THE DUAL PROCESS MODEL OF STEREOTYPING: USING SOCIAL COGNITIVE RESEARCH TO REDUCE BIAS IN THE WORKPLACE WITH AN EMPHASIS IN GENDER STEREOTYPING

by

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ABSTRACT

As more women and minorities enter organizations, the issue of the glass ceiling fails to evaporate, due in part to the less favorable evaluations of women and minorities in the workplace. A likely cause for this is the lack of research and understanding in the business environment on stereotyping and its results. The following narrative review seeks to bridge the gap between social psychological and social cognitive research and business and Industrial/Organizational research on the topic through the introduction of a dual process model that identifies and attempts to correct for the harmful effects stereotypes may have on assessments, using the moderators of Information, Situation, and Motivation.

INTRODUCTION

Women remain underrepresented in upper management. Only 11.2% of corporate officers in Fortune 500 organizations and less than 1% of CEOs, chairmen, vice chairmen, presidents, and COOs of Fortune 500 corporations are female (Catalyst, 1998).

While many possible reasons exist for this gender segregation in organizations, one significant cause is the less favorable evaluations of women as compared to their male counterparts. It has been demonstrated that women and particularly women managers are characterized more negatively than their male counterparts in management settings (Heilman, Block, & Martell, 1995) and that descriptions of men and successful middle managers are similar to one another in that both are described as being strong-willed and forceful, among other things, unlike descriptions of women, who are described as softer and more compassionate (Heilman, Block, Martell, & Simon, 1988; Schein, 1975). Heilman's Lack of Fit model (1983) suggests that this perceived difference between women and male-sex-typed jobs produces these less favorable evaluations.

Over the past several decades, social psychologists have taken great steps toward understanding the processes linking gender-based stereotypes to biased assessments, as well as demonstrating instances in which bias may or may not occur, as shall be discussed in greater detail. Yet comparatively little work on the topic within the Industrial-Organizational field exists. Specifically, little research has explored which factors under the control of organizations might moderate bias. For example, some research may exist attempting to reduce biased selection in entry level positions, but such attempts are locally based, do not take into account future promotions, fail to consider the

application of personal opinion by deciding managers, ignore the corporate environment, and do nothing to eliminate any kind of glass ceiling. As such, it should come as little surprise that true application of bias reducing theories is limited throughout business settings.

The goals of this review article are as follows: 1. Under the framework of current social psychological theory, establish a model linking stereotypes to assessments. 2. Identify the moderators of this model that determine whether and to what extent this link may or may not occur. 3. Examine these moderators in detail, determining their effects upon stereotypes, assessments, each other, and productivity in work environments. 4. Suggest further possible research in industrial and organizational psychology following this model.

The Dual Process Model of Stereotyping

An attitude need not lead to a corresponding behavior. Actions are moderated by situations and the perception of those situations. People have the opportunity to overcome inborn opinions and desires and shape decisions around their environment, using a more conscious, controlled approach. Rather than acting upon the first idea that pops into their heads, individuals have an opportunity to weigh benefits against costs. To that end, a new notion of two processes working either in conjunction or opposition, often called the theory of dual processes, has been developed and applied in the cognitive and social psychological fields**.** For the purposes of the following pages, all pre-existing definitions will be drawn from social psychological journals and are likely not to match terms found in cognitive journals.

The idea is a simple one. Individuals may perceive and respond to the world using preconceived notions and ideas, or they may perceive and respond to the world taking into account factors of the situation that go against preconceived notions. These two methods of processing interact with one another and ultimately determine the behavior of an individual.

This theory has been used to explain such matters as how we are persuaded, how we examine our environment, and how we weigh decisions. Two early hypotheses based upon this theory were the Heuristic – Systematic Model (HSM) (e.g. Chaiken, 1980), which sought to explain the representation of these two processes in the mind, and the Elaboration Likelihood Model (ELM) (e.g. Petty and Cacioppo, 1984), which attempted to show how these two processes interact with the outside world. Together, these two hypotheses provide a strong theoretical lens to identify and explain moderators of bias and, by necessity, shall be referenced extensively.

Theory-driven Versus Data-driven Processing

As previously stated, individuals may follow one of two modes of processing – theory driven and data driven – and the selection of a processing mode will largely decide to what extent pre-existing notions are used to determine behavior.

Theory-driven processing is the quicker of these two processes, typically operating outside the realm of our control and requiring few cognitive resources. The Heuristic-Systematic Model (HSM), as mentioned previously, focuses upon mental representations and defines the first of these two processes as a heuristic, or mental representation of some category, which should not be confused with the more common

cognitive definition of heuristic, that being a "rule of thumb." For example, if one saw a wooden object with four legs, a seat, and a back, the heuristic for chair might appear, and one might be inclined to treat that object as a chair, rather than as a table or a banana. The Elaboration Likelihood Model (ELM) focuses more upon processing incoming information and examines the method in which top-down processing affects and is affected by data-gathering. Specifically, the ELM suggests that a peripheral route of data gathering, or a route that requires little conscious control or effort, is likely to activate a prototype (ideas that embody certain stereotypes) and, subsequently, be used in collusion with them to make inferences and decisions. In other words, the HSM and the ELM suggest that theory driven processing pushes individuals to use pre-existing notions or ideas when making decisions and is an easier method of processing, requiring less thought in any given situation.

Data-driven processing is the second, more controlled, slower process, which requires more cognitive resources. The ELM suggests that, in order for this process to occur – for instance, when gathering data – there must be a reason for it. Perhaps some unusual information exists that would force a dismissal of the original mental representation (e.g. the item that we originally thought was a chair stands behind a red, velvet rope with a sign that says, "Modern Art" on it). Perhaps some unrelated factor creates a desire to re-examine that initial impression (e.g. A security guard angrily states that no one is supposed to be sitting on this four-legged object originally conceived to be a chair). The HSM suggests that, rather than allowing a prototype to act as the sole representation of that object, one is forced to develop a more unique, systematic representation. This systematic representation would force a re-examination, not just of

what is thought about the object, but how one behaves toward it. One has every right to sit in a chair, but has very little right to sit in modern art. To put it succinctly, data-driven processing is the hard way to make a decision; it forces an individual to examine all of the factors, instead of jumping to a conclusion based upon what that individual already knows or can guess.

With all of this information at hand, it should come as little surprise that the processes applied to everything else in one's environment might also be used on people and social situations. Just as one is likely to classify a chair by its salient feature, so might one classify a person by salient features such as gender, skin color, voice, and height. Indeed, to do otherwise would seem to go against one's basic nature. This act of uncontrolled classification is typically referred to as activation, and, just as it has been successfully demonstrated in the mental representations of items and ideas, it has also been demonstrated in the representations of social categories and behaviors. For example, Blair and Banaji (1996) demonstrated activation of stereotypes through reduced reaction times for stereotypic pairings of gender names and traits and increased reaction times for counter-stereotypic pairings of the same. Both historic and modern factors demonstrate the utility, not just of having this dual process model, but of favoring theory-driven, top-down processing. Bruner, Goodnow, and Austin (1956) argued to the benefits of having a quick, categorically-based process of data gathering and interpretation. A loud roar in the night rapidly brings the idea of large, carnivorous mammals to mind. The development of language requires a near-automatic categorization of sounds into general meanings. A red octagon means STOP.

If theory-driven processing is truly the favored process, its effects on bias in the workplace can be profound. At each step of the climb through an organizational hierarchy, managers and other assessors will be prone to evaluate workers by color, gender, or anything else that comes quickly to mind, rather than as individuals with specific skills. Even if assessors overcome theory-driven processes for the most part and attempt to apply a data-driven approach, small effects may multiply, leading to the gender differences at the tops of corporations, as previously mentioned.

Redefining and synthesizing the ELM and HSM

With a wide variety of definitions floating through the Social Psychological literature, many of which contradict or awkwardly redefine Cognitive notions, it seems appropriate to propose specific definitions for the purpose of this review. As such, the word "stereotype" shall hereafter refer to the representation in the mind of a single trait common to a particular group. The word "prototype" will refer to the mental representation of an individual who embodies one or many stereotypes. "Activation" will be defined as the rapid and likely uncontrollable appearance of either a stereotype or prototype in the mind. The notion of "systematic processing" (e.g. Chaiken, 1980) and any other processing relating to the notion of examining data beyond preconceived notions, prototypes, or stereotypes shall be hereafter referred to as "correction."

Moderating the Struggle

It seems clear that activation without correction is heavily favored in everyday use (Bruner, Goodnow, and Austin, 1956). The process takes fewer cognitive resources,

occurs rapidly and early, and is extremely useful in most situations. The question becomes, when and why would anyone use correction in the first place? The factors of Information, Situation, and Motivation, as suggested by the ELM and HSM serve as moderators to correction processing.

With these three moderators, it is possible to consider the dual process model of stereotyping in full. Figure 1 depicts Motivation and Information (Chaiken, 1980) pushing an individual to use either a systematic or heuristic processing strategy to make an assessment, as suggested by the HSM. Figure 2 depicts Motivation, Situation, and Information determining whether an individual takes the central or peripheral route (Petty & Caccioppo, 1984) in making an assessment, as suggested by the ELM. Finally, Figure 3 depicts a synthesis of the two that takes into account the cognitive notion of automatic activation, in which the factors of Information, Situation, and Motivation may work individually and in concert to determine whether and to what extent correction may affect assessments when activation of social stereotypes and prototypes occur.

Figure 1. The Heuristic-Systematic Model.

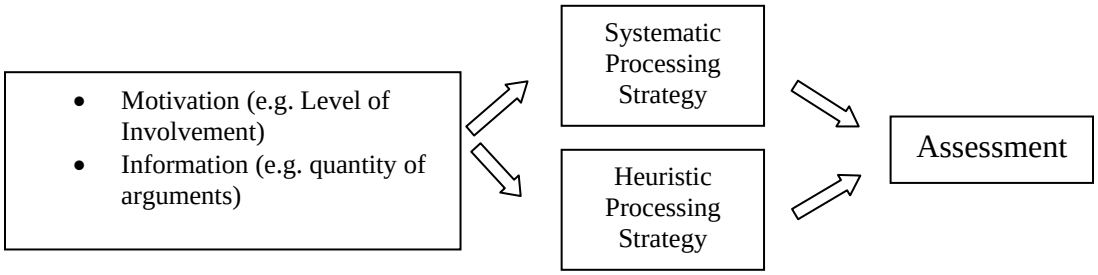


Figure 2. The Elaboration-Likelihood Model

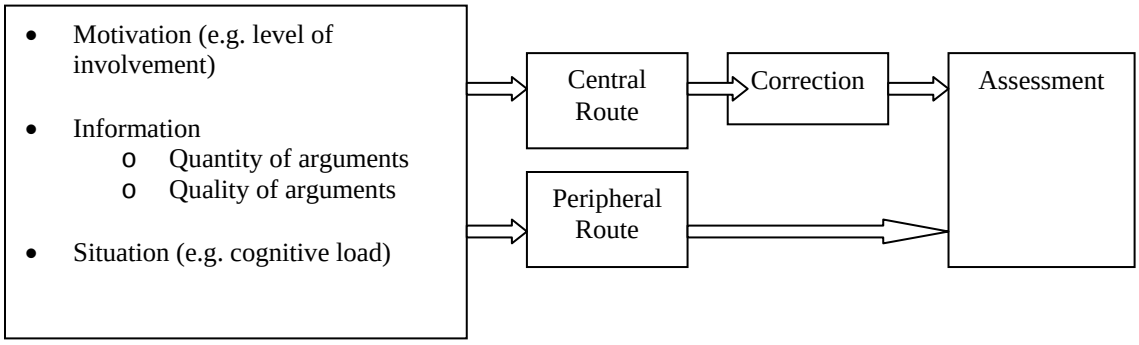
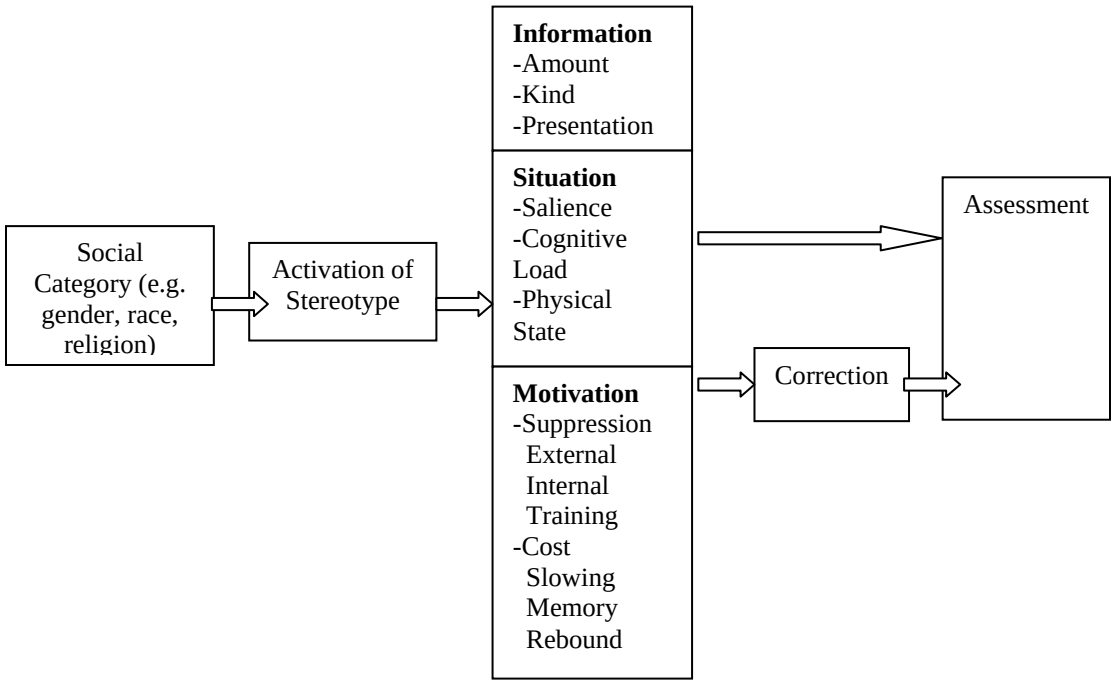


Figure 3. The Activation-Correction Model of Stereotyping



INFORMATION

The first factor, Information, is a crucial element of the ELM (Petty & Caccioppo, 1984). The amount, kind, and method of information presentation helps to determine the extent to which we think about, accept, and act upon our theories. Will the information presented be enough to mitigate the thoughts and behaviors that were activated by the present social category? Can information alone reduce biased assessments in the workplace?

Amount of Information

The first factor to be considered must be information amount. How much will an assessor need to know to be able to make decisions based upon individuating information rather than categories and stereotypes? Heilman, Martell, & Simon (1988) have demonstrated that, when no individuating information is provided, men receive better ratings in male sex-typed jobs. Meanwhile, Gordon & Owens (1988) demonstrated that simply including a letter of recommendation along with a resume was enough to give women targets far less stereotypical ratings when applying for a managerial position. The simple addition of a letter of recommendation is heartening in its ability to heighten correction and leads one to wonder if there is some sort of threshold for how much information to provide. Would three pieces of information be enough? Is it possible to ever have too much information? However, it also begs a larger question. What types of information cause one to process individuating information and what types might reduce

correction? To help consider these questions, information must be divided into two categories: data promoting correction and data promoting stereotypes.

Kind of Information

Data Promoting A Correction

As shall be discussed, information that promotes correction is characterized by its relevance. It is information that generally goes against the relevant stereotype and applies directly to the position in question. While Heilman, et al. (1988) have demonstrated that, when no individuating information is provided, men receive better ratings in male sex-typed jobs, it was also demonstrated that, when information is provided and women are listed as having high degrees of ability in moderately male sex-typed jobs, ratings were equal among men and women. When a female's degree of ability is listed as high in highly male sex-typed jobs, ratings for women are actually better than for men. Further evidence for this effect comes from Paulhus, Martin, and Murphy (1992), who demonstrate that counterstereotypic, individuating information reduces the difference in gender-based ratings even under conditions of high arousal. It has also been demonstrated that, when making a rating, more credible sources lead to a greater application of stereotype-disconfirming information (Macrae, Shepherd, and Milne, 1992). These studies could lead one to assume that, even if stereotypes are activated, individuals may overcome them quite easily given the proper information.

Several findings suggest that this is not the case. While correction promoting information may have a powerful effect upon target ratings, the effect is dampened or eliminated when such information is applied to hiring decisions, zero-sum decisions and

rankings (e.g. Biernat and Vescio, 2002), as shall be discussed in further detail under the topic of Assessments. In fact, the only situation in which decisions of hiring were affected by information to the point that gender differences no longer existed was when the entire stereotype itself may have been changed. When a participant reads that an entire group of women is successful in a number of jobs related to the male sex-typed job for which that participant is making hiring decisions, men and women do equally well (Heilman and Martell, 1986). In essence, it seems, in order for a particular prototype to no longer have an effect upon hiring decisions, it must be superceded by a new prototype.

Data Promoting Stereotypes

While only relevant individuating data could promote correction, at least three kinds of information may actively promote stereotypes when making assessments, as shall be seen: data that matches or confirms the stereotype; noncategorical, irrelevant data that complicates attempts at correction, and ambiguous data.

Perhaps the least surprising effect is that of stereotype confirming data. People are more likely to use stereotypes when the behavior of a target matches the stereotype of that target's social category (Bodenhausen & Wyer, 1985). If a juror is presented with an Arab individual who committed a stereotypically Arab crime, judgments for severity of punishment and likeliness of recidivism significantly increase, as do memories that fit an Arab prototype. On the other hand, when information about a target is obviously stereotypical in nature, participants become reluctant to make assumptions about that target; yet, when information appears to be non-stereotypical and individuating in nature

but is not, participants have very little problem making said assumptions about the target (Yzerbyt, Schadron, Jasques, Rocher, 1994).

No such reluctance exists when using non-categorical, irrelevant data to make assessments, though such application tends to promote the use of stereotypes. For example, the image of an individual, which is generally a meaningless piece of individuating information in terms of Knowledge, Skills, and Abilities, promotes the use of stereotypes (Beckett and Park, 1995). When participants rated the behavior of a target, the stereotypicality of ratings significantly increased when photos were included with the description of the behavior. However, the effects of irrelevant data upon stereotype application do appear to be moderated by the extent to which the information somehow defines the target (Hilton & Feins, 1989). In other words, when participants are rating assertiveness in targets, they may either learn that the target got a 3.8 GPA, which is irrelevant but defining of the target according to Hilt and Feins, or that the target found 20 cents, which is neither relevant nor defining of the target. When participants learn target GPA, use of stereotypes when rating assertiveness is significantly lower than when learning that the target found 20 cents.

A final factor concerning data promoting the use of stereotypes is ambiguity. Kunda and Sherwin-Williams (1993) demonstrated that ratings often follow individuating information, when that information is straightforward and unambiguous, but revert to following categorical stereotypes when the information is ambiguous. Simply put, the more confusing the information, the more likely stereotypes will be applied over correction. This notion of complexity is a crucial example of how the moderators of Information and Situation interact.

Method of Information Presentation

As shall be seen, activation appears to depend upon the ease of categorization – in other words, the ease of assigning a target to a specific prototype – and the salience of attributes of the target that might lead to said prototype. One must call into question what happens when these information-related factors are applied to stereotype activation.

To begin, one must examine ease of categorization. If one cannot activate stereotypes because necessary peripheral cues like gender do not exist, what is the alternative? It seems that, if an individual is difficult to categorize (e.g. a participant is only given an identifier like "person"), impressions and affect will be based upon additional attributes (Fiske, Neuberg, Beattie, and Milberg, 1987). If that individual is easy to categorize (e.g. participants are given an identifier like professor), impressions and affect will be based on the category, rather than the attributes provided. As such, it appears that if no stereotype can exist individuals will be unable to activate a stereotype. In essence, individuals by-pass the Activation-Correction Model of Stereotyping.

While this may be an interesting concept, it is not always applicable in the business world where applications almost always include some sort of categorical identifier (e.g. a listed name could identify both gender and race, and possibly age). It therefore becomes necessary to vary the manner in which these categorical identifiers become salient (i.e. how and when individuals become aware of categorical identifiers), as this may help to reduce or even prevent the activation and, therefore, the application of stereotypes.

Forcing Correction Through Presentation Order

The most straightforward method of varying salience is by adjusting presentation order of the categorical identifier (e.g. female) and the additional information presented (e.g. work experience). A study by Bodenhausen (1988) accomplished this by asking participants to judge the guilt of a target in a mock trial. When race – either Latino or white – was presented first and followed by evidence for and against guilt, a simple main effect existed in which Latinos were judged guilty significantly more often. When race was presented second, no significant difference between Latino and white was found. These results suggest two things. First, as expected, race cannot be used as a stereotype if it has not been provided. Second, individuals seem to make assessments as information is provided rather than after all information is obtained. As such, people may be affected by presentation of a later categorical identifier, but much of their decision will have already been made, effectively reducing any possible bias. Such a method provides a secondary, if less powerful, method to effectively sidestep the issue of stereotypes.

While this method appears to be a powerful one for varying salience and the resulting activation of stereotypes, it may not be fully realizable in a business environment, particularly in situations where individuals use cover-letters, which have a high likeliness of giving away some sort of categorical identifier, or in the higher levels of promotion (e.g. CEO or VP), in which all possible candidates are likely well-known. On the other hand, presenting data before the category may still be a highly effective tool in preliminary selection assessments, where categorical information is unnecessary or in assessing concrete work performance (e.g. quotas met, goals achieved, innovative

designed developed, etc.). Either way, it remains valuable to examine varying salience of identifiers through other methods.

Moderating Activation and Correction Through Attitude Presentation

A second method of varying degree of salience is through presentation of an attitude about one's own race or gender. An earlier field study by Hitt and Zickmund (1985) demonstrated such an effect. Applications from females were sent to hundreds of random businesses for stereotypically male positions. When gender was made more prominent, as when applications held obviously feminist opinions, more replies were sent back. However, in these situations fewer women were hired than when applications were devoid of feminist opinions. These results suggest that statements highlighting gender activate a greater stereotypic reply, but also that businesses become more aware of possible bias implications and are attempting to compensate for any biased behaviors.

Further support for this second finding exists in a study in which racial issues and nonracial issues are discussed by black and white authors (Biernat and Vescio, 1993). When race was the topic of conversation, readers seemed to become more consciously aware of their stereotypes and made ratings that went against them. However, when race was not brought up by the targets, participants followed activated stereotypes and were more negative to the minority members.

Moderating Activation and Correction through Job Requirement

Varying the requirements for a specific job is likely to affect salience. For example, a large number of managerial jobs stress both social skills and competency, which make salient two opposing prototypes when applied to females. One prototype,

activated by social skills, requires that women be communal (e.g. quiet, supportive, and passive); the second prototype, activated by competency, requires a more agentic female nature (e.g. aggressive and individualistic) (Rudman & Glick, 1999). Meanwhile, when the required skills are applied to males, they all fall under one prototype. As such, it should come as no surprise that women receive worse hiring ratings when both of these factors are stressed. If a woman were communal, she would receive low scores in competency. If she were agentic, she would receive low social skills scores. Either way, a woman may find herself at a disadvantage.

To overcome this issue it is necessary to determine the following factors. First, one must ascertain whether it is possible to stress both social skills and competency without risking adverse impact to females. Second, what methods of training, socialization, or repackaging might allow for the use of these two unique factors? For example, would it be possible to create in an organization the prototype of an agentic and communal female? Finally, if inclusion of both factors is impossible, what other factors might be stressed to provide similar results without the threat of adverse impact?

Assessments

Biernat and Vescio (2002) demonstrated that ability ratings do not necessarily equal hiring decisions in sex-typed jobs. In this study men and women were rated as having similar baseball abilities, however, men were still overwhelmingly picked to be on the baseball team. Research on individuating information reaches a similar conclusion. A study by Heilman (1984) demonstrates that more job relevant information may reduce but not eliminate differential treatment between genders. Stronger evidence for this

differentiation comes from a study by Glick, Zion, and Nelson (1988), which reported that gender-based personality ratings may disappear with individuating information, but chances for a hiring interview continue to favor men.

Why does this disparity exist? Biernat's theory of shifting standards (e.g. Biernat & Manis, 1994; Biernat & Kobrynowicz, 1997; Biernat & Vescio, 2002) suggests a gap between objective and subjective measures. Subjective measures, such as personal ratings, allow individuals to look at each target individually and use unspoken addendums when making decisions (e.g. she's fast [for a woman]; he's athletic [for a white guy]; he's very passive [for a black man]). Such addendums may result in extreme ratings when information violates strong stereotypes (e.g. women performing well in highly male-sex typed jobs [Heilman, et al., 1988], or unexpected GPA performance by white and black students [Jackson, Sullivan, & Hodge, 1993]). Meanwhile, objective measures, such as promotion decisions or ability rankings, force a comparison of the targets against one another. Such a theory, therefore, would make the argument that ratings should not match rankings or hiring decisions when stereotypes are activated, even when individuals are using the same information. Most of the evidence seems to agree with this position.

SITUATION

The second factor, Situation, refers to the opportunity to think beyond or within our categories. Are we constrained by time or outside factors, such as excessive noise or emotions? Can stereotype mitigating information be used? If the situation does not allow, we may simply be unable to think beyond our prototypes. For example, if an interview is occurring near a construction site or the interviewer is in a terrible mood, any chance of correction beyond that initial impression may be forfeited. Or, perhaps there is some situational factor that is making our prototypes especially salient.

Salience

The Biernat and Vescio (1993) study also examined the variable of ratio of minority to nonminority targets. Specifically, when only one target is black and the rest are white, participant ratings become more stereotypic. This result follows an earlier study by Heilman (1980), which demonstrates that, as fewer females exist in a hiring pool, ratings and hiring recommendations for women significantly decrease. Such a factor has obvious implications in a large organization, where candidates for top levels of management are predominantly male. Such a factor is easily under the control of an organization, by either using a gender balanced hiring pool or by making gender and other categorical factors unknown to assessors.

The Effects of Cognitive Load

Activation

Aspects of a situation appear capable of affecting the activation of stereotypes. For example, if a person is kept extremely busy, that person will not be able to perform even simple tasks, like putting a person into a social category. In a study by Gilbert and Hixon (1991) participants were kept in a state of "cognitive busyness" when presented with a video of an Asian woman by rehearsing an 8-digit number. Participants filled out a word completion task with a number of words that could be stereotypically Asian in nature. Remarkably, while this state of cognitive busyness existed, the participants demonstrated no stereotype activation. Meanwhile, participants who were not busy had no problem displaying stereotypes in their word completion task. Spencer, Fein, Wolfe, Fong, and Dunn (1998) replicated this study and found similar results.

This notion of busyness or being mentally taxed, often called cognitive load, caused typically by number rehearsals, counting backwards by three from one hundred, etc., suggests the remarkable possibility that stereotypes might be kept out of the business environment by simply keeping the workforce in a perpetual state of high cognitive load. Such a plan of action, however, is both unfeasible and absurd. The level of cognitive taxation applied in this study is so far above and beyond that of the average worker that individuals in a business environment would be unable to accomplish any but the most simple of tasks. Even if workers were made to maintain such a high level of cognitive taxation, they would be unable to make any hiring decisions in the first place. As such, load would have to be reduced to allow for the necessary cognitive resources to make an

assessment, and, regrettably, when cognitive load was reduced, assessments were even more stereotypical than were participants who could activate their stereotypes earlier (Gilbert & Hixon, 1991).

One may notice that in this case an element of Situation seems to have affected activation, which is not accounted for by the proposed model, which presumes that activation of stereotypes is an automatic process. To that end, this notion of automaticity and the controversy that surrounds it will be discussed briefly in the Conclusion. Furthermore, an alternative model that attempts to account for these controversial findings will be presented.

Assessments

Beyond the unusual situation demonstrated above, cognitive load always has a detrimental effect. It is necessary to recall that the processes of activation and correction are sequential and separate. As such, it is possible – and, in fact, far more common – for individuals to suffer from an amount of cognitive load that is low enough to first allow for activation, but high enough to then reduce correction. The process of correction follows the central processing route of the ELM, thus requiring more cognitive resources, while activation of stereotypes follows the peripheral processing route, which requires few resources. Under situations of high cognitive load, after the process of activation has already occurred, individuals will be unable to attend to processes using the central route and, therefore, will be unable to make corrections. Research supports this notion. Target females were rated as having much more stereotypical traits when participants were under cognitive load (Macrae, Hewstone, & Riana, 1993). Martell (1991) demonstrated

that high attentional demands resulted in more stereotypical scores on work performance evaluations in which male targets were rated much higher. Similarly, even when participants are led to believe they are dependent upon a target – information that will provide strong motivation to make corrections –more stereotypical ratings under cognitive load are observed (Pendry & Macrae, 1996). Controlling cognitive load in this regard should be quite simple when making assessments for organizations. Simply reducing the work load while the assessor analyzes applicant data and makes assessments should greatly reduce any threat of bias.

A second manner in which to manipulate cognitive load is by manipulating complexity (Kunda and Sherwin-Williams, 1993). Just as manipulating the complexity of the provided information may have an effect, so too may manipulating the complexity of the task. For example, in a fake trial that had participants decide either guilt (a relatively complex judgment) or degree of aggressiveness (a more simple judgment) of either an Hispanic target or a target of unkown origin, the stereotypicality of scores was altered in the expected direction (Bodenhausen & Lichtenstein, 1987). That is, the more complex the judgment, the more mentally taxing the situation. As such, participants were much more likely to use stereotypes when judging guilt, as opposed to judging degree of aggressiveness. The implications of this research may be slightly more difficult to deal with in an organizational setting. If determining promotion is more complex than determining previous performance, promotion decisions should result in more bias than performance ratings, a suggestion that conforms to Biernat's shifting standards theory. Creative and unorthodox organizational decisions may be necessary to handle such a predicament. For example, an organization may have to implement a two step process in

which one assessor who has all of the information provides simple ratings to all applicants, and a second assessor with no social categorical information makes the final promotion decisions.

Memory Effects

In addition to assessments, cognitive load can affect memory that is either contradictory to or consistent with activated prototypes. The same Macrae et al. (1993) study reported that females being rated as having more stereotypical traits under high cognitive load further demonstrated that high cognitive load may result in recall of stereotypically consistent data, and low cognitive load may result in recall of more stereotypically inconsistent data. However, if we assume managers are always under some sort of cognitive load, it becomes necessary to further examine memory effects in that situation.

Individuals spend more time examining prototype inconsistent data than consistent data under cognitive load (Sherman, Lee, Bessenoff & Frost, 1998), which suggests that memory, in this situation, should be better for prototype inconsistent rather than consistent data. Sherman and Frost (2000) demonstrated that, after study under cognitive load, later recall is better for inconsistent data and recognition is better for stereotype consistent data. These findings are consistent with the Sherman, et al. (1998) study and suggest that retrieval of prototype inconsistent data is better. However, comprehension of the prototype inconsistent data in the 1998 study was impaired, suggesting that prototype consistent data is more easily understood and useable.

Though more time spent examining it may lead to the conclusion that individuals should have little problem remembering prototype inconsistent data at a later time, one must not assume a memory for inconsistent items means a reduction of stereotypic assessments. Martell (1996) conducted a study in which participants studied work behaviors of male and female police officers (a prototypically male position) under cognitive load, then were asked to attribute specific behaviors to either the male or female in the vignette. In this situation more stereotypically effective work behaviors were attributed to male officers five days after vignette presentation. Memory of the information was not a factor. Instead, individuals were simply more liberal in overestimating the performance of male officers.

Such data suggests a strong reliance on prototypes and recognition rather than recall of data, when making observations and decisions under cognitive load. A solution for this type of bias would be to implement a remember/know judgment in assessments, forcing assessors who originally collected the data to make assessments based upon clear recall rather than vague memories. A stronger, more effective solution would simply be to reduce cognitive load during the data collection phase.

Physical and Emotional States

Internal states, like joy, sadness, sleepiness, and fear of mortality, may also affect our chances at performing the cognitively demanding task of correction. For example, Circadian Variations in Arousal – morning people versus evening people – have been shown to affect attentionally demanding situations such as the Stroop task (e.g. May & Hasher, 1998). A similar effect occurs when judging guilt (Bodenhausen, 1990). In this

study, people failed to make corrections more often during non-optimal times (e.g. evening people making judgments early in the morning).

Threat

As discussed earlier, high cognitive load may make individuals less likely to activate their stereotypes immediately. However, in a special situation in which individuals feel threat to their self-image, stereotypes will become activated, regardless of cognitive load (Spencer, et al., 1998). Such an effect suggests individuals may actually become more motivated to stereotype in this situation.

Assessments

It appears that a neutral state of emotion is likely to allow for correction more than an emotion laden state (e.g. sadness) (Bodenhausen, Kramer, and Susser, 1994). A study whose results may be less expected demonstrates that happy moods are likely to make us rely upon stereotypes more than sad moods and neutral moods (Park & Banaji, 2000). Sad mood states tend to be as accurate as neutral states, but they also tend to result in fewer conclusions in general. In other words, individuals may be making fewer stereotypic assessments, but they are also making fewer total assessments. However, sad mood states should not be confused with angry or frightened moods. If feeling threatened can motivate one to activate a stereotype, regardless of high cognitive load, it seems likely that threat should have a great effect upon stereotype application. Research supports this notion. When mortality is salient, participants exhibit a much greater liking for the in-group (Greenburg, Pyszcynski, Solomon, & Rosenblatt, 1990), yet more importantly under mortality salience participants prefer targets that fit current prototypes

(Schimel, Simon, Greenburg, Pyszcynski, Solomon, Waxmousky, et al., 1999). For the most part, emotional states reside outside the realm of an organization's control; however, precautionary steps may be taken. Assessments should be avoided during states of high stress within the organization or during celebratory moments.

MOTIVATION

Motivation, as proposed by the ELM (Petty and Cacioppo, 1984), acts as a moderator when some outside force drives one to think beyond one's original stereotypes or prototypes. For example, a juror may have concluded the defendant guilty, but a last minute, heartfelt plea may force a re-evaluation. A teacher at a newly integrated school might hold some sort of racial beliefs that show up when scoring essays, yet those beliefs become challenged when the principal notices the disparity and cautions the teacher against future, similar behavior. If one learns that an individual does not resemble a particular prototype and plenty of cognitive resources exist, what factors might motivate one to use correction when making the final assessment?

Brief, Buttram, Elliot, Reizenstein, and McCline (1995) performed a study designed to demonstrate the ease with which one may be motivated to allow one's stereotypes to affect assessments. Participants were instructed to rate and provide recommendations for future interviews along racial lines. When subjects were told to be pro-white, ratings for black applicants were significantly lower. Likewise, when instructed to make recommendations for further interviews using a pro-white bias, participants did not hesitate to do so. Individuals are quick to use stereotypes in most situations, if such use is feasible. It only stands to reason that individuals will be particularly likely to use stereotypes when instructed to do so, but could motivation result in an opposite effect as well? Once a stereotype has been activated, is it possible that a motivation such as instruction could lead to a correction against that stereotype?

Methods to Motivate Correction

External Motivation

Three separate methods have been proposed to examine the issue of motivated correction. The method of external motivation provides a manner in which individuals may be motivated by outside factors to suppress stereotypes in a case by case basis. Kruglanski and Freund (1983) managed to reduce the bias in teachers' ratings of minority student performance by making the raters apprehensive of later evaluations of their work. Pendry and Macrae (1996) reduced stereotypic personality trait ratings and increased ability to individuate by making participants dependent upon the target, though this effect was reduced by increasing cognitive load. While encouraging, these results suffer the same problems as factors presented under Information; when participants are only asked to give ratings, accountability seems to eliminate the use of stereotypes. However, a study by Gordon, Rozelle, and Baxter (1988) demonstrated that bias increased when making a hiring decision, as opposed to a rating, under high levels of accountability. These investigators manipulated accountability by informing participants that either their decisions would remain anonymous or that after making the decisions the participants would be asked to sit and discuss the job applicant and the basis upon which they formed their opinions. Three factors may help to explain these finding, which are incongruent with previous studies of external motivation. First, these findings continue to support Biernat's theory of shifting standards in which stereotypes are likely to be applied to rankings and hiring decisions after they stop being a factor in ratings. Second, the targets in this study were elderly, and this population is rarely considered disadvantaged relative

to women, African Americans, or other minority groups. It is possible, therefore, that individuals feel less constrained to suppress the use of stereotypes concerning the elderly, regardless of any specific external motivation to the contrary. Third, it is conceivable that accountability was not adequately manipulated as participants were expecting to explain and discuss opinions but never expecting to justify them. At present, it appears that accountability and external motivation are highly effective at reducing bias in ratings, but that more research is necessary to fully determine the effects of this factor on rankings and hiring decisions.

Internal Motivation

Individuals often attempt to behave in the manner in which they perceive themselves. In a study involving white individuals helping black individuals, Gaertner and Dovidio (1986) demonstrated that when it was clear that not helping could be perceived as racist, white individuals were more likely to be helpful. In a subsequent study by Monteith (1993), participants were told they had behaved in a manner that was more prejudiced than their self-concepts allowed. Of these subjects, those who had a lower level of initial prejudice attempted to reduce biased behavior even further. Previously discussed studies by Hitt and Zickmund (1985) and Biernat and Vescio (1993) provide further evidence for this method. People who consider themselves low in prejudice or sexism attempt to go against stereotypes when they became consciously aware of them. However, as previously mentioned, it is worth noting that even as women received more replies when gender became a more conscious issue the actual rate of female hiring decreased (Hitt and Zickmund, 1985).

Training

While external and internal motivation can increase correction in part, they are not completely effective. An alternate method – training – attempts to reduce or eliminate a stereotype altogether by providing an equally powerful, but less permanent contrasting stereotype. Blanchard, Crandall, Brigham, Vaughn, & Anooshian (1994) demonstrated an interesting social phenomenon along these lines. The more participants heard expressions of condemnation to racism, the more negatively they reacted when presented with it. On the other hand, expressions condoning racism resulted in a much weaker negative reaction. This form of training does appear to have an affect. However, how does training affect actual ratings? Kawakami, Dovidio, Moll, Hermsen, & Russin (2000) instructed participants to say either "no" to presentations of stereotypic pairs (black face and associated stereotype) or "yes" to non-stereotypic pairs. Three prototypes were used: blacks, the elderly, and skinheads. After training, the application of stereotypes was reduced for at least twenty-four hours, though less so in the elderly target condition. The authors suggest that the elderly category is not as clearly defined as the other two so training may be less effective. This is consistent with the line of logic used to explain why external motivation did not reduce application of the elderly stereotype.

Processing Goals

All of the information presented so far assumes that individuals passively allow all peripheral cues such as categorical identifiers to influence the activation of stereotypes in everyday life; however, that may not be the case. A series of studies demonstrate that the information we choose to attend to (i.e. processing goals) may affect the nature of our

stereotype activation. For instance, when participants examine a video of a target female explaining a particular business situation, processing goals will determine what kind of category we put the target female in, according to later lexical decision tasks (Pendry & Macrae, 1996). When our processing goal is more semantic in nature (e.g. determining the accountability of the target), we become more specific in our categorization – businesswoman. When our processing goal is at a lower level (e.g. picture quality or target height) our categorization is more broad – woman. A second study, designed to examine any kind of activation at all, had participants processing either the target in the picture (semantic processing), or a white dot or the mere appearance of the picture (lower level process) for a period of only 250 milliseconds. The lexical decision task following this demonstrated that the female prototype was only activated when the image was semantically processed (Macrae, Bodenhausen, Milne, Thorn, & Castelli, 1997). To ensure image memory was not a factor, a short recognition test was administered afterward that showed no significant differences among the three groups. In short, what an individual chooses to look at, even peripherally, affects whether and what kind of stereotype is activated. While interesting, applications of this research do not go far beyond methods developed through other research. If assessors are presented with a category such as gender for any length of time, some stereotype or prototype is likely to be generated regardless of the processing goal. Ultimately, this research presents even stronger support for keeping categorical identifiers out of assessment data, as the presence of an identifier will likely activate a stereotype regardless of what is specifically being examined.

The Cost of Suppressing Stereotypes

It appears that motivation to look beyond our categories is generally effective, although more research on the issue of accountability is necessary to understand the aberrations involved. However, while suppressing stereotypes seems to be effective, it is likely that a number of costs exist. Wegner, Schneider, Carter, White, & Teri (1987) demonstrated that when students were told to suppress thoughts of white bears for 5 minutes, they were unable to do so, indicating a possible great deal of effort expended. Later, when the motivation for suppression ceases, the thoughts actually became more powerful and frequent than they might otherwise have been. Though motivation may suppress stereotypes, those stereotypes still exist. Therefore, it is likely that motivational suppression may ultimately result in more bias at a later time. The following studies demonstrate the costs of suppressing said stereotypes.

Slowed Reaction Time

If motivation is forcing us to use the taxing process of correction, one of the first and most obvious costs of stereotype suppression lies in a loss of cognitive resources. Under both increased dependency through accountability (Pendry and Macrae, 1996) and instruction not to stereotype (Macrae, Bodenhausen, Milne, and Wheeler, 1996), probe reaction times significantly increased.

A second factor in slowed reaction time is the effect of cognitive constraints upon counter-stereotypical strategies. Specifically, Blair and Banaji (1996) demonstrated that reaction times that were significantly lower, when a stereotypical trait or nontrait was paired with a gender-matching name, reversed when participants could use counter-

stereotypical strategies. However, when constraints such as a reduction of time allowed to examine the trait or nontrait word were added, the reversals were eliminated.

Memory Effects

Instructions to suppress prototypes may also have an effect upon recall memory. Typically, when asked to memorize a random list then asked to forget it and memorize a second list, recall for that second list significantly increases as opposed to when that first list represents a social prototype (e.g. manipulative and perverse for child abuser) (Macrae, Bodenhausen, Milne, and Ford, 1997). In that case, it appears that so much energy is expended upon trying to forget those stereotypical words that no increase exists for words in the second list.

Instructions to suppress stereotypes also have an effect upon recognition memory. Seven days after presentation of a video describing an older adult which included 12 stereotypic items and 18 neutral items, participants were given a multiple choice test which included both stereotypic and non-stereotypic items. Compared to conditions with no instruction, when given the instruction to suppress stereotypes while watching the film, participant's recognition was worse for neutral items and better for stereotypic items (Macrae et al., 1996). Sherman, Stroessner, Shay, & Deguzman (1997) performed a study using more socially sensitive stereotypes and got similar results. It appears that motivated suppression of stereotypes hinders recall of later items and actually facilitates later recognition of suppressed items. While the facilitation effect may be a result of rebound, as shall be discussed, or simply the result of the stereotype being made salient, cognitive taxation appears the most likely cause of neutral item hindrance.

Stereotype Rebound

When suppression occurs, a rebound effect comes into existence. People think about an object (e.g. a white bear) more when told to suppress than when given no instructions (Wegner, et al., 1987). The same effect seems to exist for stereotypes. After suppression, people need an outlet to express their theory driven processes. Liberman and Foerester (2000) developed a study in which participants were asked to evaluate the hostility of an African-American man who was standing in an ambiguous manner. Before these instructions, some participants went through a period of stereotype suppression. Of those, half the participants were then told to express their stereotypes. When the hostility evaluations were made, ratings of hostility of the target were much higher when participants were not allowed to vent their suppressed stereotypes. Under both conditions that were compared, the notion of stereotypes was specifically discussed, as such it seems likely that rebound, rather than salience, caused the increase in ratings of hostility.

Wyer, Sherman, & Steven (2000) conducted a similar study that examines the application of unacceptable racial stereotypes during rebound. In the first phase, participants were told to suppress stereotypes or not. Next they read a race ambiguous story about a person whose race was either specified or not and were then asked to rate this person's traits. When race was known, the trait ratings were equally stereotypic. When race was unknown, those who had to suppress earlier gave much more stereotypic ratings. This suggests that suppression may happen frequently, which is consistent with the findings of previously mentioned internal motivation research. However, the factor

of Situation was examined. As also follows previous research, increasing participants' cognitive load changed the results. Under high cognitive load, suppression disappeared.

Further evidence of frequent suppression in every day life may be found in a study performed by Payne (2001), in which participants were presented with a face that was either black or white and then an item that was either a gun or a tool. When participants had to identify the item quickly, accuracy decreased significantly in that participants were much more likely to identify the item as a gun when preceded by a black face. However, an unusual aspect of this study demonstrates that, for individuals who are highly motivated to be unprejudiced at all times, stereotypes are negatively related to explicit racial attitudes. In other words, it seems possible that those who suppress the most are also likely to have more powerful stereotypes. If suppression does occur frequently, as has been suggested, it appears the resulting effect is even greater stereotypes, which in turn could result in far greater rebound at a later time.

A follow-up study by Payne, Lambert, & Jacoby (2002) demonstrated that suppression may not work, even at the time of suppression. Specifically, when individuals are made aware that race may be an issue and made to give a quick response regarding gun or tool, participants who are instructed to suppress stereotypes are as likely as individuals instructed to use stereotypes to incorrectly match gun to black faces, and more likely than individuals who are not aware that race is an issue. Such evidence paints a bleak picture for the effectiveness of suppression, regarding rebound, but previous evidence does still suggest that given time and opportunity, suppression may still be effective.

CONCLUSION

In summary, it appears that Motivation through a variety of methods is effective at limiting bias in assessments. However, reaction times slow, recall memory gets worse, and later recognition of stereotypic traits increases. In addition, Motivation seems to put a high cognitive load on individuals that may hinder other processes. Finally, it is possible that a rebound effect will occur.

Over all Moderators, drawbacks exist whenever individuals attempt to correct for activated stereotypes. Stereotypes cannot be overcome due to complexity or a lack of cognitive resources or motivation. It also appears that they cannot be overcome because assessments are only precursors to true hiring decisions or zero-sum choices, which in turn seem to provide an overpowering motivation to maintain one's stereotypes. Under all three major moderators, the simplest and most powerful method to overcome a stereotype is by either replacing it with another stereotype or eliminating the possibility that stereotypes will come into being in the first place, effectively sidestepping the suggested model.

Future research is necessary to determine the exact nature of the zero-sum decision, as well as to examine the outer limits of participant motivation. Furthermore, applied studies are now necessary to determine the effectiveness of these moderators in real-world settings. Specifically, it is necessary to determine using Industrial and Organizational research methods the extent to which side-stepping activation is possible, the methods by which complexity, on-the-spot decisions, and other factors that affect cognitive load and other factors of Situation may be reduced in specific industries, the

types of information that may be procured for a given industry that are truly relevant to hiring decisions, and the methods to overcome the problems industry by industry implicit in the Theory of Shifting Standards.

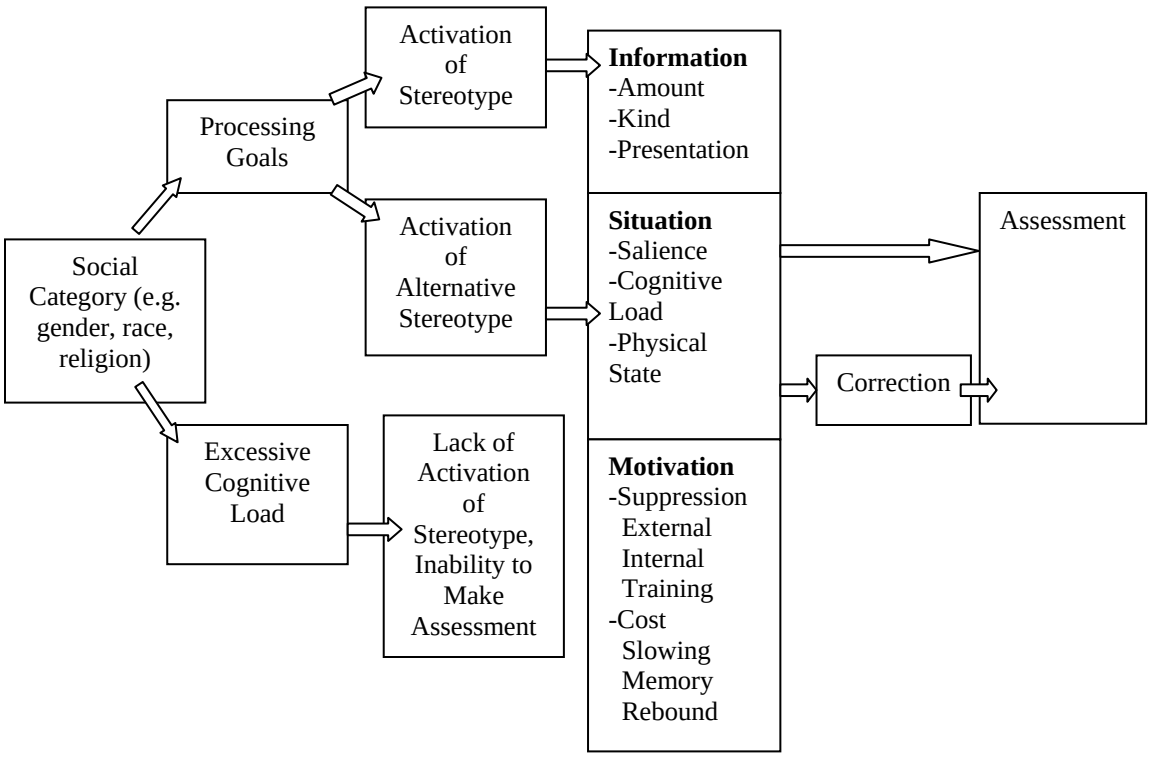
Alternative Model

Certain presented factors appear to either circumvent the proposed model or directly contradict it. While circumvention poses no problem and may even be actively encouraged, factors contradicting the model are more problematic. Specifically, processing goals and excessive cognitive load appear capable of altering or eliminating, respectively, the activation of stereotypes, which could call into question the automaticity of stereotype activation as a whole. Though controversy exists on the automatic nature of activation (e.g. Stolz and Besner, 1999) and automaticity, specifically that automaticity is conditional (e.g. Bargh, 1994), a review of the arguments is not within the scope or intent of this review. However, until this controversy is fully resolved, an alternative model depicting factors moderating activation seems appropriate. To that purpose, Figure 4 depicts the possible effects of processing goals and excessive cognitive load on activation and assessments.

For the most part, this alternative model follows the original model, but allows for two very important additions. Upon presentation of social category, two different factors will determine stereotype activation. The first factor is Processing Goals. Depending on what an individual may be attending to, either a general stereotype may be activated or an alternate stereotype that may be more dependent upon the specific details of the situation will be activated. At this point, the three major moderators will come into effect and

determine whether correction will or will not happen. The second factor is Excessive Cognitive Load. If excessive cognitive load is present, no activation or correction will occur, and no assessment will be made.

Figure 4. Alternative Model of Stereotyping



Recommendations for Organizations

Though discussion to this point concerning hiring decisions and stereotype correction suggests a bleak future outlook, possible steps may be discerned from the research to resolve the problems of stereotyping, a few of which already exist in one form or another. To begin, especially at the lower levels of the organizational pyramid where

such steps are possible, companies should seek to avoid any possible presentation of social category.

At higher levels, other possible steps may be taken. All of the research indicates that proper levels of motivation, combined with the correct information and an environment that will allow for correction, will result in assessments that are virtually stereotype-free, as long as zero-sum decisions are not being made. To that effect, organizations should seriously consider avoiding hiring decisions based upon gut feelings or direct comparisons. Rather, high level employees should be constantly evaluated with an eye on information, motivation, and the situation under which these evaluations occur. Then higher decisions should be based upon these evaluations rather than any evaluations that may occur during the higher process, when such evaluations become based upon a ranking system in which stereotype correction appears highly unlikely to occur.

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