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AFTER THE FIRST FEW SECONDS: STEREOTYPE ACTIVATION

OVER THE COURSE OF TIME

by

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A thesis

presented to the University of Waterloo

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After The First Few Seconds: Stereotype Activation

Over The Course Of Time

Abstract

This research explores whether stereotypes that are initially activated upon exposure to a member of a stereotyped group fade over the course of time. Existing stereotype activation research clearly shows that stereotypes can be spontaneously activated upon exposure to members of stereotyped groups (e.g. Fazio, Jackson, Dunton and Williams, 1995; Macrae, Bodenhausen and Milne, 1995). Another line of research shows that information about a person's behaviour can override the impact of a stereotype on impressions of that person (Locksley, Hepburn, Borgida and Brekke, 1980). Perhaps initially activated stereotypes recede into the background as one gets to know the person. In two experiments, participants briefly exposed to a Black person responded faster to Black stereotypic words than did participants exposed to a White person, suggesting that the Black stereotype had been initially activated. But, after prolonged exposure, there was no difference in Black stereotype activation for participants exposed to a Black person and participants exposed to a White person, suggesting that the stereotype had receded.

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After the First Few Seconds: Stereotype Activation Over the Course of Time

Introduction

Joan is a Black woman. How will her race impact on how others view her? People who first encounter Joan may notice first that she is a Black person. Having noted Joan to be a Black person, people may immediately bring to mind other information that they know or feel about Black people generally. Indeed, there is a great deal of evidence that suggests that when we first encounter other people, our expectations about them can be initially guided by our stereotypic beliefs about the categories to which they belong. We may expect for a doctor that we meet, for example, to be hard working and well educated, or for a computer science student to be socially awkward. As such, it seems likely that when people first meet Joan, their stereotypes about her race may be at least initially activated and their expectations of her may be initially guided by the fact that she is a Black person.

But what happens to this stereotype over the course of a prolonged interaction with Joan? One possibility is that as people get to know Joan, a change may slowly occur. They may begin to focus less on her race and more on who Joan is as an individual. She may come to be seen as a person who likes to ski, as someone who is well liked by her friends, and someone who feels passionately about political issues. As such, with prolonged exposure, people may develop a more complex picture of Joan as they get to know more about her behaviours, hobbies, and feelings. So, although the stereotype of Joan as a Black person may be initially activated after first exposure to her, this activation may recede over the course of time.

This research explores the activation of social stereotypes over the course of time. I argue that stereotypes that are initially activated when we encounter members of stereotyped groups might recede over the course of prolonged exposure.

Any discussion of stereotypes, of course, must make an important distinction between stereotype activation and stereotype application (Gilbert and Hixon, 1991). Stereotype activation refers to the accessibility of the stereotype, the extent to which it is activated and available in the mind of the perceiver. Stereotype application, on the other hand, refers to the extent to which the stereotype is used in making judgements about members of stereotyped groups. As such, stereotype activation can occur without necessarily leading to stereotype application (e.g. Devine, 1989), but for a stereotype to be applied, it must first be activated.

Stereotype Activation Research to Date

Existing research provides consistent evidence that stereotypes can be activated even without awareness on the part of the perceiver (Devine, 1989; Chen and Bargh, 1997; Lepore and Brown, 1997; Wittenbrink, Judd and Park, 1997). Fazio, Jackson, Dunton, and Williams (1995) showed that unobtrusively presenting the faces of Black people activated the negative affect associated with the Black stereotype. An experiment by Bargh and his colleagues showed that spontaneous stereotype activation also impacts on behaviour. Bargh, Chen and Burrows (1996) presented African American faces or Caucasian faces subliminally immediately before each trial of a visual computer task. After completing 130 trials of this "boring and tedious" task, participants were told that a computer error had occurred and that they would need to start the task over again. The hostility of their reaction (as recorded by a nearby video camera) served as the dependent variable. As expected, participants subliminally primed with Black faces exhibited a more hostile reaction to the bad news than participants exposed to the White faces. Presumably, activation of the Black stereotype led to more hostile behaviour on the part of frustrated participants who were exposed to the Black person. Of course, stereotype activation effects are not limited to race. Other research has shown that age-related stereotypes (Perdue and Gurtman, 1990) and gender stereotypes (Blair and Banaji, 1996) can also be

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spontaneously activated. In all of these studies, then, stereotypes were activated by the words and concepts associated with stereotypes without the perceiver having any awareness that a stereotype was being primed. In addition, several studies have also shown that stereotypes can be activated even when the perceiver has no time to control their responses because the interval between the presentation and judgement is short (e.g. Fazio, Jackson, Dunton, and Williams, 1995; Blair and Banaji, 1996). Clearly, stereotype activation can occur without awareness on the part of the perceiver and when perceivers have no time to control their responses to stereotyped groups or reminders of stereotyped groups.

Stereotype activation can also occur after brief, but direct exposure to a member of a stereotyped group. Macrae, Bodenhausen and Milne (1995) asked participants to view a short 15-second video clip of an Asian woman reading a book and then measured the accessibility of the Asian stereotype using a lexical decision task. They found that even this brief exposure activated the Asian stereotype. Gilbert and Hixon (1991) showed that merely having participants with adequate cognitive resources watch a videotape of an Asian research assistant displaying word-fragment cards activated the Asian stereotype. In both of these studies, stereotypes were activated even when participants had full exposure to the stereotypic target and adequate time to process the information. So, there is clear evidence that stereotypes can also be activated even under conditions that could permit controlled processes.

Clearly, stereotypes can be spontaneously activated without awareness and intention. They can also be activated when exposure to the stereotypic target is direct and a more controlled response to a stereotyped person is possible. This activation may give rise to the thoughts, feelings and behaviours typically associated with the stereotype.

The fact that stereotypes can be spontaneously activated has led Devine (1989) to argue that everyone who encounters a member of a stereotyped group will activate the stereotype. In the first of a provocative series of studies, all participants (regardless of

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prejudice level) accurately reported the cultural stereotype of Black people and participants were equally knowledgeable of the Black stereotype. In the second study, participants were subliminally primed with a series of words consisting of either an 80% proportion of Black stereotypic words (unrelated to hostility), or with a 20% proportion of the same stereotype-related words. Then, participants were asked to form an impression of a person performing ambiguously hostile behaviours. Priming with a heavy concentration of Black stereotypic words seemed to have activated the Black stereotype, as participants primed with a heavy concentration of Black stereotypic words rated the target as being more hostile than did those participants primed with a lesser proportion of stereotype-related words. This was true regardless of participants' prejudice level. Both people who scored high on the Modern Racism Scale and those who scored low seemed to have automatically activated the Black stereotype. Devine argues that although many people express non-prejudiced beliefs and egalitarian values, stereotype activation is inevitable for both high and low prejudice people. In her final study, Devine showed that applying the activated stereotype was not necessarily inevitable, that people with the motivation to do so could control whether or not they applied the stereotype. So, although everyone automatically activates the stereotype when encountering a Black person (or information related to a Black person), people with the resources and the motivation to control their responses will not apply the stereotype. Other researchers have also taken up the cause of arguing for the inevitability and automaticity of stereotype activation. Bargh (in press) reiterates what he argues social psychology has been loathe to admit: that the activation of stereotypes is automatic and uncontrollable.

Factors Affecting Stereotype Activation

But is it really true that everyone who encounters a member of a stereotyped group (or a reminder of a stereotyped group) will automatically activate the stereotype? Research by Fazio, Jackson, Dunton and Williams (1995) challenges Devine's conclusions about the

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inevitability of stereotype activation. Fazio and colleagues developed a measure of automatic affect, which is based on the logic that affective responses to objects will be facilitated when primed with affectively congruent words and will be slower when primed with affectively incongruent words. As such, if primed with the word "death", one might be faster in rating "unpleasant" to be a bad word. Fazio used this methodology to explore individual differences in affective responses to African Americans for both White and Black participants. White participants primed with a Black face showed faster responses to negative words than to positive words. When these same participants were primed with White faces, they showed facilitation to positive words. Black participants, on the other hand, showed faster responses to negative words than to positive when primed with a White face and facilitation to positive words when primed with Black faces. So, Fazio's facilitation measure did appear to capture important individual differences in affective reactions to the Black stereotype. Importantly, these measures were also related to explicit measures of prejudice. After the main experimental session, all participants interacted with a Black experimenter, who rated their friendliness and interest in the experimenter. Participants also rated the verdict of the Rodney King trial and how justified the anger of the Black community was. These prejudice ratings were correlated with the affective reactions seen in the previous session; people with more negative affective reactions to Black faces behaved more negatively toward the experimenter, and assigned more responsibility to Blacks for the violence that occurred after the verdict. Fazio's indirect measure of attitudes, then, is correlated with explicit measures of prejudice. People with more negative responses to the Black faces were also higher in prejudice; people with more positive responses were lower in prejudice. In order to parallel Devine's research, Fazio had also measured racism using the Modern Racism Scale. But surprisingly, scores on the MRS were uncorrelated with Fazio's unobtrusive measure of attitudes. So, even though the real-life measures of prejudice were correlated with the automatic affect measure, the Modern Racism scores were not. Fazio and his colleagues argue that perhaps Devine

found no evidence of individual differences in stereotype activation simply because the Modern Racism Scale is an inadequate measure of prejudice. Further investigation by Fazio and his colleagues showed the Modern Racism Scale to be reactive and confounded with conservatism. Fazio argues that people should be categorized into three distinct groups; those who are truly unprejudiced, those who are prejudiced and unmotivated to control their responses, and those for whom negative attitudes toward stereotyped groups are activated but who are motivated to control their responses so as to appear unprejudiced. Clearly, Fazio's important work suggests that there are, in fact, individual differences in spontaneous stereotype activation, that high and low prejudice people respond differently to members of stereotyped groups.

Other studies have also shown that people who are low in prejudice are less likely to activate stereotypes. A study by Lepore and Brown (1997), for example, identified individuals who were either high or low in prejudice using a measure modeled after the Modern Racism Scale. Participants were primed subliminally with neutral words related to the stereotype of Black people in Britain (e.g. Black, West Indians). Only high prejudice participants rated the target as more unreliable and aggressive when primed with the Black words. As such, high prejudice participants showed automatic activation of the negative group stereotype when reminded of the category of Black people but low prejudice participants did not. A similar study by Wittenbrink, Judd, and Park (1997) subliminally presented neutral category labels (e.g. Black or White) to participants either high or low in prejudice (as measured by MRS and other prejudice-related scales). High prejudice participants were more likely than low prejudice participants to activate the Black stereotype, as evidenced by more facilitation in responding to negative stereotypic attributes. Both of these studies suggest that whether a stereotype is activated when one encounters a member of a stereotyped group depends in part on the prejudice level of the individual. High prejudice individuals are more likely than low prejudice individuals to activate the stereotype when presented with neutral cues that remind them of a Black

person. High prejudice people who see a Black person who can be multiply categorized are also more likely to focus on race than are low prejudice people (Fazio and Dunton, 1977). High prejudice people have also been shown to activate the Black stereotype in response to category labels presented both subliminally and in situations permitting a controlled response (Kawakami, Dion and Dovidio, 1998) whereas low prejudice people did not activate the stereotype under either condition. In short, there do seem to be important individual differences related to prejudice level in the activation of social stereotypes.

Further, whether one activates the stereotype when encountering a n.ember of a stereotyped group can also be affected by the availability of cognitive resources. A study by Gilbert and Hixon (1991) showed that when people encounter a member of a stereotyped group while their cognitive resources are strained by other tasks, they will be less likely to activate the stereotype. Participants viewed a videotape of an Asian or White assistant holding up a series of word fragments, and were then asked to generate completions for each fragment. Several of the fragments could be completed with words related to the Asian American stereotype. Under normal circumstances, watching the videotape of the Asian assistant seemed to have activated the Asian stereotype, as participants generated more stereotypic completions. But, when participants watched the videotape while they were busy doing another mental rehearsal task, the Asian American stereotype was not activated. This suggests that people who are cognitively busy when they encounter members of stereotyped groups may be less likely to activate stereotypes of those groups. A conceptual replication of this work showed a similar effect for the Black stereotype (Spencer, Fein, Wolfe, Fong, and Dunn, 1998). As such, the demands of the situation when encountering a member of a stereotyped group can play an important role in whether or not stereotypes are spontaneously activated.

In addition, there is also growing evidence that motivation can play a critical role in whether stereotypes are activated. Research by Spencer, Fein, Wolfe, Fong, and Dunn

(1998) looked at the role of self-image threat in the activation of stereotypes. In keeping with Bargh's auto-motive model (Bargh, 1997), Spencer and his colleagues reasoned that recent failure experiences may become associated with negative stereotypes, as we often use negative stereotypes to derogate others. As such, after a failure experience, people should be more likely to stereotype in an effort to restore their positive self-image. Consistent with Gilbert and Hixon (1991), participants who were cognitively busy, but who did not experience self-image threat did not activate the stereotype. On the other hand, participants who had just failed an IQ test activated the stereotype in an effort to restore their self-image even though they were also under cognitive load. These results suggest that the motivation to maintain a positive self-image may lead people to activate stereotypes that they would not otherwise activate. Other research (Macrae, Bodenhausen, Milne, Thorne and Castelli, 1997) also suggests that the goals of the perceiver can also impact on whether stereotypes are activated.

Research by Sinclair (1998) provides further evidence about the role of motivation in stereotype activation. This research explored the impact of receiving either positive or negative feedback from a stereotyped person. She reasoned that participants who receive positive feedback from a stereotyped person might be less likely to activate a negative stereotype and may, in fact, inhibit it, because activating it might lessen the credibility of the favourable evaluator. On the other hand, participants who received negative feedback might be motivated to activate a negative stereotype as a way of discrediting the critical evaluator. To explore these ideas, participants received either a positive or a negative evaluation from a Black or a White man. In a second study alleged to be unrelated, participants were then asked to complete a word fragment task which included several words that could be completed with words related to the Black stereotype. Participants who had received positive feedback from the Black evaluator made even fewer stereotypic completions than did participants in the baseline condition who had received similar feedback from a White evaluator. Put another away, participants who received positive

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feedback and who were motivated to think highly of the Black evaluator seemed to inhibit the spontaneous activation of the Black stereotype. On the hand, participants without such goals did activate the Black stereotype. This research provides important evidence that stereotypes are not always activated when we encounter a member of a stereotyped group, but that motivation can determine whether the stereotype will be activated. Moreover, stereotypes may even be inhibited if we are sufficiently motivated to do so. A recent review by Kunda and Sinclair (1998) suggests that motivation can not only activate stereotypes not otherwise activated, but can also determine whether stereotypes are applied and even whether they are inhibited.

Taken together, these different lines of research challenge the assertion that the activation of social stereotypes is automatic and inevitable (Gollwitzer and Moskowitz, 1996; Bargh, in press). Individuals who are low in prejudice, and people who are under cognitive strain are less likely to activate the stereotype. Motivation can also play an important role in whether stereotypes are activated. People that have had a recent success experience seem to be less likely to activate a stereotype, but people who have experienced a self-image threat activate stereotypes even when under considerable cognitive strain. Further, when people are motivated to maintain a positive view of a stereotyped person, they may be less likely to activate stereotypes about them. Clearly, there are a number of factors that impact on whether stereotypes will be activated when we encounter a member of a stereotyped group. Although stereotypes can be spontaneously activated, there is strong evidence that they will not always be activated.

Beyond the First Few Seconds

The current research seeks to challenge the inevitability of stereotype activation from a slightly different perspective. Although much research has explored the issue of whether or not stereotypes will be activated upon exposure to a member of as stereotyped group, little research to date has considered the impact of prolonged exposure. As much of

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the existing research has used subliminal procedures, presentations of the stereotypic primes have necessarily been limited to under 150 milliseconds each (Fazio, Jackson, Dunton and Williams, 1995; Chen and Bargh, 1997; Bargh, Chen and Burrows, 1996). Even research using direct exposure to real-life stereotypic targets has provided only relatively brief exposure to stereotyped persons. Research by Macrae, Bodenhausen, and Milne (1995), for example, measured stereotype activation after a 15 second videotape of an Asian person. Perhaps the longest direct exposure to a stereotyped person involved an Asian research assistant displaying several cards for 15 seconds each (Gilbert and Hixon, 1991). Although this experiment provided a longer span of exposure, however, stereotype activation was only measured once. As such, it remains unclear how the activation of stereotypes might change after sustained exposure to members of stereotyped groups. This research seeks to address this important question by looking beyond the first few seconds when stereotypes are first activated and by exploring what happens to stereotype activation after several minutes of exposure. More specifically, I argue that stereotypes that are initially activated when we encounter members of stereotyped groups might recede over the course of prolonged exposure.

Two different lines of research form the basis for my argument that stereotypes might recede over time. First, research has shown that stereotypes can impact on our impressions of others when they are active in the absence of other kinds of information. This effect has been shown in variety of paradigms and settings. Research by Nisbett, Zukier, and Lemley (1981) showed that students described only as either humanities majors or as science majors were expected to behave in accordance with their majors in a psychology experiment. Students described only as English majors were expected to go to more movies than were students described only as pre-med majors. Clearly, in the absence of other information, the stereotypes of people in different majors seemed to guide expectations. An experiment by Locksley, Borgida, Brekke and Hepburn (1980) showed that when the only information participants knew about two individuals was their gender

(male and female), the woman was rated as less assertive than the man. So, when participants had no other information, the gender stereotype of women (as being less assertive than men) played a dominant role in participants' assessment of her. In the absence of other meaningful information about those around us, then, stereotypes can play a dominant role in our perceptions of others.

Locksley and her colleagues argue, however, that stereotypes may come to be less influential in our impressions of others when in the presence of individuating information. Individuating information can be broadly described as anything else that we know about a person, and may include information about behaviour, personality, family, personal preferences etc. (c.f. Kunda and Thagard, 1996). Locksley argued that stereotypes represent base-rates that, in essence, stereotypes provide information about the probability that members of a group will show certain kinds of behaviours and traits. Further, as stereotypes are base-rates, they should function the same as base-rates. Previous research has shown that people often use base-rates in their judgements only when they have no other information, but that they ignore the base-rate if they have any other individuating information about the person (Tversky and Kahneman, 1974). Locksley applied the logic from Tversky and Kahneman's research to the question of how stereotypes might function in the presence of individuating information. She argued that if stereotypes function as base-rates, they should play a major role in the absence of individuating information. When individuating information is available, however, this information might override the impact of the stereotype and the individuating information may play the dominant role in forming an impression of the person.

Research by Locksley, Borgida, Brekke and Hepburn (1980) supported this prediction. As described earlier, when no other information was available about a man and a woman, participants made judgements in keeping with gender stereotypes, and they rated the man as being more assertive than the woman. But, when participants were told about an assertive behaviour that the man and the woman had performed, the man and the woman

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were then rated as being equally assertive. In short, the behavioural information that participants learned about the woman seemed to have overridden the impact of the gender stereotype. Similarly, in another study by Locksley, Hepburn and Ortiz (1982), when participants knew only that a person was a night person, they rated this person as being more unpredictable than when this person was described only as a day person. Similarly, when someone was described only as a day person, they were rated higher on day-related traits than when described only as a night person. On the other hand, when participants had both category information (e.g. when they were told that the person was day person or night person) and other individuating information about the target, there was no difference in trait ratings. Again, receiving additional individuating information seemed to have lessened participants' use of the category information. This research suggests that stereotypes can come to play less of a role in people's impressions of others when individuating information is also available.

If, as Locksley suggests, providing individuating information can serve to override the application of a previously dominant stereotype, it might also be the case that presenting individuating information may also serve to lessen the activation of a stereotype. My assertion that individuating information might have the same impact on stereotype activation as it does on stereotype application is in keeping with an expanding literature which suggests that many of the same factors that impact on stereotype application also impact on stereotype activation. Self-threat, for example, has been shown to affect not only stereotype application (Fein and Spencer, 1997), but also stereotype activation (Spencer, Fein, Wolfe, Fong and Dunn, 1998). Similarly, the motivation to maintain a positive view of others has been shown to affect both stereotype application and the activation of stereotypes (Sinclair, 1998). As such, the assertion that individuating information may affect stereotype activation in the same way that it affects stereotype application seems a reasonable one.

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I argue, then, that stereotypes may initially be activated when we first encounter a member of a stereotyped group, but may their activation may fade after prolonged exposure. This may occur because a typical interaction involves receiving increasing amounts of information about this person. We get information about their hobbies and preferences and we learn about, their daily activities and goals. In short, we learn about who this stereotyped person really is. And, with the increasing information, our stereotypes about that person may become less activated. As Tversky and Kahneman (1974) showed, we may rely less on the base-rate predictions that stereotypes provide when other kinds of information are available. Stereotypes may recede as we receive more individuating information about a stereotyped person. So, although stereotypes may initially be an important means by which to understand others, the activation of stereotypes may diminish over the course of prolonged exposure to (or interaction with) members of stereotyped groups. In our research, we wanted to extend the time frame somewhat, and to go beyond the initial stages of stereotype activation to see whether stereotypes which are spontaneously activated at the beginning of an encounter may recede over the course of time.

These ideas, then, represent yet another challenge to the position that social stereotypes are inevitably and universally activated. The current research suggests that even people who do initially activate the stereotype when they first encounter a member of a stereotyped group may deactivate it over the course of time as individuating information comes to play a more dominant role. Even stereotypes that are active at the beginning of an encounter may become less prominent after a prolonged encounter with a stereotyped person. As such, the current research suggests another way that stereotypes might be less important in social interaction.

Competing Stereotypes

The current experiments also explored another issue raised in work by Macrae, Bodenhausen, and Milne (1995). Their research examined the impact of presenting stereotyped persons who could potentially be categorized in multiple social groups, who could potentially activate several different stereotypes. These researchers made an assumption that if multiple stereotypes were available, whichever stereotype reached "threshold" first would necessarily inhibit the activation of the other stereotypes. To test this, participants were asked to watch a videotape of a Chinese woman after having been primed with either the category "Chinese" or the category "woman". Participants who viewed the videotape after having been primed with the Chinese category activated the Chinese stereotype and inhibited the stereotype related to women and vice versa. As the target person presented in the current research also necessarily belongs to multiple social groups (being both a Black person, a student and a man/woman), this provided the opportunity to see whether the activation of one stereotype would impact on the activation of others. To explore this, in addition to the major stereotype of interest (the Black stereotype) both experiments also included measures of the student stereotype and of gender stereotypes.

More generally, the present experiments were designed to explore the activation of stereotypes over time. In all of the previous stereotype research, participants were exposed to the stereotyped person or to reminders of the stereotyped group for relatively brief periods of time. As such, participants were required to form their impressions with only sketchy detail, and stereotype activation was measured within seconds of encountering the stereotypic targets. Understanding how the activation of stereotypes change over time, however, would require not only presenting a stereotyped person for a prolonged period of time, but also measuring the activation both after the first few moments of contact and after prolonged exposure.

These experiments provided extended exposure to a member of a stereotyped group, and used a lexical decision task to measure the activation of the stereotype after both initial and prolonged exposure. The underlying assumption of the lexical decision task is that when a given stereotype is activated, lexical decisions about words and concepts related to the stereotype will be facilitated (Meyer and Schvaneveldt, 1971; Gaertner and McLaughlin, 1983). As such, if the stereotype of "nurse" is activated, one might be faster to recognize the word "doctor" as a word, as the words "nurse" and "doctor" are highly related.

In the first experiment, participants listened to an extended audiotaped interview while viewing a picture of a either a Black person or a White person said to be the interviewee. In the second experiment, participants viewed either a Black or a White person in a more realistic and dynamic videotaped interview. Both experiments tested the hypothesis that the Black stereotype would be initially activated, and that the stereotype would recede over the course of prolonged exposure to the Black person.

Experiment 1

In the first experiment, participants were asked to give feedback about a "life transition" interview. Participants in the experimental condition saw a slide of a Black person while listening to an audiotaped interview with the person purportedly depicted in the slide. Other participants in the control condition saw a slide of a White person while listening to the same interview. A lexical decision task was used to measure the activation of the Black stereotype. Half of the participants completed the lexical decision task after the first few seconds of exposure to the target, and half completed it after prolonged exposure to the target.

I expected the Black stereotype to be initially more activated for participants who saw the Black target than for participants in the control condition who saw the White target. More importantly, I also expected that over the course of time, the activation of the Black stereotype would recede. After prolonged exposure, then, I expected no difference in Black stereotype activation between participants who saw the Black target and those who saw the White target.

Method

Participants and Design

Participants were 55 students enrolled in an introductory psychology class at the University of Waterloo. They received course credit for their participation. Only participants who identified their first language as English were eligible to participate. The data for one participant who did not believe the cover story and one whose means on the lexical decision task were more than 3 standard deviations from the group mean were excluded.

The experiment used a 2 (Target Race: Black or White) x 2 (Time of lexical decision task: after brief exposure or after prolonged exposure) factorial design.[1]

Procedure

Students participated individually in sessions lasting approximately 45 minutes. Upon arrival, a female experimenter met participants and randomly assigned them to one of the treatment conditions. Participants were told that the study was about "life transitions" and that they would be listening to an interview of a person reflecting on a life transition that they had experienced. They were told that a local mental health council had conducted a number of interviews with people who had undergone a life transition (such as changing jobs, becoming a parent, starting university) and that the council needed feedback about each of the interviews for a planned intervention.

Participants were told that their task would be to listen to one audiotaped interview while viewing a slide of the person being interviewed. All participants actually heard the same tape, but the person shown in the slide was either a Black or White man said to be the interviewee. In the interview, participants heard an upper-year university student describe typical experiences at the beginning of the school year. These included practical aspects of making the transition to university life, including registering for courses, finding accommodations and university life. The interview had been scripted to provide prolonged exposure to the target without touching on information that might be directly relevant to the Black stereotype.

Participants were told that the study was also exploring cognitive engagement, a fictitious measure of the degree to which the interview captured their interest and attention. A computer task was said to be a good measure of cognitive engagement. Participants were told that they may be interrupted at any time to complete this task as a gauge of their interest and attention at different stages of the interview. In actuality, the lexical decision task was presented only after the first 15 seconds of the interview or at the end of it, and this task was actually used to measure stereotype activation. All participants agreed to complete this task and none guessed the true purpose when questioned during debriefing.

Stimuli. The experimental stimuli set for the computerized lexical decision task included words shown in pre-testing to be associated with various social stereotypes. In earlier pre-testing, thirty-five students had completed open-ended questionnaires by generating words and phrases associated with social stereotypes of Black people, students, men and women. They were asked to consider the cultural stereotypes of these groups (whether they agreed with these stereotypes or not). From this, the words and concepts elicited most frequently were used in this study.

The words in the Black stereotypic set included the words: Africa, athletic, Black, crime, dance, poor, sex and stupid. The words in the student stereotypic set included the words: desk, essay, examination, learn, lecture, library, study, teacher. The words in the male stereotypic set included boy, guy, male, man. Each of these stereotypic words was matched in word length and frequency with a neutral word, using the Kucera and Frances (1967) word norms. An equal number of nonwords were also included with the set.

Apparatus. The lexical decision task was programmed with Superlab software, and was run on a Macintosh IIfx computer with a 15" monitor set at a resolution of 640 x 480 and a screen refresh rate of 75 hertz. The stimuli were presented in the center of the screen as black words on white background.

Each participant was seated facing the screen of an Apple Macintosh IIfx computer and letter strings were presented on the computer monitor for up to 2000 milliseconds.[2] Presentation of the letter strings was randomized for each participant and each letter string was followed by a 1000 millisecond pause before the next string. Participants were asked to indicate by means of a key press whether each letter string constituted a word or a non-word. Participants' lexical decisions and associated decision times (in milliseconds) were recorded by the computer and they were encouraged to respond both quickly and accurately. Before starting the interview session, participants had familiarized themselves with the lexical decision task by completing 20 practice trials with neutral words and nonwords not included in the experimental set.

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Task. So, participants listened to the interview while simultaneously viewing a slide of the person being interviewed. The target person's photograph was displayed on the screen and the target briefly introduced himself in the audiotape. After these first 15 seconds, half of the participants were interrupted and were asked to complete the lexical decision task. The other half were exposed to the target for the entire 12 minutes of the interview and were then asked to complete the lexical decision task.

After the interview and lexical decision tasks were complete, participants gave feedback about the interview and about the person that they had seen and heard in the interview. Specifically, participants completed ratings of the extent to which the interview was helpful and interesting, and of the extent to which the person in the interview was articulate, attractive and intelligent. All ratings were completed on an 11-point scale ranging from -5 (e.g. not at all helpful) to +5 (very helpful) with a neutral midpoint.

Participants were also asked to identify the gender and race of the person depicted in the interview, and all were able to do so accurately. Participants were probed for suspicion and then fully debriefed using a process debriefing procedure.

Results

Preliminary Analyses

The principal dependent measure was the mean time (in milliseconds) taken by participants to correctly identify the stereotype-related words as words. Trials on which participants responded incorrectly (223 of 5915 trials or 3.57%) or after the time limit (21 of 5936 trials or .003%) were recoded as missing values and excluded from further analyses. To test whether error rates were equally distributed between groups, error rates were analyzed using a 2 (Target Race: Black or White) x 2 (Time of lexical decision task: after brief exposure or after prolonged exposure) analysis of variance.

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As seen in Table 1, there were no differences for error rates for the Black stereotypic words, all F's < 1. For the student stereotypic word set, there was a marginal main effect of Time, $F(1,49) = 2.43$, $p = .125$, as participants completing the lexical decision task after prolonged exposure to the target made 4 errors on the student stereotypic words, and those completing it after brief exposure had no errors. There were no differences in error rates for the male stereotypic word set or for the neutral word set, all F's < 1.

Reaction Time Analyses

In the lexical decision task, we anticipated that the Black stereotype would initially be activated for participants viewing the Black target relative to those viewing the White target. Moreover, we expected that after prolonged exposure to the Black target, there would be no difference in Black stereotype activation between those who saw the Black and the White target. To test this, the reaction times for each of the word sets (Black, student, male) were averaged to create 3 indexes. Each stereotypic index was then submitted to a 2 (Race: Black target or White target) x 2 (Time of lexical decision task: after brief exposure or after prolonged exposure) analysis of covariance controlling for participants' overall speed of responding.[3]

As Figure 1 shows, the predicted Race x Time interaction for the Black stereotypic words after controlling for neutral speed was significant, $F(1, 48) = 3.89$, $p = .055$. After only brief exposure to the target, participants viewing the Black target responded faster to the Black stereotypic words than did participants viewing the White target, $F(1, 48) = 5.07$, $p < .05$.[4] This suggests that the Black stereotype had been initially activated after only brief exposure to the Black person. After prolonged exposure, the Black stereotype seemed to have receded, as there was no difference in Black stereotype activation for those viewing the Black target and those viewing the White target, $F < 1$. This suggests that the

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previously activated Black stereotype had receded after prolonged exposure. The main effects of Race and Time were not significant, $p > .20$ for both.

The inclusion of the student and male stereotypic word sets also allowed us to simultaneously explore the activation of these stereotypes. As shown in Table 2, there were no main effects and no interactions for either stereotype, all p's $>.20$. The lack of effects for the student and male stereotypic words suggests that although other stereotypes were simultaneously available, only the Black stereotype was differentially activated by participants viewing the Black target and only the Black stereotype showed recession over time.

Target Ratings

Participants' ratings of how articulate, intelligent, and attractive the target was were averaged to form a single measure of target positivity (Cronbach's alpha = .80). The mean of the target rating was 1.81 (on a scale of -5 to +5), suggesting that participants had a somewhat positive view of the targets depicted in the slides. As this experiment used a between-subject design and presented 2 different targets, it is important to examine whether the effects seen for the Black stereotypic words might be due to differences in participants' views of the target. These target ratings were analyzed using a 2 (Race of target: Black or White) x 2 (Time of lexical decision task: after brief exposure or after prolonged exposure) factorial ANOVA.

As can be seen in Table 3, the target ratings showed only a marginal main effect of time, $F(1,49) = 3.06$, $p = .087$, such that participants who did the lexical decision task after brief exposure (M = 2.16) had a more positive view of the target than did participants who did it after prolonged exposure (M = 1.08). As the target ratings were completed at the end of the experimental session, it is difficult to know whether they impacted during the lexical decision task or whether they followed from it. This effect is potentially problematic if the participants' differential ratings of the target also affected their performance on the

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lexical decision task, and more specifically affected their responses to the Black stereotypic words. One way to address this potential problem would be to conduct the lexical decision analyses for the Black stereotypic words while holding target ratings constant. If the differences between groups on the lexical decision task are eliminated by covarying out the target ratings, this would lend support to the notion that participants' ratings of the target (and not stereotype activation) might explain these effects. On the other hand, if the Black stereotype activation effects hold even after controlling for target ratings, this lessens the possibility that the activation effects are due solely to differences in target ratings. Importantly, controlling for target ratings does not change the effects seen for the Black stereotypic words. This decreases the likelihood that the differences in participants' ratings of the target could account for the pattern of activation and recession seen for the Black stereotype.

Interview Ratings

Participants' ratings of how helpful and interesting the interview was were averaged to form a single measure of interview quality (Cronbach's alpha = .73). The mean of this index of interview quality was 1.44 (on a -5 to +5 scale), suggesting that participants rated the interview as somewhat interesting. These interview ratings were also analyzed using a factorial ANOVA. For the interview ratings, there was a marginal main effect of race, $F(1, 49) = 3.04$, $p = .088$, as participants viewing the Black participant rated the interview as somewhat more helpful and interesting (M = 1.96) than participants viewing the White participant (M = .904). This effect was qualified by a marginal interaction effect, $F(1,49) = 2.66$, $p = .109$. Simple effects analyses showed that participants who viewed the Black target at Time 1 saw the interview as more helpful and interesting (M = 2.42) than those who saw the White target at Time 1 (M = .25), $F(1,48) = 5.99$, $p < .050$. As the interview that participants heard was exactly the same, these effects are somewhat surprising, and suggest that participants who saw the Black target might have used a less

harsh standard in judging the interview. Importantly, controlling for ratings of interview quality does not change the effects seen for the Black stereotypic words, suggesting that this marginal difference in interview ratings alone cannot explain our results.

Summary of Experiment 1

This experiment suggests that the Black stereotype had receded over the course of prolonged exposure to the Black target. Only the Black stereotypic words showed initial activation, and more importantly, movement over time, such that participants exposed to the Black target showed activation of the Black stereotype (relative to the control group) after only brief exposure and no activation (relative to the control group) after prolonged exposure. As such, this experiment provides the first evidence of stereotype activation having receded over the course of time.

Experiment 2

The goals of the second experiment are threefold. First, as the results of Experiment 1 fly in the face of most conventional knowledge about stereotype activation, it seems important to replicate the major finding that the activation of the Black stereotype diminished over the course of time. Secondly, Experiment 2 seeks to extend the generalizability of the findings in Experiment 1 by using a Black woman rather than a Black man to activate the stereotype. As the Black people presented in previous stereotype activation research (e.g. Fazio, Jackson, Dunton and Williams, 1995; Bargh, Chen and Burrows, 1996) have all been men, Experiment 2 provides an important test of whether stereotype activation effects would be similar for a Black woman and whether the stereotype activated by a Black woman would recede over time. Thirdly, it may be argued that presenting only a static image of a stereotypic target in a photograph is not the ideal way to test whether stereotypes recede over time. Even if the stereotype were initially activated after exposure to the photograph of the stereotyped target, having only a static image of the target may make the stereotype harder to maintain. This alone may make the stereotype more likely to recede than would be the case with dynamic and continuous exposure to a real-life stereotyped person. The third goal of Experiment 2, then, is to present a stereotyped person over an extended period of time in a more realistic setting.

As in Experiment 1, I expected the Black stereotype to be initially more activated for participants who saw the Black target than for participants in the control condition who saw the White target. More importantly, I also expected that over the course of time, the activation of the Black stereotype would recede. After prolonged exposure, then, I expected no difference in Black stereotype activation between participants who saw the Black target and those who saw the White target.

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Method

Participants and Design

Participants were 75 students enrolled in an introductory psychology class at the University of Waterloo who received course credit for their participation. Only participants who identified their first language as English were eligible to participate. The data of two participants who did not believe the cover story was excluded. Data for 2 other participants was also excluded due to technical problems (one in which the data did not save properly and one in which the videotape malfunctioned). In all, the data from 71 participants was used for subsequent analyses.

The experiment used a 2 (time of lexical decision task: after brief exposure to the target or after prolonged exposure to the target) x 2 (race of target: Black or White) factorial design.

Procedure

This experiment used the same procedure as in Experiment 1. The interview was presented using a videotaped interview rather than an audiotape and photograph. The script of this interview was the same as in the previous experiment. The role of interviewees was played by 2 actresses, one Black and one White, who had been trained to deliver the script with the same speed, tone and emphasis.

Stimuli. As in Experiment 1, the stimuli set for the lexical decision task included words shown in pretesting to be associated with social stereotypes. In all, 8 Black stereotypic words were used in this experiment, including athletic, colour, crime, friendly, poor, rhythm, sex, stupid. Five of these words had been used in Experiment 1 (athletic, crime, poor, sex, stupid). The word "rhythm" was used instead of the word "dance", as it seemed to better capture the musicality aspect of the Black stereotype and had been represented in earlier pretesting. The word "friendly" was taken from earlier pretesting and

the word "colour" had been used in existing research (e.g. Steele and Aronson, 1995). As in the previous study, words related to the student stereotype (desk, essay, exam, learn, lecture, library, study, teacher) were also used. Words related to the gender stereotype of women were also taken from both pretesting and from other stereotype research using the stereotype of women (Macrae, Bodenhausen and Milne, 1995). The words emotional, female, girl, lady, romantic, thoughtful, and woman were included in this set. Each of these stereotypic words was matched in word length and frequency with a neutral word, using the Kucera and Frances (1967) word norms. An equal number of nonwords were also included with the set. The apparatus used and presentation of the lexical decision task was the same as in Experiment 1.

Task. So, participants listened to the videotaped interview. Half saw the interview with a Black person, and half with a White person. As in Study 1, half of the participants were interrupted after the first 15 seconds of watching the interview and were asked to complete the lexical decision task. The other half were exposed to the target for the entire 12 minutes of the interview and were then asked to complete the lexical decision task.

After the interview and lexical decision tasks were complete, participants again completed ratings of the extent to which the interview was helpful and interesting, and of the extent to which the person in the interview was articulate, attractive and intelligent. All ratings were completed on an 11-point scale ranging from -5 (e.g. not at all helpful) to +5 (very helpful) with a neutral midpoint.

Participants were also asked to identify the gender and race of the person depicted in the interview, and all were able to do so accurately. Participants were probed for suspicion and again fully debriefed using a process debriefing procedure.

Preliminary Analyses

The principal dependent measure was the mean time (in milliseconds) taken by participants to correctly identify the stereotype-related words as words. Trials on which participants responded incorrectly (341 of 7925 trials or 4.30%) or after the time limit (27 of 7952 trials or .003%) were recoded as missing values and excluded from further analyses. To test whether error rates were equally distributed between groups, error rates were analyzed using a 2 (Target Race: Black or White) x 2 (Time of lexical decision task: after brief exposure or after prolonged exposure) analysis of variance.

As shown in Table 4, looking at the word sets individually, there no differences in error rates for the Black stereotypic words, the student stereotypic words or the female stereotypic words, all p's > .20.

Reaction Time Analyses

As in Experiment 1, we anticipated that the Black stereotype would initially be activated for participants viewing the Black target relative to those viewing the White target. Moreover, we expected that after prolonged exposure to the Black target, there would be no difference in Black stereotype activation for participants who saw the Black target and those who saw the White target. To test this, the Black stereotypic index was again submitted to a 2 (Race of target: Black or White) x 2 (time of lexical decision task: after brief exposure or after prolonged exposure) ANCOVA controlling for overall speed of responding.

As seen in Figure 2, the Black stereotypic words showed a marginal Race by Time interaction, $F(1,66) = 3.11$, $p = .083$. Simple effects analyses showed that after only brief exposure, participants exposed to the Black target were faster at responding to the Black stereotypic words than were participants exposed to the White target, $F(1,66) = 4.18$, p <.05. This suggests that the Black stereotype was active after the first few seconds of

exposure. After prolonged exposure to the target, however, there was no difference in the activation of the Black stereotype for participants viewing the Black target and those viewing the White target, $F < 1$. The main effects of Race and Time were not significant, $F < 1$.

As Table 5 shows, there were no effects for the student stereotypic words, all F's < 1. So, the student stereotype was activated equally by the Black and the White target and that the activation did not change over time.

For the female stereotypic words, there was only a significant main effect of Race, $F(1, 66) = 3.89$, $p = .05$, as participants also responded faster to the female stereotypic words when exposed to the White target (M = 565) than to the Black target (M = 598). This suggests that participants saw the White target as being more stereotypically female than the Black target. There were no other effects, all F's < 1.

Target Ratings

As in Experiment 1, participants also rated how articulate, intelligent, and attractive the target was, and how typical the target was of other UW students. These target ratings were averaged to form a single measure (Cronbach's alpha = .80). The mean of the target ratings was .79 (on a -5 to +5 scale), suggesting that participants had a positive view of the targets depicted in the videotapes. As in Experiment 1, the target ratings were analyzed using a 2 x 2 factorial ANOVA. As Table 6 shows, there were no differences in participants' ratings of the target, all F's < 1.

Interview Ratings

Participants completed ratings of the extent to which the interview was helpful and interesting. These ratings were averaged to form a single indicator (Cronbach's alpha = .86). The mean of the interview ratings was -.2, suggesting that participants viewed the videotaped interview to be slightly uninteresting. Compared to Experiment 1, the

videotaped interview was seen as less interesting than the audiotaped interview. But, as Table 6 shows, participants rated the interview similarly, all Fs < 1.

Summary of Experiment 2

Although slightly weaker, this experiment replicated the pattern of results seen for Experiment 1. The Black stereotype was clearly activated after only brief exposure to the Black person, and was not activated after prolonged exposure. This pattern of activation and recession appears to be limited to the Black stereotype, as other stereotypes relevant to the target showed no initial differences in activation (relative to the control group) and no change over time. Importantly, this experiment replicated the results seen in Experiment 1 using a more realistic setting and presenting a female rather than a male stereotypic target.

Discussion

Both experiments replicate the well-established finding that stereotypes can be spontaneously activated upon brief exposure to members of stereotyped groups. Consistent with existing research, exposing participants very briefly to a Black person quickly gave rise to activation of the Black stereotype. More importantly, this research also extends beyond existing work to an issue that has been left unexplored, to what happens to stereotypes after the first few seconds of meeting a member of a stereotyped group. The first experiment used a picture and an audiotaped interview, and the second experiment used a videotape of a real person to activate the Black stereotype over a sustained period of time. Both experiments show that stereotypes that are initially activated upon meeting a stereotyped person may recede after several minutes of exposure to this person.

Across both studies, I found a pattern of activation of the Black stereotype and subsequent recession of the Black stereotype. However, the expected effects were modest in the audiotape study and only marginal in the videotape study. In order to determine whether these studies taken together support my hypotheses, I conducted a series of meta-analyses using the method of adding p's (Rosenthal, 1984). The primary analysis of interest, of course, is the Race x Time analyses for the Black stereotypic words. Combining the p-values across experiments yields a p-value of .017. This strongly supports my hypothesis that the Black stereotype had receded over the course of time.

What exactly does it mean to say that the Black stereotype had receded? In this research, I have compared the degree of Black stereotype activation for participants exposed to the Black person to the activation for control participants exposed to the White person at each time segment (either early or late in the interview). As such, my argument that the Black stereotype had receded is based on the finding that reaction times to Black stereotypic words for participants viewing the Black person diverged widely (being

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considerably faster) from the control group after brief exposure, but not after prolonged exposure.

Meta-analyses were conducted on the within-time contrasts. After brief exposure, the Black stereotype was significantly more activated for participants viewing the Black person than for those viewing the White person (p = .01). But, after prolonged exposure, there was no difference in Black stereotype activation for those viewing the Black person and the White person (p >.40). These contrasts strongly support the argument that the Black stereotype was initially activated but that it faded over time.

Of course, it would also be possible to compare across time segments, to ask whether participants who saw the Black target and completed the lexical decision task early in the interview showed the same amount of stereotype activation as those who saw the Black target and completed the lexical decision task late in the interview. This provides an absolute comparison of whether the Black stereotype was more activated after initial exposure or after sustained exposure to the Black target. I would argue, however, that this is not the best comparison to make, as to compare across time segments involves comparing people in very different psychological situations. People who complete the lexical decision task at the very beginning of the interview are likely to be in a different psychological situation than people who have been watching the interview for a full 12 minutes before being asked to complete the task. Although there is no reason to expect that these factors may affect groups differentially, comparing between time segments potentially introduces factors that are likely to be fairly well matched within time segments. Comparing within time segments, then, appears to be the most meaningful way of judging the extent to which the Black stereotype is activated.

Although I have argued that making cross-time comparisons is somewhat problematic, it is important to mention them. Looking across time, a meta-analysis of participants viewing the Black targets showed that the activation of the Black stereotype receded marginally over the course of the interview, p = .15. This, of course, is consistent

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with the argument that the activation of the Black stereotype receded over the course of the interview. The results for participants who saw the White target, however, are somewhat puzzling. A meta-analysis of this contrast shows that participants viewing the White person were faster at responding to the Black stereotypic words after prolonged exposure than after brief exposure ($p = .08$). It is unclear why this would be the case, but this result cannot be ignored as this would have contributed to the significant interaction. One possible explanation for this is that perhaps the content of the interview itself differentially primed some aspects of the Black stereotypic words. This may be particularly likely to occur for the participants viewing the White target as they may be better able to focus on the content of the interview than participants viewing the Black target. It may be, then, that the content of the interview contributed to this unexpected change. Nonetheless, this issue needs to be resolved in future research.

It is also important to highlight the fact that despite the inclusion of multiple stereotypes in the research, there was no evidence of the inhibition effects seen in research by Macrae, Milne and Bodenhausen (1995). The fact that participants seemed to have activated the Black stereotype did not appear to impact on the activation of other stereotypes. There are, however, a couple of important differences between this research and the current research. One important difference lies in the stereotypic stimuli that were used. Macrae and his colleagues deliberately chose stereotypic terms that were mutually exclusive. In choosing terms that applied to the Chinese stereotype, for example, they also sought terms that were irrelevant to the stereotype of women. I made no such effort in my research. As such, it is possible that there was some overlap in the word sets for the different social groups. It might be, for example, that some of the words used to measure the activation of the Black stereotype (e.g. athletic) might also be associated with the student or the male stereotype. In any case, the lack of mutual exclusivity might have hindered my ability to find similar effects.

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Post-hoc power calculations were also completed in order to guide future research. These analyses show that the effect size is relatively small for both studies. In the audio study, the actual power was .21. In order to have a respectable level of power (.80) with the effect size evidenced in this study would actually require about 148 participants. In the video study, the actual power was also quite low at .17. With the effect size seen in this study, to achieve a power of at least .80 would have required about 240 participants. For the future, then, it seems important to increase the sample size in order to have an adequate level of power. Alternatively, it also seems important to explore ways to increase the strength of the manipulation.

General Discussion

Our work suggests that stereotypes can change over the course of time, and our research seems consistent with the explanation that the introduction of individuating information throughout the course of the interview played the critical role in the stereotype receding. Consistent with Locksley's research, it seems that as participants received more information about the stereotyped person, as they saw her/his appearance and learned about her/his feelings and behaviours, this individuating information came to be increasingly important and the activation of the stereotype was diminished. So, although the stereotype on its own was initially highly activated, introducing the individuating information during the course of the interview appeared to have lessened the activation of the stereotype. But, although the current research is consistent with this theoretical account, there is no direct evidence that shows definitively that individuating information plays the critical role in the Black stereotype receding over the course of time. As such, for the future, it seems important to show that diminishing stereotype activation is associated with a simultaneous increase in reliance on individuating information. It would then be possible to argue with confidence that stereotypes recede over time because of the introduction of individuating information.

In the absence of such evidence, however, it is important to acknowledge that other theoretical accounts could also explain the current results. It is also possible that attention played the critical role in the activation of the Black stereotype changing over time. Research by Roskos-Ewoldsen and Fazio (1992), for example, showed that objects that are particularly attitude-evoking are more likely to attract attention when presented simultaneously with those that are less attitude-evoking. Applying these ideas to the current research, it seems reasonable to assume that exposure to the Black target is likely to be more attitude-evoking than exposure to the White target. Perhaps this contributed to

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more attention being paid to the Black target, and reactions to the Black stereotypic words were facilitated. As participants watched the interview, perhaps the introduction of the new information helped to humanize the Black person, and make them less attitude evoking. This shift might have diminished the attention paid to the Black person, and this decrease in attention led to the decrease in the activation of the Black stereotype by the end of the interview. There is perhaps even a simpler way in which attention could impact. It might be that for participants exposed to the Black target, focusing attention on the content of the interview simply diminished the energy left over to focus on race. The decreased attention given to race diminished its accessibility and lengthened reaction times to the Black stereotypic words after prolonged exposure. It seems possible, then, that attention could play a role in explaining the effects.

It might also be the case that motivation could play a role in the recession of stereotypes. As recent research by Sinclair and Kunda (1998) suggests, even stereotype activation appears to be affected by motivation. Participants motivated to maintain a positive view of another person appeared to have inhibited activation of negative stereotypes of that person, and participants without such a goal activate the stereotype. If motivation can play such a role in inhibiting the activation of stereotypes, it does not seem unreasonable to suggest that motivation may also play a role in diminishing spontaneously activated stereotypes during extended exposure to members of stereotyped groups. Certainly, there is a much evidence to suggest that many people attach a great deal of importance to appearing to be unprejudiced (e.g. Devine, 1989; Fazio, Dunton, Williams and Jackson, 1995). For participants exposed to the Black target, then, responses to the Black stereotypic words might initially be activated by the same spontaneous processes described earlier. But, over the course of prolonged exposure, adequate time combined with the motivation to appear unprejudiced may inhibit or at least diminish the activation of the stereotype. So, it does seem possible that the motivation to appear unprejudiced could explain why the Black stereotype receded over the course of time.

Lastly, from a cognitive perspective, it may also be case that the mere passage of time leads to decay in the activation of any primed category. As such, it may be the case that the Black stereotype was less activated after prolonged exposure to the Black target simply because of the passage of time.

Although all of these explanations about why the Black stereotype receded in our work are plausible, only further research will be able to provide a definitive explanation. It may be possible, for example, to explore the role of individuating information with a no-information control condition in which time passes without the presentation of individuating information. If participants show evidence of the stereotype receding even without the addition of individuating information, this would weaken the argument that individuating information played the critical role in stereotype activation receding over the course of time and strengthen the argument that the mere passage of time might lead to a decrease in stereotype activation. The role of motivation could also be explored more fully. If the motivation to view a member of a stereotyped group positively can lessen the activation of negative stereotypes about that person (Sinclair, 1998), perhaps people who are motivated to maintain positive views will also be more likely to show recession of stereotypes over time. Perhaps people without such a goal will also be less likely to show recession of negative stereotypes over time. Although there is currently no direct evidence to help discern which theoretical account is the most accurate, the exact process by which the activation of stereotypes recedes is important and exciting question for future research to address.

Nonetheless, this research does represent another challenge to the assertion that social stereotypes are inevitably and universally activated. In addition to the existing limitations imposed by previous research, this research adds the caveat that even stereotypes that are initially activated when we first encounter a member of a stereotyped group may diminish over the course of time. As such, although stereotypes may be spontaneously activated, even their continued activation is not inevitable.

The notion that stereotype activation can recede is especially important, as it runs counter to some current thinking about stereotypes. In a recent article, Bargh (in press) argues that the hopeful potential for exerting control over stereotypes has actually been over-emphasized by recent research. Although he acknowledges that there are some situations in which it might be possible to exert control over stereotypes, he does conclude that "One is not to count too much on a person's ability to control the impact of an automatically activated stereotype. Once it is activated the horse has left the barn, and shutting the barn door is of little value." Clearly, Bargh is pessimistic about the probability of controlling stereotypes once they have been activated.

It may be, however, that preventing the activation of social stereotypes is perhaps not the only way to control negative stereotypes. This research suggests that even people who do initially activate a negative stereotype when they first encounter a stereotyped person may deactivate it over the course of time. Even if stereotypes are initially activated, they may diminish over the course of prolonged interactions with a stereotyped person. As such, there is still hope that the harmful behaviours, thoughts and feelings often associated with negative stereotypes might also decrease after prolonged exposure to members of stereotyped groups.

The fact that stereotypes can recede might also have important implications for how members of stereotyped groups are treated. My research suggests that even stereotypes that are activated may not necessarily be applied after prolonged exposure. The ratings of the target in both experiments suggest that although the Black stereotype had clearly been activated early on, the stereotype had not been applied to the target. On one hand, it is encouraging that although the Black stereotype (potentially a very negative stereotype) had been activated, it was apparently not applied. If even an extremely negative stereotype such as the Black stereotype can recede over time without the stereotype having been applied, this could be important and truly encouraging news for those who work to eradicate racism and prejudice.

On the other hand, there may be other reasons why there were no differences on this measure. It may be that as the dimensions tapped in the stereotype application measure were limited to how articulate, intelligent and attractive the targets were, they may not have captured the most relevant aspects of participants' views of the target. As such, perhaps a more elaborate measure of stereotype application would yield differences in stereotype application that these limited measures did not capture. It may also be the case that the cover story simply gave participants a different goal in appraising the target person. If, as we asked in the cover story, participants were focused on giving us helpful feedback about participants for the supposed life transitions study, then this goal might lessen the likelihood that the stereotype would have been applied. As the ratings were done at the end of the interview, it is difficult to know whether the stereotype was not actually applied, or whether it had been previously applied and was not captured in our measurement of it. It might be the case that just as stereotype activation had receded over time, so had the application of the stereotype. Lastly, the lack of differences in target ratings may also be a product of social desirability concerns. Participants might have been concerned with how they would appear to the experimenter if they gave negative ratings, particularly for those exposed to the Black target.

Yet, the fact that there were no differences in how participants viewed the target suggests that it is unlikely that the effects on the lexical decision task were driven by differences in how the individual targets were seen. It does seem important for future research to use more elaborate measures to explore how changes in stereotype activation over time might relate to changes in stereotype application. Nonetheless, this research allows at least some room for optimism that stereotypes will not always be applied even if activated.

So, should we be encouraged by these results? Certainly, this research shows that it may be possible to go beyond stereotypes in our interactions with others, that even if we initially see them in stereotypic terms, we can with the proper exposure and time, see them

as more than just their stereotype. More recent research suggests that it is important not to be overly optimistic about the prospect of getting rid of stereotypes. Other research also exploring stereotype activation over time (Davies, Kunda and Spencer, 1998) suggests that stereotypes may rebound quickly if the stereotyped person does something to annoy us. Participants viewed a videotaped interview which exposed them to a member of a stereotyped group and a control target for a prolonged period of time. In the videotape, they watched people relate their perspective on the evidence presented in a fictitious trial. As in the current research, the stereotype had receded after prolonged exposure. At the final stage of the interview, the target was asked to make a final decision about the trial under consideration, a decision that had been setup to either agree or disagree with the perspective of the participant. When the target person made a decision that was consistent with the participant's, the stereotype remained dormant. But, when the stereotyped person made a decision that was inconsistent with the participant's, the stereotype rebounded and again became activated. This research is important from at least a couple of different perspectives. First, this research replicated the current research and showed that the stereotype had receded over the course of time using an entirely different experimental situation and stimuli. More importantly, this research looks even further into the issue of stereotypes over time and suggests that even stereotypes that have receded may be easily re-activated. In this case, only a difference of opinion gave rise to the reappearance of the stereotype. This suggests that any optimism that stereotypes can recede after prolonged exposure should be tempered with knowledge of how easily stereotypes can slip back into play. What is perhaps even more distressing is the fact that stereotypes may be even more likely to come back into play in a truly interactive situation. Nonetheless, this work provides an important extension of the current research and one which is certainly important to pursue further in the future.

There are many issues left to address in future research. My research shows that the Black stereotype can recede over the course of extended exposure to a Black person,

but it is not clear whether this might be true for other stereotypes as well. Is the Black stereotype more likely to recede because it is a particularly negative stereotype, or would other stereotypes have a similar time course? In this research, our targets belonged to multiple categories simultaneously, but the racial stereotype was the only stereotype that was differentially activated. It is possible that the student and gender stereotypes might have a different time course if they were presented on their own, or with a less dominant stereotype. Although the experimental situation afforded the opportunity to explore stereotypes over a prolonged period, but is still limited by the fact that the "interaction" was one-directional. It would also be interesting to explore what happens to the stereotypes over the course of time in a truly interactive situation. As well, our research only provided a fairly limited amount of exposure. It is important to look at stereotypes after an even longer period. And, as the role of individual differences in stereotype activation continues to be a fruitful area for research (e.g. Fazio and Dunton, 1997), it would be interesting to examine the role of individual differences in stereotype activation over the course of time. It may be the case, for example, that truly high prejudiced people would not give up their stereotypes as easily as less prejudiced people. Lastly, for the future, it is also important to pay more attention to the important distinction between category activation and stereotype activation (e.g. Lepore and Brown, 1997). Although I want to argue that the Black stereotype was activated, several of the words in the Black stereotypic word set were more related to the category (e.g. Black, colour) than to the stereotype of Black people. I would argue, though, that this distinction is not always as easy one to make, as categories are often closely related to the traits and behaviours associated with stereotypes. As such, the word "rice" may be seen as being related to the category "Asian", but is also closed related to the behaviour of "eating rice", which is more clearly a part of the Asian stereotype. Nonetheless, for the future it is important to be deliberate and to choose only words that are clearly representative of the stereotype rather than the category. Certainly, there are many important and interesting issues left to examine.

Despite the many avenues left to explore, however, this research does provide a unique contribution to the existing stereotype literature. It provides prolonged exposure to a real-life person, and looks beyond the first few seconds when stereotypes are initially activated. As we are often exposed briefly to stereotyped persons, what happens after the first few seconds of contact has been an important issue for stereotype activation researchers to explore. Many of our interactions with members of stereotyped groups, however, last longer than 15 seconds. As such, it seems important to explore stereotype activation over the entire course of an interaction. This research represents the first attempt to do so.

More generally, our work suggests that impression formation is perhaps an even more dynamic process than previous research and theory would suggest, and this research supports calls for a more dynamic model of impression formation (e.g. Kunda and Thagard, 1996). Not only are we confronted with multiple categories to choose from when we encounter another person, but even when a stereotype is activated our work suggests that it too is in a state of flux. For the future, then, it will be important to consider models of impression formation that can adequately represent the constantly changing nature of social interaction. The parallel constraint satisfaction model of impression formation (Kunda and Thagard, 1996) appears to be the model most capable of meeting this challenge. It moves beyond serial models of impression formation in which stereotypes a dominant role (e.g. Brewer, 1988; Fiske and Neuberg, 1990), and can deal easily with the constant interplay of stereotypes, behaviours and traits. Having a more fluid model may well be an important key to capturing the complex nature of social interaction, and in particular, to understanding how stereotypes change over time.

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Footnotes

[1]Half of the participants had actually done the lexical decision task twice, at the beginning and at the end of the interview. As the same words were presented for the second lexical decision task as for the first, participants responses on the second LD task were considerably faster. As it was impossible to disentangle the carry-over effects from the activation effects, these analyses were not presented, and the data was analyzed using a between-subject design.

[2]Setting the upper limit at 2000 milliseconds essentially treats any scores above 2000 milliseconds as outliers, and removes them. This reduces the skewness typically associated with reaction time data.

[3]Overall speed of responding was measured using an index of the neutral words. All analyses control for overall speed of responding.

[4]These analyses all use the error term from the ANCOVA.

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Table 1

Mean Proportion of Errors as a Function of Target Race and Time - Experiment 1

	Time 1		Time 2	
	Black	White	Black	White
Black Stereotypic Words	.019	.019	.010	.019
Student Stereotypic Words	-	-	.013	.013
Male Stereotypic Words	-	-	-	-

Table 2

Mean Lexical Decision Latencies (in milliseconds) as a Function of Target Race and Time

(Experiment 1)

	Time 1		Time 2	
	Black	White		
Black Stereotypic Words	594	652	630	614
Student Stereotypic Words	620	625	645	632
Male Stereotypic Words	612	578	585	575

Table 3

Mean Target and Interview Ratings as a Function of Target Race and Time - Experiment 1

| | Time 1 | | Time 2 | |
	Black	White		
Target Ratings	2.62	1.96	1.39	1.36
Interview Ratings	2.42	0.25	1.54	1.46

Table 4

Mean Proportion of Errors as a Function of Target Race and Time - Experiment 2

	Time 1		Time 2	
	Black	White	Black	White
Black Stereotypic Words	.023	.028	.014	.039
Student Stereotypic Words	.016	.014	.014	.046
Male Stereotypic Words	.027	.016	.008	.023

Table 5

Mean Lexical Decision Latencies (in milliseconds) as a Function of Target Race and Time

(Experiment 2)

	Time 1		Time 2	
	Black	White		
Black Stereotypic Words	561	614	591	577
Student Stereotypic Words	593	577	577	566
Female Stereotypic Words	593	572	603	559

Table 6

Mean Target and Interview Ratings as a Function of Target Race and Time - Experiment 2

	Time 1		Time 2	
	Black	White		
Target Ratings	.52	.48	.93	.58
Interview Ratings	-.75	-.17	.67	-.53

Figure 1.

Lexical Decision Means for Black Stereotypic Words as a Function of Time and Target Race - Experiment 1
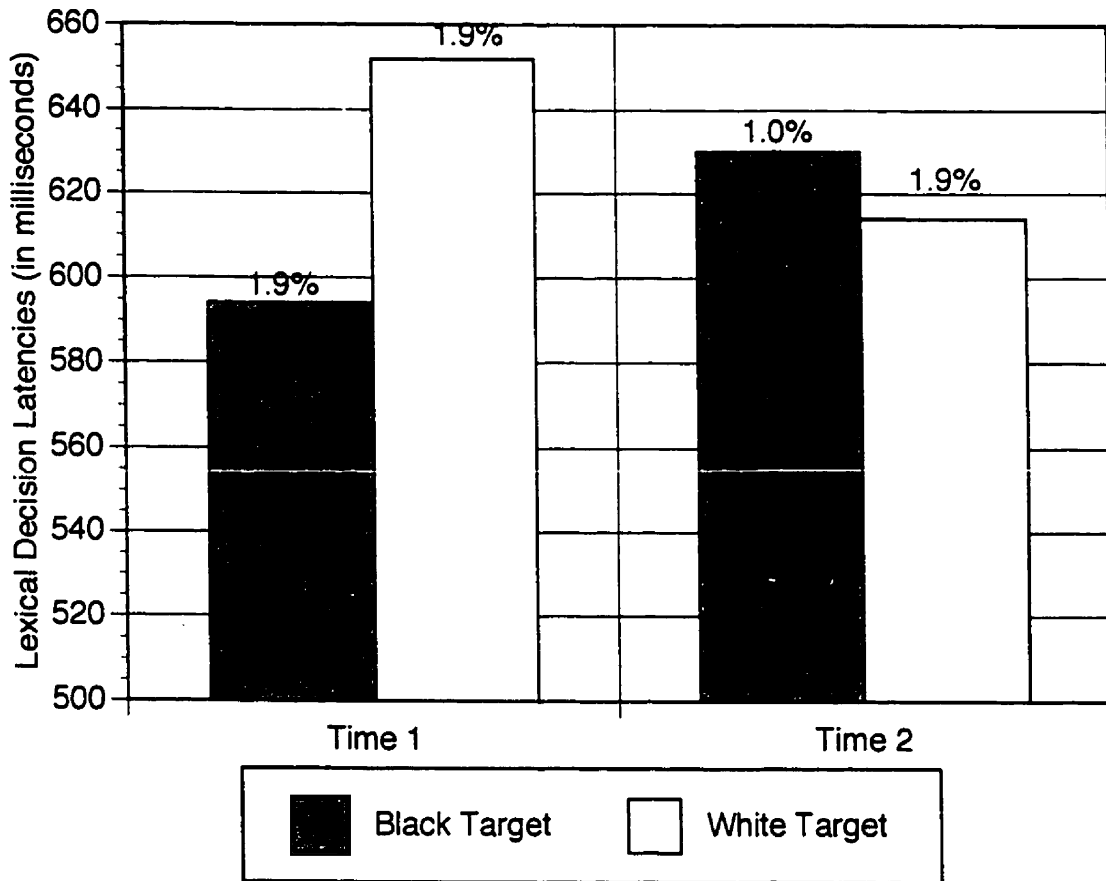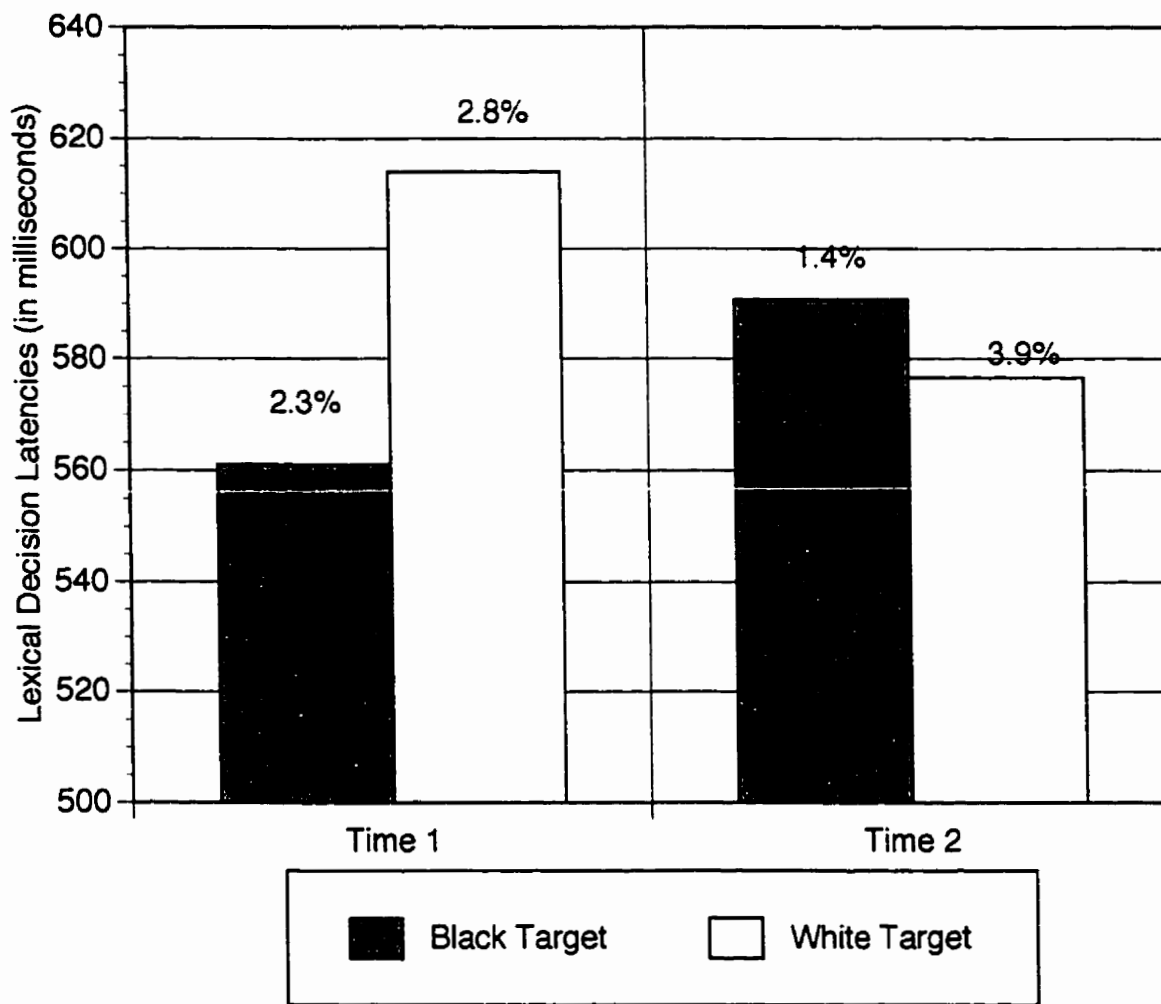

Note: Numbers above the columns represent mean percentage of errors.

$F(1,48) = 3.89$, $p = .055$

Figure 2.

Lexical Decision Means for Black Stereotypic Words as Function of Time and Target Race - Experiment 2

Note: Numbers above the columns represent mean percentage of errors.

$F(1,66) = 3.11, p = .083$

Script of the Life Transition Interview

INTRODUCTION

My name is _____ and I'm a 3rd year student. I wanted to talk a bit about making the transition to university life. I thought I might be able to help people just coming out of high school to know about what's involved once you actually get to university.

Tape stops here for those completing lexical decision task early

REGISTRATION

Well, the first day you come to campus, it's pretty busy. Registration is probably the first thing to get done. I mean, you get the stuff you need in the mail so it's probably a good idea to read through that before the first day, and to know a bit about where you're going. Everybody does it differently, but it's probably best to get registered before all the other stuff you have to do...like books and stuff. You have to make sure that you bring the forms with you.....I mean, the ones that were mailed to you, or it's a lot harder. Then, you stand in line for a long time and it's a bit of a hassle, but you usually end up seeing lots of people you know, ...so it's bearable. I didn't have any problems this term, but this guy I know had a lot of trouble. It was kind of funny...well not really funny...but their computer must have screwed up or something, because he had sent in his registration stuff through the mail....oh, yeah...I forgot to mention that you can also register through the mail - you just send in the forms that they send you with a cheque or whatever, and they do the registration for you. Anyway, as I was saying, this guy that I know... he sent in his registration through the mail and paid his fees and stuff and then he got this letter saying that he hadn't paid his tuition, and that he had to pay his tuition and the late fees by such and such a day or the term wouldn't count, or whatever. So, he ended up having to dig through all his stuff trying to find it, the receipt. The funny thing is, the point of paying by mail is that it's supposed to be less of a hassle, and it usually is, except for times like this one. Otherwise, the best advice I have is to make sure to bring the stuff you're going to need...and to come early. I guess that's about it.

SCHEDULING

Scheduling can be a bit of a hassle. I've never, ever, got all the courses I've asked for. As soon as I get my schedule each semester, I have to try to find a course calendar, and figure out what courses are offered, and pick second, third, and sometimes even fourth choices because they're always full. And then I have to hunt around to find my advisor...or whatever...someone who can o.k. the changes and that can be the biggest pain of all. Last term my schedule was not bad to begin with. There was one course I was thinking of taking that conflicted with one of my required courses, but then I was talking to someone and they said the course was pretty bad, so it's just as well, I guess. I mean, I'd heard of people who have tried and tried to get into a course...like even one they needed to finish, and they had so much trouble...like they tried to take it 4 different semesters.... that they ended up just taking it by correspondence. Oh yeah...I did have a bit of a problem last term because I couldn't get the courses I preferred - like a section time - I couldn't get it because it was full, so I had to take another choice. This meant I had three to four hours in between

classes. I wasn't very happy with that, but I guess it was okay. Sometimes you can get some work done in between classes, or even just hang out with some people you know if you don't feel like working. The major thing about scheduling is that there's no guarantees, even if you register really early. Other terms I've had problems, but everyone always does... it seems like that anyway...so it's not even a big deal anymore. Sometimes, you just have to pick something because it fits. That seems kind of ridiculous when you're paying so much money to come here, but ...really...what can you do? And it's probably not going to get better, what with budget cuts and everything.....

BOOKSTORE

Well, I sometimes try to get my books before people are back so that I don't have to line up at the bookstore. But sometimes you can get stuck with that because if you have to change some courses...like if you don't get everything you want in your schedule, then you might have to refund the books. One term was really brutal, because I had to make a lot of changes in my schedule so I couldn't get my books until....well, pretty late...I got stuck in a line for... it seemed like at least 2 hours. People were lined up so far that the bookstore person had to keep coming out and telling us to move so people...like people walking by...could get through. Everyone was getting a little impatient, and even after I got into the book store, they had one of the textbooks I needed, but the other one was on order. Lemme see...what else? Oh, yeah, I've had it before where someone you know takes a course before you, and so you can get the book from them, and then you're walking into class hoping that the prof is not going to say "No, you don't need this book, but you do need this one", and you just want to scream. That's another thing - profs - I don't know whether it's the book store or the company or what, but that's frustrating, when you've got a class and you've got a prof handing out an outline saying, "Oh, you're supposed to have chapters one and two read for today, but I understand that you don't have the book". And then it takes a week for it to get in, or something. There's also a used bookstore and you can sometimes get a good deal there, mostly for the required courses, because they tend to have more people taking them. Anyway, I guess if I were going to give hints about the bookstore, I would tell people to get there as soon as they can....when they have their schedule... and to make sure that they had a list of the books they needed. Sometimes, even after you get in there, it's hard because there's a lot of people and they're busy trying to find their books too. So, if you have a list of the books that you need...oh, yeah...and the course numbers too. That helps if you have the course numbers. If you have all that stuff, it'll go a lot smoother.

COMPUTER ACCOUNTS

After you get registered and get your books and stuff, the next thing you have to worry about is getting a computer account. Sometimes, one of the courses you're in will have an account as...like....part of the course, but most of the time, you have to apply to get one. It's pretty easy. The harder thing is being able to get on the account when you get it. You can kind of tell the beginning of a term, because there's this bunch of people sitting in the computer lab looking frustrated. It is frustrating.....I remember my first term and getting my user code (or whatever it's called) and trying to get logged on. It kept saying that it didn't recognize the user code, and so I did what the person next to me was doing - trying different combinations with capitals and not capitals, and leaving off the last letter of my name and then the last 2....and on and on (smiles). It would have been really awful, but it was a little funny because some of the people around me were having trouble too...so at least we could laugh a little about it. Well, it took a while, but I finally did get on and I got some help from one of the computer consultants about learning how to do e-mail and stuff. It's not bad once you get the hang of it, but it does take a little bit of time....

HOUSING

Well, the first term, I didn't have too much trouble with finding something because I lived in residence first. That's kind of nice, because I knew before I came that I had a place to go and stuff. Living in residence is o.k.....well mostly o.k. (pause) ...I think it depends a lot on the people you live with. At the beginning of the term, there's lots of parties and stuff - that's sometimes a problem, I mean, when you're trying to get some work done and it's too noisy to concentrate. Once you've done residence for a while, a lot of people try to find something off campus. You can get advice from the housing office in the Village. They have a list, and you can go through it. People I know have used that, but the problem is that you don't always know what kind of place you're going to find. I mean, I went with my friend when they were looking for a place, and this one place was just awful, the windows were all taped over with plastic, it was just really grungy. It was...like...the house was falling apart, and the room for rent was jutted out from the side of the house and it had no insulation or anything, so it was freezing cold! But, mostly it's not awful trying to find something, and talking to other students helps because then they can help you know where the real dives are. There are lots of houses around that students can share...like...each person has their own room and everyone shares the utilities and stuff. Things like that can be good because it's a lot cheaper than having a place on your own, but well, then you have to make sure you find the right people. That's a problem that a lot of students seem to have. It's hard for some people coming out of home for the first time, and maybe you have experience with...like...brothers and sisters. But it's different living with people that you don't really know. Sometimes things go great and you make new friends, but that's not always how it goes. I mean, I've had friends who got into this real bad situation with their roommates when they couldn't get along...they were really at each other. One of the roommates was really high strung and super-clean. There was a whole bunch of them living together, and he used to go nuts whenever someone left like a dish in the sink, or didn't hang up their coat when they came in. It got really bad, so that finally my friend just moved out on their own. Anyway, I've had some good experiences and some bad ones, but it's not really something you can plan....unless you have friends going into university. Most people just have to take their chances or live alone. Lemme see...other things about housing...well, it's important to think about getting around, like to school and for groceries and stuff. If you don't have a car, you should think about bus routes, and how long it's going to take you on a day when it's freezing outside. Sometimes, you could live pretty close to the university, but because of how the routes are (I mean, the bus routes), it takes 2 different buses to get there anyway, and you have to transfer to do it. I guess you also have to think about how far it is to the grocery store. One term I lived near a grocery store but it closed down. There's lots of convenience stores around, but it's like $3 for Kraft dinner. If you live in residence, they have a full meal plan, and I think it's still...well when I was there it was compulsory...you had to take it. Um, so you were set, three meals a day for seven days a week. That is, if you liked what they feed you. Most of the time, it wasn't really bad....like they had chicken that was o.k. and some other stuff that I liked....but sometimes... Well, let's just say that sometimes they were...maybe a little too creative. Mostly with leftovers. Otherwise, there was lots of pasta-type things and you didn't have a lot of choices, but some. But if you didn't like what they had, you had a kitchenette, a stove-top, no oven but a stovetop and a sink and a fridge so you could prepare your meals. So you didn't have to shop, but if you wanted to, you paid a mint, because you had to go to, because most people don't have a car, usually, in residence, so the nearest place to walk is the plaza and that's expensive

SOCIAL

Obviously, for the first year students the big event is Frosh Week. Some of the stuff that they get you to do is idiotic, but overall it's pretty fun and it really is a good way to meet

new people. Otherwise, some people find it quite hard to meet new people in first year, like in classes and everything. I guess it's just because everyone is nervous, but it's....like....people don't even make eye contact with you. A lot of people say that first year is kind of lonely. But even once you do make friends, it's sometimes hard to stay in touch, when each new term you're in different classes and everything. If you manage each year to make at least one or two good friends, then you have some other people...like... good acquaintances who you might go out with now and again. In terms of social events, I do think people tend to go out more during the first few weeks of a term.There's usually quite a few things going on, and more than anything, there's not a lot of work to do yet, so you don't have to feel guilty.

TRANSITION

You know, I think everybody's a bit nervous starting out in university. I mean, you just expect that everything's going to be different from high school. There were so many people in high school that didn't care...and stuff...and so they don't even bother going to classes. That's kind of different at university, at least for most people. It's different too, because every term is like a new start...there's new people and new profs to get used to. During the summertime, or even the Christmas break, it's kind of...well...you're usually doing other stuff during that time, and now you're starting a new term and you have to get ready for that. It takes a while to get back into things. I guess I kind of look forward to seeing what my courses and profs are going to be like....so that's a little bit of anticipation I have before I go back to school. So I guess it's a little hard to make the transition sometimes, but there are a lot of good things about it too. Yeah, I have enjoyed most of it. I mean, you take some stuff that's better than others, but ...

Tape ends and late lexical decision task completed