings

Defining human beings as social animals is precise, in the same way it is to understand that certain phenomena and manifestations of human behaviour are influenced by processes of a collective nature²². Therefore, the comprehension of human emotions without studying specific and transversal characteristic of collective manifestations of social life can be attempt in vain (Fischer & van Kleef, 2010).

This way, the study of collective rituals²³ shows how these forms of social life can be characterized as a form of self-transcendence in itself, influenced by emotions (e.g., STEs) and psychological processes (e.g., emotional and cognitive) that converge and help explaining how people orientate their behaviour –or at least, their behavioural intentions– to others. Consequently, this research line (Part 2) is a path that helps answering the questions initially asked because they can be thought of forms of human behaviour where people are already under the influence of psychological processes that sustain cooperation and common identifications. In other words, within collective rituals people are –explicitly and implicitly– connected to others.

²² The metaphor I would like to suggest is the search of the theory M in physics, a theory that could hypothetically reconcile the laws of particle and big objects. The present understanding shows that the current knowledge of both is real, nevertheless, they should still be analysed separately due one set does not work for the other, and vice-versa.

²³ For a discussion on why I am using rituals and not gatherings, see the Introduction and Study 4.

In a global sense, the studies of Part 2 show that, in general, participating in collective and celebration-alike rituals are highly positive experiences where people share identities, emotions, and the collective reality gains more importance. Nonetheless, it is also possible to confirm that participation in itself (i.e., assistance; the *what*) is not necessarily a sufficient criteria that guarantees different psychosocial effects will bring about. Rather, it is the subjective sense of an emotionally shared experience (Studies 4 and 5) and –according the type of ritual– a subjective assessment of achieving what the participation demands (Study 5) what can better account the effects (i.e., the *how*).

Study 4 advances in the understanding of emotional processes surrounding a great variety of collective gatherings ($k = 49$), with the attention on the Perceived Emotional Synchrony (PES) (Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015). In the first part, there are the analyses of the emotions surrounding the events in the main thematic axes from the project DSS2016 (Capital of Culture celebrated in Donostia/San Sebastián; for more information, https://ec.europa.eu/programmes/creative-europe/actions/capitals-culture_en). Based on the principles and effects of the Social Sharing of Emotions (Rimé, 2009), and how previous studies analyse emotions online (e.g., Alvarez, Garcia, Moreno, & Schweitzer, 2015; Garcia & Rimé, 2019), this part highlights how novel methods (i.e., analysing unstructured text in thousands of tweets) can inform about the dominant feelings that arise in a group situation (i.e., the events of DSS2016). In other words, how they can inform about the emotional climate of a group (de Rivera, 1992b; Páez et al., 1997).

Having found that the most dominant emotions were *trust*, *anticipation*, and *joy*, and also, the differential pattern of a particular axis of the project (i.e., Peace Lighthouse), the second part of this study uses survey data from more than 700 participants who took part in a variety of collective gatherings with different degrees of

ritualization. Multilevel analyses show that PES is a strong and significant predictor of individual- (e.g., psychological well-being, emotions) and collective-level outcomes (e.g., Local and European Identities, Social Climate). It replicates what Páez and colleagues (2015) found, and extends on other forms of collective participation including assistance to concerts, workshops, interactive plays, etc. In all, these highly variable collective settings' effects show a vision that is in line with the approach of Durkheim (1912/1995) and Collins (2004) and demonstrate how these manifestations of social life can be also theorized as collective rituals due to their implicated processes.

Study 5, on the other hand, focused on a micro-level of analysis and studied the effects of two psychological mechanisms on the STE known as *compassion for others*. This study consisted on a quasi-experimental design where university students participated in a mindful-dancing program and were evaluated PES, Shared Flow (Zumeta, Basabe, Włodarczyk, Bobowik, & Páez, 2016) and how these two can intervene in different outcomes (i.e., both at the individual- and collective-level). The results confirmed the relevance of these subjective psychological mechanisms in boosting a STE, common identities, and psychological well-being. Specifically, how participating in this mindful-based dancing program can increase *compassion for others*, a greater superordinate identification with the people of the world, but does not affect an ingroup salient identification –replicating results from Part 1. Finally, the subjective assessment of the shared ability to carry out the task (i.e., Shared Flow) and the perception of having shared strong and similar emotions (i.e., PES) can indirectly mediate the effects of participation and different facets of *compassion*, superordinate identification, in addition to psychological well-being.

These findings validate approaches on the importance of synchronous movements as cooperation-enhancing mechanisms

(e.g., Valdesolo & DeSteno, 2011), as well as approaching collective rituals as instances that can boost identities based on benevolence and concern on the welfare of others (de Rivera, 2018). Part 2 goes from a macro orientation (Study 4) to a micro (Study 5) and provides evidence for the beneficial aspects of participating collectively for the individual and social groups (Durkheim, 1912/1995; Collins, 2004; Páez et al., 2015; Rimé, 2009).

Implications from the Study of Collective Rituals

The results of this section provide a better understanding about the forces that can influence human behaviour in general, and in a more specific term, how psychological processes shape the individual reality, generating events that surpass the limits of the groups as well as the time perspective surrounding a given collective ritual.

The connection one might do is linked to the extent of these events in the individual life, and going back to the cycle once again, how these could in turn affect subsequent participation and effects. Nevertheless, and more connected to the study of human emotions, participating in collective rituals shapes *how* and *what* individuals feels. This is –from my point of view– the most important implication, and though it is presented simply, the consequences can manifest in diverse study areas, such as those under the name of collective action, and the psychology of demonstrations (Klandermans & Roggeband, 2010; van Stekelenburg & Klandermans, 2007). They should be taken into account when systematically analysing social changes and movements, and also, to different dynamics within the literature of intergroup conflict (Hewstone & Brown, 1986; Dovidio et al., 1998; Wenzel, Mummendey, & Waldzus, 2007). In other words, and similarly to some implications derived from the first part, I acknowledge that the whole psychology of rituals –even studied from a positive perspective– can work as “pressure cookers” and the whole model

presented here (see introduction and Study 4) could perfectly work as well in instances that could subsequently spark intergroup violence and conflict (e.g., Drury & Reicher, 2005; see also Ginges et al., 2009).

These processes are proved to fuel conformation of new social groups, and depending on the form they take place, they could feed an almost blind sense of adherence with a group (Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012; Whitehouse & Lanman, 2014). What is more, taking collective rituals as echo-chambers that respond to the contingencies of the environment (i.e., lack of personal control) might link individual propensities to engage in ritualistic behaviours as a form of reducing anxiety (Brooks et al., 2016; Lang, Krátký, Shaver, Jerotijević, & Xygalatas, 2015), with the inherent psychosocial phenomena that occur in them, as well as (un)wanted effects that these practices can fuel.

It is for these reasons that understanding the psychology of collective rituals and the role of emotional processes can bring light in the study of a widely shared human phenomenon that help us understand human nature, and in the future, better predict individual and collective behaviour.

Other Conceptualization of a Universal and Social

Emotion

The last section of this thesis comprises a theoretical proposal that has received a tremendous amount of influences during these 4 years of study and learning. This proposal was not foreseen at the beginning of this project and started as a way of theorizing a STE (i.e., awe), which subsequently was transformed in the article you have here. In addition, this particular study does not seek to provide answers to the initially asked questions. Neither has it sought to contribute to the study of self-transcendence –at least, not in

principle. Rather, this study compiles the questions and concerns from the different research projects I have the luck to be part of, and it is directly influenced by the research stay I did last year.

Based on the Relational Models Theory (Fiske, 1991, 1992), it presents the theorization of a social emotion that can arise under social relationships based on the model of Authority Ranking (AR), from the perspective of the subordinate. This emotion is presented thus as a proximal response (see Scott-Phillips, Dickins, & West, 2011) to the intense manifestation of legitimate authority and is conceptualized in order to predict its existence, manifestations and effects in human relationships. This study includes a variety of frameworks with the aim of validating it (see Crandall & Sherman, 2016), such as studies cultural manifestations of AR principles (Hofstede, 1983; Wilkinson & Pickett, 2009), the evolution of prestige and the evolutionary psychology on AR responses (Henrich & Gil-White, 2001; Jiménez & Mesoudi, 2019; Thomsen, Frankenhuis, Ingold-Smith, & Carey, 2011), as well as the literature on Charismatic Leadership (Conger, Kanungo, & Menon, 2000; Reh, Van Quaquebeke, & Giessner, 2017), and emotional responses to legitimate authority (Algoe & Haidt, 2009; Archer, 2018; Schindler, Zink, Windrich, & Menninghaus, 2013).

Besides the proposition of its existence derived from the work of Fiske (Fiske, 1992, 2004; Fiske & Rai, 2014), it proposes a certain order to the way research has been conducted in the topic of particular emotions which, though may overlap with the present, are research lines grounded in assumptions that have not been entirely proved (e.g., appraisal-orientations and motivational patterns). Nonetheless, it is not my intention here to fall into the “I’m-right-you’re-wrong dichotomy”. Quite the opposite, what is proposed here is a theoretical path that strives for the promotion of the scientific study of a human emotion so powerful that has left an immovable mark in the history

of different societies, and responds to a great variety of stimuli converging in a central point: legitimate authority.

Implications from the Study of the AR Emotion

“There is nothing more practical than a good theory” starts Eysenck’s (1987) article quoting Kurt Lewin’s famous sentence, and as a matter of fact, it is indeed as valid as it was. The theory in this case is Fiske’s (1991) theory on the universality of different models of social relationships which are indeed ubiquitous and, in the case of AR, accounts for the whole theorization of this emotion in contrast to previous attempts and efforts.

The study of human emotions have received an enormous amount of influences, perspectives, theorizations and still, it is our responsibility to continue advancing in its further improvement with more precise tools and ways to transform information in knowledge. Nevertheless, receiving the guidance of a theory is, as Lewin’s quote states, one of the best starting points in advancing scientific knowledge. The particular implication for this section arises from my own learnings in taking for granted some frameworks, and progressively –undoubtedly, influenced by the mentors I have had throughout this whole process– questioning, observing and improving the methods, approaches and techniques within the time I have attempted. Nevertheless, besides my own personal learning the implications of this section are also those regarding what the AR emotion entails: cross-culturally expressed behaviours, and more globally, the dispositions we have derived from social relationships.

While not stated in every emotion (nor collective ritual) study, culture is always present at different stages of this processes and not only affects our own psychology (Markus & Kitayama, 1991), but also the way we orientate and conduct research. Since we aim at studying human emotions, the lens of the model we use must include a suitable reflection –at minimum– of the form a particular object of

study is going to be affected by it. Therefore, any attempt that solely seeks for functioning under the culturally implemented expression of one of its products (e.g., language) would be limited to its cultural reality.

This implication also grants higher value to the work of universally happening phenomena, such as the Social Sharing of Emotions (Rimé, 2009), the psychological processes underlying collective participation (e.g., Hatfield, Cacioppo, & Rapson, 1992; Páez et al., 2015; de Rivera, 1992a; von Scheve & Salmela, 2014), and also the universality of fixed patterns of socially relate (Fiske, 1991). On the other hand, and more oriented to the study of the AR emotion, thinking of an emotion from the social relational lens it encapsulates it (i.e., in this case, the AR emotion from AR relationships) is more a matter of expecting rather proving what is seen. In other words, it is the theory the decisive element that predicts it, and not that a given emotion is “seen” and then “proved”. This point is a compelling way to engage and to think about human behaviour, and at the same time, is a theory-driven process to formulate and test the arguments, which, as it usually happens in science, will only be seen in the future.

More connected to what this emotion can tell us about human behaviour, on the other hand, it would allow extending bridges and thus linking missing pieces of information in a comprehensive form. For instance, in its (possible) role of the emergence of dominant leaders as a direct response of the lack of control under increasing uncertainty (e.g., Kakkar & Sivanathan, 2017), how it could be experienced and boost intergroup conflict through spiritual practices that enhance the figure of a shared deity or God (e.g., Ginges et al., 2009), or its presence in the development of attachment patterns due to the hierarchical representation with caregivers. Furthermore, due to the effects of mass media on shifting and/or promoting certain attentional focus (e.g., McCombs & Shaw, 1972; Green-Pedersen &

Stubager, 2010), this emotion might also have an impact in online advertising and politics using prestige and dominant figures in mass media (e.g., Facebook, Tweeter, Instagram).

Overall, this study may open several research lines and improve our understanding of emotional dynamics related to legitimate authority.

Final Notes

It is the emotions, their manifestations, and their effects in shaping who we are in the broadest sense. Yes, it seems that the answers were there all along. This thesis started asking why and how people engage with each other, participate in prosocial rituals, and simultaneously identify with everyone.

After analysing and interpreting the results provided here, I – on behalf of many contributors as well – can defend that STEs are a route to social solidarity, due to through collective gatherings and rituals prosociality is enhanced and thus people can overcome intergroup barriers, while creating a common sense of belonging with the humanity, a global one. The social functions of STEs are seen to create and, through participation in social rituals, reinforce collectively shared identities, especially that of a global reach. Finally, it is possible to see that the door is open to new questions regarding psychological, sociological, and anthropological conception of emotions. The proposal of a universal human emotion that arises in social relationships of legitimate authority which is, one of the blocks that structure individuals' and groups' lives.

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