Contextual Influences on the Perception and Interpretation of Facial Expressions

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Abstract

The ability to decode social and emotional information from interaction partners is fundamental to the initiation and maintenance of social interactions and interpersonal relationships. A vital source of such socio-emotional information is the face. Nevertheless, accurately interpreting facial expressions during social exchanges is a deceptively complex task. In particular, a large variety of additional contextual cues —including the expresser's body language — are also present within these interactions, each of which can alter how facial expressions are evaluated. In addition, facial expressions may simultaneously shape perceptions of these contextual cues, as part of a dynamic bidirectional relationship. The aim of the present chapter is to review the empirical work which has attempted to assess the role of various contextual factors on social and emotional judgements from faces. Furthermore, we recommend that the fields of affective and social psychology take a more holistic and contextualised approach to face processing in future.

Keywords: emotion perception, social interaction, facial expressions, context, social cues

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Introduction

Decoding a social partner's emotions is fundamental to the initiation and maintenance of social interactions and interpersonal relationships. Faces are a vital source of socio-

emotional information (Niedenthal & Brauer, 2012), and as such have been widely researched. However, much of this previous research presents facial expressions in isolation, ignoring the fact that a large variety of additional contextual cues accompany facial expressions. Indeed, expressions are always encountered alongside a range of bodily, situational, vocal, and dispositional information. These contextual cues are likely to influence how facial expressions are processed and categorised (Helmholtz, 1867). Consequently, the present chapter summarises a century of empirical and theoretical work which has investigated how context influences facial expression processing and evaluation.

Early Context Research

The first systematic investigations into the effects of context on facial expression evaluation can be traced back to the controversial work of Carney Landis (1924; 1929). Landis created a face stimulus set by photographing volunteers' spontaneous expressions as they experienced a series of affective stimuli (e.g. gruesome/pornographic images, unexpected gunshots, and severe electric shocks), culminating with the instruction to decapitate a live rat with a butcher's knife. When the resultant facial expression photographs were presented to a separate group of participants, emotion categorisation accuracy was at chance levels. The most common expression produced by volunteers was a smile, even during extremely unpleasant experiences. Landis therefore concluded that "it is practically impossible to name accurately the 'emotion' being experienced by a subject when one has only a photograph of the face on which to base the judgment" (Landis, 1929, p.65). Landis' conclusion was reinforced by Sherman (1927), whose participants categorised spontaneous facial displays produced by three-to-seven day-old infants. Participants were very poor at labelling expressions alone, however accuracy significantly increased when situational

context (e.g. being dropped) was included. Finally, Munn's (1940) "candid picture" paradigm further highlighted the importance of situational context, by showing that evaluations of real-life expressions in photos from popular magazines were heavily altered by the presence/absence of the surrounding situation. Clearly, situational information is crucial for disambiguating facial expressions.

Around the same time, Kline and Johannsen (1935) first examined the influence of body language on facial expressions by presenting photos of an actress posing 20 different facial displays. Photos were shown both in full (with shoulders and upper torso visible) and cropped with all non-facial information removed. The order of presentation was counterbalanced. Importantly, participants scored higher in the full compared to cropped condition. Furthermore, full photos were less susceptible to practice effects. This led the researchers to conclude that facial emotion is recognised more easily when body context is available. Carmichael et al. (1937) soon gained additional insight into the social and emotional meaning of body language by finding very low agreement in the labelling of hand gestures presented without a face or body. Such research further implies that the expression of emotion is a holistic process which may require co-ordination across multiple body parts to be successfully understood.

These early papers, alongside others showing beneficial effects of providing verbal labels for expression recognition (e.g. Langfield, 1918; Kanner, 1931), emphasised that context was integral to facial expression evaluations. The first major literature review of this research neatly summarised this idea, stating that "all in all, one wonders about the significance of studies of the recognition of 'facial expressions of emotions', in isolation of context" (Bruner & Tagiuri, 1954, p. 638).

Expression or Context Dominance

Having established that context plays a major role in the interpretation of facial expressions, researchers attempted to quantify the relative influence of each on emotion evaluations. Goodenough and Tinker (1931) developed a paradigm which paired photos of emotional expressions with vignettes describing situations that supposedly elicited the expression. For each combination of expression and vignette, participants chose the experienced emotion from a list of four options. On trials where the expression was incongruent with the context, potency was calculated as the percentage of responses that corresponded with either the expression or the vignette.

Although Goodenough and Tinker found that the situation took precedence in most combinations (7/12), subsequent researchers failed to replicate these results. Instead, they observed heavy expression dominance in emotion recognition (e.g. Knudsen & Muzekari, 1983; Watson, 1972). Notably, Frijda (1969) revised the original paradigm by asking participants to first rate the expressions and vignettes separately. In a later testing session, ratings of the combined expression-vignette stimuli were far closer to prior expression ratings than prior vignette ratings. Furthermore, Ekman et al. (1972) published a methodological critique of the original paradigm, which highlighted the importance of "source clarity" in determining the relative potency of different sources of information. By this, they meant the "amount or type of information available to observers when they are exposed to a single source" (p. 138). When source clarity was equated across expressions and contexts, strong expression-dominance was observed (Nakamura et al., 1990).

The emergence of the Basic Emotions perspective coincided with a shift in academic opinion concerning the importance of context for facial expression evaluation. Holistic expression

processing frameworks were superseded by the Basic Emotions view that expressions are recognised “automatically, silently, and without the benefit of language” (Izard, 1994, p.289), thus downplaying the role of context. Indeed, many Basic Emotions theorists argued that contextual information was only integrated into expression evaluations after the expression had already been identified via a process akin to pattern matching (Buck, 1984).

Nonetheless, just as Ekman posed valid criticisms of the early context-dominant research, theorists have since challenged many of the findings underpinning purported expression-dominance. Fernandez-Dols et al. (1991) suggested that vignettes lack influence in the expression-scenario paradigm simply because — unlike with faces — participants lack real-life experience in categorising situations using emotional terms. When participants practiced context categorisation with emotion words, the influence of context on ratings substantially increased. Moreover, Carroll and Russell (1996) outlined several additional reasons for scepticism about the observed expression dominance in previous studies. For example, incongruent combinations of expressions and situations may have led the observer to believe that crucial situational information was missing, leading them to re-interpret the situation by imagining additional detail. When using vignettes that matched the pleasantness and arousal of the expression — but not the discrete emotion — Carroll and Russell found most participants selected an emotion corresponding to the situation rather than the expression.

Finally, the expression-scenario paradigm may also lack contextual realism. Indeed, studies which present participants with more vivid visual contexts find strong context dominance. For example, in an elegant series of experiments, Wallbott (1986, 1988a, 1988b) first observed expression-dominance using the expression-scenario paradigm. However, when

video contexts were presented, Wallbott instead found clear context-dominance, which he attributed to the vivid immediacy of the footage. Likewise, Chen and Whitney (2019) recently observed context-dominance using an "affective tracking" methodology, whereby participants continuously rate the valence and arousal of characters in videos. Notably, context explained a higher proportion of unique variance in affect ratings than expressions when participants rated home videos and documentaries. This finding was later replicated using a similar "emotion tracking" methodology (Chen & Whitney, 2020).

SEPRATE TEXTBOX: The Kuleshov Effect

The power of video context in emotion evaluations is most famously linked to the work of 1920s Soviet film-maker Lev Kuleshov, who spliced close-up shots of neutral expressions with footage of different emotional scenes (Khokhlova, 1996). Depending upon the nature of this subsequent context, viewers supposedly perceived the neutral face as displaying either happiness, sadness, or hunger.

Although rooted in filmography, the Kuleshov effect has been tested by psychologists, partly because the original footage has been lost. For example, Goldberg (1951) showed that fear contexts led a screaming woman to be rated as more fearful than joyful, whereas joy contexts had the opposite effect. In contrast, Prince and Hensley (1992) found that most participants correctly rated a neutral face as showing no emotion, casting doubt upon the validity of the effect. However, this was a single-trial experiment where each participant saw just one film sequence, and therefore the results cannot be well-generalised to everyday exchanges because only a very limited stimulus set was presented.

A later replication by Mobbs et al. (2006) with 24-trials found some evidence for the Kuleshov effect, as morphed expressions in emotional contexts were rated as higher in

valence and arousal than when in neutral contexts. However, this study had various methodological limitations, for example, there was a large interval between the face and context shots in order to gain clearer fMRI recordings. This gap reduced the realism of the film clip and may have dampened the potential influence of the context shot on expression evaluations.

Hence, the most definitive test of the validity of the Kuleshov Effect was provided by Barratt et al. (2016) who edited video clips to increase their filmographic realism. For each of their five emotional contexts, participants rated expressions as displaying the congruent emotion more frequently than alternative options. Further, valence and arousal ratings were also influenced by emotional context. This suggests that the Kuleshov Effect exists in some form. Nonetheless, Barratt and colleagues acknowledged that demand characteristics were likely, and ultimately cautioned against broader interpretation of the results. Instead, we must ask what the Kuleshov Effect represents. Does the context change how observers perceive expressions, or does it merely alter the process by which observers infer a person's experienced emotion? Future research must address this question.

Modern Context Research

Body Language

Research into context effects has experienced a resurgence over the past two decades, and much of this work has examined the role of body language. As Darwin (1872) described, a person's face and body are part of an integrated whole, both physically and functionally. Therefore, affect signalled by one is likely to be informative about the affect signalled by the other. The influence of body language on facial expression evaluation was revived by Meeren et al. (2005). They presented congruent or incongruent expression-body stimuli for

200ms, forcing observers to make snap “first impression” emotion categorisations. When expressions and bodies were incongruent, the accuracy of expression categorisation was significantly reduced, with substantial interference from the body.

Building on this work Aviezer et al. (2008) showed that identical disgust expressions were categorised as conveying a variety of contrasting emotions dependent on the configuration of the body stimuli provided. Importantly, the extent to which bodily emotions influenced expression categorisation varied greatly, such that accuracy was lowest when the disgust expression was presented with an angry body, compared to sadness and fear body contexts. To explain this variation, Aviezer proposed his Emotion Seeds theory, which suggests that the effect of body language on expression categorisation is moderated by the perceptual similarity between the target expression and the expression typically associated with the body context. The more similar the expressions, the greater the context effect.

As well as proposing a new framework for conceptualising context effects, Aviezer and colleagues also challenged an influential account of contextual influence. Developed from the dimensional circumplex model of emotion (Russell, 1980), Carroll and Russell (1996) proposed that expressions provide unambiguous information about a person’s affective valence and arousal, but not their specific emotion. Instead, it is context that helps observers to categorise valence and arousal as a discrete emotion. Consequently, emotion evaluations should be highly influenced by context, whereas valence and arousal ratings should remain relatively unaffected. Contrary to this proposal, Aviezer and colleagues (2008) found that both arousal ratings of sad expressions and valence ratings of disgusted expressions were strongly influenced by body context.

In addition, further studies have replicated the effect of context on valence ratings by using photos from real life events. Valence ratings of expressions produced by professional tennis players after winning or losing high-stakes points were heavily influenced by body context (Aviezer et al., 2012). Another study asked participants to rate the emotional expression of 15 athletes who had just won or lost their events at the 2012 Olympics (Kayyal et al., 2015). Participants were given either correct, incorrect, or no information about the results of the event. Results demonstrated that context consistently overrode expression information, further supporting Aviezer's theory.

Nonetheless, the Meaning of Emotional Expression in Context model (MEEC - Hess & Hareli, 2016) challenges Aviezer's Emotion Seeds theory, proposing that it is the similarity between core appraisals of the expressed emotion and context emotion — not the perceptual similarity between the associated facial expressions — which limits the impact of context on emotional expression evaluations. Accordingly, participants most easily confuse emotions that share core appraisals, not perceptual expression similarity. The MEEC reinterprets Aviezer et al.'s (2008) results because the body contexts with the least effect on accuracy (fear and sadness) are also far less compatible with the appraisal pattern for disgust than anger. Clarifying the extent to which perceptual similarity and appraisal similarity respectively influence context effects is an important avenue for future research.

SEPARATE TEXTBOX: The Time Course of Context Integration

Intriguingly, Aviezer et al. (2008) also showed that body context quickly altered visual scanning patterns, often by the time of the first fixation to the face. This indicates that body context is integrated into expression processing at a very early processing stage, possibly automatically. Such a suspicion is supported by the rapid modulation of early Event Related

Potentials (ERP; P1 component) observed by Meeren et al. (2005) for incongruent expression-body pairings.

In fact, ERP studies are highly informative about the time course of the context integration process. For example, researchers have recently postulated the existence of an automatic "double-check mechanism" during context integration, which suggests that observers perform a check of (1) valence congruency, followed by a check of (2) discrete emotion congruency (Dieguez-Risco et al., 2015). Valence congruency refers to whether the face and context share the same valence (i.e. whether they are both positive or both negative). Discrete emotion congruency refers to whether the face and context share the same associated emotion (e.g. happiness, anger, sadness, etc). Behaviourally, responses to angry expressions in a congruency judgement task were slower in negative than positive contexts (Aguado et al., 2018). This supports the idea that only the valence check is required when the expression and context have incongruent valences, whereas both checks are required when valences are congruent.

Importantly, by using an ERP study, Aguado et al. (2019) found that this double check appears to be completed very quickly, as the N170 component was amplified when fearful expressions appeared in angry versus fearful verbal contexts. Hence, early ERP components are likely sensitive to emotional congruency between the target expression and its situational context, rather than mere valence congruency as past studies have found (e.g. Dieguez-Risco et al., 2015). Nevertheless, N170 modulation by emotion incongruence has only been observed in tasks where participants were explicitly instructed to make congruency judgements. During more ecological expression rating tasks, this double-check may occur more slowly.

Other Faces

Another well-studied contextual cue is the presence of other faces within a scene. Traditionally, research on the effect of other faces on expression evaluation has utilised a "perceptual adaptation" perspective. For example, Thayer (1980) showed that expressions were rated as more intense when they followed expressions of the opposite valence. Nonetheless, researchers have also investigated contextual effects of other faces by presenting them simultaneously alongside the target expression. Russell and Fehr (1987) observed that when presented alone a neutral face was typically described as "calm", but when presented next to a smiling face it was described as "sad". These results parallel earlier work by Cline (1956), who presented line drawings of two faces oriented towards each other. Participants rated smiles as bolder when paired with a low-arousal "glum" expression than when paired with a high-arousal "frown" expression. Cline suggested that the pair of expressions are perceived as representing a social interaction, in which one's frown causes the other's sadness.

More recently, Mumenthaler and Sander (2012; 2015) expanded on this research by positing that the effect of contextual expressions depends upon their body posture/orientation. In their first paper, expressions were rated as more fearful when a contextual face expressed anger rather than fear or a neutral expression. Importantly however, this effect only occurred when the contextual face looked towards (rather than away from) the target. Their second paper replicated this effect, indicating that expression evaluation is only influenced by relevant contextual information. Further, the effect occurred even when contextual faces were displayed for just 20ms, suggesting that context integration during facial expression processing occurs rapidly and potentially automatically.

Situations and interpretation

While most facial expression studies ask participants to rate or categorise expressions in terms of discrete emotions, recent research has investigated how situational context effects the interpretation of expressions. In one recent study, Namba et al. (2020) found that smiles were rated as more genuine when presented in “happy” visual contexts (e.g. a beach) and less genuine in “polite” background contexts (e.g. a pharmacy counter) compared to smiles without context. The same effect was found for spontaneity ratings using written situational contexts (Krumhuber et al., 2021). Additionally, findings showed that smiles viewed in happy contexts were misremembered as having more distinctive crow’s feet — a marker of smile genuineness in many Western cultures — than those presented in polite contexts. Furthermore, Hoegen and colleagues (2019) demonstrated that people use situational context information when interpreting dynamic naturalistic expressions occurring during a Prisoner’s Dilemma task. Together, these studies support the idea that people encode context when perceiving expressions, and highlight the importance of contextual information in shaping expression interpretation.

Combinations of Contextual Cues

In real-life interactions, people integrate an array of social and contextual cues that may indicate the feelings and intentions of others, including speech content, facial expressions, body language, situation/setting, etc. Effects of these cues are likely to be both additive (combining to strengthen an impression) and interactive. To help understand these interactions, some studies have presented both situational and bodily contexts. For example, Reschke et al. (2018) assessed the categorisation of disgust expressions displayed with either (1) body postures, or (2) both body postures and visual scenes. Consistent with

the Emotion Seeds hypothesis, angry postures strongly interfered with accurate categorisation of the disgust expressions, but fear, sadness, and joy postures did not. In contrast to these latter emotions, the prototypical angry expression is perceptually similar to the prototypical disgust expression, and hence the two are easier to confuse. However, when visual scenes were added to these stimuli, both sad and fearful posture-scene combinations resulted in less accurate categorisation of disgusted expressions. This suggests that a larger amount of contextual information (i.e. both posture and scene) may be required to produce context effects in cases when the prototypical facial expression associated with the contextual emotion is perceptually dissimilar to the target expression (e.g. sadness and fear in the case of disgust).

More recently, Reschke and Walle (2021) examined the independent and interactive effects of body posture and visual scenes on emotion evaluation, using six different facial expressions. When expression, posture, and scene were incongruent, participants categorised expressions according to facial expression 61% of the time, posture 18%, and scene 11% of the time. This finding demonstrates the high likelihood of expression-dominance when there is little perceptual overlap between the expressions associated with the face and context emotions. Nonetheless, body posture had a larger influence on emotion categorisation than the expression for some combinations. In contrast, scenes only enhanced or attenuated the posture effect, and never overrode expression, suggesting that person based contextual cues are more influential than external cues in emotion interpretation.

Effects of Traits and Gender

In addition to contextual cues that are either (1) external (e.g. the situation) or (2) highly changeable (e.g. body language), stable characteristics of the expresser (e.g. ethnicity and gender) may also affect facial expression interpretation. Hutchings and Haddock (2008) showed that racially- and emotionally- ambiguous faces were rated as more intensely angry when perceived as black than when perceived as white. Intriguingly, this effect was stronger for white participants with higher levels of implicit race bias. Similarly, Hess et al. (2007) found that anger on a male face is rated as more intense than anger on a female face, whilst happiness on a female face is clearer than on a male face.

On one hand, some of these effects are linked to the functional equivalence between certain facial expressions and stable features of the face, which have similar effects on emotion attribution. For example, people with dominant-appearing faces are typically viewed as angrier than those with less-dominant appearing faces. Likewise, a more affiliative or trustworthy looking face may be seen as happier than would a less trustworthy face displaying the same muscle movements. Static facial features indicative of dominance and affiliation often correlate with ethnicity and gender, and may partly explain these associations (Hess et al., 2005).

On the other hand, these effects are not solely caused by lower-level visual overlap between facial structure and facial expressions. Instead, top-down expectations also play a major role. For example, Gagnon et al. (2022) found that manipulating dispositional information about the smiler (i.e. tendency to return favours) also affected how subsequent smiles were interpreted. Such effects seem logical, as personality traits are strong predictors of long-term levels of positive and negative affect (Costa & McCrae, 1980).

Observer-Based Context

Whilst context effects have traditionally focused on the *expresser*, characteristics of the *observer* also affect how facial expressions are evaluated. Indeed, the importance of observer-based context has been somewhat overlooked. Two large studies (approximately 700,000 face ratings) examined the extent to which observers and expressers contributed to trait impressions, and found that observer characteristics drove impressions more so than expresser characteristics (Hehman et al., 2017; Xie et al., 2019). While the relative effect of observer and expresser contextual cues on facial expression evaluation is unstudied, research has investigated how observer-based context affects expression ratings. Both stable and changeable observer characteristics can impact expression evaluation.

For example, an observer's culture can also influence how they interpret facial expressions. The Duchenne smile marker (i.e. "crow's feet" around the eyes) is often considered as a marker of 'authenticity'. However, when rating smiles with and without the Duchenne marker, Canadian, Gabonese, and Chinese immigrants to Canada differed in their use of the marker (Thibault et al., 2012). Specifically, Canadians rated smiles without the marker as less authentic than those with the marker, but Gabonese participants did not. Furthermore, for Chinese immigrants, the extent to which the Duchenne marker indicated smile authenticity was correlated with their length of stay in Canada. This suggests that the interpretation of facial muscle movements may be culture-specific.

Similarly, research shows that clinical conditions may also affect expression evaluation. Social anxiety leads to more negative evaluations of faces in general (Dimberg & Thunberg, 2007), whilst semantic aphasia patients may have difficulty sorting facial expressions into discrete emotion categories (Souter et al., 2021). Observer gender may also play a role, as

research indicates women are more accurate at recognising some emotions than men (Hall, 1978).

Finally, more changeable aspects of the observer may also affect expression evaluation. For example, Tomasik et al. (2009) found that people were less able to distinguish between smiles and scowls under high cognitive load. Similarly, observers in a negative affective state were more likely to rate an ambiguous schematic face as negative than those in a neutral state (Bouhuys et al., 1995).

Observer-Expresser Interactions

Whilst expresser and observer characteristics independently effect facial expression evaluations, the two may also interact.

As a basic example of such an interaction, Aviezer et al. (2017) re-analysed data from two past experiments, revealing two psychological profiles for emotion contextualisation. Whilst under-contextualisers were unaffected by incongruent body posture when categorising facial expressions, over-contextualisers were strongly influenced by body posture. These profiles were independent of ratings of isolated faces and bodies, which were similar across profiles. Consequently, psychological properties of the observer may affect how contexts are integrated in expression evaluation.

Cross-Cultural Interactions

Most empirical work into observer-context interactions assesses how the observer's culture affects context integration. Studies outside of the face domain suggest that contextual influence is likely to differ across cultures. For example, Masuda and Nisbett (2001) asked participants to report what they saw in underwater scenes and found that Americans

emphasised focal objects, whereas Japanese reported more background information (e.g., rocks, colour of water, small non-moving objects). Likewise, using the classic Rod-and-Frame task, Ji et al. (2000) found the orientation of the frame influenced Chinese participants' rod orientation judgments more than American participants.

In accord, cultural differences in context-effects have been found for facial expression evaluation. Masuda et al. (2008) presented a cartoon of a target expresser surrounded by four other people expressing either congruent or incongruent emotions. As hypothesised, the surrounding people's expressions influenced Japanese but not Westerners' evaluations of the target. Furthermore, whilst both cultural groups focused on the central target initially, Japanese participants broadened their scanning more quickly than Westerners did. Such a finding was later replicated in a study that (1) used real photographs rather than cartoons, (2) reduced the saliency of the target, and (3) allocated participants a set observation time (Masuda et al., 2012).

Observational and qualitative studies also supports the idea that people from Eastern cultures are more likely to integrate contextual information into facial expression evaluation than those from Western cultures. For example, during interviews to validate isolated facial expression stimuli, many Japanese participants stated that they had no way of knowing the person's feelings without any contextual information. American participants did not express similar concerns and easily inferred emotions from isolated expressions (Masuda et al., 2008). Moreover, when Nisbett and Masuda (2003) analysed East Asian and Euro-American portraits from the 16th to 20th century, they found the ratio of the model's face to the entire visual field was significantly smaller in East Asian paintings. Therefore, relative to context, faces seem to receive less emphasis in Eastern cultures.

Several frameworks have been proposed to explain these cultural differences. First, differential context effects may reflect underlying differences in holistic versus analytic thinking. East Asians generally define people, objects, and events in terms of their relationships with each other, rather than in terms of their distinctive properties (Nisbett et al., 2001). Comparatively, Western individuals show a preference for detail and divide things into discrete categories with defining attributes. Hence, Westerners are more likely to dissociate facial expressions from their background. Similarly, Markus and Kitayama (1991) proposed that people with interdependent orientations — typically more characteristic of East Asian than Western cultures — emphasise attending to others and fitting in, which may encourage greater focus on social context than those with independent orientations. Further, cultures differ in perception of agency (Choi et al., 1999) such that East Asian participants are less likely to attribute a person's actions to their disposition than Western participants (e.g. Menon et al., 1999). Again, this suggests a greater focus on situational/contextual cues. Finally, Matsumoto et al.'s (2009) Context Differentiation theory proposes that some cultures encourage differentiation in behaviours across contexts, while others discourage such differentiation. For example, in Western societies, consistency across contexts is the norm because people who change their behaviours across contexts are regarded as hypocrites. Consequently, expectations of consistent behaviours and emotions across contexts should reduce the effect of context on emotion ratings.

Other Observer-Expresser Interactions

In addition to culture, other perceiver characteristics qualify the effect of context on facial expression evaluations. Muzekari and Knudsen (1986) found that congruent context increased psychiatric patients' recognition of facial emotion in prototypically sad

expressions, but not fearful, angry, or happy expressions. However, when the context was incongruent, recognition of sad expressions was not significantly affected. Similarly, schizophrenia patients are less accurate at assessing the mental states of characters embedded in social contexts than neurotypical participants (Green et al., 2007; 2008; Monkul et al., 2007). This deficit appears to mirror underlying attentional differences when processing context. Healthy individuals display significantly shorter eye-fixation durations when viewing context-embedded images compared with context-free images — an efficient technique for rapid uptake of contextual information. In contrast, schizophrenics demonstrated significantly fewer saccadic eye movements when viewing context-free images, and significantly longer eye-fixation durations when viewing context-embedded images (Green et al., 2008).

Finally, some researchers have found that the advantage of emotionally-congruent body context is greater for children relative to adults (Mondloch, 2012). However, others reached the opposite conclusion, finding that — unlike adults — 3-5 year old children gained no advantage from emotionally-congruent body context (Nelson & Russell, 2011). Whilst the direction of the effect is unclear, it seems that observer age may also affect the extent to which contextual information is integrated in expression evaluation, although results are less consistent.

Bidirectional Context Effects

So far, this chapter has focused on how contextual information influences the evaluations of facial expressions. However, it is likely that this relationship is bidirectional. According to classic appraisal theories, emotions are produced by cognitive appraisals about the nature of the present situation or event (e.g. Frijda, 1986; Scherer, 2001). If facial expressions

reflect a person's evaluation of the current situation/event, it follows that their expressions provide information about both the goals of the expresser (Hareli & Hess, 2010), and the situation itself.

Accordingly, researchers have investigated the extent to which facial expressions affect evaluations of contextual information. Notably, angry and disgusted expressions produced by supposed witnesses to a behaviour significantly increased ratings of the behaviour's immorality and impoliteness in comparison to neutral facial expressions (Hess et al., 2018). The same lab also found that judgments of performance quality in an ambiguous game were strongly influenced by the facial expressions of spectators (Hess et al., 2020). Similarly, two studies have found that facial expressions significantly bias the emotional categorisation of the same person's body language/gestures (Kret et al., 2013; Lecker et al., 2020). However, in both studies categorisation of facial expressions was more influenced by body language than vice versa. Lecker et al. (2020) hypothesised that this asymmetry reflects the fact we regularly practice integrating context into the interpretation of facial expressions. In contrast, we have comparatively little experience of integrating facial expressions into context evaluations, which reduces their relative effect.

Conclusion

In summary, it is now widely accepted that facial expressions cannot be appropriately understood without accounting for the rich array of additional information that accompanies them. In fact, context is extremely powerful at altering our emotion evaluations, to the extent that categorisation of identical facial expressions may be completely altered by manipulating the surrounding context.

Importantly, a large proportion of context research has focused upon the influence of body information on expression evaluations, reflecting the deep connection between the two. In fact, body-focused research has inspired many of the field's most prominent theoretical frameworks, which have attempted to predict the extent to which expresser-based information affects expression ratings. Nonetheless, it is apparent that observer characteristics also affect how facial expressions are evaluated, and that these sources of context regularly interact. Furthermore, expressions and contexts also reciprocally influence each other. Consequently, context integration during facial expression processing is a deceptively complex process. Future research may expand study of context effects by simultaneously monitoring and manipulating various contextual cues in more ecologically-valid scenarios.

References

Aguado, L., Dieguez-Risco, T., Villalba-García, C., & Hinojosa, J. A. (2019). Double-checking emotions: Valence and emotion category in contextual integration of facial expressions of emotion. *Biological Psychology*, *146*, 107723. https://doi.org/10.1016/j.biopsycho.2019.107723

Aguado, L., Martínez-García, N., Solís-Olce, A., Dieguez-Risco, T., & Hinojosa, J. A. (2018). Effects of affective and emotional congruency on facial expression processing under different task demands. *Acta Psychologica*, *187*, 66–76. https://doi.org/10.1016/j.actpsy.2018.04.013

Aviezer, H., Bentin, S., Dudarev, V., & Hassin, R. R. (2011). The automaticity of emotional face-context integration. *Emotion*, *11*(6), 1406–1414. https://doi.org/10.1037/a0023578

Aviezer, H., Ensenberg, N., & Hassin, R. R. (2017). The inherently contextualized nature of facial emotion perception. *Current Opinion in Psychology*, *17*, 47–54. https://doi.org/10.1016/j.copsyc.2017.06.006

Aviezer, H., Hassin, R. R., Ryan, J., Grady, C., Susskind, J., Anderson, A., Moscovitch, M., & Bentin, S. (2008). Angry, disgusted, or afraid? Studies on the malleability of emotion perception. *Psychological Science*, *19*(7), 724–732. https://doi.org/10.1111/j.1467-9280.2008.02148.x

Aviezer, H., Trope, Y., & Todorov, A. (2012). Body Cues, Not Facial Expressions, Discriminate Between Intense Positive and Negative Emotions. *Science*, *338*(6111), 1225–1229. https://doi.org/10.1126/science.1224313

Barratt, D., Rédei, A. C., Innes-Ker, Å., & van de Weijer, J. (2016). Does the Kuleshov Effect Really Exist? Revisiting a Classic Film Experiment on Facial Expressions and Emotional Contexts. *Perception*, *45*(8), 847–874. https://doi.org/10.1177/0301006616638595

Bouhuys, A. L., Bloem, G. M., & Groothuis, T. G. G. (1995). Induction of depressed and elated mood by music influences the perception of facial emotional expressions in healthy subjects. *Journal of Affective Disorders*, *33*(4), 215–226. https://doi.org/10.1016/0165-0327(94)00092-n

Bruner, J.S., & Tagiuri, R. (1954). The perception ofpeople. In G. Lindzey (Ed.), *Handbook ofsocial psychology* (pp. 634–654). Addison-Wesley.

Buck, R. (1984). *The communication of emotion*. Guilford Press.

Carmichael, L., Roberts, S. O., & Wessell, N. Y. (1937). A Study of the Judgment of Manual Expression as Presented in Still and Motion Pictures. *The Journal of Social Psychology*, *8*(1), 115–142. https://doi.org/10.1080/00224545.1937.9919994

Carroll, J. M., & Russell, J. A. (1996). Do facial expressions signal specific emotions? Judging

emotion from the face in context. *Journal of Personality and Social Psychology*, *70*(2), 205–218. https://doi.org/10.1037/0022-3514.70.2.205

Chen, Z., & Whitney, D. (2019). Tracking the affective state of unseen persons. *Proceedings of the National Academy of Sciences*, *116*(15), 7559–7564. https://doi.org/10.1073/pnas.1812250116

Chen, Z., & Whitney, D. (2020). Inferential emotion tracking (IET) reveals the critical role of context in emotion recognition. *Emotion*, *22*(6). https://doi.org/10.1037/emo0000934

Choi, I., Nisbett, R. E., & Norenzayan, A. (1999). Causal attribution across cultures: Variation and universality. *Psychological Bulletin*, *125*(1), 47–63. https://doi.org/10.1037/0033-2909.125.1.47

Cline, M. G. (1956). The Influence of Social Context on the Perception of Faces 1. *Journal of Personality*, *25*(2), 142-158.

Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, *38*(4), 668–678. https://doi.org/10.1037/0022-3514.38.4.668

Darwin C. (2005). *The expression of emotion in man and animals*. New York, NY: Appelton. (Original work published 1872)

Dimberg, U., & Thunberg, M. (2007). Speech anxiety and rapid emotional reactions to angry and happy facial expressions. *Scandinavian Journal of Psychology*, *48*(4), 321–328. https://doi.org/10.1111/j.1467-9450.2007.00586.x

Diéguez-Risco, T., Aguado, L., Albert, J., & Hinojosa, J. A. (2015). Judging emotional congruency: Explicit attention to situational context modulates processing of facial expressions of emotion. *Biological Psychology*, *112*, 27–38.

https://doi.org/10.1016/j.biopsycho.2015.09.012

Ekman, P, Friesen, W V, & Ellsworth, R (1972). *Emotion in the human face*. New York: Pergamon Press

Frijda, N. H. (1969). Recognition of Emotion. *Advances in Experimental Social Psychology*, *4*, 167–223. https://doi.org/10.1016/s0065-2601(08)60078-7

Frijda, N. H. (1986). *The emotions*. Cambridge University Press.

Gagnon, M., Chérif, L., & Roy-Charland, A. (2022). Contextual cues about reciprocity impact ratings of smile sincerity. *Cognition and Emotion*, 1–15. https://doi.org/10.1080/02699931.2022.2090903

Goldberg, H. D. (1951). The role of “cutting” in the perception of the motion picture.. *Journal of Applied Psychology*, *35*(1), 70–71. https://doi.org/10.1037/h0062192

Goodenough, F. L., & Tinker, M. A. (1931). The relative potency of facial expression and verbal description of stimulus in the judgment of emotion. *Journal of Comparative Psychology*, *12*(4), 365–370. https://doi.org/10.1037/h0071381

Green, M. J., Waldron, J. H., Simpson, I., & Coltheart, M. (2008). Visual processing of social context during mental state perception in schizophrenia. *Journal of Psychiatry & Neuroscience*, *33*(1), 34–42.

Hall, J. A. (1978). Gender effects in decoding nonverbal cues. *Psychological Bulletin*, *85*(4), 845–857. https://doi.org/10.1037/0033-2909.85.4.845

Hareli, S., & Hess, U. (2010). What emotional reactions can tell us about the nature of others: An appraisal perspective on person perception. *Cognition & Emotion*, *24*(1), 128–140. https://doi.org/10.1080/02699930802613828

Hehman, E., Stolier, R. M., Freeman, J. B., Flake, J. K., & Xie, S. Y. (2019). Toward a comprehensive model of face impressions: What we know, what we do not, and

paths forward. *Social and Personality Psychology Compass*, *13*(2), e12431. https://doi.org/10.1111/spc3.12431

Hehman, E., Sutherland, C. A. M., Flake, J. K., & Slepian, M. L. (2017). The unique contributions of perceiver and target characteristics in person perception. *Journal of Personality and Social Psychology*, *113*(4), 513–529. https://doi.org/10.1037/pspa0000090

Helmholtz, H. V. (1867). *Treatise on physiological optics*. Dover Publications.

Hess, U., Adams, R. B., Jr., & Kleck, R. E. (2007). When Two Do the Same, It Might Not Mean the Same: The Perception of Emotional Expressions Shown by Men and Women. In U. Hess & P. Philippot (Eds.), *Group dynamics and emotional expression* (pp. 33–50). Cambridge University Press. https://doi.org/10.1017/CBO9780511499838.003

Hess, U., Adams, R., & Kleck, R. (2005). Who may frown and who should smile? Dominance, affiliation, and the display of happiness and anger. *Cognition & Emotion*, *19*(4), 515–536. https://doi.org/10.1080/02699930441000364

Hess, U., & Hareli, S. (2016). The impact of context on the perception of emotions. In C. Abell & J. Smith (Eds.), *The expression of emotion: Philosophical, psychological and legal perspectives* (pp. 199–218). Cambridge University Press. https://doi.org/10.1017/CBO9781316275672.010

Hess, U., Dietrich, J., Kafetsios, K., Elkabetz, S., & Hareli, S. (2020). The bidirectional influence of emotion expressions and context: emotion expressions, situational information and real-world knowledge combine to inform observers' judgments of both the emotion expressions and the situation. *Cognition and Emotion*, *34*(3), 1–14. https://doi.org/10.1080/02699931.2019.1651252

Hess, U., Landmann, H., David, S., & Hareli, S. (2018). The bidirectional relation of emotion

perception and social judgments: the effect of witness' emotion expression on perceptions of moral behaviour and vice versa. *Cognition and Emotion*, *32*(6), 1152–1165. https://doi.org/10.1080/02699931.2017.1388769

Hoegen, R., Gratch, J., Parkinson, B., & Shore, D. (2019, September). Signals of emotion regulation in a social dilemma: Detection from face and context. In *2019 8th International Conference on Affective Computing and Intelligent Interaction (ACII)* (pp. 1-7). IEEE. https://doi.org/10.1109/ACII.2019.8925478

Hutchings, P. B., & Haddock, G. (2008). Look Black in anger: The role of implicit prejudice in the categorization and perceived emotional intensity of racially ambiguous faces. *Journal of Experimental Social Psychology*, *44*(5), 1418–1420. https://doi.org/10.1016/j.jesp.2008.05.002

Izard, C. E. (1994). Innate and universal facial expressions: Evidence from developmental and cross-cultural research. *Psychological Bulletin*, *115*(2), 288–299. https://doi.org/10.1037/0033-2909.115.2.288

Jayne Green, M., Waldron, J. H., & Coltheart, M. (2007). Emotional context processing is impaired in schizophrenia. *Cognitive Neuropsychiatry*, *12*(3), 259–280. https://doi.org/10.1080/13546800601051847

Ji, L.-J., Peng, K., & Nisbett, R. E. (2000). Culture, control, and perception of relationships in the environment. *Journal of Personality and Social Psychology*, *78*(5), 943–955. https://doi.org/10.1037/0022-3514.78.5.943

Kanner, L. (1931). Judging emotions from facial expressions. *Psychological Monographs*, *41*(3), i–91. https://doi.org/10.1037/h0093261

Kayyal, M., Widen, S., & Russell, J. A. (2015). Context is more powerful than we think: Contextual cues override facial cues even for valence. *Emotion*, *15*(3), 287–291.

https://doi.org/10.1037/emo0000032

Kenny, D. A. (1991). A general model of consensus and accuracy in interpersonal perception. *Psychological Review*, *98*(2), 155–163. https://doi.org/10.1037/0033-295X.98.2.155

Khokhlova, E. (1996). News concerning the 'Kuleshov effect'. *Film History (ARCHIVE)*, *8*(3), 365.

Kline, L. W., & Johannsen, D. E. (1935). Comparative role of the face and of the face-body-hands as aids in identifying emotions. *The Journal of Abnormal and Social Psychology*, *29*(4), 415–426. https://doi.org/10.1037/h0063677

Knudsen, H. R., & Muzekari, L. H. (1983). The effects of verbal statements of context on facial expressions of emotion. *Journal of Nonverbal Behavior*, *7*(4), 202–212. https://doi.org/10.1007/bf00986266

Kret, M. E., Stekelenburg, J. J., Roelofs, K., & de Gelder, B. (2013). Perception of Face and Body Expressions Using Electromyography, Pupillometry and Gaze Measures. *Frontiers in Psychology*, *4*(28). https://doi.org/10.3389/fpsyg.2013.00028

Krumhuber, E. G., Hyniewska, S., & Orlowska, A. (2021). Contextual effects on smile perception and recognition memory. *Current Psychology*. https://doi.org/10.1007/s12144-021-01910-5

Landis, C. (1924). Studies of Emotional Reactions. II. General Behavior and Facial Expression. *Journal of Comparative Psychology*, *4*(5), 447–510. https://doi.org/10.1037/h0073039

Landis, C. (1929). The Interpretation of Facial Expression in Emotion. *The Journal of General Psychology*, *2*(1), 59–72. https://doi.org/10.1080/00221309.1929.9918042

Langfeld, H. S. (1918). The judgment of emotions from facial expressions. *The Journal of Abnormal Psychology*, *13*(3), 172–184. https://doi.org/10.1037/h0070231

Lecker, M., Dotsch, R., Bijlstra, G., & Aviezer, H. (2020). Bidirectional contextual influence between faces and bodies in emotion perception. *Emotion*, *20*(7). https://doi.org/10.1037/emo0000619

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*(2), 224–253. https://doi.org/10.1037/0033-295x.98.2.224

Masuda, T., Ellsworth, P. C., Mesquita, B., Leu, J., Tanida, S., & Van de Veerdonk, E. (2008). Placing the face in context: Cultural differences in the perception of facial emotion. *Journal of Personality and Social Psychology*, *94*(3), 365–381. https://doi.org/10.1037/0022-3514.94.3.365

Masuda, T., & Nisbett, R. E. (2001). Attending holistically versus analytically: Comparing the context sensitivity of Japanese and Americans. *Journal of Personality and Social Psychology*, *81*(5), 922–934. https://doi.org/10.1037/0022-3514.81.5.922

Masuda, T., Wang, H., Ishii, K., & Ito, K. (2012). Do surrounding figures' emotions affect judgment of the target figure's emotion? Comparing the eye-movement patterns of European Canadians, Asian Canadians, Asian international students, and Japanese. *Frontiers in Integrative Neuroscience*, *6*, 72. https://doi.org/10.3389/fnint.2012.00072

Matsumoto, D., Yoo, S. H., & Fontaine, J. (2009). Hypocrisy or maturity? Culture and context differentiation. *European Journal of Personality*, *23*(3), 251–264. https://doi.org/10.1002/per.716

Meeren, H. K. M., van Heijnsbergen, C. C. R. J., & de Gelder, B. (2005). Rapid perceptual integration of facial expression and emotional body language. *Proceedings of the National Academy of Sciences*, *102*(45), 16518–16523.

https://doi.org/10.1073/pnas.0507650102

Menon, T., Morris, M. W., Chiu, C., & Hong, Y. (1999). Culture and the construal of agency: Attribution to individual versus group dispositions. *Journal of Personality and Social Psychology*, *76*(5), 701–717. https://doi.org/10.1037/0022-3514.76.5.701

Mobbs, D., Weiskopf, N., Lau, H. C., Featherstone, E., Dolan, R. J., & Frith, C. D. (2006). The Kuleshov Effect: the influence of contextual framing on emotional attributions. *Social Cognitive and Affective Neuroscience*, *1*(2), 95–106. https://doi.org/10.1093/scan/nsl014

Mondloch, C. J. (2012). Sad or fearful? The influence of body posture on adults' and children's perception of facial displays of emotion. *Journal of Experimental Child Psychology*, *111*(2), 180–196. https://doi.org/10.1016/j.jecp.2011.08.003

Monkul, E. S., Green, M. J., Barrett, J. A., Robinson, J. L., Velligan, D. I., & Glahn, D. C. (2007). A social cognitive approach to emotional intensity judgment deficits in schizophrenia. *Schizophrenia Research*, *94*(1-3), 245–252. https://doi.org/10.1016/j.schres.2007.03.023

Mumenthaler, C., & Sander, D. (2012). Social appraisal influences recognition of emotions. *Journal of Personality and Social Psychology*, *102*(6), 1118–1135. https://doi.org/10.1037/a0026885

Mumenthaler, C., & Sander, D. (2015). Automatic integration of social information in emotion recognition. *Journal of Experimental Psychology: General*, *144*(2), 392–399. https://doi.org/10.1037/xge0000059

Munn, N. L. (1940). The effect of knowledge of the situation upon judgment of emotion from facial expressions. *The Journal of Abnormal and Social Psychology*, *35*(3), 324–338. https://doi.org/10.1037/h0063680

Muzekari, L. H., Knudsen, H., & Evans, T. (1986). Effect of Context on Perception of Emotion among Psychiatric Patients. *Perceptual and Motor Skills*, *62*(1), 79–84. https://doi.org/10.2466/pms.1986.62.1.79

Nakamura, M., Buck, R., & Kenny, D. A. (1990). Relative contributions of expressive behavior and contextual information to the judgment of the emotional state of another. *Journal of Personality and Social Psychology*, *59*(5), 1032–1039. https://doi.org/10.1037/0022-3514.59.5.1032

Namba, S., Rychlowska, M., Orlowska, A., Aviezer, H., & Krumhuber, E. G. (2020). Social context and culture influence judgments of non-Duchenne smiles. *Journal of Cultural Cognitive Science*, *4*(3). https://doi.org/10.1007/s41809-020-00066-1

Nelson, N. L., & Russell, J. A. (2011). Preschoolers' use of dynamic facial, bodily, and vocal cues to emotion. *Journal of Experimental Child Psychology*, *110*(1), 52–61. https://doi.org/10.1016/j.jecp.2011.03.014

Niedenthal, P. M., & Brauer, M. (2012). Social Functionality of Human Emotion. *Annual Review of Psychology*, *63*(1), 259–285. https://doi.org/10.1146/annurev.psych.121208.131605

Nisbett, R. E., & Masuda, T. (2003). Culture and point of view. *Proceedings of the National Academy of Sciences*, *100*(19), 11163–11170. https://doi.org/10.1073/pnas.1934527100

Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, *108*(2), 291–310. https://doi.org/10.1037/0033-295x.108.2.291

Prince, S., & Hensley, W. E. (1992). The Kuleshov Effect: Recreating the Classic Experiment. *Cinema Journal*, *31*(2), 59. https://doi.org/10.2307/1225144

Reschke, P. J., Knothe, J. M., Lopez, L. D., & Walle, E. A. (2018). Putting “context” in context: The effects of body posture and emotion scene on adult categorizations of disgust facial expressions.. *Emotion*, *18*(1), 153–158. https://doi.org/10.1037/emo0000350

Reschke, P. J., & Walle, E. A. (2021). The Unique and Interactive Effects of Faces, Postures, and Scenes on Emotion Categorization. *Affective Science*, *2*(4), 468–483. https://doi.org/10.1007/s42761-021-00061-x

Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, *39*(6), 1161–1178. https://doi.org/10.1037/h0077714

Russell, J. A., & Fehr, B. (1987). Relativity in the perception of emotion in facial expressions. *Journal of Experimental Psychology: General*, *116*(3), 223–237. https://doi.org/10.1037/0096-3445.116.3.223

Scherer, K. (2001). Appraisal considered as a process of multilevel sequential checking. In *Appraisal processes in emotion: Theory*, *methods*, *research*. Oxford University Press.

Sherman, M. (1927). The differentiation of emotional responses in infants. I. Judgments of emotional responses from motion picture views and from actual observation. *Journal of Comparative Psychology*, *7*(3), 265–284. https://doi.org/10.1037/h0073204

Souter, N. E., Lindquist, K. A., & Jefferies, E. (2021). Impaired emotion perception and categorization in semantic aphasia. *Neuropsychologia*, *162*, 108052. https://doi.org/10.1016/j.neuropsychologia.2021.108052

Thayer, S. (1980). The effect of expression sequence and expressor identity on judgments of the intensity of facial expression. *Journal of Nonverbal Behavior*, *5*(2), 71–79. https://doi.org/10.1007/bf00986510

Thibault, P., Levesque, M., Gosselin, P., & Hess, U. (2012). The Duchenne Marker is Not a Universal Signal of Smile Authenticity – But it Can Be Learned! *Social Psychology*,

43(4), 215–221. https://doi.org/10.1027/1864-9335/a000122

Tomasik, D., Ruthruff, E., Allen, P. A., & Lien, M.-C. (2009). Nonautomatic emotion perception in a dual-task situation. *Psychonomic Bulletin & Review*, *16*(2), 282–288. https://doi.org/10.3758/pbr.16.2.282

Wallbott, H. G. (1986). Person und Kontext: Zur relativenBedeutung von mimischem Verhalten und Situationsinformationen im Erkennen vonEmotionen. *Archiv for Psychologic*,138, 211-231.

Wallbott, H. G. (1988a). Faces in context: The relative importance of facial expression and context information in determining emotion attributions. In K. R. Scherer (Ed.), *Facets of emotion: Recent research* (pp. 139–160). Lawrence Erlbaum Associates, Inc.

Wallbott, H. G. (1988b). In and out of context: Influencesof facial expression and context information on emotion attributions. *BritishJournal of Social Psychology*, *27*(4), 357–369.https://doi.org/10.1111/j.2044-8309.1988.tb00837.x

Watson, S. G. (1972). Judgment of emotion from facial and contextual cue combinations. *Journal of Personality and Social Psychology*, *24*(3), 334–342. https://doi.org/10.1037/h0033730

Xie, S. Y., Flake, J. K., & Hehman, E. (2019). Perceiver and target characteristics contribute to impression formation differently across race and gender. *Journal of Personality and Social Psychology*, *117*(2), 364–385. https://doi.org/10.1037/pspi0000160