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Reviewed work(s):

Source: *Psychological Inquiry*, Vol. 13, No. 2 (2002), pp. 128-132

Published by: [Taylor & Francis, Ltd.](#)

Stable URL: <http://www.jstor.org/stable/1449169>

Accessed: 29/10/2012 11:14

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pand our ideas of what is testable, advance theory and do so entirely within the current paradigm of social psychology.

Note

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Virtually Interactive: A New Paradigm for the Analysis of Stigma

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If we really want to know how persons think about persons, we may have to introduce our participants to some. (Gilbert & Hixon, 1991, p. 516)

Blascovich et al. (this issue) propose in their target article that one way in which social psychologists might introduce research participants to other individuals is through a virtual reality technology ingeniously devised to make them appear both real and contingently engaged. Because Blascovich et al. have thoughtfully reminded us that when first introduced to a hammer we may be tempted to pound everything in sight, we will confine our comments concerning the feasibility and promise of immersive virtual environment technology (IVET) to a few issues within stigma research, an area of inquiry that has caught the attention of an increasing number of psychologists over the last several decades. Although the concept of stigma has been defined in various ways, the notion advanced by Crocker, Major, and Steele (1998) currently has high consensus among social psychologists, that is, “a person who is stigmatized is a person whose social identity, or membership in some social category, calls into question his or her full humanity—the person is devalued, spoiled, or flawed in the eyes of others” (p. 504).

In the third edition of the *Handbook of Social Psychology*, Archer (1985) identified what he considered to be a paradigmatic shift in our conception of stigma or social deviance. In his view, several scholars writing in the early 1960s “drew attention to the central ideas

that deviance was socially constructed and that the reactions of nondeviants were a major force in the emergence of deviance and the qualities it assumes” (p. 744). Archer argued that this conception quickly drew the attention of social psychologists because it viewed stigma as an emergent quality or product of social interaction. If one wished to understand stigma, one had to move away from an ideographic focus on the deviant individual to an analysis of the factors that contaminate and “spoil” interactions between “normal” individuals and those considered deviant or stigmatized (Goffman, 1963).

Although such a conception implies the use of research paradigms involving face-to-face interaction, much of the subsequent empirical work has been focused on attitudinal and self-report measures with little of it involving actual social exchanges between the stigmatizer and the stigmatized (for some exceptions, see Hebl, Foster, Mannix, & Dovidio, 2000; Ickes, 1984; Kleck, Ono & Hastorf, 1966; Kleck & Strenta, 1980). The result is that we know a great deal about the self-reported cognitions of stigmatizers but relatively little about the affective reactions and behaviors that they exhibit in social interactions with the individuals supposedly stigmatized by these reactions and behaviors (for recent reviews, see Crocker et al., 1998; Fiske, 1998; Heatherton, Kleck, Hebl, & Hull, 2000). Further, because the bulk of this research has tended to focus on the stigmatizer, we know relatively little about the cognitions and behaviors of the stigmatized individual

and the ways in which these may contribute to or undermine the stigmatization process. Only recently did the first volume that focused primarily on the stigmatization process from the perspective of stigmatized individuals appear (Swim & Stangor, 1998).

It is not our intent to denigrate the results of noninteractive paradigms or to underestimate the very significant contributions they have made to our understanding of stigma. Rather, it is to assert, as did the participants in Archer's imputed paradigm shift nearly 50 years ago, that a full understanding of how stigmas and social deviance are constructed will require truly interactive research paradigms. It is in this sense that we think the IVET technology of Blascovich et al. (this issue) offers significant methodological advantages to this area of inquiry.

IVET and the Analysis of the Stigmatization Process

Crocker and Quinn (2000), among others, emphasized the degree to which the consequences of social stigma are a function of the meaning that a particular situation has for individuals with specific devalued characteristics or identities. In short, how stigmatizing a particular aspect of one's person might be clearly depends in part on the particular contextual factors present when the possessor of a potentially stigmatizing characteristic interacts with others. Thus, for example, someone who is obese may experience more negative interaction consequences on an airplane with tight seating than at an outdoor concert. Likewise, Blacks may experience more stigmatizing responses from others when affirmative action, rather than tennis, is the topic of conversation. Indeed, even the specific physical features of a given context, such as the absence of elevators in a multistoried building, may make the characteristic that is potentially stigmatizing (e.g., being in a wheelchair) more or less salient in the interaction (Hebl & Kleck, in press). Although relatively few of these contextual features have been examined systematically, one of the strong assets of IVET is its ability to manipulate the perceived context in which an interaction is taking place in a manner that is both realistic and psychologically captivating.

Although contextual factors are clearly important in determining both what will or will not be a stigmatizing characteristic as well as how intensely stigmatizing any particular characteristic may be, other variables have been identified as playing robust roles in the social construction of stigma (e.g., Jones et al., 1984). One of these is the aesthetic aversiveness of a physical stigma such as facial scarring. Facial scars are quintessential social stigmas in the sense that the effect of this characteristic on the life of the person who has one is

entirely social in nature. A facial scar does not result in any mobility limitations, as would be the case for paraplegia, or have any central nervous system correlates of the sort that might be associated with blindness or Down's syndrome. One of the things we do not know about facial scarring is whether the degree of stigmatization is a direct function of the severity of the scarring. Casual reports from plastic surgeons suggest that relatively mild forms of facial disfigurement may result in greater levels of perceived stigmatization and interaction difficulties than do more extreme forms. Although make-up manipulations on confederates could be used to investigate this question (Kleck & Strenta, 1980), IVET would permit an easy and systematically graded manipulation of the degree of facial scarring of the individual encountered in one's virtual reality. A parallel argument could be made in regard to the effects of degree of overweightness, the clarity of racial identity, or the degree of mobility impairment. Further, the addition of attractiveness, age, race, and sex manipulations to this paradigm would apparently be very straightforward and relatively easy for researchers to achieve while still maintaining exquisite control over the behavior of the virtual interaction partner.

A central goal of some of the research in this domain has been to identify those factors that might ameliorate or undermine the likelihood that particular characteristics will serve as a stimulus to stigmatized interactions. Research by DeJong (1980), for example, suggests that when obesity is attributed to a physical condition rather than to a failure of willpower, it leads to lower levels of denigration of the overweight individual. Likewise, studies by Hastorf, Wildfogel, and Cassman (1979) and by Hebl and Kleck (2000) and Mills, Belgrave, and Boyer (1981) support the notion that the simple acknowledgment of a deviant or devalued characteristic early on in an interpersonal encounter may reduce the negative social consequences of that characteristic. Although these studies can and have been done employing existing interactive research paradigms, IVET appears to offer particular methodological advantages. First, as noted previously, the context in which the stigma-reducing strategy is tested can be readily varied. Job or college admission interviews, casual social conversations, same-sex or mixed-sex interactions, and so on supposedly will ultimately just require a mouse click to bring into an individual's virtual world.

Another factor that has been identified as reducing the stigmatization of individuals who possess characteristics negatively valued by society is the degree of interaction experience one has had with such individuals (e.g., Kleck, 1968). Indeed, the intuitive appeal of this idea has provided the rationale for major efforts in Western societies to integrate the stigmatized into normal society. Although one could arrange for differential degrees of experience with members of stigmatized

groups and examine its effects on the nature of subsequent social interactions with representatives of that group, the degree of controlled exposure provided by the IVET technology has obvious methodological advantages. Not only could the investigator precisely specify the particular stigmatizing and demographic characteristics of the individuals to be encountered, but he or she would also have control over the behavioral repertoire displayed by these virtual persons. Even one who has not given much thought to this area of inquiry should be able to generate a host of readily testable hypotheses.

An enduring conceptual question in the area of stigma research concerns the issue of generalizability across various types or categories of stigma characteristics. Although most investigators would acknowledge that stigmatizing characteristics differ along a number of important dimensions (e.g., concealability, degree of aesthetic aversion, controllability), we have not gotten very far in pinning down the general phenomena associated with all stigmas and those that are a function of the particular qualities of a given stigmatizing characteristic. Put more simply, at this stage of our inquiry, we have a relatively low level of understanding of what stigmatization dynamics are relatively general and which are more a function of specific characteristics. Although, once again, it is not impossible to compare stigmas within existing social interaction paradigms, the ease with which one could do it in IVET, while holding the behavior and stigma-irrelevant characteristics of the virtual person constant, is impressive.

Finally, a specific possibility within IVET should have particular appeal for investigators interested in stigma. We know on the basis of previous research that nonstigmatized individuals' responses to stigmatized persons are driven in part by what they think their own social outcomes might be like if they were stigmatized in similar ways. The paradigms exploring the role of these expectations typically ask respondents to imagine themselves as overweight or of a different race or, as in the case of Kleck and Strenta (1985), show them photographs of themselves that have been retouched to depict facial scarring. The "virtual mirror" technology made possible by IVET is both more flexible and likely more psychologically engaging than these previous manipulations. Within IVET, one can view oneself behaving in a self-consistent manner while one's overt appearance is manipulated in a remarkable number of ways (appearing as male rather than female, as an old person rather than a young one, or as an obese person rather than a normal-weight individual). Given the perceptual reality of such manipulations, they should be much more effective in eliciting expectations as to what social life might be like if one possessed this particular overt appearance than any methodology we currently have at our disposal.

Potential Limitations of IVET Paradigms

Although our fundamental disposition is that IVET technology offers new and exciting ways to put the *social* back into the analysis of social stigmas, we would be remiss if we did not share some of our reservations concerning the technology as we understand it. IVET shares some of the same problems found in already existing paradigms employing face-to-face interactions, one of which involves participant suspicion. It is very likely that participants will be suspicious when individuals who are statistically rare (facially disfigured, massively obese) are introduced as virtual interactants. This is not an insurmountable problem but does require that we give consideration to the use of carefully constructed cover stories. In our own research, for example, we told participants who were asked to rate physically disabled individuals in a videotape study, that they would be watching physically limited applicants who participated in a local workshop that specifically focused on honing the interview skills of such individuals (Hebl & Kleck, 2000). Almost no participants were suspicious and fully expected to view physically disabled applicants. Further, it is reasonable to ask whether what study participants see in their glasses will be treated as any more real than what they experience in the typical social psychological laboratory. Once they have been debriefed in regard to one such experience (or have read Blascovich et al., this issue), why should they ever treat these virtual realities as anything but an intentional and deceptive construction on the part of the experimenter?

A related issue or concern rests with the obvious mechanism for inducing a virtual reality (i.e., the glasses one is wearing). Participants of IVET can immediately escape any such reality by simply removing the IVET glasses or closing their eyes. Compare that to the much more difficult task of getting out of Stanford's simulated prison (Haney, Banks, & Zimbardo, 1973) or of Milgram's (1963) compliance with authority paradigm. Further, because the manipulation is dependent on a very specific aspect of the situation (whether my virtual reality glasses are on or off), the ability to generalize results obtained with this paradigm to real-world situations where the social context is not so easily escaped may be problematic. In particular, the knowledge that one can escape a particular context quickly and at relatively low cost may encourage behavior that is riskier and more egoistic (e.g., Williams, 1998).

Finally, the new kid on the block (in this case, IVET) will invariably get more attention than those kids who have been here all along. IVET is not the first general paradigm to offer us the possibility of systematically examining the interactive nature of stigmatization processes. The dyadic interaction paradigm of

Ickes and his colleagues (Ickes, 1984; Ickes, Bissonnette, Garcia, & Stinson, 1990), for example, focuses on the spontaneous, naturalistic interaction behaviors of multiple naïve participants; collects behavioral data that have been recorded unobtrusively; maintains high levels of both internal and external validity; and adopts a holistic view of social interactions. Similarly, although past stigma studies typically only adopted the stigmatized individual's perspective or the nonstigmatized individual's perspective, the social relations model of Kenny and his colleagues (Kenny, 1990; Kenny, Kashy, & Bolger, 1998) takes both perspectives into account. This latter approach partitions the variance of participants' behavior in a social interaction into their separate components. As a result, elements of a social exchange can be attributed to each of the members of the social interaction separately or to the combination of the two. Why these already existing paradigms have been underutilized in the analysis of stigma (as well as other social processes) is an interesting question in its own right and may not bode well for the likelihood that IVET will be embraced by our colleagues. What is clear to us is that investigators must first come to the realization that interaction-based paradigms are essential to our scientific enterprise and then act on this realization with whatever tools are available to them.

In sum, we believe the IVET paradigm offers the methodological tools necessary to ask important questions in the area of stigma research. We believe it will, as Blascovich et al. (this issue) claim, increase mundane realism, feasibility of replication, and the utilization of virtual stimulus persons and experimental participants that are more diverse than are those individuals who now appear in our studies. At the same time, however, we caution researchers against thinking of this as a panacea that will solve problems that were until now considered intractable.

Note

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Virtually Immersive Environments

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Oh, what fun social psychology is getting to be! Whereas not too long ago we had no recourse but to enthrall neophytes with the exhilaration of a clever experiment, survey, and the occasional field study, our toolbox now incorporates an ever-expanding assortment of sophisticated methodological innovations, the likes of which could scarcely be imagined a decade ago: functional magnetic resonance imagery and positron emission tomography scans, Web-based surveys and experiments capable of collecting thousands of data cases in a matter of days, implicit attitude measurement, handheld computers for sampling experience as it happens, ambulatory physiological monitors, computerized tools for examining cognitive mediation, language analysis programs for coding thematic or stylistic content in written narratives and conversation, and even statistical methods for identifying clear and compelling patterns out of a morass of data (and yes, even causality from correlational data). Now, thanks to Blascovich et al.'s target article (this issue), we can add immersive virtual environments (IVEs) to the list.

That IVEs, as well as the many other new methods born of the marriage between cutting-edge technology and social psychologists' boundless curiosity, have great potential for enhancing the breadth and veracity of social psychological knowledge goes without saying. IVEs fully offer the "major methodological leap" to which Blascovich et al. (this issue) lay claim in their concluding sentence. Their article makes evident not merely the technical possibilities of IVEs but also the range of social psychological questions and theories to which these methods are capable of contributing. That, of course, makes this invitation all the more enticing, but surely a caveat emptor is in order. Social psychologists with a sense of history are all too aware of the ease with which our discipline may become enraptured by the siren song of clever new technologies whose ability to augment our core conceptual mission, understanding human social behavior in the real world, ends up limited or even ephemeral. Remember the initial enthusiasm about the bogus pipeline and cross-lagged

panel correlations? Their impact turned out to be circumscribed at best.

To be sure, Blascovich et al. (this issue) have done their homework, and they offer many good reasons for even the most skeptical traditionalist to believe that IVEs are here to stay. For example, to their great credit, rather than one-sidedly touting IVEs as *the* paradigm for the new millennium, Blascovich et al. highlight several factors that moderate the relevance of behavior observed within IVEs to the real world; in other words, phenomena vary in the extent to which they can and should be investigated within an IVE (and, for that matter, what sort of IVE is most appropriate). To make this point explicit, let me highlight two of these factors, behavioral realism and social presence. Allport (1985) defined social psychology as the study of how individuals are influenced by "the actual, imagined, or implied presence of others" (p. 3). Blascovich et al. rightly take traditional researchers to task for assuming that imagined and implied presence are somehow isomorphic with actual presence, but it is all too easy for IVE experimenters to forget that after all is said and done, most IVEs (at least as currently constructed) are likewise imagined—more vividly, of course, than with other methods but imagined nonetheless. (This is why it is called a *virtual* environment.) When people know that the laws of nature do not apply, when they do not have to worry about potential ramifications of an outlandishly risky act, or when there is little reason to be concerned about the long-term consequences of one's actions toward another person, tendencies to balance risks and rewards are likely to vary from real life. Why not bet your entire retirement portfolio on a single poker hand if the game is virtual? Why not ask that supermodel or gorgeous hunk for sex if he or she is not real? Would anyone have been particularly unnerved if, in a virtual version of the original Milgram experiment, participants had delivered lethal shocks to an agent-*avatar*?

Of course not, and that is why Blascovich et al.'s (this issue) analysis of the social psychological context