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Increased affective influence: Situational complexity or deliberation time?

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The affect infusion model (AIM) is a prominent theory of when current emotional state is expected to influence the interpretation of a social stimulus (situation). We discuss the assumptions in AIM and conclude that its current specification predicts that both deliberation time and situational complexity should lead to affect infusion. The aim of this research was to clarify the relative importance of these factors in determining affect infusion and hence promote the development of AIM. We present an experimental design in which situational complexity and deliberation time can be manipulated orthogonally as independent factors. Our results show that the latter factor, but not the former, can influence the degree of affect infusion.

Despite its sophistication, cognitive theory has been somewhat lacking when it comes to considering the role of emotion in behavior. From a practical point of view, this is an important shortcoming, as Razran (1940) illustrated in his pioneering study. Razran showed that a happy audience was more likely to welcome sociopolitical messages than an unhappy one.

Much research highlights the importance of an expectation of positive affect in decision making. For example, Mellers and McGraw (2001) found that anticipatory pleasure often influenced the choices of their participants. Damasio (1994) suggested that perceptual representations can be linked with any relevant emotional experiences. This can help in de-

cision making situations by eliminating possibilities that are associated with negative emotions. In Peters, Vaestfjaell, Gaerling, and Slovic's (2006) overview, there are some similar ideas, including the role of affect as a common currency to evaluate disparate possibilities and the motivating role of affect (in terms of attaining positive emotions). Also, in psychopathology, there is an extensive literature on how personally relevant stimuli can capture observers' attention (e.g., Cox, Fadardi, & Pothos, 2006).

Without doubt, affect is an important component of utility in decision making. But one can also ask whether information about the current emotional state of an observer can interfere with

1 cognitive processing in a way that does not relate
2 to the utility of expected affect. In particular, we
3 can formulate two general questions: What is the
4 nature of the interaction between emotion and the
5 rest of cognition, and when is it more likely that
6 the current emotional state will affect a cognitive
7 process? A theory that is particularly well suited to
8 tackle these problems is Forgas's (1995a) affect infu-
9 sion model (AIM), an extensively researched and
10 supported model for how emotion and cognition
11 interact. The AIM is innovative in that it enables
12 predictions of when affect infusion should occur
13 within a principled framework for various mecha-
14 nisms of decision making. The focus of this work
15 is AIM. We first summarize the main assumptions
16 of AIM and then motivate the examination of a par-
17 ticular prediction of the theory.

18 According to AIM, when a novel social situation
19 is interpreted, affect infusion is defined to occur when
20 our current emotional state leads to an interpreta-
21 tion of the situation specifically congruent with this
22 emotional state (cf. Bower, 1981; Forgas, 1995a; Isen,
23 Shalker, Clark, & Karp, 1978). For example, consider
24 a scene of a man and a woman talking to each other,
25 such that there are no cues as to whether this is a
26 happy or excited interaction or an unhappy or angry
27 one. Affect infusion would occur if people in an un-
28 happy mood would be more likely to offer unhappy
29 interpretations, for example; this is the basis of our
30 experimental investigation.

31 Forgas (1995a) proposed that there are four
32 relevant modes of cognitive processing; knowing
33 which mode of cognitive processing applies in a
34 given situation can help predict whether affect infu-
35 sion will occur (Figure 1). First, a person can ac-
36 cess information about a belief already held; in such
37 cases, an emotional valence may already be attached
38 to a belief, and therefore there would be little scope
39 for the current emotional state to affect perception
40 of the belief. This mode is called direct access. For
41 example, the attitude toward environmental issues
42 of a committed environmentalist will not be affected
43 by her current state of mind. Second, there are situa-
44 tions in which information processing takes place in
45 order to accomplish a specific goal, and so an effort
46 would be made to specifically suppress potential
47 emotional influences; this is the motivated process-
48 ing mode. For example, a person in an interview

would do his best not to let his current emotional
state affect his performance. Third, we sometimes
reach decisions not on the basis of any thorough
consideration or examination of alternative possi-
bilities but rather by relying on intuition, first im-
pressions, or gut feeling; this is the heuristic mode.
The current emotional state can influence such deci-
sions because the nonemotional foundation of the
decisions is weak (cf. theories considering affect as
an additional source of information, e.g., Schwarz
& Clore, 1983). Finally, making a social judgment
can involve a substantive, generative process when
unfamiliar information is encountered. For example,
a novel social stimulus may have to be interpreted
possibly by requiring access to personally relevant
information. Personally relevant information is often
encoded on the basis of emotional valence; there-
fore, current emotional state may prime access to
certain memories as opposed to others (this mode
is called substantive processing; cf. Kunda, 1990).
An example of this is the finding of Bower (1981; see
also Isen, 1984), who showed that participants in an
unhappy mood are more likely to recall unhappy
episodes.

The third and fourth modes of cognitive process-
ing are considered constructive, in the sense that a
person's reliance on existing knowledge representa-
tions (e.g., for understanding a novel social situation)
is limited; therefore, novel representations have to be
constructed from the combination of stored informa-
tion and new stimulus details (Fiedler, 1991; Forgas,
1992, 1995b).

The focus of the present work is the role of de-
liberation time and situational complexity in the
likelihood of affect infusion. By *deliberation time* we
mean the amount of time devoted to interpreting a
novel social stimulus. By *situational complexity* (or
situational information), we mean the amount of
information available for a novel social stimulus. It
is interesting to consider these two factors concu-
rently because they are related (e.g., we may devote
more time in interpreting a more complex situation),
but in principle, and in many practical situations,
they are independent. For example, we often have
to consider complex problems under time pressure
and, conversely, sometimes we have too much time
to resolve an uninvolved dilemma. AIM predicts dif-
ferential affect infusion across situations defined by

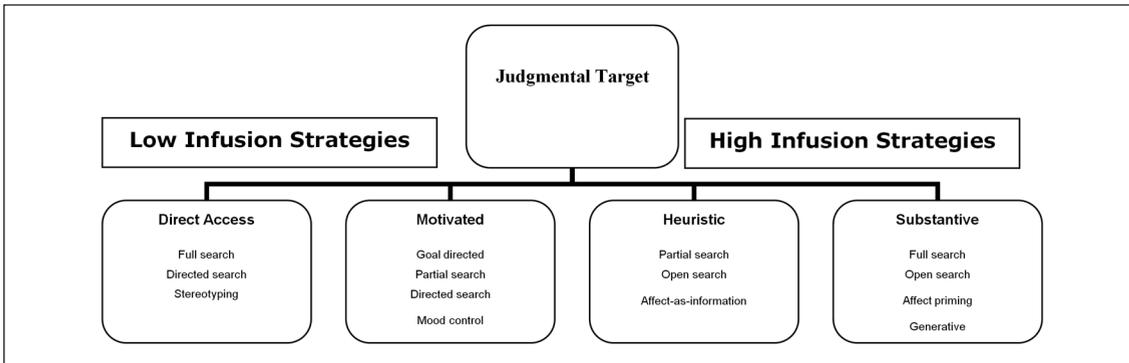


FIGURE 1. Schematic outline of the affect infusion model

both high or low deliberation time and high or low situational complexity.

According to the third suggested cognitive mode, affect infusion is more likely to occur when cognitive processing is heuristic. In heuristic processing, we seek to derive a conclusion fast, and therefore we are more likely to rely on our current emotional state as a decision-making guide. In such cases, the *less* the available time, the more pressure there would be to reach a decision quickly and therefore the more we expect heuristic processing to occur (cf. Gigerenzer, 1996). Such a perspective is consistent with theories of affect infusion that posit that affect can be considered an extra source of information (e.g., Schwarz & Clore, 1983) as well as being part of AIM. Note that whether affect is a valid source of information in interpreting the social scene depends on the context. For example, if Person A is trying to interpret a social interaction between Person B and Person C and all three are in a similar situation, then the current emotional state of Person A will probably be a valid cue for the interpretation of the interaction between B and C.

According to the fourth cognitive mode, substantive processing, substantial transformations or generative elaborations of the stimulus of interest are likely to encourage affect infusion. For example, for a person to interpret an ambiguous interaction between a man and a woman such that there are no cues as to whether this is a happy or excited interaction or an unhappy or angry one, it seems inevitable that the person will have to “transform” this novel social stimulus to a more interpretable form, with the aid of corresponding personal experiences (e.g., the person could remember similar interactions he or she may have had with the opposite gender; cf. Bower, 1981;

Bower & Forgas, 2001). This leads to the prediction that the *less* the situation complexity, the longer the generative process that will be needed to interpret the novel stimulus, and the more we expect substantive processing to occur.

Thus, the current specification of the AIM architecture predicts that both deliberation time and situational complexity, in principle, should influence affect infusion. Whether these factors are equally important in determining affect infusion, or whether one might be dominant relative to the other, is clearly a key empirical issue, which can further inform the AIM and influence its future revisions. The purpose of the present research was to factorially manipulate the two factors within the same experimental design and so settle this issue.

Existing empirical evidence cannot help us clarify the problem of the relative importance between situational complexity and deliberation time. Cognitive load has been manipulated primarily in terms of tasks that compete for resources with the decision-making task of interest. Under conditions of high cognitive load and time pressure, the general finding is greater affect infusion (Forgas, 1993, 1994; Shiv & Fedorikhin, 1999, 2002; Sanbonmatsu & Fazio, 1990). Noda, Takai, and Yoshida (2007; cf. Siemer & Reisenzein, 1998) manipulated information content, but in terms of whether the information provided for a situation was complete or incomplete. When participants had limited time to respond, more affect infusion was observed in the incomplete condition than in the complete one. Noda et al. interpreted these results as showing that mood can be a source of information when one is inferring missing facts in the incomplete condition, under reduced cognitive capacity.

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1 All these results suggest the relevance of the proposed manipulation while not quite clarifying it. For
2 example, greater informational complexity *could* correspond to higher cognitive load, but it is not clear
3 whether this complexity would lead participants to rely more on their mood as a decision-making shortcut or whether it would make them engage in more
4 analytic, motivated processing, which should not be associated with affect infusion. Likewise, following
5 Noda et al. (2007), under conditions of low informational complexity, we might predict that participants
6 will use mood to make up for the missing information. However, in Noda et al.'s study, the presented
7 information was relevant, whereas in the proposed manipulation all information is basically irrelevant.
8 In other words, in the incomplete condition in Noda et al.'s experiment, affect infusion was encouraged
9 because current emotional state could be used to infer the missing information; the design of Noda et al.'s
10 experiment was such that low complexity implicated affect infusion. However, suppose that the design of
11 the task is such that low (or high) situational complexity does not specifically bias toward affect infusion.
12 Under such circumstances, does low (or high) situational complexity lead to greater affect infusion? This
13 is the key consideration that motivated our design: In our high-informational complexity condition,
14 participants have more facts about the situation they have to interpret, but these facts cannot be used as a
15 guide regarding the interpretation of the emotional valence of the situation.

16 In sum, although time pressure and cognitive load have been a focus of extensive research in affect infusion,
17 there are no results relevant to informational complexity as such. In principle at least, informational
18 complexity is an important factor in affect infusion, so its examination will allow more confidence in interpreting
19 the previous empirical results and developing a corresponding theory (such as AIM).

20 EXPERIMENT

21 METHOD

22 *Design and participants*

23 A $2 \times 2 \times 2$ design was used, with mood induction (positive vs. negative), deliberation time (brief vs. prolonged) and situation complexity (less complex

vs. more complex) as between-participant factors. Participants were 122 Swansea University students, who either volunteered to take part or took part for course credit. Participants were randomly allocated to each of the eight conditions.

Because of the mood induction procedure, ethical considerations dictated that any participants displaying symptoms of depression or anxiety had to be excluded from the study. For depression, we used the Beck Depression Inventory II (BDI; Beck, Steer, & Brown, 1996), eliminating participants with a BDI score of 10 or higher. Five participants were excluded, leaving us with a sample of 117 (mean BDI score = 2.83; 40 men, 77 women, mean age 23.21 years). For anxiety, we used the State Trait Anxiety Inventory (STAI; Spielberg, Gorsuch, & Lushene, 1970), trait version, eliminating participants with a score of 40 or higher (no participants were eliminated, $M = 28$).

24 *Materials and procedure*

Participants were first asked to complete the BDI and STAI questionnaires. They were then given a distractor task to perform while the experimenter computed their BDI and STAI scores. The distractor task had the additional objective of inducing a fairly neutral mood to participants. The mood induction procedure followed, and then participants watched a brief animation (20 s) of a social situation. The main experimental task was next, whereby participants were asked to interpret the animation, on the basis of either low situational information (less complex condition) or high situational information (more complex condition). They had either a brief period of time to do this (brief condition) or a lot of time (prolonged condition; more details will be provided shortly). Finally, they completed mood assessment measures (a self-report measure and a mood-rating Likert scale) to examine their mood after the experimental task and confirm that it was broadly consistent with the one intended from the mood induction procedure.

The distractor task consisted of reading a brief review of a book by Maggie Campbell-Culver, *A Passion for Trees: The Legacy of John Evelyn*, from the *Guardian* newspaper (June 17, 2006, reviewed by Andrea Wulf). The review was independently considered neutral by the authors of the study.

For the mood induction procedure, participants were asked to write about an emotionally charged personal experience (positive or negative), on a blank A4 sheet, with no time limit specified (Brewer, Doughtie, & Lubin, 1980; Pham, 1998). They were told to em-

phasize their actual emotions relating to the experience, less so the nonemotional details of the experience. On average, participants took approximately 10 min to complete this task. An advantage of this method is that prompting participants to report their own experience overcomes the potential confounding effects of the content of the affect-inducing event.

We commissioned the development of a brief animation, which was designed to depict an ambiguous social situation. The animation showed two adults, a man and a woman, in conversation. The animated characters were of average physical build and height, dressed in nondescript clothing, and of indistinct ethnic orientation. The characters were facing away from the observer so that no facial expression or physical attractiveness was observable. The setting was nondescript (the man and the woman were simply placed in a gray background) so as not to give any hints about location and hence the content of the exchange between the man and the woman. The positioning of the characters and the way they gesticulated indicated that they were in conversation. The animation lasted for 20 s and was presented on an

IBM-compatible personal computer. Figure 2 shows two frames from the animation.

The ambiguousness of the situation was confirmed through a pilot study whereby the animation was shown to 15 participants (other than the 122 recruited for the main part of the study). The pilot study participants simply saw the animation and were asked to decide what the man and the woman were doing (the response sheet was the same as the one in the less complex condition). Positive and negative interpretations were nearly equal.

For the main experimental task, each participant received a sheet with information about the characters in the animation, organized into categories. Participants were asked to select the statement in each category that they believed was most accurate. In the simple condition, there were four categories of statements, labeled Person A (a category of possibilities for what Person A might be like; e.g., “is physically active”; two statements), Person B (two statements), setting (a category of possibilities for where Person A and Person B might be at the time of talking to each other; two statements), and action (three statements). The action category is the key category from which the dependent variable is derived. The action category had three statements that described possibilities for the interaction between Person A and Person B. There was a statement corresponding to a positive interaction (an excited conversation about a forthcoming event), one to a negative interaction (a heated conversation about a disagreement), and one to a neutral interaction (a conversation admiring the landscape). Accordingly, the choice a participant made for the action category would readily indicate whether the participant interpreted the interaction as positive, neutral, or negative.

The situational complexity manipulation was implemented in two ways. First, we varied the number of categories of statements: few categories (four) vs. many categories (five). In the more complex condition, there was an extra category, background, which included six statements of the possible relationship between the man and the woman (e.g., married). Second, we varied the number of alternative statements in each category. The four categories of the simple condition were supplemented with extra statements, so that each category had six to eight statements. The critical action category in the more complex condition had six statements, so that there was a choice between two positive events (“excited conversation about a forthcoming event,” “have just received some good news”), two negative events (“heated conversa-

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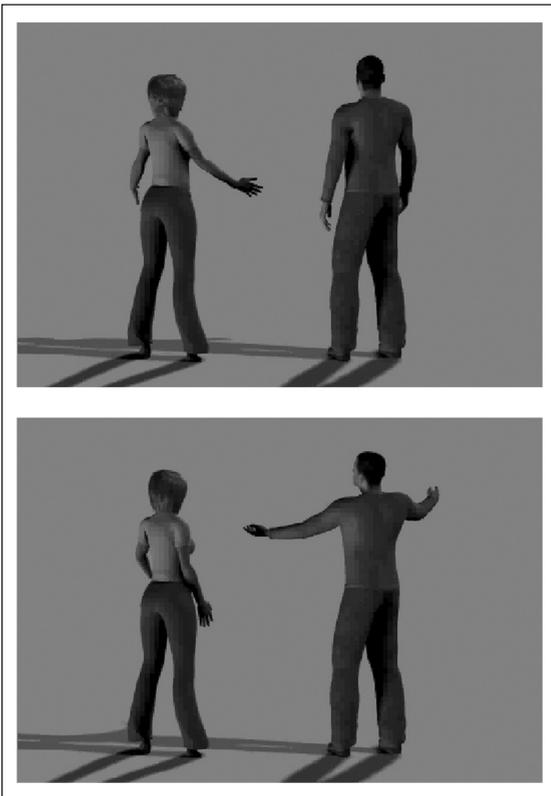


FIGURE 2. Two frames from a 20-s animation depicting an ambiguous social situation

1 tion about a disagreement,” “have just received some
2 bad news”), or two neutral events (“conversation
3 about a new film due out in the cinema,” “conversa-
4 tion about the weather forecast for the holidays”).

5 We reasoned that the more the categories and
6 the more the alternative statements per category, the
7 more the available potentially relevant information
8 for the social situation and hence the greater the
9 situational complexity of the novel social stimulus.
10 Note also that the alternatives in the critical action
11 category in the more complex condition included
12 all the alternatives in the simple condition and some
13 additional alternatives, which were directly analog-
14 ous to the ones in the simple condition. That is,
15 the alternatives in both the simple and the complex
16 condition corresponded to a positive, neutral, or
17 negative interaction between Person A and Person
18 B, but in the complex condition there were two pos-
19 sibilities for a positive interpretation, instead of the
20 one in the simple condition.

21 The deliberation time manipulation was imple-
22 mented by allowing 30 s to participants in the brief
23 condition to complete the decision task, whereas in
24 the prolonged condition they had 3 min. Note that 30
25 s is more than enough for participants to go through
26 the statements and indicate responses, assuming av-
27 erage reading competence. Because all our partici-
28 pants were at least undergraduate students in a higher
29 education institution, there were no concerns about
30 their reading competence. Also, we did not include
31 a measure of whether in the 3-min condition partici-
32 pants used all available time to consider the relevant
33 information (some such measures we considered
34 would have confounded the manipulation).

35 After participants had selected the statements
36 interpreting the animation clip, they completed a
37 brief mood assessment task. Mood assessment was
38 not performed directly after the mood induction,
39 out of concern that the manipulation check would
40 reduce the effects of the mood induction (Keltner,
41 Locke, & Audrain, 1993) and arouse suspicion about
42 the experiment’s purpose. Also, we were interested
43 in mood effects that were sufficiently long-lived to
44 affect the experimental task. Accordingly, after the
45 experimental task, participants were shown a 7-point
46 Likert scale in which 1 represented *unhappy or sad*
47 *mood* and 7 represented *good or happy mood*. Partic-
48 ipants were instructed to circle the number that most
represented their mood at the present time. Also, they
were asked to report their current mood by writing a
few sentences, in their own words, to describe how
they felt at the time.

RESULTS

For the mood induction task, in general, participants wrote long (two to three pages) and detailed accounts of emotional personal events. Topics included romantic involvement, academic success, and the birth of a child (i.e., happiness) and family breakdown, tragic accidents, and the untimely death of a loved one (i.e., sadness). Likert scale ratings for participants who described a positive life event were higher (better mood) than Likert scale ratings for participants who described a negative life event, $M = 5.25$ vs. $M = 3.56$, $t(115) = 8.32$, $p < .0005$. The mood self-reports were generally straightforward to interpret and were classified as indicating good mood, neutral, or bad mood. Accordingly, the mood self-report led to a three-level ordinal mood variable. This variable correlated highly with the Likert scale results ($r = .68$, $p < .0005$). These results demonstrate the overall effectiveness of the mood manipulation. Given the consistency between the self-reports and the Likert scale results, we decided to use only the latter in subsequent analyses (because the Likert scale results are more detailed). Finally, we examined possible effects of age or gender on this mood measure, but there were no significant associations: For age, $r = .13$, *ns*; for gender, $r = -.06$, *ns*.

Previous research has shown that the emotional valence of choices is often congruent with current mood (e.g., Razran, 1940). Our results are consistent with this finding: A one-way analysis of variance (ANOVA) with the emotional valence of choice (positive, neutral, negative) as the independent variable and the ratings on the mood Likert scale as the dependent variable was highly significant, $F(2, 114) = 50.72$, $p < .0005$, all differences in the predicted direction. Our objective in the rest of the analyses was to examine whether it was the time manipulation or the complexity one that led to greater affect infusion and so to clarify the AIM. We present three analyses, each having different strengths and weaknesses, that converge to the same conclusions.

We computed a mood congruency variable, which indicates the extent to which interpretation of the animation was consistent with participants’ mood. The mood congruency variable was a binary variable (congruent, incongruent), computed by combining the mood Likert scores and the emotional valence of the interpretation of the animation. For example, a

low score on the mood Likert scale (indicating bad or unhappy mood) and an interpretation of the animation that carried a negative valence would be recorded as mood congruent. For mood ratings that indicated a neutral mood, a neutral interpretation was entered as mood congruent, whereas a positive or negative interpretation was entered as mood incongruent. Note that in the case of neutral mood we do not assume that a neutral mood would specifically lead to a choice of a neutral interpretation of the social interaction but rather to a choice of neither a positive nor a negative interpretation.

In the first kind of analysis, we examined the means for the four cells defined by the factorial combination of the time deliberation and situational complexity factors. We ran individual chi-square tests against the null hypothesis that there should be an equal proportion of mood congruent and mood incongruent responses in each cell (Table 1). The only condition in which the frequency of congruent responses was higher than what would be expected by chance is the one of low deliberation time and low situational information; in all the other cases we could not identify a difference in the frequencies of mood congruent and mood incongruent responses.

This analysis has only exploratory value because we cannot be sure that the chance probability of a congruent response is the same as the chance probability of an incongruent response. In the second kind of analysis, we therefore ran a regression analysis with mood congruency (yes, no) as the dependent variable and deliberation time, situational complexity, participant mood (the Likert scale ratings), and gender as the independent variables (all possible two-way interaction terms were included as well). Participant mood was included as a predictor because it is pos-

sible that participants might make more selections congruent with their mood if they were in, say, a positive mood. Note that because the self-reported mood variable was a continuous one (Likert scale ratings had a range of 1 to 7), an ANOVA could not be used. With this analysis we assumed that it was more appropriate to use the reported mood ratings as an independent variable, rather than the induced mood manipulation, because the mood manipulation may have been less effective for some participants.

The full regression model was significant, $F(9, 107) = 2.996, p = .003$; however, most standardized beta coefficients were not significant, indicating that we had a case of collinearity. We therefore ran a reduced regression model without the interaction terms (there were six interaction terms in total). This reduced model was also significant, $F(4, 112) = 4.145, p = .004$. In fact, the more elaborate model was not significantly better than the reduced model, $F(5, 106) = 1.910, p = 0.098$, casting doubt on the importance of the interaction terms. Crucially, the reduced model allowed us to compare the importance of situational information and deliberation time. The standardized beta for situational complexity was 0.081 and for deliberation time 0.259 (only the latter was significantly different from zero, $p = .005$), indicating that between the two factors, deliberation time was more important in determining affect infusion. Note that the standardized beta coefficient for gender was very high also ($-0.268, p = .003$).

In the second kind of analysis we assumed that the self-reported mood (the Likert scale ratings) was the valid independent variable with regard to the current emotional state of the participants. However, self-reported mood may be subject to confounds, such as relating to personal traits (we thank Rolf Reber

TABLE 1. Mood congruency frequencies as a function of the experimental variables

Experimental factors		Responses		
Time	Complexity	Mood congruent	Mood incongruent	Chi square, <i>p</i> value
High	High	10	13	0.391, .53
Low	High	14	11	0.360, .55
High	Low	16	22	0.947, .33
Low	Low	22	9	5.452, .02

1 for this observation). In the third kind of analysis,
2 we therefore ran a $2 \times 2 \times 2 \times 2$ factorial ANOVA with
3 mood congruency as the dependent variable (yes,
4 no) and deliberation time, situational information,
5 mood induction procedure (positive or negative),
6 and gender as independent variables. As with the
7 regression analysis, the only significant main ef-
8 fects were the main effect of deliberation time, $F(1,$
9 $101) = 4.129, p = .045$, and the main effect of gender,
10 $F(1, 101) = 8.595, p = .004$. No two-way interactions
11 were significant, consistent with the finding from the
12 regression analysis. Note that short deliberation time
13 led to more mood congruent responses (mean .64)
14 than long deliberation time (mean .43), as expected
15 from Table 1. Also, more mood congruent selections
16 were observed for women (.61) than for men (.38).

18 DISCUSSION

19 Understanding when emotion can influence a cogni-
20 tive process is important both from a practical and a
21 theoretical point of view. According to an important
22 theory for affect infusion, the AIM (Forgas, 1995a),
23 one possibility is that affect infusion occurs when
24 there is heuristic processing. Heuristic processing
25 can occur when there is less available deliberation
26 time. Another possibility is that affect infusion oc-
27 curs when there is substantive processing. Substan-
28 tive (generative) processing could occur when there
29 is less information available about a novel stimulus
30 (less situational information). Are deliberation time
31 and situational complexity equally important in de-
32 termining affect infusion? The current specification
33 of AIM would lead us to expect so, but this may not
34 be the case. We factorially manipulated situational
35 information and deliberation time and found only
36 deliberation time to influence affect infusion, not
37 situational information (cf. Schwarz & Clore, 1983;
38 Schwarz, 1990, 2000).

39 Is it also possible to conclude that it is heuristic
40 processing that primarily leads to affect infusion,
41 and not substantive processing? There is some pre-
42 liminary indication that this is the case, because the
43 chi-square analysis showed the low-deliberation
44 time and low-situational information condition to
45 be associated with the highest affect infusion. In that
46 condition, we can speculate that participants did not
47 have enough time to engage in substantive processing,

so that heuristic processing was the preferred mode
of responding. By contrast, there was no evidence of
affect infusion in the high-deliberation time, low-
situational information condition, which we would
expect to be associated with substantive, generative
processing in our experiment. Promising as this line
of reasoning appears, we hasten to add that without
independent evidence that heuristic and substantive
processing did or did not occur, it is impossible to
verify these claims; this is an issue that we hope to
address in future work.

Methodologically, there are several possibilities
for improving the current study. For example, de-
liberation time could be manipulated more exhaus-
tively, rather than being limited to two conditions,
or involve the inclusion of alternative cognitive load
manipulations (Maule & Hockey, 1993). A similar
problem arises for the manipulation of situational
information. We assumed that complexity could be
operationalized in terms of the number of categories
of information relating to the social situation and
also the number of alternative statements. Both these
manipulations could be thought of as affecting the
complexity of the situation because they influence the
demands on working memory (a task that increases
working memory can be considered a more difficult
task). Is there a sufficiently large difference in working
memory demands between the simple and complex
condition? It is hard to provide an exact figure for this
difference because we do not know how much of the
available information participants concurrently con-
sidered in making their selections. However, a reason-
able estimate can be provided as follows. First, in the
complex condition there was one more category of
statements than in the simple condition. Assuming
that participants did not make their selection for each
response category independently of the others, this
would imply more working memory load through-
out the task. Second, in the complex condition, for
each response category there were three to six extra
statements than in the simple condition. This differ-
ence corresponds well to estimates of the capacity of
working memory (e.g., Cowan, 2001).

Our justification for the complexity manipulations
can be undermined by two criticisms. First, why not
include more statements per response category and
more response categories in the complex condition so
as to make the difference between the simple and the

complex condition more pronounced? The answer here was that we wanted to factorially manipulate deliberation time and situational complexity. Therefore, the high-complexity condition was constrained to include as much information as could be processed even in the low-deliberation time condition. Second, what about alternative complexity manipulations, as might be derived from the logical complexity of a situation, for example (cf. Braine et al., 1995; Johnson-Laird, 1994)? Such an approach may well lead to different results from those we obtained, and it would be worthwhile to pursue it in the future.

Turning to other potential problems, some participants reported having made a preliminary judgment about the interpretation of the animation, before they were given the information. It would be desirable to try to prevent such preliminary judgments in future replications. Another tricky issue relates to the way in which the emotional valence of the interpretation of the situation was assessed. We used a structured set of alternatives, so that some alternatives corresponded to a clearly positive interpretation, others to a negative one. Another approach would have been to allow participants an unconstrained response mode in interpreting the social situation. We were reluctant to adopt this alternative method because it might have led to emotionally ambiguous responses.

The objective of this project was to provide results that will promote development of the AIM theory. Our key result that deliberation time, but not situational information, influences affect infusion suggests ways in which the specification of AIM could be constrained. For example, the AIM mechanisms for affect infusion that depend on situational complexity could be revised. AIM currently predicts that less available information would lead to more generative processing, which may in turn be subject to more affect infusion. However, the critical factor in this mechanism may be not the extent of available information but rather the length of deliberation time. It is possible that with a short deliberation time attention can be focused on the specific information relevant to a problem, but as deliberation time increases the focus of attention becomes less sharp and encompasses potentially less relevant information (such as the current emotional state). A study specifically manipulating deliberation time against the extent of generative processes should clarify this possibility.

Another issue worth considering relates to more practical aspects of AIM. This study highlighted the difficulty in identifying the specific mechanism by which participants made their selections. Developing behavioral markers of, say, heuristic and generative processing of a problem would further test and elaborate the theory. Finally, theoretically, there is a separate literature on how affect could be influenced by purely cognitive processing considerations, such as perceptual fluency (Reber, Schwarz, & Winkielman, 2004). In our experiments perceptual fluency was not manipulated, although situations of low situational information could be considered broadly analogous to situations of high perceptual fluency. It is not clear whether perceptual fluency can be integrated within AIM, but this is certainly an intriguing possibility for future work.

NOTES

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