The Psychological Dimensions of Context

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Abstract

Psychologists acknowledge the powerful influence of context on behavior, and have attempted to identify the dimensions underlying context. Previous work, however, has focused mainly on either relationships or specific situations. In this study we explore the psychological dimensions underlying a wide range of contexts varying in physical locations and the presence or absence of others. Four dimensions emerged, and they were used as a basis to differentiate contexts from each other. One – being in the public eye with the potential to be judged – was the most important dimension that differentiated among contexts. This finding is commensurate with recent empirical work demonstrating unique human abilities in cognition (Tomasello, 1999) and previous theoretical works concerning impression management and the presentation of self in social contexts (Goffman, 1959). We suggest that this dimension is the elemental meaning unit ascribed to contexts by human cultures.

Key words: Context, Psychological Dimensions, impression management, physical locations.

Las Dimensiones Psicológicas del Contexto

Resumen

Los psicólogos reconocen la poderosa influencia del contexto sobre la conducta y han intentado identificar las dimensiones subyacentes al contexto. Trabajos previos, sin embargo, se han enfocado principalmente en una de dos opciones: las relaciones o situaciones específicas. En este estudio se exploran las dimensiones psicológicas subyacentes a un amplio espectro de contextos que varían en locaciones físicas y presencia/ausencia de otros factores. Cuatro dimensiones fueron obtenidas, y fueron utilizadas como base para diferenciar contextos entre sí. Una "estar en el ojo público y con posibilidades de ser juzgado", fue la dimensión más importante que destacó entre los demás contextos. Este hallazgo es congruente con trabajos empíricos recientes que demuestran habilidades humanas únicas en procesos cognoscitivos (Tomasello, 1999) y con trabajos previos concernientes con manejo de impresiones y la auto-presentación en contextos sociales (Goffman, 1959). Se sugiere que esta dimensión es la unidad de significado elemental adscrita a cualquier contexto cultural humano.

*Palabras clav*e*:* Contexto, Dimensiones Psicológicas, manejo de impresiones, locaciones físicas.

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People regulate their behavior routinely as a function of context. They run around their homes in their underwear or naked, but wouldn't dare do so when they leave the house. Some never say a peep in class, but never stop talking when class is done. Some say the most outlandish things in anonymous internet chatrooms, while at the same time are the most reserved, ordinary people off the computer. Psychologists have long recognized context's powerful influence on human behavior (Craik, 1973; Hall, 1966; Lewin, 1936; Ross & Nisbett, 1991; Russell & Ward, 1982; Stokols, 1978), and some have argued that human behavior cannot be understood without taking into account social factors (Cooley, 1921; Goffman, 1959, 1974; Kemper, 1978; Scheff, 1997).

Goffman (1959) suggested that one of the reasons why humans regulate their behavior according to context is because they are very concerned with how the self is projected to others. He argued that all individuals are concerned with impression management through a complex, learned understanding of self-other relationships, and present the self in everyday discourse through various stratagems designed to maximize a positive social outcome. Thus, humans engage in normative behaviors through behavioral scripts encoded in social roles, in order to avoid emotions such as anger, fear, embarrassment, and shame. He argued that when these emotions are elicited, it is our learned sense of self itself that has been violated[1].

Goffman's (1959) analysis is correct only if humans believe that the social world can make judgments of them. And in fact, humans have the cognitive abilities to know that one has a sense of self and is an intentional agent, and that others also have a sense of self and are also intentional agents. But humans also know that others know, that is, that others can make social judgments about oneself. Recent research has provided evidence that this ability is unique to humans (Tomasello, 1999; Warneken & Tomasello, 2006), and if true, may serve as the cognitive basis for human cultural characteristics such as morality, person perception, impression formation, attributions and attributional styles, theory of mind, self-construals, and cultural worldviews.

But contexts can influence behavior only if those contexts are imbued with specific psychological meaning that is important for people. Humans are cultural animals, and one of the main functions of culture is to proscribe such meaning to specific contexts within the culture, so that individual members can regulate their behaviors, ensuring social regulation, avoiding social chaos, and maximizing group efficiency (Matsumoto et al., in press). This view of the function of culture is congruent with a growing awareness of culture as situated cognition (Hong, Morris, Chiu, & Benet-Martinez, 2000; Matsumoto, Weissman, Preston, Brown, & Kupperbusch, 1997; Oyserman & Lee, in press).

Thus explicating the psychological dimensions of context would be useful. Theoretically it would allow psychologists to understand the potential reasons why context exerts such powerful influences on behavior. Empirically, knowledge of such dimensions can guide researchers' choices about how to operationalize context in their research, and empirical assessments of context can be used in

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[1] This notion is interestingly commensurate with Buddhist notions that understanding the false nature of self-importance is a key to emotional and behavioral regulation and maturation.

studies involving multiple levels of analysis involving hierarchically-nested data, such as with Multilevel Random Coefficient Modeling (Bryk & Raudenbush, 1992).

In this vein, there has been work examining the nature of interpersonal relationships (Reis, Collins, & Berscheid, 2000) (although there are debates concerning the importance of others' influence on one's behaviors (Kenny, Mohr, & Levesque, 2001). For example, Wish, Deutsch, and Kaplan (1976) asked participants to rate 45 relationships and generated four dimensions that characterized them (cooperative and friendly v. competitive and hostile, equal v. unequal, intense v. superficial, and socioemotional and informal v. task-oriented and formal). Marwell and Hage (1970) suggested the existence of three dimensions to describe the nature of role-dyads: Intimacy, Visibility, and Regulation. McAuley, Bond, and Kashima (2002) obtained ratings of role-dyads in Australia and Hong Kong, and demonstrated the existence of four dimensions used by persons of both cultures to organize these relationships: Complexity, Equality, Adversarialness, and Containment.

Other studies have focused on the analysis of situations, which are broader than relationships because they focus on specific actions or episodes (e.g., watching TV, getting lost, going to a party with a friend). Forgas (1976), for instance, asked housewives and students to rate 25 social episodes involving interactions with different people, and concluded that intimacy and subjective self-confidence differentiated among the episodes. Kelley and colleagues (2003) analyzed 21 common situations, and generated six dimensions underlying them: degree of outcome interdependence, mutuality of outcome, correspondence of outcomes, basis of control, temporal structure, and completeness of available information. Most recently, Edwards and Templeton (2005) had participants rate situations using adjectives and generated four dimensions: positivity, negativity, productivity, and ease of negotiation.

One aspect of context that has been sorely understudied is the location within which behaviors occur, and the mere presence or absence of others. Previous work has suggested that we create cognitive map schemas (Gibson, 1979; Neisser, 1976), but these concern the physical layout of our contexts. Clearly such schemas are important for locomotion and manipulation of the environment (just as we type on our keyboards to write papers!). But whether the actual physical setting is important for behavior regulation is questionable, and one we address in this paper.

With regard to the possible psychological meanings associated with different locations, to date, the only work that attempted to define such meaning was Altman's (1975), who differentiated between primary and secondary private settings, the former those that people feel belong to them exclusively and are central to their identities, the latter being public settings that are used with such regularity that one develops a proprietary orientation toward them. But exactly what dimensions of psychological meanings are associated with private v. public settings has not been explored, and is one we address in this paper. Understanding these more broadly defined aspects of context is important, because they potentially frame interpersonal relationships and specific situations or actions that occur within those relationships and settings. And people regularly

alter their behavior according to context, even when interacting with the same people or no one (i.e., when interpersonal relationship is held constant).

What dimensions may possible underlie contexts? Our perspective is guided by the theoretical work of Goffman, Tomasello, and others (reviewed above), and centers on the question of whether or not people are indeed concerned with judgments of themselves by others, and if this concern differentiates among contexts. While this may seem common-sensical, to our knowledge neither this concern nor its boundaries have been documented by data. For example, are people only concerned with judgments of themselves, or are they also concerned with judgments of others associated with themselves? Are they concerned primarily about negative evaluations, or about positive evaluations, too? And are they concerned with just the present, or also with the future? We address these questions in this study.

Other dimensions of context have also been suggested as important. For example, many writers (Berger & Calabrese, 1975) have posited an importance for uncertainty. Uncertainty appears to frame interactions, especially initial encounters (Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007), and one of the main goals of interaction, especially intercultural interaction, is uncertainty reduction (Gudykunst & Nishida, 2001; Gudykunst, Yang, & Nishida, 1985). The avoidance of uncertainty is also a major dimension of culture (Hofstede, 2001).

Closely related to uncertainty is anxiety. Greater uncertainty in any context is likely related with greater anxiety. This linkage is at the core of such concepts as uncertainty reduction (Gudykunst & Nishida, 2001; Gudykunst et al., 1985), uncertainty avoidance (Hofstede, 2001), and even terror management (Becker, 1971, 1973). To be sure, some recent data seem to suggest that uncertainty and anxiety are somewhat independent, and that it is uncertainty, not anxiety, that moderates interactions (Hogg & Abrams, 2007).

Finally, it may be that contexts are inherently associated with meanings of valence (positive – negative) or arousal (intensity), and it may be that these meanings differentiate different contexts from each other in terms of their power to regulate behavior.

If multiple dimensions of context exist – the possibility of being judged, uncertainty, anxiety, valence, and arousal – another question that has never been addressed concerns their interrelations and primacy in differentiating contexts. Theoretically, for instance, one could argue for the primacy of the possibility of being judged as an influencing dimension of behavior. Lack of information concerning this possibility (e.g., is anyone here?), and the possibility of being judged itself may produce greater uncertainty, which in turn leads to greater anxiety. Factors inherent to the context, such as valence or arousal, may moderate the possibility of being judged, and in turn the amounts of uncertainty and anxiety in the context.

This study was designed to explore the nature of the psychological meanings associated with a wide variety of different contexts, varying not only in their physical location but also in the presence or absence of others. Participants rated these contexts on scales assessing the dimensions described above, and analyses examined the following questions:

1. What are the psychological dimensions of context?
2. How are contexts differentiated from each other?
3. Which dimensions differentiate contexts?
4. What causal model can explain the differences among contexts?

Method

Participants

The participants were 496 university undergraduates (369 females, 126 males, 1 no response; mean age = 22.44) participating in partial fulfillment of course requirements. All were born and raised in the US, and spoke English as their native language.

Contexts and Rating Scales

Participants rated 25 different contexts (table 1). These contexts were chosen for their relevance to the daily lives of young adult students. In most cases the same physical location (e.g., restaurant) was operationalized at least twice, once when no one else was present, and a second time when others were present, to manipulate the presence or absence of others.

For each, participants made different sets of ratings. In the first set, participants responded "yes" or "no" to the following nine items, which were designed to operationalize the degree to which the possibility of being not just observed but judged differed across contexts, and whether or not judgments differed according to positive or negative consequences to self or others either in the present or future: (1) Others may be watching what one does.; (2) Others may be judging oneself; (3) Others may be judging people associated with oneself; (4) How one acts may have positive consequences for oneself; (5) How one acts may have negative consequences for oneself; (6) How one acts may have positive consequences to future relationships with others; (7) How one acts may have negative consequences to future relationships with others; (8) How one acts may have positive consequences for people associated with oneself; (9) how one acts may have negative consequences for people associated with oneself. The data were coded 0 (no) and 1 (yes).

Participants then made certainty and anxiety ratings for three items: What others would typically think in this situation, how others would typically behave in this situation, and what others would typically feel in this situation? The certainty ratings were made using a 5-point scale labeled Not certain at all, A little certain, Moderately certain, Very certain, and Extremely certain. The anxiety ratings were also made on a five-point scale labeled Not worried at all, A little worried, Moderately worried, Very worried, and Extremely Worried.

Finally participants made nine semantic differential ratings of the contexts using a five-point scale labeled Not at All, A little, Moderately, A lot, and Extremely in the following format: How _____ is the situation? The ratings were commanding, unpleasant, weak, positive, intense, controlling, powerful, aroused, and nice.

Table 1
Descriptive Statistics for each of the Four Dimensions for Each Context Rated

Context	Public Eye	Certainty	Anxiety	Intensity
A crowded classroom with many people close by	1.10 (.20)	2.71 (.93)	2.18 (1.00)	2.59 (.68)
A crowded restaurant in plain view and within earshot of others	1.12 (.22)	2.75 (.92)	2.01 (.92)	2.50 (.67)
A crowded cafeteria with many people close by	1.13 (.19)	2.61 (.80)	2.00 (..84)	2.43 (.61)
A professor's office with many people around, in plain view and within earshot	1.14 (.21)	2.63 (.96)	2.24 (1.03)	2.49 (.73)
A long airport security checkpoint line with many people	1.14 (.22)	2.72 (.96)	2.47 (1.01)	2.65 (.73)
A crowded park with many people around in plain view and within earshot	1.14 (.23)	2.59 (.91)	1.88 (.83)	2.39 (.62)
An airport security checkpoint line with a few other people	1.15 (.22)	2.72 (.81)	2.18 (.90)	2.43 (.66)
An internet chat or blog where you are personally identified	1.16 (.24)	2.52 (1.09)	2.30 (1.07)	2.36 (.71)
A packed bus or train	1.17 (.24)	2.49 (.86)	2.25 (.89)	2.45 (.66)
A busstop with many people around	1.19 (.26)	2.53 (.91)	2.05 (.89)	2.27 (.71)
A busstop with a few people	1.21 (.27)	2.61 (.90)	1.85 (.76)	2.00 (.63)
Walking down a crowded street	1.24 (.30)	2.58 (.92)	2.00 (.87)	2.34 (.64)
A lit theater before or after a movie	1.24 (.31)	2.79 (1.04)	1.67 (.82)	2.11 (.65)
An airport security checkpoint line by yourself	1.27 (.30)	2.71 (.96)	2.19 (1.02)	2.44 (.70)
A professor's office with no one else around	1.39 (.36)	2.52 (.99)	2.00 (.99)	2.23 (.68)
Home	1.42 (.38)	3.31 (1.31)	1.54 (.88)	2.40 (.65)
A darkened theater during a movie	1.47 (.39)	2.94 (1.14)	1.60 (.80)	2.20 (.72)
Alone in an empty restaurant	1.47 (.40)	2.65 (1.09)	1.62 (.79)	2.03 (.65)
Bus stop with no one else around	1.51 (.37)	2.58 (1.01)	1.85 (.90)	2.05 (.65)
Walking down an empty street	1.53 (.40)	2.62 (1.12)	1.71 (.82)	1.99 (.64)
A busstop with no one else around	1.53 (.37)	2.43 (1.08)	1.81 (.92)	1.93 (.63)
An empty cafeteria	1.54 (.39)	2.56 (1.09)	1.58 (.79)	1.96 (.67
An empty public park with no one else around	1.58 (.38)	2.42 (1.13)	1.80 (.92)	2.05 (.65)
An empty classroom	1.59 (.39)	2.58 (1.22)	1.70 (.90)	1.99 (.68)
A totally anonymous internet chatroom or blog	1.59 (.38)	2.54 (1.30)	1.70 (.93)	2.17 (.69)

Procedures

Participants were provided with the following instructions: "In this study we are interested in the **meaning** of different situations or contexts. On the following pages you will find the name of a setting at the top, followed by three sets of questions. Please answer those questions **in relation to that setting**. When answering the questions, please keep in mind that we are interested in what the **typical person in your culture** would think or feel in that setting. There are no right or wrong answers, and don't fret over any one question for too long."

After completing a brief set of demographic questions, they were then presented the contexts and rating scales. Two versions of the instrument were created, each with two different random orders of the contexts presented; participants were randomly assigned to one of these in order to control for order effects as a function of context. Within each, the nine ratings of judgments and the nine semantic differential ratings were also randomized across contexts, to control for order effects of the items.

Results

What are the Psychological Dimensions of Context?

We computed an average score for each item across all contexts, and computed an exploratory factor analysis (EFA) on them. Both Kaiser criterion and scree plot indicated a four-factor solution. We also computed two, three, and five factor solutions, and determined the four factor solution to be most interpretable. Multiple R^2 was used for communality estimates, which ranged from .30 to .96, and the four-factor solution accounted for 74.40% of the total variance. Varimax rotation indicated that the nine semantic differential ratings loaded on the first factor; we reckoned these ratings referred to the emotional intensity associated with the context, and labeled this factor "Intensity." The second factor included the nine ratings of the degree to which people were observed and judged; we labeled this factor "Public Eye." The third factor included the three anxiety items; we labeled this factor "Anxiety." And the fourth factor included the three certainty ratings; we labeled this factor "Certainty."

How are Contexts Differentiated from Each Other?

We computed scale scores for each of the four dimensions extracted above, separately for each context, and then computed EFAs on the contexts, separately for each scale. Interestingly, all four scales produced the same interpretable, two-factor structure, with one factor including all contexts that involved the presence of other people (e.g., a crowded classroom, a long airport checkpoint security line with many people, walking down a crowded street), and the other factor including all contexts involving the absence of people. Surprisingly, other aspects of context, such as the specific place, the typical purpose of one's involvement in the context, etc., did not appear to differentiate contexts. Instead, the major differentiating factor was the presence or absence of others.

Which Dimensions Differentiate Contexts?

Individual-level analyses. We then computed an average score for contexts, separately for contexts where others were present or absent and for each of the four scale scores, and then computed 2 (Context Type: Alone v. Not Alone) x 2 (respondent sex) Analyses of Variance (ANOVA) on the scale scores, separately for each scale. The main effect of Context Type was significant for Public Eye, Anxiety, and Intensity, but interestingly not significant for Certainty (table 2). No other effects were significant.

Table 2
Descriptive Statistics and ANOVA Results Comparing Contexts on each Scale

Scale	Context Type		F	η_p^2
	Alone	Not Alone		
Public Eye	.58 (.27)	.91 (.15)	$F(1, 441) = 561.40, p < .001$	.56
Certainty	2.64 (.77)	2.63 (.66)	$F(1, 441) = .29, ns$	.001
Anxiety	1.77 (57)	2.07 (.65)	$F(1, 441) = 106.35, p < .001$	.19
Intensity	2.13 (.51)	2.39 (.54)	$F(1, 441) = 210.49, p < .001$	.32

Context-level analyses. To examine whether the dimensions differentiated context on the context level, we classified contexts according to their type (i.e., alone v. not alone), and computed correlations between context type and the means of each of the four scales (first row, table 3). Context Type was associated with Public Eye, Anxiety, and Intensity, but interestingly not with Certainty. We also computed the intercorrelations among the dimensions on both the context (top diagonal) and individual levels (bottom diagonal). Interestingly, certainty was not correlated with the other dimensions in either analysis.

Table 3
Context- (top) and Individual-Level (bottom) Correlations among the Dimensions, and between the Dimensions and Context Type (first row)

	Public Eye	Certainty	Anxiety	Intensity
Context Type	.92**	-.05	.64**	.62**
Public Eye		.10	.75**	.80**
Certainty	.05		-.25	.31
Anxiety	.24**	.27**		.75**
Intensity	.17**	.24**	.54**	

What Causal Model can Explain the Differences Among Contexts?

We computed a hierarchical regression using the context-level data on context type, entering Public Eye on the first step, Certainty, Anxiety, and Intensity on the second, and the interaction between Public Eye and Intensity on the third. The first step produced a significant $R(25) = .92$, $p < .001$. The change in R2 was not significant, however, in either the second or third steps. On the second step, the standardized regression coefficient for Public Eye (1.162) was significant, $p < .001$; none of the others was.

We also reversed the regressions, entering Certainty, Anxiety, and Intensity on the first step, and Public Eye on the second. The first step produced a significant $R(25) = .75$, $p < .001$. The change in R2 from the first to second step, however, was also significant, $\Delta R2 = .31$, $p < .001$. Collectively, these findings indicate that the primary dimension that differentiates context is Public Eye.

Discussion

Although four dimensions emerged from the analyses, the most salient dimension appears to be the possibility of being judged by others (Public Eye). And, although many different types of contexts were rated, the only factor that differentiated them, vis-à-vis the underlying dimensions, was whether or not others were present. Both these findings suggest a powerful and basic role for the public eye as an important regulator of behavior.

Interestingly, Public Eye made no distinction between whether the judgments were potentially positive or negative, about oneself or others associated with oneself, or about the present or the future. This may have resulted from a limitation of the scales we used, and future studies including different scales that potentially differentiate subdimensions of the public eye should be tested. Theoretically these findings have import for theories concerning the cultural basis of human life. If humans come to the world with unique cognitive abilities that allow them to know that other people can make judgments of oneself as an intentional agent (Tomasello, 1999), and if the human world is inherently social, then it appears that one of the primary pieces of information human cultures, as meaning systems, proscribe to context is that of the Public Eye. In fact, when the dimensions were used as a basis of grouping contexts, the most important difference to emerge was whether or not anyone else was present. This ascribed meaning serves as the basic building block of social and cultural life. As individuals develop a sense of self, it is the public eye in different contexts that serve as the basis for impression management, concerns for the presentation of self, and behavior regulation (Goffman, 1959; Scheff, 2006).

The analyses also indicated that other dimensions tapping uncertainty, anxiety, or valence were not as important as Public Eye in differentiating among contexts. In this light, the non-findings on uncertainty were also surprising, as well as the regression analyses. Cumulatively these findings suggest that previous work identifying uncertainty or anxiety as potentially important facets of context may have done so because of their associations with Public Eye, but in fact the

potential of being judged is the most important characteristic of contexts in relation to behavior regulation.

The findings also have empirical import. For years, psychologists have long acknowledged the powerful influence of context on behavior, and have documented many important behavioral differences as a function of context. Yet, to date there have been no ways to scale contexts meaningfully. The present study provides such data, which can be used in multilevel analyses (Bryk & Raudenbush, 1992), in which psychological data of interest can be nested within relationships (with data - (Kelley et al., 2003) that are in turn nested within contexts, that are nested within different cultures. Future multilevel studies examining behavior in different contexts can be aided with scaled data such as that provided in this study.

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