cogent psychology

SOCIAL PSYCHOLOGY | REVIEW ARTICLE

Deindividuation: From Le Bon to the social identity model of deindividuation effects

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Abstract: Deindividuation may be described as the situation in which individuals act in groups and do not see themselves as individuals, thereby facilitating antinormative behavior. The present article analyzes the construct deindividuation theory from its conceptualization by Le Bon to the most recent theoretical model, the Social Identity Model of Deindividuation Effects. The aim of this study is to compare theories about deindividuation and to highlight its advances, identify theoretical questions that remain and suggest future directions for the study of this issue. Recent research conducted on deindividuation may promote prosocial behavior, prevent social disturbance and prevent the development of prejudice among children. Furthermore, it may provide a feasible way to comprehend and intervene in contemporary social issues. Recent scientific techniques, such as neuroimaging and predictive mathematical models, may improve comprehension of the construct in terms of its definition and prospective effects.

1. Introduction

When individuals are alone, they tend to behave differently than when they are in groups. We can verify this by observing people in a group and alone. At parties, for example, individuals congregate

ABOUT THE AUTHORS

The authors have similar research interests centered on how psychosocial processes affect fields such as education and health. The objective of the research groups to which the authors belong is to further understand cognitive processes underlying social behaviors, produce and evaluate interventions to change attitudes, reduce prejudice, and enhance the access to healthcare and educational services. It focuses on populations in vulnerable contexts such as with intrafamilial violence, violence against children and adolescents, considering various markers such as gender identity, sexual orientation, social class, among others. As there is a lack of studies related to empirical social psychology in Brazil, deindividuation is an important topic for our reality as it provides feasible opportunities to intervene in different social contexts.
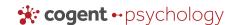
PUBLIC INTEREST STATEMENT

Ever wondered why when individuals are alone, they tend to behave differently than when they are in groups? Why do people tend to consume more substances in parties than they would normally? Why are there riots among soccer fans? How ex-members of the Nazi party allowed such a situation to occur? Deindividuation is a concept that may explain why it all happens. It may be described as the situation in which individuals act in groups and do not see themselves as individuals, thereby facilitating transgressive behavior. The aim of this study is to compare theories about deindividuation and to highlight its advances, identify theoretical questions that remain and suggest future directions for the study of it. Recent research conducted on deindividuation may promote prosocial behavior, prevent social disturbance, prevent the development of prejudice among children as well as comprehend and intervene in the rise of anti-immigrant movements.

in groups and consume more substances than they would normally, which may make this environment risky for participants' health (Fernández-Calderón, Lozano-Rojas, & Rojas-Tejada, 2013; Krul, Blankers, & Girbes, 2011). Modified behavioral expression in groups can also be verified among football fans, as in the riots that occur during some matches inside or outside of stadiums (Dunning, 2000). In both situations, group members transgress social norms that they may not transgress if they were alone. To explain the reasons for this phenomenon and to illuminate the conditions that promote the emergence of modified group behavior, the construct of "deindividuation" was created (Festinger, Pepitone, & Newcomb, 1952).

Deindividuation can be described as the situation in which individuals act in groups and do not see themselves as individuals (Festinger et al., 1952). In this case, the person does not feel unique in relation to others, causing a propensity to reduce inner restraints. This reduction of inner restraints facilitates the elicitation of suppressed behaviors, which may transgress social norms.

Deindividuation has its theoretical background in sociology and has been substantially modified since its introduction. The importance of this study may be illustrated by the fact that deindividuation has been presented as an extenuating circumstance for murder charges (Colman, 1991). Currently, it serves as the theoretical basis for research about interaction in virtual environments and provides a feasible way to explain contemporary phenomena (Guegan, Moliner, & Milland, 2016). Furthermore, it is possible to use previous discoveries about deindividuation to explain past and contemporary historical episodes involving group conformity such as the rise of anti-immigration movements in the world and why ex-members of the Nazi party said they did not know they could allow such a situation to occur. Hence the main goal of the present article is to demonstrate the theoretical development of the construct of deindividuation, establish comparisons between theories, and present theoretical advances. The conceptual history will show that the relationship between deindividuation and antinormative behavior has been prioritized, which may have delayed the investigation of the relationship between deindividuation and prosocial behavior.

Recent studies have limitations but provide important additions to the deindividuation theory. It has been demonstrated that the result predicted by the Social Identity Model of Deindividuation Effects (SIDE) can be achieved, but not by the mechanism proposed by it (Walther, Hoter, Ganayem, & Shonfeld, 2015), which suggests that the mechanisms of deindividuation continue to be studied and compared with those offered by other theories, such as Social Information Processing (Walther, 1996). It has also been highlighted how the propositions of SIDE can be complemented by social dominance theories (Guegan et al., 2016). This finding identifies the need to take into account group stereotypes and prejudices at the time that assumptions are made and results are analyzed in deindividuation studies. Limitations concerning the effect of the number of people on deindividuation have also been addressed (Uhrich & Tombs, 2014), being critical more research on this topic in order to understand the dynamics of crowds.

Therefore, we propose a new historical outlook on deindividuation theory. Le Bon's Theory of Crowd Behavior (1895/1995) will be presented, followed by a discussion of the phenomenon of deindividuation in psychology according to Festinger et al.'s (1952) experiment and the deindividuation model proposed by Zimbardo (1969). This study will then address research that investigates the intrapsychic aspects of deindividuation (Diener & Wallbom, 1976; Prentice-Dunn & Rogers, 1980), followed by the Differential Self-awareness Theory (Prentice-Dunn & Rogers, 1982) and studies that propose that the situational norm is the determining factor in deindividuation (Johnson & Downing, 1979). Thereafter, the Social Identity Model of Deindividuation Effects (Spears & Lea, 1992, 1994) will be analyzed, including current research on deindividuation (Chen & Wu, 2015; Guegan et al., 2016; Uhrich & Tombs, 2014; Walther et al., 2015). Finally, future directions for the study of the phenomenon will be suggested.

We propose a semi-narrative review which encompasses the literature on Deindividuation. We revisit not only classic studies but also contemporary ones published in the last 4 years. The main

inclusion criteria was the references in contemporary papers on the topic going back to the classic studies since the start of theorization in this field. We opt to highlight the specificities of each study such as data collection context, sample, instruments, main results and limitations and contribution of the Deindividuation theory. We also provide a table summarizing those topics.

2. Theoretical antecedents

The first author to develop the hypothesis that an individual acts differently among many people than he would if he were alone was Gustave Le Bon (1895/1995) in his work "The Crowd: A Study of the Popular Mind" (Dipboye, 1977; Nadler, Goldberg, & Jaffe, 1982; Postmes, Spears, & Lea, 1998; Prentice-Dunn & Rogers, 1982). According to Le Bon (1895/1995), the crowd, in psychological terms, is a group of individuals who, in specific circumstances, acquire new characteristics that are very different from the characteristics of the individuals who constitute it. Although there are different kinds of crowds, they have similar characteristics, such as the power of destruction, the certainty of impunity and a direct relationship between the certainty of impunity and the size of the crowd.

According to Le Bon, regardless of who is in a crowd, the individual conscious personality fades, and the group unconscious personality prevails. The crowd, in his position, constitutes a single collective being that is guided by a mental unity and a collective soul that makes individuals feel, think and act differently than they would independently. With the help of suggestion and contagion mechanisms, feelings and ideas can quickly become actions. The individual may display automated behavior, increasing the likelihood of violent occurrences (Le Bon, 1895/1995).

Despite being composed of people who tend to exhibit automated behavior, every crowd has a conductor. The conductor plays a decisive role through his will, around which the opinion of the crowd is formed and identified. Therefore, according to Le Bon, the authority of these conductors must be despotic because only through despotism can something be imposed on a crowd given the crowd's reduced level of rationality. The crowd absorbs the ideas of the conductor such that anything that is contrary to what he says is considered a mistake or a superstition (Le Bon, 1895/1995).

From the French Revolution (e.g. Burke, 2009/1790) until today (e.g. Canetti, 1984; Hoffer, 2002/1951; Kuehnelt-Leddihn, 1943; Ortega y Gasset, 2009/1929), crowds have been examined in research, and some authors have discussed the destructive potential of crowds (e.g. Mackay, 1841). The proposition of the crowd as something that is eminently destructive constantly intersects with psychological deindividuation theories that pursue experimental ways to study the phenomenon.

3. Deindividuation in psychology

The first experiment in psychology about deindividuation was conducted by Festinger et al. (1952); (Postmes & Spears, 1998; Prentice-Dunn & Rogers, 1982), who coined the term *de-individuation* to refer to the situation in which individuals act as if they were "submerged in the group" (Festinger et al., 1952, p. 382). Festinger et al. (1952) claimed that the tendency to perform violent acts is not restricted to crowds, as proposed by Le Bon (1895/1995); instead, it may arise among groups of different sizes and types.

Festinger et al. (1952) conducted an experiment to test the following assumptions: (1) deindividuation occurs in groups and is accompanied by the reduction of the inner restraints of its members; and (2) groups in deindividuation conditions are more attractive to their members than groups in which these conditions do not exist because an individual may be able to satisfy needs that are usually not satisfied due to inner restraints. Deindividuation was operationalized as the degree of identifiability within the group—that is, the ability of members to correctly identify each other by their names.

In the experiment of Festinger et al. (1952), discussion groups composed of students from the University of Michigan who signed up to participate were formed. The participants wore nametags and were asked to discuss as a group their feelings toward their parents. Prior to this discussion, they

read a fictitious text that stated that most people have deep resentment toward one or both parents, and those who most refuse to reveal the existence of these feelings have the greatest amount of hatred. This was the chosen topic of discussion because it was hypothesized that most people have inner restrictions about expressing hatred toward their parents, and the more they express these feelings, the greater the reduction of their inner restraints.

The degree of identifiability within the group was evaluated as follows. After the experiment, the participants received a sheet of paper with ten sentences. Five of these had not been said by anyone, whereas five had been said. For every sentence, the participants were asked to mark one of three options: if they did not remember the words being said during the discussion, if they remembered the words being said but not who said them, or if they remembered the words being said and who said them. If this last option was selected, the participant also wrote the first name of the person who said the sentence. Finally, a questionnaire developed exclusively for the experiment was used to measure the degree of attractiveness in relation to the group. The participants were asked to mark how much they would like to discuss similar topics again with the same group (Festinger et al., 1952).

In the analysis of the results, both of the initial hypotheses were confirmed: (1) there was a positive and statistically significant correlation between the amount of negative attitudes revealed toward the parents in the discussion and the number of errors that the subjects committed in attempting to identify the phrases described in the instrument, confirming the hypothesis that deindividuation occurs in groups and is followed by the reduction of inner restraints on members; (2) there was a positive correlation between the amount of negative attitudes revealed toward the parents in the discussion and the average scores on the questionnaire that measured attractiveness to the group, confirming the hypothesis that deindividuated groups are more attractive to their members than groups in which these conditions do not exist.

Thus, the first theoretical conceptualization of deindividuation in psychology is that one of its determinants is the reduction of inner restraints. Festinger et al. (1952) were the first to provide empirical support for this theory by demonstrating that deindividuation may occur in groups smaller than crowds and can therefore be studied in the laboratory. Moreover, they demonstrated that deindividuation is associated with a greater attraction to the group in which this phenomenon occurs, something that had not been previously proposed. This study was important to show how psychology could experimentally investigate group behavior, which had mostly been examined in studies by other areas, such as sociology (e.g. Tarde, 1903).

4. Zimbardo's deindividuation model

Another exponent of the study of deindividuation was Zimbardo (1969). According to him, deindividuation is influenced by the group, but it is essentially an intra-individual process. He was the first author to state that actions resulting from deindividuation can be prosocial, such as demonstrating love for others. However, most of his research on the subject sought to establish relationships between deindividuation and anti-social behavior. The author describes the deindividuated behavior as emotional, impulsive, irrational, intense, hyper-responsive, self-reinforcing and lacking discriminative stimuli control.

The mechanism of deindividuation described by Zimbardo (1969) works as follows: internal or external variables related to the subject (anonymity, sense of shared or diffused responsibility, numerous groups, altered time perspective, arousal, overload of sensory input, trust that there will not be cognitive interactions, physical involvement in group actions, or altered states of consciousness) cause a state of deindividuation. This state is characterized by changes in the perception of oneself and others, such that self-observation and concern for social evaluation are reduced. Thus, there is minor concern with the evaluation of others toward oneself, which creates a tendency toward behaviors that are normally inhibited because they transgress social norms. His model was influenced by Behaviorism, considering the deindividuated behavior self-reinforcing and lacking in discriminative stimuli control, as well as cognitive psychology, taking into account subjective affects and cognitions.

To test his theory, Zimbardo (1969) conducted two experiments. The first analyzed the relationship between anonymity and aggression. Groups composed of four participants were formed, but half of the groups were under anonymous conditions (the participants were never called by their names, and the room they were in was poorly lit), whereas the other half of the groups were under identifiability conditions (they were always greeted by their names, wore large nametags, and the importance of their unique reactions was emphasized by the experimenter). Upon arrival, the experimenters explained to the participants that the research sought to examine the assessment of the subjects' empathic responses to strangers. The members of the deindividuated group were told that they would have to wear a lab coat and a mask because previous research had shown that facial expressions created biases in the experiment. For the members of the groups in the other condition, the experimenters emphasized the importance of individual responses in the research results.

After the participants put on the corresponding garments for their group, they heard an audiotape with an interview between the experimenter and a "stranger" (a confederate) that would be judged in the experiment. Then, they responded on a self-report scale (designed exclusively for the experiment) about the extent to which they felt the stranger was honest, sincere, warm and genuine based on the recording. At this time, the participants could hear two possible tapes: one of a confederate who behaved nicely and said that he performed volunteer work or one of a confederate who behaved critically and selfishly and said that he disliked Jews. The experimenters explained that the participants would have to apply shocks to the stranger because the study sought to investigate whether empathic assessments differed when the participant was merely observing someone else and when the participant was directly interacting with the other person (in this case, the interaction was shocking the stranger). The participants were told that the experimenters would not know who applied the shock, creating an environment of the diffusion of responsibility.

The shock was fake, but before the experiment began, the experimenter applied a small real shock to the participants so that they would believe that the same intensity of the shock would be applied to the stranger. The participants could see the stranger through a one-way mirror during the test. Whenever a shock was "applied," the stranger screamed and acted as if he was in extreme pain. After the end of the experiment with the first stranger, the participants answered one self-report scale (designed for the experiment) about their estimation of the shock's frequency and their evaluation of the reactions of the victim. The participants were then told that the procedure would be repeated with a different target. If the first stranger had been randomly assigned and instructed to behave in a pleasant way, the second target was the stranger who would behave in an unpleasant way and vice versa. After the entire procedure was repeated, the experiment was finished.

The hypothesis was that the subjects in the deindividuated condition would increase the level of the shock during the task and apply it for longer than those in the identifiability condition would. The deindividuation model predicts an increased chance of aggressive behavior because it is self-reinforcing. Moreover, because the behaviors resulting from deindividuation conditions are not under the control of external discriminative stimuli, there may not be a correlation between the duration of the shock and the perception of the personal traits of the stranger in this condition, whereas there may be in the identifiability condition. This is because if there were such a correlation, it would indicate that the way the stranger behaved during the taped interview would serve as a discriminative stimulus in the behavior of applying shocks, contradicting the model.

The difference in shock duration between the deindividuated and the identifiable groups was statistically significant. Furthermore, impressions of the stranger significantly influenced the shock duration of the identifiable group but not of the deindividuated group. This finding confirmed the hypothesis that anonymity was related to aggression and that discriminative stimuli did not exercise an influence on behavior resulting from deindividuation conditions.

To re-test his model, Zimbardo (1969) conducted another experiment with Belgian soldiers. The soldiers were called to participate in the experiment at Leuven University. Upon their arrival, they

waited for the experimenter in groups and were taken to individual cabins where an experimenter explained that the study sought to evaluate how people judged the reactions and characteristics of others under different conditions. Thus, the participants were asked to judge a stranger in two conditions: when they could see their facial reactions and when they could not.

The subjects who had been assigned to the deindividuation condition wore large hoods, were never called by their names, were in a dimly lit room, and could see the other members of their group (using the same clothes and under the same conditions) through a closed-circuit TV inside the cabin. In the identifiable condition, subjects were always called by their names and could see the faces of their fellow group members on closed-circuit television. The participants answered a self-report scale about how they felt at the time.

The group was told that some members would have to apply shocks to a test subject when they could see him, and some would apply shocks when they could not see the test subject. In this way, it would be possible to analyze the difference in the soldiers' judgment of the reactions of the test subject in situations in which there was interaction (seeing the subject) in comparison to situations in which there was no interaction. Individually, all subjects were told that they would have to apply shocks, but the experimenter would not know the duration of the shock applied by each participant. The experiment began, and after the last trial, the soldiers responded again to the scale to indicate how they felt at the time and evaluated the victim's reactions.

According to the model advocated by Zimbardo (1969), in situations in which participants were deindividuated and the stranger could not be seen (maximal anonymity), the average shock duration should be higher, whereas in situations in which the participants were individuated and the victim could be seen (minimum anonymity), the average shock duration should be lower. However, the opposite occurred: the subjects in the anonymity condition had the lowest average shock duration, whereas identifiable subjects had the highest average shock duration. In addition, in the identifiable condition, the shock duration gradually increased (indicating a self-reinforcing behavior), whereas in the deindividuation condition, it remained constant. Furthermore, the subjects in the identifiable condition felt more satisfied after applying the shock to the victim than did those in the deindividuation condition.

The results were explained by the authors as follows. Those who were in the deindividuated condition felt more frightened and tense even before the experiment began (soon after putting on their garments). Many in this condition said that if they were part of the same experiment again, they would rather be among their group and not alone in cabins. The soldiers who were assigned to the deindividuation condition had to change their clothes and were not called by their names, so they felt isolated and in an adverse situation in relation to their everyday lives (that is, wearing uniforms and nametags). These changes made the subjects in the deindividuated condition feel more anxious and self-conscious, causing the opposite effect of what was expected. The subjects in the identifiability condition felt only moderately deindividuated because the situation was similar to that experienced normally—that is, they were not constantly engaged in personal reflection or self-conscious. The authors concluded that if anonymity makes a subject feel isolated and self-conscious, it will inhibit aggression, and the effects will be different from those originally proposed by the deindividuation model. Thus, the typical behaviors resulting from deindividuation are more likely to be elicited when the individual does not feel isolated from other members of the group or does not lack the possibility of receiving group support.

The model proposed by Zimbardo (1969) breaks new ground by suggesting that variables that are both internal and external to the subject may cause deindividuation and that the resulting behaviors can be prosocial. Although the author did not investigate how deindividuation may elicit prosocial behavior, the statement that it is also possible may have contributed to further investigation of this issue. Moreover, in the conclusions of the experiment with the Belgian soldiers, Zimbardo (1969) draws attention to the fact that the way the subject feels at the time that deindividuation occurs

may cause an effect that conflicts with the expected effect, stressing the importance of analyzing the internal state of the subject during the deindividuation process. The proposition of the deindividuation state as a theoretical construct mediator can be seen as an improvement of the reduction of inner moral restraints proposed by Festinger et al. (1952) because this author did not specify which variables could induce the phenomenon or the impact of how the individual feels on it. The proposition of the deindividuation state by Zimbardo (1969) may have promoted investigations of the intrapsychic aspects of deindividuation.

5. Intrapsychic aspects of deindividuation

The cognitive revolution was important for Zimbardo's (1969) restructuring of deindividuation. As part of cognitivist movement, some theorists (Diener, 1979; Singer, Brush, & Lublin, 1965; Ziller, 1964) noted the need to further demonstrate the intrapsychic effects of deindividuation to give the construct greater validity in light of cognitive models of information processing. They noted that research should not focus on external variables that trigger the phenomenon but on the investigation of what happens intrapsychically during the occurrence of the phenomenon.

In the wake of such research, some aspects of Zimbardo's deindividuation theory (1969) were corroborated, such as the direct relationship between the diffusion of responsibility and aggressive behavior (Diener, Dineen, Endresen, Beaman, & Fraser, 1975), the relationship between the reduction of self-consciousness and antinormative behavior (Diener & Wallbom, 1976), and the direct relationship between arousal and oppositional behavior (Diener, Westford, Diener, & Beaman, 1973). However, some aspects of have also been contested, such as the direct relationship between anonymity and the tendency toward aggressive behavior (Gergen, Gergen, & Barton, 1973) and the consideration of anonymity as a variable that induces deindividuation (Jorgenson & Dukes, 1976; Singer et al., 1965). The intrapsychic phenomena of deindividuation were analyzed in relation to self-awareness, especially the theories of Duval and Wicklund (1972) Wicklund (1975) Diener, (1979), Ickes, Layden, & Barnes, (1978) and Prentice-Dunn & Rogers, (1980). Wicklund (1975) proposed that the focus of conscious attention determines the level of self-awareness. When an individual's conscious attention is focused on himself/herself, the individual's self-awareness level is high, whereas when conscious attention is focused outwards, self-awareness is low. According to Duval and Wicklund (1972), people who display a high level of self-awareness tend to behave according to social and/or personal standards more than those who display a low level do. This is because when conscious attention is focused on the self, it elicits a process of comparing oneself with internal standards. When one is not in accordance with these standards, a negative effect is produced.

Diener and Wallbom (1976) also took self-awareness into account and proposed that a reduction in self-awareness is the crucial element for the occurrence of deindividuation. For these authors, when conscious attention is not focused on oneself, the decision of whether to elicit a behavior is undermined. This reduces inner restrictions and makes room for antinormative behavior. To test this proposition, they conducted an experiment with psychology students. In the experiment, the participants were asked to mark on a list of anagrams the words did not make sense in the group. The experimenter explained that the time limit to complete the test was five minutes, but he would return in ten minutes because he would be administering the test to the other subjects. After five minutes, the participant should stop trying to solve the test, and any word marked after the time limit would be counted as cheating. There were two-way mirrors in the participants' room that allowed another researcher to observe and determine whether the participant continued answering after the time limit.

Half of the participants were in an experimental condition (self-aware), and half were in a control condition (not self-aware). According to the authors, listening to one's own voice and seeing oneself in a mirror increase self-awareness; this was the way they operationalized the construct. In the experimental condition, there was a mirror in front of the participant and a tape recording of the participant's voice. In the control condition, the mirror was positioned away from the participant so that if he looked into the mirror he could not see himself, and strangers' voices were reproduced.
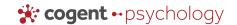
The relation proposed by Diener and Wallbom (1976) between the reduction of self-awareness and antinormative behavior was confirmed. Whereas 7% of the subjects in the experimental condition cheated, 71% of the subjects in the control condition did so. This experiment contributed to the solidification of the construct by demonstrating how self-awareness influences the occurrence of the phenomenon, complementing studies of cognitive activity during deindividuation. For the authors, regardless of whether an individual is anonymous in a group, if the individual is not self-aware, the effects of deindividuation may arise. Although this study emphasizes the relationship between deindividuation and antisocial behavior, it also demonstrates that techniques that raise self-awareness may have practical importance for preventing antinormative behavior, such as a mirror or the reproduction of an individual's own voice. It may be helpful to implement some of these techniques in certain environments, such as placing mirrors in clothing stores.

Another model that takes into account the deindividuated state was proposed by Prentice-Dunn and Rogers (1980). They conducted an experiment to test the hypothesis that variables that induce deindividuation (anonymity, lack of responsibility and arousal) cause a state of deindividuation, and this state is a mediator of aggressive behavior in small groups. They also hypothesized that an exploratory factor analysis of questionnaires applied after the experiment (about how the participant felt and what he thought during the experiment) would result in two factors: altered experience and self-awareness, components of Zimbardo's (1969) and Diener and Wallbom (1976) theories. The participants were told that the study was about behavioral modification and biofeedback and that they would be asked to apply (fake) shocks to a subject when his heart rate fell below a predetermined level so that his heart rate would rise again. Participants could choose different levels of shocks, and the applied level was measured as the aggressiveness variable.

The participants were divided into two conditions: the individuation condition and the deindividuation condition. In the individuation condition, the room was brightly lit and the participants wore tags with their names. Additionally, the researchers showed interest in the intensity of the shock applied, and they told the participants that they would meet the test subject after the experiment and that the participants were individually responsible for what happened to the test subject. In the deindividuation condition, the room was dimly lit, white noise was played (to arouse the participants), and the participants did not wear nametags and were not called by name. They were told that the intensity of the shocks administered was not important to the research, so the researchers would not know the intensity of the shocks. Moreover, the participants would not meet the test subject after the experiment, and the researchers would assume full responsibility for whatever happened to the test subject. After the experiment, the subjects of both conditions completed a questionnaire (developed exclusively for the experiment) that sought to assess the deindividuated state.

An exploratory factor analysis of these questionnaires was conducted, resulting in the two predicted factors, altered experience and self-awareness. Thus, the authors proposed a model in which the variables of anonymity, lack of responsibility and arousal cause a subjective state of deindividuation composed of two factors: altered experience and self-awareness. The latter refers to the ability to access the self and to focus on oneself, whereas the former refers to the change of internal processes, such as thoughts, emotions, feelings, and perceptions. It was concluded that the deindividuation process reduced self-awareness and altered not only cognitive but also affective processes, which may cause antinormative behavior.

Prentice-Dunn and Rogers (1980) were able to demonstrate statistically the theory that Zimbardo (1969) had proposed: the deindividuated state is a mediator of antinormative behavior. They demonstrated that this internal state is composed of altered experience and self-awareness. This finding was innovative because previous research did not distinguish between these two constructs or their functional differences. Therefore, the advancement of data analysis techniques contributes to knowledge of a phenomenon that is not directly observable, such as deindividuation, because factor analysis made it possible to propose a more specific theoretical model for this concept.

6. Differential self-awareness theory

Prentice-Dunn and Rogers (1982) proposed another deindividuation model using their differential self-awareness theory. This theory proposes that an individual's self-awareness has two components, public and private. The public component involves an individual's focus of attention on himself as a social object, such as when an individual cares about his or her appearance in the sight of others. The private component involves an internal and personal focus, such as when a person focuses on his or her perceptions, feelings and thoughts. This proposal differs from the theory of self-awareness of Wicklund (1975), which is unidimensional (only assesses self-awareness as high or low). Differential self-awareness theory states that because it has two components, one may be low and the other may be high at the same time; thus, it is not necessarily possible to provide a univocal characterization of the self-awareness level.

The authors stated that the variables that were proposed as inducers of deindividuation could be classified into two categories: accountability cues and attentional cues (Prentice-Dunn & Rogers, 1982). The former provide information about the extent to which people will be held accountable for their actions, such as informing them whether the responsibility for an action is exclusive to the person who performs the action. The latter guides the focus of the individual's attention, such as instructing the participant to focus on how he feels at the moment or focusing on the reactions of someone other than himself. These can be divided into internal attentional cues (which direct the focus of the subject's attention to himself) or external attentional cues (which direct the focus of the subject's attention away from himself) and are related to private self-awareness. Exposure to internal attentional cues may increase private self-awareness, whereas exposure to external attentional cues may reduce it. Accountability cues, in contrast, are associated with factors external to the individual and are thus related to public self-awareness. The higher the indication that the subject will be held accountable for his actions (high accountability cues), the higher the public self-awareness.

Therefore, according to previous research about deindividuation, internal attentional cues and high accountability cues are less likely to generate antinormative behavior than external attentional cues and low accountability cues are. However, even with this probability difference in inducing antinormative behaviors, the authors state that a reduction in both public and private self-awareness can lead to, for example, aggressive behavior. Although the behavior is the same, the eliciting process occurs due to different processes. The authors suggest that only a reduction in private self-awareness is related to the deindividuation process. They base this finding on their previous study (Prentice-Dunn & Rogers, 1980), which showed that variables that cause deindividuation reduce self-awareness, and on the study by Diener and Wallbom (1976), which demonstrated that a reduction in self-awareness reduces the conscious decision about performing a behavior.

According to the differential self-awareness theory, only private self-awareness is related to internal focus (i.e. the conscious decision about a behavior). Therefore, if a transgressive behavior occurs because of something other than the reduction of its cognitive mediation (such as the absence of responsibility for an action), it is not the deindividuation process that is involved. When behaviors occur due to exposure to external attentional cues (reducing private self-awareness), this means that the individual is less aware of his or her internal state and is unable to regulate his or her actions. This is the deindividuation process. However, when behaviors occur due to low accountability cues (reducing public self-awareness), this is not due to reduced cognitive mediation but is a result of thinking about the consequences of these actions. Concluding that behaving in this way produces more advantages than disadvantages, the subject elicits the behavior, this is a process other than deindividuation.

Prentice-Dunn and Rogers (1982) conducted a study to test the following hypotheses: (1) attentional cues alter private self-awareness; (2) accountability cues alter public self-awareness; (3) internal attention cues and high accountability cues should be aggression inhibitors when compared to external attention cues and low accountability cues; (4) private self-awareness is related to deindividuation, whereas public self-awareness is not. Hence, the authors manipulated four variables:
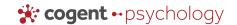
internal and external attentional cues in addition to high and low accountability cues. Forty-eight male psychology students participated in the study.

At the beginning of the experiment, the participants were divided into groups. It was explained to the groups that the research involved two experiments, one about problem-solving processes and the other about memory. The participants had to perform two separate tasks. For the first experiment, they had to solve anagrams that formed popular band names, whereas for the second experiment, they had to apply (fake) shocks to a subject who was participating in an experiment about stressful distractions in memory. Before beginning the anagrams task, the participants answered a self-report questionnaire composed of 11 items adapted from questionnaires used by Prentice-Dunn and Rogers (1980) that aimed to analyze the deindividuation state. Then, the participants had 15 min to solve 25 anagrams. Afterwards, they went to the room where they would have to apply the shock. In the middle of this second experiment, the participants answered the same 11-item questionnaire. Once the experiment was over, they responded to another scale that sought to assess the deindividuated state and was composed of the 11 items from the previous questionnaire and 10 other items. The items could be answered on scales from 1 to 10 and took into account public and private self-awareness as well as the deindividuated state.

The first manipulated variables were the attentional cues. In the external attentional cues condition, the subjects were repeatedly instructed to focus their attention on the outside and not on themselves during the experiment. They were also told that the focus of the study was to analyze group processes of problem solving; thus, they could talk to each other during the experiment. In this condition, the anagrams were solved in groups and in a dimly lit room, and the shock task was conducted while rock music was played at a high volume in an attempt to direct the subjects' attention outside of themselves. In the internal attentional cues condition, the subjects were informed that the experimenter was interested only in their individual reactions. During the explanation, they were repeatedly told to focus on their thoughts and feelings while performing the tasks. The anagram task was performed individually in a bright room, and the shock task was conducted in a well-lit room with no music playing.

The second manipulated variables were the accountability cues. In the high accountability cues condition, the subject who would receive the shocks in the memory experiment was in the same room as the participants when the participants arrived. During the instructions, the participants were told that they would meet the subject who would receive the shocks after the experiment to discuss the results, including the shock levels used. They were also told that the levels of shock applied individually could be monitored by the researchers and that these levels would be noted and discussed with each participant at the end of the experiment. In the low accountability cues condition, the participants never saw the subject who would be tested, and they were told that they would not meet the test subject after the experiment. They were also told that the level of shock applied was not of primary interest to the researchers and thus would not be recorded.

The study confirmed all hypotheses: (1) attentional cues alter private self-awareness because subjects who were exposed to internal attentional cues had higher scores on the items of the questionnaire that assessed private self-awareness levels than did those who were exposed to external attentional cues; (2) accountability cues alter public self-awareness because subjects exposed to high accountability cues scored higher on items related to public self-awareness than did those exposed to low accountability cues; (3) internal attention cues and high accountability cues should be inhibitors of aggression when compared to external attention cues and low accountability cues because the subjects under these conditions administered more intense shocks than did those in the former conditions; (4) private self-awareness is related to deindividuation, whereas public self-awareness is not. An exploratory factor analysis of the questionnaires resulted in two factors: one composed of items related to private self-awareness and the other related to altered experience. Thus, it was confirmed that public self-awareness has no relationship with deindividuation, whereas private self-awareness does have a relationship with deindividuation.

The application of differential self-awareness theory to deindividuation illustrates how one may obtain the hypothesized results from insufficiently specific procedural explanations. Whereas Prentice-Dunn and Rogers (1980) obtained a result that supported their theory at that time, Prentice-Dunn and Rogers (1982) conducted a similar experiment with similar instruments and found evidence of a more specific theory. This finding suggests that theoretical refinement is essential to advance the knowledge of a construct, confirming the importance of connections between different theories and the replicability of experiments from other theoretical models. Although the authors made important contributions to studies relating self-awareness to deindividuation, there are still empirical lacunae (Mullen, Migdal, & Rozell, 2003) that should be studied further.

7. The situational norm as a determinant of deindividuation

All of the aforementioned experiments investigated the impact of deindividuation on an antinormative behavior, such as applying shocks, cheating or saying negative things about a parent. However, Johnson and Downing (1979) proposed a different explanation for deindividuation. They conducted an experiment that examined the impact of prosocial situational cues on behavior and proposed a model that considered an individual's interpretation of the perceived norm of a situation. The authors proposed that anonymity induces deindividuation, and the deindividuated subject is more susceptible to following salient rules in a situation.
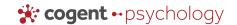
Students of psychology, sociology and human development were recruited for the study. Their task was to apply (fake) shocks to a subject who participated in a study about the effect of excitement in verbal learning. After the test subject said a word, a shock level was chosen, and the total amount of the applied shock (the average value chosen by the participants) appeared in the room of each participant.

Before the experiment began, the participants were asked to wear either a Ku Klux Klan-like robe or nursing clothes, which were assigned randomly to each participant. A photo of the participant dressed in the costume was taken, and photos of other participants with the same costumes were hung in each participant's room. In the rooms of participants in the identifiable condition, the names of each participant were written under the pictures in the rooms, and the intensity of the shocks was presented individually with the name of each person under the chosen intensity. In the deindividuation condition, there were no names written on the photos, and there was no way to identify the intensity of the shock chosen by each participant.

After the experiment, questionnaires about the perception of the costumes were answered by the participants. Those who wore the Ku Klux Klan costume rated it negatively, whereas those who wore the nurse clothing rated the costume positively. The participants were then gathered in a room with many people (including participants and non-participants) and completed questionnaires about the difficulty of identifying the other participants in the experiment. The group in the deindividuation condition indicated that it was difficult to identify who was part of the experiment and who was not, suggesting that identifiability was low, as expected for a deindividuation scenario. In the other group, the identifiability was not affected by the situation.

Participants in the deindividuation condition tended to apply higher shock levels, whereas those in the individuation condition tended to choose lower shock levels. Johnson and Downing (1979) proposed that aggressive behavior may have occurred much more often due to cues provided by clothing (about the most appropriate way to behave) than due to deindividuation per se. The Ku Klux Klan is a racist group that kills people, whereas nurses care for people. According to the authors, most previous deindividuation experiments had omitted people's judgments of the costumes they were told to wear, which may have given rise to a false hypothesis about the relationship between anonymity and the tendency toward aggressive behavior.

The authors propose that anonymity induces deindividuation, and the deindividuated subject is more susceptible to following salient rules in a situation. Therefore, if an individual is in a

deindividuation situation and there is a tendency toward prosocial behavior (as suggested by the nurse costume), the person tends to act in a prosocial manner. However, when faced with the salience of antisocial norms (as suggested by the Ku Klux Klan clothing), antisocial behavior will be stimulated. This experiment offered an explanation for the process by which prosocial behavior may occur through deindividuation. Previously, the possibility of prosocial behavior had been mentioned by Zimbardo (1969), but there was no further explanation of the process by which it may occur. The focus on the situational norm was crucial for the engenderment of the Social Identity Model of Deindividuation Effects (Spears & Lea, 1992, 1994).

8. The social identity model of deindividuation effects

The proposition that situational norms influence what happens in groups was also addressed by Reicher (1984, 1987). According to him, the "antinormative" behavior that may emerge in crowds is a symptom of what is normative within that group and in that situation. According to the author, it is essential to consider the difference between social norms, which refer to the general context of everyday life, and group norms, which are specific to each group in certain situations. If an individual is in a deindividuation situation, the norms of his group at the time overlap with general social norms, even if they are incompatible. From this focus on the importance of situational rules, the deindividuation model called SIDE was created (Spears & Lea, 1992, 1994).

SIDE is based on the Social Identity Theory (Tajfel & Turner, 1979) and the Self-Categorization Theory (Spears & Lea, 1994; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The Social Identity Theory (Tajfel & Turner, 1979) suggests that individuals create part of their identity through groups to which they belong; thus, a person sees himself not only as X but also as X, which is part of the A, B, and C groups. These groups help to define who he is and how he should relate to others. Each group has rules regarding how to act, think, and behave. According to the Social Identity Theory, identity is partly constituted by the different groups of which an individual is a member, and the fact that the subject is immersed in a group and acts in accordance with its rules does not decharacterize his personality. What occurs is an overlap of the more collective aspects of personality at the expense of the more individual aspects.

Self-Categorization Theory (Turner et al., 1987) states that there are two different levels of self-categorization: the personal and the social. There are situations in which we look at ourselves essentially as individuals, focusing on our idiosyncrasies and highlighting our personal identity. However, there are other situations in which our similarities with members of a group to which we belong are emphasized, highlighting our social identity. When a social identity becomes salient, individuals tend to see and categorize themselves as interchangeable representatives of some social category more than as different and unique people. In salient social identity situations, the individual tends to follow the group rules about how to feel and behave, producing normativity among the members. Therefore, when a group of psychologists speak of themselves as a category of psychologists, they tend to highlight their intragroup similarities and their differences in relation to other professionals.

SIDE incorporated these ideas and applied them to deindividuation (Reicher, Spears, & Postmes, 1995). According to SIDE, the variables that cause deindividuation minimize opportunities to highlight individual differences, emphasizing the group aspect of the situation. Consequently, the influence of the norms of the group in which the subject is included at the time increases, producing the behavioral normativity proposed by self-categorization theory. In addition, a person who is in a deindividuation situation is not separate from his or her individual characteristics; however, the more collective aspects of the personality are salient, as proposed by the Social Identity Theory. In this way, the SIDE changes the way of analyzing deindividuation, as shown in Table 1. It changes the idea initially proposed by Le Bon (1895/1995), that individuals in certain conditions are no longer considered as such and that antinormative behavior is almost a natural consequence, into the idea that in these conditions, the individual personality is still present and the displayed behavior is not antinormative but is normative for that situation.

cogent ··psychology

Table 1. Summary of theories

Author	Proposed model		Advances of the theory
	Determinant of the phenomenon	**What are the consequences?**	
Le Bon (1895/1995)	Being among crowds	The individual conscious personality fades and the unconscious group personality arises. Individuals feel, think and act differently than they would alone and a tendency to antinormative behavior is created	Commonly referred as the first theory about Deindividuation
Festinger et al. (1952)	Individuals are not seen or paid attention to as individuals	There is a reduction of inner restraints, due to which the individual performs actions that he wants, but would not normally do. Also, there is a bigger satisfaction than if the individual were in an individuated group	First formal Deindividuation proposition. Deindividuation occurs not only in crowds, but also in smaller groups. Deindividuated groups are more attractive to its members than individuated ones
Zimbardo (1969)	Reduction of self-observation and concern for social evaluation	A Deindividuation State arises, which is characterized by changes in the perception of oneself and others. Self-observation and concern for social evaluation are reduced, creating a tendency to behaviors that are normally inhibited	Internal and external variables may prompt Deindividuation. Behaviors resulting from Deindividuation may be either pro- or antisocial. How the subject feels when Deindividuation occurs may provoke an effect opposite to the predicted
Diener and Wallbom (1976)	Reduction of self-awareness	The decision about whether to elicit a behavior or not is undermined. It reduces inner restraints and makes room for antinormative behavior	Reduction in self-awareness is the crucial element for the occurrence of Deindividuation
Johnson and Downing (1979)	Anonymity	The deindividuated subject is more susceptible to follow the salient rules in the situation	Deindividuated subjects are more eager to follow salient situational norms, either if they are pro or antisocial
Prentice-Dunn and Rogers (1980)	Reduction of Self-awareness and alteration of cognitive and affective processes	Aggressive behavior	Statistical demonstration that the subjective deindividuated state mediates the aggressive behavior
Prentice-Dunn and Rogers (1982)	Reduction in private self-awareness	The cognitive mediation of the behavior is undermined and antinormative behavior may be elicited	Only private self-awareness is related to Deindividuation
SIDE (Spears & Lea, 1994)	Minimization of opportunities to highlight individual differences	Influence of the norms of the group in which the individual is at the moment increases, producing behavioral normativity and displaying more collective aspects of personality	Individual personality is still being displayed on deindividuated subjects

Before it was proposed that "antinormative" behavior is actually normative for a particular group, many studies stated that deindividuation was the cause of antinormative behavior. Postmes and Spears (1998) conducted a meta-analysis to investigate previous data and compare them to data obtained through research on different deindividuation models. They divided the deindividuation research into three categories. The first is called the Classical Deindividuation Theory and corresponds to research in which deindividuation was associated with a lack of monitoring or a lack of responsibility when an individual was included in a group. This first classification is composed of the studies of Festinger et al. (1952), Zimbardo (1969) and Diener (1977). The second category is called Contemporary Deindividuation Theory. It corresponds to studies by Prentice-Dunn and Rogers (1982, 1989) that propose reduced private self-awareness as the main inducing variable of deindividuation.

The main distinction between the two categories is that in contemporary theory, the deindividuation process only comprises behaviors resulting from the reduced cognitive mediation of behavior (reduction in private self-awareness), whereas behaviors resulting from lower social monitoring sensations (reduction in public self-awareness) are not part of the deindividuation process. In research by Festinger et al. (1952) and Zimbardo (1969), this lack of a monitoring sensation is associated with the deindividuation process, whereas in Diener's (1977) study, this aspect is ambivalent but still present. Despite proposing different models, the classical and contemporary theories agree that the deindividuated state tends to elicit antinormative behavior. The third category consists of the SIDE and conflicts with this hypothesis. According to the authors, the SIDE constitutes another category because although it claims that group immersion can enhance conformity among members, as proposed by the classical and contemporary theories, it is the only theory that differentiates group norms from social norms.

The variables of anonymity for group members, reduced private self-awareness and group size showed small and inconsistent, although statistically significant, positive effects on antinormative behavior. Anonymity to those outside the group and reduced public self-awareness produced a statistically significant consistent and positive effect on antinormative behavior. However, although public self-awareness had consistent effects on antinormative behavior, it did not play a mediating role in deindividuation along with private self-awareness or general self-awareness. Violation of general social norms or situational norms was not related to the effects of deindividuation; however, there was a strong relationship between following situational norms and deindividuation.

Contrary to the proposition of classical deindividuation theory that deindividuation decreases responsiveness to a situation, the meta-analysis noted that the circumstances of deindividuation increased responsiveness to the situation, which is evidenced by higher conformity to situational norms. It has been suggested that an individual in a deindividuated situation prioritizes the group's social desirability, as proposed by the SIDE. In general, the results of the meta-analysis indicated that the SIDE is the model that best explains the results of studies on deindividuation and is the most promising for the analysis of group and crowd behavior.

9. The current state of deindividuation

Since the publication of the meta-analysis by Postmes and Spears (1998), SIDE has been widely used to explain the results of deindividuation research. Many studies have been conducted in computer-mediated communication (CMC) environments because advances in technology have created new scenarios that have characteristics that may induce deindividuation, such as anonymity and physical distance (McKenna & Bargh, 2000). However because these virtual environments are diversified, research on the effects of deindividuation in these various scenarios is needed to analyze whether their variations compromise the validity of the deindividuation models, especially SIDE.

One virtual scenario for investigation is virtual games. The behavior of cheating in virtual games may be a promising area for analysis in light of deindividuation given its high prevalence among players (Webb & Soh, 2007) and the low number of studies that attempt to explain the mechanisms by which it occurs. To investigate this issue, Chen and Wu (2015) used the SIDE to analyze how CMC anonymity influenced cheating in online games. In this study, cheating was defined as "strategies that a player uses to gain an unfair advantage over his/her peer players or to achieve a target which is not supposed to be achieved according to the game rules or at the discretion of the game operator" (Chen & Wu, 2015, p. 659).

The study by Chen and Wu (2015) used a survey to assess the influence of anonymity, the salience of group norms and identification with the group in cheating behavior in online games. This research design was chosen due to the possibility of a more ecologically valid assessment than an experimental design. Historically, studies involving SIDE do not have good ecological validity because they are restricted to laboratory conditions and involve hypothetical scenarios without consequences beyond the laboratory (Postmes et al., 1998). The data in this study were collected from a survey that was

conducted on a national scale in Singapore. The study examined behavior related to teenagers' on-line gaming. The sample was representative of the total population.

The following hypotheses of the study were based on SIDE: (1) the more often a person plays games anonymously, the more often he/she cheats in games; (2) the more often a person plays games anonymously, the more salient the group identification is that he/she demonstrates in a game community; and (3) gaming group identification is a mediator of the relationship between anonymous game playing and game cheating. The inclusion criteria were being 18 years old or be-low, being a Singaporean citizen or permanent resident, living within the target residential area and playing online games. To measure the variable of cheating, participants were asked to state how often they cheated in online games. Anonymity was measured by an assessment of the frequency with which the participants played with people they only knew online. Group identification was measured by reporting the frequency with which players were involved with groups or online gaming communities because it was assumed, based on self-categorization theory (Turner et al., 1987), that the more an individual interacts with a certain community, the more salient the corresponding self-categorization related to this community is. The variables were measured using a seven-point scale (1 = never to 7 = very frequently).

Most participants (70%) cheated at least occasionally, and the remainder (30%) reported that they did not cheat. Seventeen percent of the participants were categorized as frequent cheaters (score ≥ 5), corroborating the literature about the high prevalence of cheating among online players (Consalvo, 2007; Webb & Soh, 2007). The average anonymity score was 3.43. Furthermore, 29% of the participants reported that they had never played with people they had met for the first time over the Internet, whereas 33% played with strangers frequently (scoring 5 or more on a frequency range up to 7). The average identification with the group was 3.20. Male players had higher scores on iden-tification with the group and cheated significantly more often than females did. Regression analyses controlling for gender concluded that the frequency with which an individual plays anonymously is a positive and statistically significant predictor of cheating; there is a positive and statistically signifi-cant relationship between the frequency with which an individual plays anonymously and identifica-tion with the group; and identification with the group, controlling for gender, acts as a mediator of the effect of anonymity on cheating.

The study results supported the three hypotheses: (1) playing online with strangers significantly increases the behavior of cheating; (2) group identification is higher among individuals who play more often with people they first met online; and (3) the effect of anonymity in cheating is mediated by group identification in online communities. Overall, the study showed that the SIDE is an efficient model to explain the behavior of cheating in online games. Furthermore, online groups, despite be-ing unstable and fluid, have a powerful influence on the behavior and beliefs of their members, as in the non-virtual world.

Deindividuation is also studied in connection with contemporary issues, such as interactions be-tween Jews and Arabs. Walther et al. (2015) explored how the CMC could help to reduce intergroup prejudice between Jews and Arabs in Israel. In their study, they tested the predictions of different theories about contact and CMC, including SIDE. SIDE researchers have proposed that when indi-viduals in CMC are visually anonymous (deindividuated) and identify themselves and others as members of the same group that share common salient social categories, social identification oc-curs (Postmes & Baym, 2005). Thus, there is greater attraction between group members. It has also been proposed that through CMC focused on group identity, prejudice toward other groups could be reduced (Amichai-Hamburger & McKenna, 2006). Walther et al. (2015) hypothesized that prejudice among groups of Jews and Arabs could be reduced through participation in an artificially created virtual group, which would provoke identification with the group. The authors created online study-ing groups that lasted one academic year in which interactions occurred both anonymously and face to face. Each group included students from different cultural/religious sectors (secular Jews, reli-gious Jews and Arabs). After the completion of these study groups, there was a significant reduction

of prejudice among the Jewish members toward Arabs and vice versa. However, the proposed model from the SIDE, which postulated that prejudice toward other members of the group would be reduced by increasing social identification with the virtual group, was not confirmed. There was no statistically significant association between the level of social identification with the virtual group and the final attitude toward the participants' outgroups (Jews or Arabs), suggesting that the reduction in prejudice occurred through a mechanism other than the one proposed by SIDE.

Unlike most studies on deindividuation conducted in the last five years, Uhrich and Tombs (2014) explored, based on Diener's (1980) theory of deindividuation, the role of the presence of other people in individuals' shopping behavior. According to the authors, when there is only one customer in a shopping environment, he is the center of attention, which increases his public self-awareness. However, when there are other customers present, the attention of the salespeople is not concentrated on one person, increasing anonymity and reducing the public self-awareness of the individual who was alone. The authors proposed that there may be an inverse correlation between the level of public self-awareness and the number of customers present in stores. Because a reduction in public self-awareness may reduce the emotional discomfort of being watched, the authors also hypothesized that customers' emotional distress would be negatively related to the amount of customers present, and this relationship would be mediated by public self-awareness. The authors suggested that a behavior that is expected of a customer in the presence of a salesperson is that the customer shows an interest in an item, accepts help or makes a purchase. Therefore, when there is a larger number of other customers present and the attention of the salespeople is not focused on one individual, individuals would be more comfortable spending time in the store without feeling a commitment to buy something. Uhrich and Tombs (2014) hypothesized a positive relationship between the time that customers remain in stores and the number of customers in the store and suggested that this relationship was mediated by a mediating chain of public self-awareness and emotional discomfort.

An experimental study and a quasi-experimental study were conducted to test these hypotheses. The results showed that only a small number of other customers caused deindividuation. In contrast to the hypothesis, large numbers of other customers or their absence caused an increase in public self-awareness, indicating a U-shaped relationship between these variables. The other relationships proposed, that is, between the number of customers and emotional discomfort as well as between the number of customers and the time that customers remain in the store, also followed the same U-shaped; the latter was mediated by customers' emotional distress and public self-awareness, and the former was mediated by public self-awareness. These results are not in accordance with Diener's theory of deindividuation (1980), which states that a large number of people may reduce public self-awareness. Nonetheless, this finding reinforces the suggestion that the deindividuation state is not always associated with antinormative behavior.

Another recent study on deindividuation was conducted by Guegan et al. (2016). They investigated the role of gender perceptions in a CMC. As postulated by SIDE (Postmes, Spears, & Lea, 2002), in situations in which there is anonymity, people tend to stress the characteristics of the social category that is salient to maximize the differences between the salient group and other groups. This may influence how group members are perceived and how they act and may induce stereotypical behavior. Thus, to highlight the differences between genders in an anonymous CMC, men and women may increase the frequency of male or female stereotypical behavior (Postmes & Spears, 2002). However, the asymmetry of social dominance may also affect CMC. Socially, women are seen as a dominated group, whereas men are seen as a dominant group according to the stereotypes that are imposed on them (Guegan et al., 2016). Members of dominant groups tend to be seen as heterogeneous by their own members and members of dominated groups, whereas members of dominated groups are seen by both parties as more homogeneous (Linville, Salovey, & Fischer, 1986; Lorenzi-Cioldi, 2009; Park, Ryan, & Judd, 1992). Thus, members of a dominated group are usually perceived as deindividuated aggregates (that is, devoid of individualizing features), whereas dominant groups are regarded as composed of separate individuals and are individuated. Because members of the dominated

group are already seen as more deindividuated, the effects of deindividuation on them should be lower compared to the effects on the dominant group. This is because the intensification of conformity to group norms proposed by SIDE would result in the same perceptual structure homogeneity that dominated groups already have. Thus, the authors theorized that in an anonymous CMC, a man (a member of a dominant group) would be perceived more stereotypically than in a non-anonymous CMC. The perception of women (members of a dominated group), however, would not have as much variability in a CMC context, whether anonymous or non-anonymous, because women are already part of a group that is seen as more homogeneous. As expected, in Guegan et al.'s (2016) experiment, anonymity in CMC had a greater impact on perceptions of men than of women. Men were significantly more frequently perceived as having typically masculine characteristics under conditions of anonymity than in non-anonymity conditions, whereas there was no statistically significant change in perceptions of typically female characteristics of women across the anonymity and deindividuation conditions.

10. Future directions

It is essential to highlight the importance of integration between the social dominance and deindividuation theories of Guegan et al. (2016). Since the effect of deindividuation may be different in socially dominant and socially dominated groups, this social asymmetry should be taken into account when conducting research on deindividuation in countries in which such research is lacking. Much of the research on deindividuation has been conducted in countries like the United States, where the dominant and dominated groups have a certain profile. However, in countries with very different cultural contexts, this profile and the effects may be different. Thus, studies in these other countries would facilitate cross-cultural comparisons about the phenomenon as well as theoretical reformulations of deindividuation.

Throughout this review, some ontological problems were identified. Many studies do not define deindividuation and are unclear whether it is a characteristic of a situation, a state of mind, or a process itself. Hence, future research may seek neural substrates of deindividuation because social cognitive neuroscience is a growing trend in social psychological research (Lieberman, 2010). Identifying which brain structures are involved in this phenomenon may help to elucidate the ontological limitations of the deindividuation process and explain the results as reported by Walther et al. (2015), in which the outcome is predicted by the theory, but the process is not. Thus, differences in brain activity using neuroimaging techniques such as functional Magnetic Resonance Imaging (fMRI), Positron Emission Tomography (PET) scan and Event-Related Potentials (ERP) could be examined to compare situations in which there is deindividuation or other phenomena that involve group conformity. These studies would contribute to the conceptual delimitation of deindividuation and would provide more accurate measurements of brain activity when this phenomenon occurs.

There is also the possibility of using predictive mathematical models to establish conditions in which there is a greater likelihood for deindividuation to occur. These models may be useful to clarify the limitations identified by Uhrich and Tombs (2014) regarding the relationship of the phenomenon with the number of people present.

Studies may also seek ways to prevent transgressive behaviors in deindividuation situations, such as preventing mobs and vandalism in environments such as football matches or excessive use of substance in environments that may be risky. Therefore, it is noteworthy that according to SIDE, if members of a group perform certain behaviors in deindividuation situations, this is probably due to the group norms. Analyzing various groups and seeking to identify their norms are (through surveys with members, for example) may be useful in preventing events that may cause social disturbance.
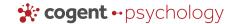
Conformity varies according to age (Pasupathi, 1999). Given that most research on deindividuation has used adult samples, it may be worthwhile to investigate whether there is a difference in the rate of conformity to group norms between subjects of different ages in deindividuated situations. If children are most likely to follow the rules of a group, as in previous studies (e.g. Walker & Andrade, 1996), the prosocial norms between groups of children from diverse ethnic backgrounds could be stimulated to prevent the development of prejudice between their different groups. Exposure to members who are part of other ethnic groups during childhood tends to reduce patterns of preference for ethnically similar faces, for example (Dunham, Baron, & Banaji, 2008).

We propose that it is possible to use previous discoveries about deindividuation to explain historical episodes involving group conformity, as Le Bon (1895/1995) did with regard to the French Revolution. The salience of a particular group identity tends to make subjects exacerbate their differences from members who do not belong to the salient group and act according to the rules of this group due to reduced cognitive mediation of behavior. Thus, it is possible that periods such as the rise of Nazism in Germany and Fascism in Italy may have been influenced by this phenomenon. As these groups attracted increasing numbers of people, the differences between those who were part of the group and those who were not were highlighted, and intolerance, as the modus operandi of the group, was exacerbated. Many ex-members of these Nazi or Fascist groups have expressed regret and have said they did not know how they could allow such a situation to occur, demonstrating a reduced cognitive mediation of behavior at the time. Thus, the theory of deindividuation provides important additions not only to theories of psychology but also to sociology given the works in this field that also examine issues involving crowds (e.g. Ortega y Gasset, 2009/1929) and conformity (e.g. Arendt, 1975).

Deindividuation can assist in the understanding and modification of contemporary phenomena, such as the issue of the rise of anti-immigration movements in the world, especially in Europe. In recent years, there has been an increase in the number of attacks on adherents of Islam in Europe and the emergence of new anti-immigration groups (European Police Office, 2015). In light of deindividuation, it can be said that the growth of such movements is influenced by the increased prominence given to the differences between natives and immigrants due to higher immigration rates. Deindividuation can be used to reduce the tension between these communities through the creation of groups that have a common characteristic that transcends such social identities, promoting contact between them and reducing the intolerant attitudes of one group toward another. The tendency, provoked by deindividuation, to follow group norms may help members of these groups to act in such a way that prosocial behaviors are normative within the group. This situation may contribute to initiatives that reduce contemporary social tensions and promote peaceful intercultural contact.

Since Le Bon (1895/1995), the conceptualization of the phenomenon has succeeded in expanding the understanding of its underlying mechanisms, and deindividuation remains a useful model for understanding group phenomena. Some characteristics that were proposed in the early conceptualization of deindividuation remain empirically valid, such as the tendency in deindividuation conditions to perform acts that people would be unlikely to perform individually (Festinger et al., 1952). However, other proposals, such as the influence of general self-awareness in deindividuation (Diener & Wallbom, 1976), have been questioned and have fallen into disuse. However, the theory that subdivides self-awareness into public and private (Prentice-Dunn & Rogers, 1982), despite being supported empirically, is not commonly used because the notion of the group norm as a determinant of behavior in situations of deindividuation (Spears & Lea, 1992, 1994) has become hegemonic. Current research suggests that the study of deindividuation not only may be supplemented by integration with other theories but also may contribute to essential social issues, such as the reduction of prejudice and public disorder and the enhanced construction of social identity (Klein, Spears, & Reicher, 2007).

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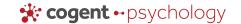
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