

**The Formation of Generalized vs. Context-specific Beliefs about Social Groups:
A Contingency-learning Perspective**

Tingting Huang and Klaus Rothermund

General Psychology II, Institute of Psychology, Friedrich Schiller University Jena, Jena, Germany

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Correspondence shall be addressed to Tingting Huang, Nottingham University Business School China, University of Nottingham Ningbo China, 199 Taikang East Road, 315100 Ningbo, China (email: Tingting.Huang@nottingham.edu.cn; phone: +86 574 8818 0000 ext. 8502) or to Klaus Rothermund, Institut für Psychologie, Friedrich-Schiller-Universität Jena, Am Steiger 3, Haus 1, 07743 Jena, Germany (email: klaus.rothermund@uni-jena.de; phone: ++49(0)3641/9-45121).

Dr. Tingting Huang works as a postdoc at the Nottingham University Business School China, University of Nottingham Ningbo China. Her research interests include stereotypes, impression formation and implicit measures.

Dr. Klaus Rothermund is a Professor at the Institute of Psychology, Friedrich Schiller University Jena, Jena, Germany. His research interests include cognitive psychology, implicit measures and action control.

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Abstract

In a highly powered ($n = 143$) pre-registered study, we investigated how individuals form generalised and contextualised beliefs about social groups. We adopted an impression formation paradigm in which participants were shown members of two groups exhibiting different behaviours within the same context (group as predictive cue), or only one group exhibiting different behaviours in two contexts (context as predictive cue). In the respective learning contexts, participants linked the presented groups with the characteristics underlying the behaviour of their members. Differently, in the “group as predictive cue” condition, group characteristics were as strong in a novel context as in the learned contexts, indicating generalized stereotype formation, whereas in the “context as predictive cue” condition, they did not appear, indicating context-specific stereotype formation. These results suggest that whether beliefs about groups are learned in a generalized or in a context-specific way depends on the predictive value of the context information.

Keywords: Impression formation; context dependency; contingency learning; occasion setting; stereotype formation

1 Individuals develop impressions of social groups through contact experiences with exemplars of these
2 groups (see models of impression formation, e.g., the Dual Process Model, Brewer, 1988, or the
3 Continuum Model, Fiske & Neuberg, 1990). Such group-based impressions can become rigid and
4 widely accepted, developing into overgeneralized stereotypical beliefs about the group (Schneider,
5 2004). Group impressions shape our perceptions, judgements, and behaviours towards group
6 members. A central question regarding the operation of group impressions is whether they are
7 broadly applicable in all situations, or whether they are enacted in specific contexts and operate only
8 in those particular circumstances. Previous findings support both the generalisation account (Fiske,
9 1998; Schneider, 2004) and the contextualisation account (Blair, 2002; Gawronski & Sritharan, 2010).
10 For example, some research has shown that social categories (e.g., male or female) are generally
11 associated with particular traits or characteristics (e.g., strong or caring), arguing for the
12 generalisation account that our impressions of the categories are global and context independent
13 (Banaji & Hardin, 1996; Blair & Banaji, 1996; Devine, 1989). Conversely, other research has shown
14 that group-related characteristics differ depending on the situation in which members of the group
15 are encountered (Huang & Rothermund, 2023a; Kornadt & Rothermund, 2011, 2015) and are elicited
16 only in situations that are relevant to those specific characteristics (e.g., when crossing the street, old
17 people are expected to be slow), supporting the contextualised account of social impressions and
18 stereotypes (Casper et al., 2010, 2011; Hackel et al., 2022; Huang & Rothermund, 2023a, 2023b;
19 Wigboldus et al., 2003).

20 To date, previous research has been limited to demonstrating the context-independent or
21 context-dependent effects; further studies are needed to reveal the conditions under which either
22 generalized or context-dependent beliefs about social groups develop. To fill this gap, the present
23 study aimed to examine the formation process of group impressions. In particular, we were interested
24 in uncovering the principles under which group impressions are formed in a context-independent and
25 context-dependent manner.

The formation of group impressions can be viewed as a contingency learning¹ process (Brigham, 1971; Kutzner & Fiedler, 2017). During contact with group members, individuals categorise them according to their group membership and infer certain characteristics or traits from their actions or behaviours (Brewer, 1988; Fiske & Neuberg, 1990). The co-occurrence of category information and the relevant trait, together with the perceived causality between them², leads to the establishment of the contingency between the group cue and the trait outcome, which can be explained in close analogy to processes in classical conditioning (Rescorla & Wagner, 1972; Wagner & Rescorla, 1972). As a result, group impressions are formed that consist of group-trait pairings. Notably, the formation process of group impressions typically takes place in specific situations or under certain circumstances, behaviours of social agents do not occur in a contextual vacuum. The ubiquitous situational or contextual information also has the potential to be learned as a predictor of the occurrence of the trait outcome, and can either compete or interact with the category information in predicting behavioural outcomes (see context conditioning, Andreatta & Pauli, 2021; Kroes et al., 2017).

Drawing on the learning literature, two types of learning outcomes can occur when multiple cues (i.e., group and context) co-occur with an outcome (i.e., a trait or behaviour). One possibility is that the group cues compete with the contextual cue, resulting in reduced learning of the latter because it is not a unique predictive or salient cue. In this scenario, generalized or context-free group impressions would be formed. Alternatively, the group may interact with the contextual cues if the contextual cue provides unique predictive value that is not contained in the group information, resulting in the formation of context-dependent group impressions. Such impressions may be formed in a manner similar to occasion setting (Bouton & Swartzentruber, 1986), in which the contextual cue

¹ In the learning literature, acquisition of relations between cues and outcomes is often referred to as “associative learning” (e.g., Shanks, 1995). We decided to use the more theory-neutral term contingency learning in order to avoid an equivocation of the to be explained effect with the underlying mechanism that might produce this effect (e.g., association formation), since alternative explanations of the effects are possible (e.g., propositional reasoning).

² To be noted, when forming group impressions, the perceived causality between the group and the traits may differ substantially from the actual causality. Research on stereotypes has shown that stereotypical beliefs can emerge from biased or even illusory correlations between groups and traits (Hamilton & Gifford, 1976; Stroessner & Plaks, 2013).

acts as a modulator that determines the occurrence of the trait outcome for the group cue. Alternatively, as suggested by configural learning theory (Pearce, 1987, 1994), the combination of group and contextual cues may act as an integrated cue to predict the trait outcome. In addition, the context cue itself may also be learned to directly predict the occurrence of the behavioural outcome (see elemental models of learning; Rescorla & Wagner, 1972).

In the current study, we propose that the perception of the informative value of context cues shifts the learner's attention to the context (see the theory of selective attention, Mackintosh, 1975; see also the Attentional Theory of Context Processing, ATPC, Rosas et al., 2006). This will result in different learning outcomes. When the contextual cue is perceived to enhance the predictive accuracy of the group's behaviour (e.g., people notice that members of group A give brilliant presentations during the sessions of a conference, but behave arrogantly during the conference dinner), then the context cues (i.e., conference vs. dinner) become integrated with the group cue in impression formation, leading to the formation of context-dependent impressions in which the traits are attributed to the group only in the learned, relevant contexts. Alternatively, if group membership alone perfectly predicts group behaviour, or when context information does not contribute to or improve the prediction, the group cue (i.e., group A vs. B) will influence learning rather than the contextual cue. This will lead to the formation of context-free, generalized impressions of the group, in which traits are attributed to the groups regardless of the circumstances. In summary, we hypothesised that during the impression formation process, if the context is perceived to increase the specificity of the prediction of group behaviour, contextualised impressions of the group will be formed. Otherwise, if contextual information is not informative for predicting group behaviour, generalised impressions of the group will be formed.

The present study

To test these hypotheses, we adopted an impression formation paradigm (Rydell & McConnell, 2006), in which participants were asked to form impressions of groups by learning the behaviours of their group members in specific situations. To ensure that participants had no prior knowledge of the group or context, we used artificial names (i.e., Lerians or Fenians) and coloured

backgrounds (i.e., blue or yellow) to indicate the groups and contexts, respectively (see also Rydell & Gawronski, 2009). The behaviours exhibited by the group members indicated that the person was either competent or warm. Participants were randomly assigned to either the “group as predictive cue” condition, in which the group was the perfect predictor of group behaviour, or the “context as predictive cue” condition, in which the context was informative for the behaviour of the respective group. In the group as predictive cue condition, they were presented with exemplars of one group behaving competently and exemplars of another group behaving warmly in the same context (e.g., Lerians-warm and Fenians-competent in a blue context). In the context as predictive cue condition, participants were presented with exemplars of only one group who consistently behaved competently in one context but warmly in another context (e.g., Lerians-warm in a blue context and Lerians-competent in a yellow context). After learning, participants had to rate the groups in terms of their competence and warmth in the learned contexts (i.e., the matching context). To test whether the traits were learned to be paired exclusively with the groups that had been learned to display the traits (i.e., the matching group), we also introduced a novel group (e.g., Zipians) as a control group in the test phase. Crucially for testing our hypotheses, we added a novel context (e.g., a green context) during the test phase, in order to investigate whether the learned group-trait pairings transferred from the learned context to the novel context.

The learning effects of group-trait pairings were calculated by subtracting the ratings of irrelevant traits from relevant traits for the same test stimulus³ (see Table 1). Specifically, relevant traits were those paired with the group in a given context during the learning phase, while irrelevant traits were those not paired with the group in that context. In the “group as predictive cue condition”, for example, “warm” and “competent” were relevant and irrelevant traits for Lerians in the blue context, respectively. For both conditions, we expected to see higher difference scores for the matching group compared to the novel group (e.g., Lerians-warm vs. Zipians-warm) in the previously

³ This approach was suggested by a reviewer (Jan De Houwer). Compared to the original trait ratings, the difference between relevant and irrelevant traits is supposed to more accurately reflect the strength of specific group-trait pairings, independent of overall group impressions. The analysis of the original ratings, as pre-registered, is now reported in Appendix II.

learned contexts. In the group as predictive cue condition, we expected the emergence of generalised beliefs, so there should be no difference in the group-trait pairing effects (e.g., Lerians-warm) between the matching context (e.g., blue) and the novel context (i.e., green). Conversely, in the context as predictive cue condition, we expected the emergence of context-specific beliefs, such that the group-trait pairing effects (e.g., Lerians-warm) in the novel context (i.e., green) should only occur in the matching context (e.g., blue).

Method

Sample and design

The design of our study is a 2 Learning condition (group as predictive cue vs. context as predictive cue) $\times$ 2 Group (matching vs. novel) $\times$ 2 Context (matching vs. novel) mixed design, with the first factor as a between-subjects factor and the latter two as within-subjects factors. According to the power analysis performed by G*Power 3 (Faul et al., 2007), the sample size required to detect a small three-way interaction effect ($f = .10$) with sufficient power ($1-\beta = .80$) in such a three-way repeated measure ANOVA was 138. A final sample comprising 143 participants was recruited via the online participant pool Prolific. All participants were randomly assigned to either the group as predictive cue condition ($N = 74$, 43 male, $M_{age} = 32.82 \pm 12.85$) or the context as predictive cue condition ($N = 69$, 43 male, $M_{age} = 33.04 \pm 11.57$). Participants were paid £0.75 for their participation. This sample size provided 80% power to detect an effect size of $f = .10$ or greater in a three-way repeated measure ANOVA with a 5% false-positive rate.

Materials

We came up with 12 names for the members of the Lerian group (e.g. Zinnaler or Veritler) and the Fenian group (e.g. Zinnafen or Veritfen). The ending of the names indicates the group to which the members belong. Apart from that, the names for the two groups of members were identical. We also developed 6 behaviours that indicate competence, such as “is good at handling several tasks at the same time”, and 6 behaviours that indicate warmth, such as “voluntarily shovels the snow from the pavement”. See all the names and behaviours in Supplemental materials.

Learning phase

Participants were asked to form impressions of unfamiliar groups by learning statements about their group members' behaviours, which were presented against either a blue or a yellow background. Participants were told that the background colour indicated the context in which the group member exhibited the behaviour. Each statement-background pair was displayed for at least 3000 milliseconds and remained on the screen until participants pressed the space bar to proceed. There were 12 statement-background pairs in total, and their order was randomised. In both conditions, 6 pairs indicated that the behaviour of a group implied a particular characteristic in the given situation (e.g., Lerians are competent in the blue context). In the group as predictive cue condition, the remaining 6 pairs indicated that the behaviour of another group in the same situation implied another trait (e.g., Fenians are warm in the blue context). In the context as predictive cue condition, the remaining 6 pairs indicated that the behaviour of the same group in a different situation implied a different trait (e.g., Lerians are warm in the yellow context). See an overview of the learning trials in Table 1.

Test phase

To make the test trials comparable between the two conditions, after learning, participants in both conditions rated both traits ("competent" or "warm") for all the learned and novel groups ("Lerians", "Fenians", and "Zipians") and contexts (blue, yellow, and green), resulting in 18 combinations. In each case, a statement, e.g., "In this context, Fenians are warm" was shown on a coloured background. Participants had to rate the extent to which the trait applied to this group in this context, using a visual analogue scale that was coded from 0 (not true at all) to 100 (completely true). See an overview of the test trials in Table 1.

Transparency and Openness

We report all data exclusions, manipulations, and measures in the study, and we follow JARS (Kazak, 2018). All data, analysis code, and learning materials are available at https://osf.io/kzdgj/?view_only=1376d9247d964fb795a4bcf8a03343a9, for reviewers only. The study was preregistered at OSF, https://osf.io/u5hk9/?view_only=db54302a7c04d659ece83bb856c9e8e, for reviewers only. Data were analysed using R, version 4.1.2 (R Core Team, 2023).

Table 1

Overview of the learning and test trials, calculation of difference scores, and coding of the test trials in the two learning conditions

Learning	Group as predictive cue		Context as predictive cue	
	AX – T1	BX – T2	AX – T1	AY – T2
Test	AX / BX / CX – T1?	AX / BX / CX – T2?	AX / BX / CX – T1?	AX / BX / CX – T2?
	AY / BY / CY – T1?	AY / BY / CY – T2?	AY / BY / CY – T1?	AY / BY / CY – T2?
	AZ / BZ / CZ – T1?	AZ / BZ / CZ – T2?	AZ / BZ / CZ – T1?	AZ / BZ / CZ – T2?
Difference score	AX / BX / CX – (T1-T2)	AX / BX / CX – (T2-T1)	AX / BX / CX – (T1-T2)	AX / BX / CX – (T2-T1)
	AY / BY / CY – (T1-T2)	AY / BY / CY – (T2-T1)	AY / BY / CY – (T1-T2)	AY / BY / CY – (T2-T1)
	AZ / BZ / CZ – (T1-T2)	AZ / BZ / CZ – (T2-T1)	AZ / BZ / CZ – (T1-T2)	AZ / BZ / CZ – (T2-T1)
Coding of the test trials	G _m C _m / Filler / G _n C _m	Filler / G _m C _m / G _n C _m	G _m C _m / Filler / G _n C _m	Filler / Filler / Filler
	Filler / Filler / Filler	Filler / Filler / Filler	Filler / Filler / Filler	G _m C _m / Filler / G _n C _m
	G _m C _n / Filler / G _n C _n	Filler / G _m C _n / G _n C _n	G _m C _n / Filler / G _n C _n	G _m C _n / Filler / G _n C _n

Note. The two group names (Lerians and Fenians) were counterbalanced as Group A and Group B, and the two background colours (blue and yellow) were counterbalanced as Context X and Context Y. T1 refers to the trait outcome “warm”, and T2 refers to “competent”. Group C represents a novel group – Zipians, and Context Z represents a novel background colour – green. A question mark indicates that participants were asked to provide ratings for these trials. G_m and C_m denote the matching group and matching context conditions, respectively, which were coded when the evaluated group or context was paired with the trait during learning. G_n and C_n denote the novel group and novel context conditions, respectively, which were coded when the evaluated group was Zipians or if the background colour was green. All other test trials were coded as filler trials.

Results

Data were combined across counterbalanced group and context conditions, and filler trials were excluded from the analysis⁴. After coding the matching and novel conditions for the group and context factors, we calculated the difference score for each test stimulus by subtracting the ratings of irrelevant traits from relevant traits. Two repeated-measures ANOVAs were conducted on the difference score, with Learning condition (group vs. context as predictive cue), Group (matching vs.

⁴ Please refer to Appendix I for the descriptive statistics of all the test stimuli.

novel), and Trait (warm vs. competent) as factors, separately for the matching and novel contexts, to test learning and transfer effects, respectively.

For the matching context (learning effects), we found a main effect of Group, $F(1, 141) = 16.56$, $p < .001$, $\eta_p^2 = .11$, 95% CI [0.03, 0.21], and no significant interaction effect between Learning condition and Group, $F(1, 141) = .50$, $p = .48$, $\eta_p^2 = .003$, 95% CI [0.00, 0.05], indicating similar learning effects for the group-trait pairings across both learning conditions. Follow up analyses revealed a significant learning effect of group-trait pairings in the group as predictive cue condition, $t(141) = 2.42$, $p = .02$, *Cohen's d* = .22, 95% CI [0.06, 0.39], and in the context as predictive cue condition, $t(141) = 3.32$, $p < .01$, *Cohen's d* = .25, 95% CI [0.08, 0.41].

For the novel context (transfer effects), the main effect of Group, $F(1, 141) = 7.13$, $p < .01$, $\eta_p^2 = .05$, 95% CI [0.00, 0.13], was qualified by a significant Learning condition x Group interaction, $F(1, 141) = 7.13$, $p < .01$, $\eta_p^2 = .05$, 95% CI [0.00, 0.13], indicating that transfers effect were larger for group-trait pairings in the group as predictive cue condition compared to the context as predictive cue condition. Follow up analyses revealed a robust transfer effect to novel contexts in the group as predictive cue condition, $t(141) = 3.84$, $p < .001$, *Cohen's d* = .19, 95% CI [0.03, 0.36], but no significant transfer effect for the context as predictive cue condition, $t(141) = .00$, $p = 1.00$, *Cohen's d* = .00, 95% CI [-0.17, 0.17].

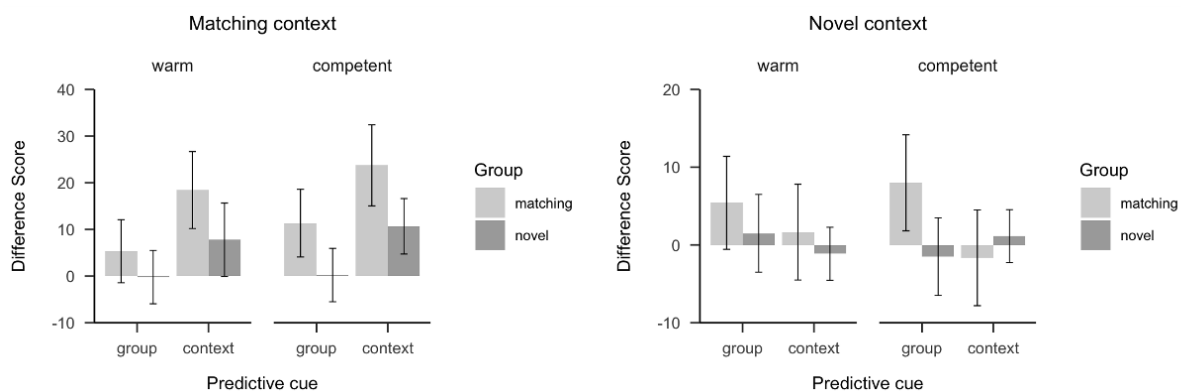


FIGURE 1. Average difference scores (relevant trait - irrelevant trait; error bars indicate standard errors) for matching contexts (learning effects) and novel contexts (transfer effects).

Discussion

1 The group-trait pairing effects in both learning conditions suggest that participants attributed
2 the traits underlying the group members' behaviour to the learned groups (as compared to a novel
3 group), indicating that participants formed novel impressions of the groups. In terms of the
4 contextual dependence of the group-trait impressions, the two learning conditions showed different
5 patterns. In the group as predictive cue condition, the group-trait pairing effects did not differ
6 significantly between the learned and the novel contexts, indicating strong generalization of the
7 newly formed group impressions across contexts. In the context as predictive cue condition, there
8 was a significant contextual difference: the group-trait pairing effects only occurred in the learned
9 context but not in the novel context, indicating that group impressions were largely limited to the
10 specific context in which they were learned. Consistent with established learning research
11 demonstrating that learning becomes context-dependent when contextual information is relevant
12 during training (León et al., 2010; Preston et al., 1986; Rosas et al., 2006), our findings suggest a
13 similar phenomenon in the formation of group impressions. Specifically, group impressions become
14 context-dependent when contextual cues significantly increase the prediction of group behaviour;
15 otherwise, impressions are formed to be more generalized.

16 Our findings can be well understood by viewing impression formation as a contingency
17 learning process in which individuals search for cues (i.e., groups, contexts, and/or their combination)
18 that best predict outcomes (i.e., group behaviour). During this process, individuals rely on the group
19 as the primary, most salient cue to infer group behaviour, while the context is only considered if it
20 optimises predictions over and above the group information. If the group appears to be the strongest
21 predictor of group behaviour and the context does not help to optimise predictions, highly
22 generalized group impressions are formed. Alternatively, if the context significantly improves the
23 prediction of group behaviour, context-specific group impressions are formed. This perspective on the
24 contextualisation of social impressions is also in line with the situated cognition theory on the origins
25 of the situated nature of concepts (Barsalou, 2009; Yeh & Barsalou, 2006). According to this theory,
26 concepts are situated or contextualised during learning not simply because contexts are conveniently
27 available, but because they optimize our cognitive performance during conceptual processing.

1 The newly formed generalized or context-specific group impressions can be stored in
 2 memory. Depending on the mediating learning mechanism, they can be represented as associations
 3 or links between group and traits (see association formation models, e.g., Denniston et al., 2001;
 4 Mackintosh, 1975; Pearce & Hall, 1980; Rescorla & Wagner, 1972) or as propositions about the
 5 characteristics of the group via inferential reasoning (see propositional models, e.g., De Houwer,
 6 2009; De Houwer et al., 2005; Lovibond, 2003; Waldmann, 2000). Notably, our findings regarding the
 7 context-specific group impressions do not align with the configural learning account. In the context as
 8 predictive cue condition, we found significant main effects of group, which challenges the configural
 9 learning theory (Pearce, 1987, 1994). According to this theory, only the combination of group and
 10 context cues, rather than individual cues alone, predicts group behaviour. Instead, our results suggest
 11 that for context-specific group impressions, the context likely functions as an occasion-setter, with the
 12 context acting as a modulatory node that specifies the situations in which the group is more likely to
 13 be paired with the trait (Bouton & Swartzentruber, 1986; Schmajuk & Holland, 1998). This
 14 interpretation resonates with attitude research which similarly argues that contextual stimuli serve as
 15 an occasion setter in evaluative learning, determining which evaluative responses are elicited by
 16 attitude objects (see Gawronski et al., 2010; Rydell & Gawronski, 2009). However, it should be noted
 17 that in the context as a predictive cue condition, difference scores were also significant with matching
 18 contexts in novel groups. This suggests that contextual cues can also be learned directly (as in
 19 elemental models; Rescorla & Wagner, 1972), indicating that context may function not only as an
 20 occasion setter but also as a direct predictor of behavioural outcomes.

21 The current findings shed light on the context-dependence of the impressions or stereotypes
 22 we have about existing social categories. Previous research on attitudes has shown that attitudes
 23 towards an object are represented in a context-free manner when prior experiences with the object
 24 are evaluatively homogeneous, and that attitudes become context-sensitive when prior experiences
 25 are heterogeneous (Rydell & Gawronski, 2009). Similarly, our results suggest that group impressions
 26 tend to be context-free when they are unidimensional, and context-dependent when they are
 27 multidimensional. The unidimensional impressions of groups (e.g., professors are intelligent, lawyers

are greedy, nurses are caring) are usually formed through limited contact experience with the group members in specific contexts (e.g., we mostly meet professors at university, lawyers when dealing with legal issues, nurses in a hospital), and this makes it difficult for us to recognize the informative value of different contexts for their different behavior. We therefore form impressions of them in a context-free way, assuming that this group exhibits such traits in all circumstances. Obviously, our inferences about the group based on context-free impressions are overgeneralized and sometimes incorrect. In fact, we have multidimensional rather than unidimensional impressions or stereotypical beliefs about most common social categories, such as age, gender, or ethnicity (see Kornadt & Rothermund, 2011, 2015; Hentschel et al., 2019; Hagendoorn & Kleinpenning, 1991). For example, older people are seen as supportive, slow, experienced, lonely, etc., depending on the situation in which they are encountered. In forming impressions of these social categories, we may notice that they are more likely to exhibit certain behaviors in certain contexts than in others (e.g., older people are supportive in family situations, slow to move, experienced in doing housework, etc.). Recognizing that contexts can greatly enhance our predictions or expectations about group behavior, we integrate contexts into the impression formation process, resulting in contextualized group impressions. The contextualized impressions work in a more adaptive and flexible way by informing us which aspect of the impressions is most applicable to the group in a particular context.

Open questions and future directions

To our knowledge, the current study is the first to examine the relevance of context in determining the formation of contextualised versus generalised group impressions. To ensure the robustness of our findings, it is essential to replicate the results of the current study. First and foremost, beyond the predictive cue of contextual information, other differences between the two learning conditions should be considered. For instance, during the learning phase, participants in the group cue condition learned only one trait for each group, whereas those in the context cue condition learned two traits for the same group. Additionally, contextual stimuli in the context cue condition may have been easier to discriminate and learn as predictive cues than group stimuli in the group cue condition. Although there is no evidence suggesting that these differences influenced the results, it is

important for future studies to account for their potential impact and further replicate the findings. Secondly, the predictive value of contexts was manipulated to be perfect. Future research could replicate these findings under conditions of imperfect contingency to investigate whether learning becomes less context-dependent due to weaker prediction of contexts, or whether contexts are even more attended to when the learning situation is ambiguous due to high prediction error (for context-specific learning in ambiguous situations, see Rosas & Nelson, 2019). Thirdly, in our study, coloured backgrounds served as indicators of contexts. Future studies could explore alternative modalities of context, such as using immersive virtual reality technology to investigate the formation of context-dependent group impressions in spatial environment (Andreatta & Pauli 2021; Kroes et al., 2017). Finally, while our study relied on self-report measures to assess newly acquired group impressions, future research could use indirect measures to explore the underlying principles that guide the formation of generalised or contextualised automatic group impressions.

In addition, there are several issues that could be addressed in future studies to advance our understanding of the formation of group impressions. First, various factors, such as the salience of contextual cues (Gawronski et al., 2010), explicit instructions about the importance of contexts (Callejas-Aguilera et al., 2010), and the ambiguity of the learning situation (Rosas & Nelson, 2019), may influence the context specificity of learning (see other determinants in Rosas et al., 2006). Future research could explore these principles to gain a deeper understanding of other principles that may guide the acquisition of generalised and contextualised group impressions. Second, the current study focused mainly on when, rather than how, contextualised impressions are formed, more research is needed to clearly distinguish between the mechanisms underlying the formation of contextualised impressions in terms of configural learning, occasion setting or elemental learning. Third, because group impressions are not static, future research could examine impression change in terms of contextualisation, e.g., whether impressions, either generalised or contextualised, become increasingly contextualised as a result of different contact experiences with the same group members in different contexts. Finally, future studies could develop interventions to increase perceivers'

1 attention to contextual information when explaining others' behaviour, which may help to reduce
2 their tendency to engage in stereotyping.

3 **Conclusion**

4 Social cognition research has long emphasised the central role of categories in the
5 representation and operation of social impressions, often neglecting the crucial role of contextual
6 factors. However, social impressions are formed and used in a variety of contexts, and these contexts
7 can be highly informative about group behaviour. Our results show that social impressions are highly
8 sensitive to context when it improves our inferences about groups. It is thus imperative for future
9 research to incorporate both group and context into the study of social impressions or stereotypes in
10 order to gain a deeper understanding of their function and representation in social contexts.

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