especially on when time limits begin to run against a possible plaintiff (see, for example, Glimcher 1982). A third, broader critique flows from the courts' application of time limits in a 'rule-like' manner. Some critics of the rule-like application of statutes of limitations advance as one alternative administration by judges on a case-by-case basis (see, for example, Richardson 1997).

However, even most critics recognize that a rule-like application of statutes of limitations yields certain advantages. Such an application provides benefits from the fact that it is comparatively easy to administer, since decisions depend on a limited number of ascertainable facts and results can often be predicted *ex ante*. Moreover, well-crafted statutes convey in advance clear requirements for those contemplating pressing legal claims. Finally, a rule-like application of statutes of limitations reduces the potential for judicial abuse of discretionary powers.

Problems with statutes of limitations arise when the application of rules generates difficult or inequitable results. Critics point to such results as evidence for a more flexible application of statutes of limitations and for a close examination, case-by-case, of the way in which a particular application advances or impedes the underlying rationale for the time limits.

A case-by-case or individualized (i.e., non-rule-based) approach to applying statutes of limitations possesses certain advantages. Principally, this discretionary approach permits a closer examination of whether a specific claim falls within the range of difficulties that statutes of limitations were designed to address. Judicial discretion can reduce the possibility of injustice generated by a mechanical application of a statute of limitation. Ironically, greater judicial discretion in the application of such rules as statutes of limitations entails costs as well as benefits, because they generate greater uncertainty and thus increase the danger of judicial abuse.

Over one hundred years ago, Justice Oliver Wendell Holmes (1897) asked, 'What is the justification for depriving a man of his rights, a pure evil as far as it goes, in consequence of the lapse of time?' Justice Holmes' rhetorical question highlights a general ambivalence surrounding statutes of limitations and their applications (Ochoa and Winstrich 1997).

Benefits flowing from the application of statutes of limitations are frequently long-term and sometimes difficult to discern. In contrast, the costs imposed by statutes of limitations are short-term and more immediate and visceral. By seeking to reconcile critical principles that sometimes collide in litigation, statutes of limitations generate ambivalence and unease which weakens—but by no means dislodges—their secure and long-standing position in many—if not most—legal systems.

See also: Common Law; Legal Systems, Classification of; Rule of Law; Rules in the Legal Process

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M. Heise

Stereotypes, Social Psychology of

1. Origin and History

Introduced to the social sciences by Lippmann in his book *Public Opinion* (1922), the concept of stereotype refers to beliefs, knowledge, and expectations of social groups. To capture the idea of a stereotype, Lippmann made famous the phrase 'pictures in our heads' to refer to an internal, mental representation of social groups in contrast to their external reality. At a time when mental constructs of any type were undeveloped and soon to be frowned upon in American psychological discourse, it is especially remarkable that Lippman and other early theorists detected and described the psychological importance of stereotypes. Not only was such a possibility theorized, the results of empirical tests of stereotypes were made available by Katz and Braly (1933). Their checklist method of asking respondents to assign trait adjectives (e.g., intelligent, dishonest) to ethnic and national groups (e.g., Jews, Germans) dominated the field, and in modified form, remains in use even today. With the exception of a hiatus in research on stereotypes at mid-century, the concept of stereotype has occupied a dominant position in psychology since the 1920s.

Reviews of historical and contemporary research on stereotypes are liberally available (see Fiske 1998).

The concept of stereotype, in many ways, remains largely in keeping with its original formulation, although some shifts in definition and emphasis are worth noting. In the earliest proposals, stereotypes were regarded to be inaccurate assessments of groups; in fact, according to Lippmann, a stereotype was a 'pseudoenvironment' or 'fiction' and according to Katz and Braly (1933) it was an unjustified and contradictory reaction to an outgroup. In contemporary psychology, the accuracy with which a stereotype captures the essence of a social group is not of central theoretical interest. The belief that 'Many X's are Y' may well be accurate (e.g., many neurosurgeons are men) but if such a belief is applied in judging an individual member of a group (e.g., Female X is not, or cannot be, a neurosurgeon), a stereotype is seen to be in play. This process, by which an individual is given or denied an attribute because of membership in a group, is regarded to be of psychological and social interest. Such a shift is the result of a change in emphasis from examining beliefs about social groups per se (stereotype content), to an interest in the mental mechanics by which they influence interpersonal and intergroup perception and interaction (stereotype process). It is obvious that both aspects of stereotypes, their content and process, are critical to an understanding of their nature and function in social interaction. In fact, attention to implicit or automatic stereotypes in recent years has rekindled an interest in stereotype content and strength and in their relationship to related constructs such as explicit stereotypes, implicit and explicit prejudice, and group identity.

From the earliest use of the term in psychology, stereotypes have been regarded as the cognitive (thought) as opposed to the affective (feeling) component of mental representations of social groups. As such, the construct is tied to but differentiated from the concept of attitude, preference, or liking as well as the concept of discrimination. 'I do not like group X' is a verbal statement of an attitude or prejudice, while an act denying friendship or intimacy with a member of group X may be regarded as a behavioral indicator of prejudice. To say 'I believe group X to be incompetent' is to express a stereotype, while an act of denying employment to a member of group X based on such a belief is seen as the behavioral indicator of that stereotype.Of course, such arbitrary distinctions between mental and behavioral measures disappear when measures of brain activation are introduced. Verbal self-reports, bodily gestures, decisions about hiring are all viewed as behavioral, as opposed to brain indicators of stereotypes and prejudice. It is likely that just as measures of activation in particular sub-cortical structures like the amygdala have been shown to be associated with behavioral measures of prejudice (Phelps et al. 2000), the future will yield similar studies of stereotypes and their neural correlates. Such re-search has the potential to unify social, cognitive, and neural levels of analysis by demonstrating that the learning of stereotypes that culture and social environments make possible can be synchronously detected in observable behavior as well as in brain activation.

The lure of a cognitive analysis in psychology led to a preponderance of attention to stereotypes, to the exclusion of its sister concept, prejudice. Fiske notes a 5:1 ratio in published work on the two concepts between 1974 and 1995. That trend appears to be shifting with attention to both stereotype and prejudice in recent years and especially to their relationships as observed at both conscious and unconscious levels. In addition, research has focused on the role of mood states in dictating stereotype expression with the counterintuitive proposal that positive mood increases rather than decreases reliance on stereotypes (Bodenhausen et al. 1994). The relationship between stereotype (cognition) and prejudice (attitude) has been a complex one with early work linking the two concepts closely enough so as to regard them as synonymous. Today, the relationship between the two is an uneasy one, without a clear sense of the exact nature of the relationship between stereotypic thoughts and prejudicial feelings. It is assumed that stereotypes and prejudice need not be evaluatively compatible. Attitude (liking) can be dissociated from stereotypes (competence, respect, etc.).

When searching for large-scale theories of stereotypes or theories in which the role of stereotypes is central, one comes up relatively empty-handed. The focus of research appears not to have been on the development of broad theories, although two exceptions must be noted, in each of which stereotypes play a role in the larger framework: a psychodynamic, individual difference approach advancing the notion of an authoritarian personality to understand ethnocentrism (Adorno et al. 1950), and a social-cognitive approach based on social identity and self-categorization (Tajfel and Turner 1986) to understand individual–group relationships and their psychological and social consequences. The paucity of large-scale theories of stereotyping and prejudice is compensated by creative experiments that form the groundwork of what may in the future yield unified theories of stereotypes and related constructs of prejudice and discrimination. The last three decades are likely to be remembered for noteworthy experimental discoveries and diversity in the manner in which stereotypes have been measured, with special emphasis on the role of consciousness in thought and feeling about social groups.

2. Categorization and Beyond

To perceive is to differentiate, and social perception inherently involves the ability to see differentiation among groups, for example, to see women as dif-

ferentiated from men, elderly as differentiated from young, European as differentiated from Asian. Individual humans each belong to multiple social groups, with gender, age, race/ethnicity, class, religion, and nationality being the most obvious such categories and numerous other differentiations also easily perceived along dimensions such as political orientation, physical attractiveness, etc. A fundamental feature of social perception is the classification of individuals into groups, and the process by which such classification is achieved is assumed to be automatic (Fiske 1998). Once categorized, attributes believed to be associated with the group are generalized to individuals who qualify for group membership. Thus, for example, women may come to be seen as nurturant and nice, men as strong and competent whether they as individuals, deserve those ascriptions or not.

Stereotypes are fundamental to the ability to perceive, remember, plan, and act. Functionally, they may be regarded as mental helpers that operate in the form of heuristics or short-cuts. Historically, this view of stereotypes as devices that allow a sensible reading of a complex world marked a breakthrough in research on stereotypes. Advanced by Allport (1954) and Tajfel (1969), the idea that stereotypes were inherent to the act of social categorization now forms the basis of the modern view. As such, stereotypes are regarded to be ordinary in nature, in the sense that they are the byproducts of basic processes of perception and categorization, learning, and memory. This cognitive view of stereotypes has dominated the field since the early 1980s, and from this standpoint several noteworthy discoveries about the nature of stereotypes have emerged.

3. Discoveries

Early research in this cognitive tradition showed that within-group differences are minimized and between-group differences are exaggerated, with greater confusion, for example, in memory for within-race and within-gender comparisons than between group comparisons. Stereotypes can be generated through a misperception about the frequency with which an attribute is associated with a group. For example, perceivers may come to see an illusory correlation based on the shared distinctiveness of particular attributes. Specifically, when a doubly distinctive event occurs (e.g., when a statistical minority performs a low frequency behavior) such an event is overemphasized in memory and produces a bias in perception such that their occurrence is overestimated.

Hamilton and Gifford (1976) have shown how such a process can lead to the assessment that members of minority groups perform more evaluatively negative behaviors than is actually the case. Research in this tradition has also provided a good understanding of how stereotypes, in the form of expectancies of what

social groups are capable of, can lead to a bias to confirm rather than disconfirm expectancies. Moreover, the targets who are stereotyped may themselves fulfill the expectancies the perceiver holds about them to complete the biased cycle of intergroup interaction. Stereotypes are the vehicles of essentialist thinking about social groups. Dispositional group attributions, or the belief that groups are inherently the way they are, can lead to the assessment that attributes associated with groups are stable and unchanging.

Stereotypes play their role from the earliest moments in the information processing sequence, giving preference to stereotype-consistent options. To date the evidence overwhelmingly suggests that stereotypes influence the manner in which information is sought, perceived, remembered, and judged. Stereotypes limit the amount of information that is required to make a judgment by giving meaning to partial and even degraded information, and they allow decisions to be reached even when time is short. Stereotypes facilitate initial identification of congruent information and disallow attention to incongruent information. Although research has focused on the role of stereotypes in thinking, they are viewed as serving a socially pragmatic function—as helping social interaction proceed smoothly and with ease (Fiske 1998).

From such research it may appear that the only judgments of individuals that ensue are those that rely entirely on knowledge of and beliefs about social groups. Yet, that is not the case. Depending on the context and the motivation of the perceiver, category-based stereotypic judgments may well yield to more individualized, person-based judgments (Brewer 1988, Fiske and Nuberg 1990). Indeed, experiments on the mechanisms of stereotype expression have regularly shown that stereotypes may or may not play a role depending on the extent to which such knowledge is seen as meaningful or justified (Banaji et al. 1993).

The routine simplification function of stereotypes can have far-reaching effects. In the work of Tajfel and co-workers, categorization of individuals into social groups was shown to produce a heightening of perceived differences, and these differences (even when the distinction between groups was arbitrary and minimal) created intergroup discrimination in the form of greater resource allocation to members of one's own than another group. Thus, emanating from ordinary categorization, stereotypes can play a crucial role in interpersonal and intergroup relations. Besides routine simplification, stereotypes are also regarded as serving the function of protecting a stable and psychologically justified view of the world and the place of humans, as members of social groups, in it. Jost and Banaji (1994) argued that holding negative stereotypes of another's group may serve not only an ego-protective function ('I am better than you') and a group-protective function ('My group is better than yours') but a system justifying function as well. The counterintuitive hypothesis from such a perspective is

that when status hierarchies relegate groups to relative positions of inferiority and superiority, members of disadvantaged groups may themselves come to hold negative beliefs about their groups in the service of a larger system in which social groups are arranged.

3.1 Implicit Stereotypes

With its roots in the ideas of Allport and Tajfel, the notion that stereotypes may operate without conscious awareness, conscious intention, and conscious control is hardly surprising. In fact, throughout the twentieth century, experiments have shown that in one form or another stereotypes emerge spontaneously from initial categorization and continue to have a life of their own independent of conscious will. Yet, it would be fair to say that a direct interest in implicit or unconscious social cognition is relatively recent, with theoretical input from theories of unconscious mental life and methodological input from the development of new measurement tools and techniques.

Contrast the following two measures of stereotypes. A respondent is asked to indicate, using a traditional verbal self-report scale, the extent to which African Americans are scholarly and athletic. Or, a respondent is asked to rapidly pair words like 'scholar' and 'athlete' with faces of African–Americans, and the time to do so is measured. The first measure assumes the ability to respond without self-presentational concerns, and more importantly, it assumes the ability to be able to adequately reflect on the content of one's thoughts and provide an accurate indication of the complex association between race and psychological attributes. The second measure, although not within the traditional view of stereotype assessment, provides a measure of the strength of association between the group and the attributes. Such a measure has been taken to be an indicator of the stereotype and its strength. To investigate the implicit or automatic manner in which stereotypes of social groups may express themselves, investigators have used a variety of techniques from measuring response latencies (i.e., the time to make a response), to examining errors in memory and biases in linguistic reports. The largest single body of work has used response latencies as indicators of automatic stereotypes and prejudice and the data from such measures have yielded several new results and debates about them (see Banaji 2001).

Stereotypes can be activated by the mere presentation of symbols of social group or group-related attributes. It appears that although conscious prejudice and stereotypes have changed, their less conscious, automatic expressions are strikingly strong. As measured by the Implicit Association Test (Greenwald et al. 1998) automatic stereotypes appear to exist in robust form; large effect sizes are the hallmark of automatic stereotypes (see Nosek et al. in press). A priming measure has also been widely utilized in which prime-target pairs are presented in close succession and response latency to the target serving as the measure of automatic stereotypes. For example, responses are reliably faster to female first names ('Jane') when the immediately preceding word is stereotypically consistent ('nurse') than inconsistent ('doctor'). Such effects are obtained with words and pictures and they generalize to a variety of social groups.

Given the socially significant consequences of stereotype use, investigations of the variability and malleability of automatic stereotypes have been examined. Research has focused on the relationship between conscious and unconscious expressions of stereotypes and prejudice. As Devine (1989) showed, evidence of automatic race stereotypes is present irrespective of the degree of conscious prejudice toward Black Americans. Additionally, Banaji and Hardin (1996) showed that automatic gender stereotypes were manifested irrespective of endorsement of conscious attitudes and beliefs about gender egalitarianism. Such results point to the dissociation between conscious and unconscious social stereotypes, but it is clear that a simple dissociation may not adequately or accurately capture this relationship. Rather, results are now available that indicate that those with higher levels of conscious prejudice may also show higher levels of automatic or implicit prejudice. It appears that studies using multiple measures of each stereotype and statistical tools to uncover latent factors will yield evidence in favor of a relationship between conscious and unconscious stereotypes, while also revealing their unique and non-overlapping nature.

Questions concerning the controllability of automatic stereotypes are hotly debated (Fiske 1998). It appears that a desire to believe that stereotypes can be controlled, perhaps because of their pernicious social consequences, can result in the wishful assessment that they are indeed controllable. Automatic stereotypes do not appear to be controllable by ordinary acts of conscious will. However, habitual patterns of thought, feeling, and behavior toward social groups that cohere with broader value systems and ideology appear to predict automatic responses. In addition, Greenwald et al. (in press) have shown that automatic identity with one's group can predict stereotypes held about the group and attitudes toward it and have put forth a unified theory of self, group stereotypes, and attitudes. In support, they have found that attitudes toward mathematics and science can be predicted by the strength of the automatic stereotype that math is male or masculine. Women who hold a stronger math = male stereotype also show more negative attitudes toward mathematics.

The effects of minor interventions to activate stereotype-incongruent associations (e.g., female–strong) can be detected in weaker automatic stereotypes (Blair et al. in press). Such findings point to the flexibility of the representations of social stereotypes. Although the category 'strong women' may be

counter-stereotypic, interventions that highlight this association can produce a lowering of the default stereotype of female = weak. The possibility of such strategies for inducing a shift in automatic stereotypes and the potential to track stereotypes through both behavioral and brain activation measures has the potential, in the future, to inform about stereotype representation, process, content, and mechanisms for social change.

See also: Mental Representation of Persons, Psychology of; Prejudice in Society; Schemas, Frames, and Scripts in Cognitive Psychology; Schemas, Social Psychology of; Small-group Interaction and Gender; Stigma, Social Psychology of

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M. R. Banaji

Stevens, Stanley Smith (1906–73)

S. Smith Stevens (1906–73) was a leading figure in the field of experimental psychology during the middle part of the twentieth century. He is best known for his work in psychophysics and especially for the development of the psychophysical power law, but he also made important contributions to the study of hearing, and to an understanding of measurement theory and its role in psychology. Aside from his many research reports, his most influential publications include the classic *Hearing: its Psychology and Physiology* (1938) co-authored with Hallowell Davis, the *Handbook of Experimental Psychology* (1951), and *Psychophysics: Introduction to its Perceptual, Neural and Social Prospects* (1975) edited by his wife, Geraldine Stevens.

1. Beginnings

To understand fully the significance of any scientist's contribution, it is important to know the context in which it occurred. It is particularly useful to be acquainted both with the scientists who paved the way and with those who followed. Historians of experimental psychology have traced the beginnings of the field to the German scientist Wilhelm Wundt (1832–1920), who established the first laboratory for psychological research in 1879. Although other scientists had made important contributions to the emerging field, it was Wundt who first identified an entire range of questions in psychology amenable to laboratory inves-

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