THE EFFECTS OF AGE PRIMING ON RECALLING AGE POSITIVE/NEGATIVE AND CONSISTENT/INCONSISTENT BEHAVIORS

By Amy M. Knepple

Age stereotypes, both positive and negative, are unique because people who hold them will one day become part of that stereotyped group. The current research asked if age priming college students (N = 61) affects their memory for pictorial images of older persons. Participants were randomly assigned to one of three groups (one year from now prime, age 70 prime, and no prime). After writing about the future self (in one year or at the age 70), or simply receiving the instructions (no prime), each participant was shown a series of images depicting stereotypes of older adults, both positive and negative and consistent and inconsistent. Research on priming suggested that having participants think about themselves at age 70 would influence identification with a new in-group (older adults). However, all groups remembered more negative ($p < .001$) and inconsistent ($p < .001$) stereotype pictures of older adults. This may be due to the novelty of the images. The priming of a different age group may also be difficult because college students strongly identify with their roles as young adults. Future research should assess if different types of priming affect memory for age stereotyped behaviors.

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by

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INTRODUCTION

Age stereotypes are acquired early in life, and become so well ingrained that they may be automatically activated upon the mere presence of a category member (Stein, Blanchard-Fields, & Hertzog, 2002). Age stereotypes are different from ageism because stereotypes can be both positive and negative beliefs and ageism is generally considered to be negative. Stereotypes reflect beliefs held by an individual about the characteristics of a group of people (Jones, 1997). Ageism, a prejudiced attitude, includes not only beliefs about another group but also the feelings and dispositions directed toward that group and its members (Plous, 2003).

Linville (1998) found that adults in the United States reported knowing more people of their own age group and are more familiar with people their own age than people of other age groups. Knowing more people from a certain age group allows for more diversity in a person's knowledge of that group. On the other hand most people have a narrower range of knowledge about other age groups. Because people know more about their own age group, they tend to categorize other age groups into stereotypes they learn about that group. This is true for both younger and older adults. Where do people learn their stereotypes? It is not just peers who influence stereotypes. Age stereotypes are formed and transmitted to individuals through popular press and the media, through family and friends, and they work their way into everyday thinking

The present study attempts to determine if age stereotypes can be changed by priming a person's in-group or out-group status according to age. The study seeks to test

social identity theory, the idea that people think of their in-group more positively than out-groups because they are trying to enhance or maintain self-esteem. The study asks if priming college students into a new in-group (older persons) affects their memory for more positive images of that group. Social role theory can also be applied to age stereotypes. It states that viewing people in various roles provides an important basis for beliefs about that person's social group. Viewing people performing stereotypic roles or actions (or pictures as employed in this study) influences people to make judgments about that person. Finally, this study tests Wyer and Srull's (1989) associative network model, which states that all things being equal, people will remember stereotype consistent information better than inconsistent information because it is easier to conform consistent information into preexisting stereotypes.

When meeting people for the first time we often put them into categories by labeling them (ie., African American, elderly, or even athlete) (Tajfel & Turner, 2004). Making these labels allows a person to quickly classify any person into a group. When someone is classified into a group, a person can use stereotypes to make generalizations about the person before knowing anything about that person. Stereotypes reduce the amount of information initially needed about an individual. This allows a person to bypass the need to get further information before classifying that individual; in effect, stereotypes provide a mental short cut (Allport, 1954). These types of mental short cuts are most often employed when meeting someone about whom the person has no prior knowledge.

Berndsen, Spears, McGarty and Van der Pligt (1998) suggested that stereotypes are formed by linking physical similarities or actions among people of a certain group. Linking of characteristics creates group coherence and any time the physical similarity or action is observed, no matter how rare, the categorization is reinforced. An example of this would be the stereotype of older adults driving slowly. When people holding this stereotype see an older adult driving slowly, that stereotype is reinforced. The stereotype does not change regardless of how many times they see an older adult driving fast on an interstate highway. That is, people give relatively little thought to the situations that influence behavior. If the person they are assessing is part of a stereotyped group they do not have to learn more about that person and can quickly draw conclusions about that person. These ideas are the main tenets of social role theory's approach to stereotyping. Similar to the fundamental attribution error, social role theory states that looking at a person's appearance and actions and not the situation leads to stereotypic beliefs (Kite, Stockdale, Whitley & Johnson, 2005).

Hummert (1993) asked younger and older adults about social roles of older adults and found that older adults (62-90 years old) associated stereotypes more with the old-old, defined as people over the age of 85. This is important because it shows stereotypes of older adults continue to be employed even when they might apply to a person's own age cohort. In this regard, older people can say that old age stereotypes do not apply to them, only to much older (e.g. age 85+) people.

Although age stereotypes can be applied to any age, most research focuses on older adults. A person 65 or older is considered older or elderly in much social research

(Nelson, 2005). Although 65 seems like an arbitrary number, when Zepelin, Sills and Heath (1986) tested various age groups of people to see what was considered "old," they found that people in the United States felt old age started at 65, probably due to its association with Social Security benefits. It is essential to understand attitudes toward this age group because they are a growing part of the US population. The US Census Bureau (2004) predicts that the percentage of Americans over the age of 65 will rise from 12.4 in 2000 to 19.6 in 2030.

Function of Age Stereotypes

Snyder and Miene (1994) suggest that stereotypes serve three major functions: cognitive economy, ego protection, and a social function. With regard to older adults, the cognitive economy function allows a person to categorize another person as old and then make judgments about behaviors based on information associated with that group. Cognitive economy serves to lessen processing demands on young adults when they meet an older adult. This saves a person time from initially getting to know an older adult, but once persons learn more about an older adult, their judgments may change. The ego-protection function serves as a buffer for a young person. It protects the young adult from the perceived threat of getting older. If younger persons can believe that an older adult has a deficiency because he or she has always had one, then if the younger persons do not have that deficiency now, perhaps they never will. Last, age stereotypes serve a social function because they help people define themselves by their social in-group. Many

young people have minimal contact with other age groups. This makes it easier for people to form stereotypes about other social groups because they do not know much about that other group.

Positive and Negative Age Stereotypes

Age stereotypes can be both positive and negative, although most research shows that when stereotypes are applied to older adults there are more negative stereotypes than positive (Chasteen, 2000). Stereotypes are also not static and may change over time. As well as stereotypes changing, the terms that are used to describe those stereotypes can also change. Hummert, Garstka, Shaner and Strahm (1994) tested different age groups and identified nine shared stereotypes about older adults: mildly impaired, despondent, reclusive, severely impaired, shrew/curmudgeon, vulnerable, golden ager, John Wayne conservative, and perfect grandparent. This list shows that age stereotypes can be both positive and negative. Consistent with social role theory, Hummert, Shaner and Garstka (1995) found that when an older adult portrayed one of the nine roles, the role contributed to the judgment of the older adult more than the person's age. Also, people do not have to hold just negative or just positive stereotypes toward a group but they can have both at the same time. People tend to think of older adults negatively when it comes to ability and competence, but positively in terms of personality and warmth. Fiske, Cuddy, Glick, and Xu (2002) assessed stereotypes by ranking 24 social groups on traits of warmth and competence. Older adults were ranked 96% above the other groups (such as other races,

genders, and ethnicities) in warmth (a positive stereotype) but fell below 78% of the other groups in competence (a negative stereotype).

Chasteen (2000) asked younger and older adults to read a negative and a positive story about a person. Younger adults rated the negative story as a typical older person, an out-group member, whereas older adults rated the positive story as a typical older person, an in-group member. The young adults also rated the positive story as a typical younger person.

Overall, people tend to maintain their stereotypes about particular groups, even when confronted by evidence that disconfirms the stereotypes (Fiske, 1998; Hamilton & Sherman, 1994). One possible reason younger adults maintain their stereotypes even when confronted with an older adult who does not fit into their stereotype is to reinforce their own social identity and distinguish between their group and others.

Previous research has shown that college students tend to develop negative stereotypes about out-groups. Howard (1998) assessed college students' written stories about older adults and found they tended to use more negative attributes when referring to older adults. But do these stereotypes persist in the 21st century? Apparently they do, because Cottle and Glover (2007) found that the current cohort of college students has negative stereotypes about older adults.

Consistent and Inconsistent Information about Stereotypes

There are both positive and negative stereotypes about aging. These stereotypes can be about actions or behaviors, such as driving, walking or even speaking. Stereotypes can also be about personality or competence, such as if people are good at their jobs or if they are happy. One question of this study concerns whether people will remember actions or personality characteristics more if they are consistent (seeing an older adult driving slowly) or inconsistent (seeing an older adult water skiing) with their stereotypes. Even with all the research on stereotypes, there are still conflicting findings about whether people remember more clearly information that is consistent or inconsistent with stereotypes.

The associative network model predicts that consistent information that is strongly associated with a target group will be remembered better than inconsistent information, especially for recall tasks. But research testing this model has produced conflicting results. Stern, Marrs, Millar and Cole (1984) found that people recalled significantly more inconsistent behaviors of individuals and more consistent behaviors when they were dealing with groups. This could be due to the fact that an individual can be different from the stereotypes held for a group. An example of this would be the grandmother who likes to water-ski and not bake cookies. That individual, who defies age stereotypes, could be the exception, so she does not threaten the stereotype as a whole. Stern et al. (1984) also found that people tended to take more time to encode inconsistent behavior information when it was for an individual compared to inconsistent behavior of a group. It is easier to look at an individual and point out how he or she does

not fit into the overall stereotyped group than to look at the group and try to change the stereotype to fit the actions of many people. Using the same model, Sherman, Stroessner, Conrey, and Azam (2005) asked participants with high and low prejudice towards gay people to remember inconsistent and consistent stereotypical behaviors. They suggested that participants with high prejudice remembered more inconsistent behaviors because it took them longer to encode that information and try to make it fit into the stereotypes that they held. Bardach and Park (1996) asked males and females to assess stereotypes about their in/out-group based on an action someone from their in-group or out-group did, and found that if the target was part of the out-group then there was better recall for gender-inconsistent information. Reflecting previous research, these results may be due to the time taken to encode this new information.

In-groups and Out-groups/ Social Identity Theory

Social role theory (SRT) proposes that viewing people in various roles provides an important basis for beliefs about that person's social group. SRT also allows for comparison with other people, and that comparison helps individuals define themselves (Hogg, Terry & White, 1995). Similar to SRT, social identity theory (SIT) posits that people are motivated to see persons in their in-group more positively than persons in out-groups (Tajfel & Turner, 1979). Older adults make an interesting case for social identity theorists because they differ from every other group that is stereotyped in one major respect: almost everyone will eventually go from being a young, out-group member of

the category of aging persons, to being an old, in-group member of the category of aging persons.

Evaluations of in-groups and out-groups are a meaningful way to fit people into groups, either a person's own social group or another. When people meet for the first time they evaluate the other people and decide if these others are part of their own social group. If the strangers are evaluated as part of the social group, they can be viewed with the advantages that that group has. This is an important aspect of social identity theory because people want to have positive images of themselves, and a large part of the self image is embedded in the group identity. People feel positively about their own group when they draw distinctions between their group and other groups (Turner & Tajfel, 1979). People not only tend to think of their in-group as more positive but also as more diverse.

Jones, Wood and Quattrone (1981) tested college males in fraternities to see how much they knew about other groups on campus. They found that students judging in-group and out-group members were more likely to see their own group as heterogeneous (having more variability) and the out-groups as homogeneous. This was thought to occur because of lack of information about the other groups. Linville, Fischer and Salovey (1989) found similar results for young and old adults. They had young and old participants rate their age group and the other age group on 8 different attributes. They found that young adults rated their in-group as having a greater differentiation on those attributes and older adults felt the same thing about their in-group. This is consistent with the out-group homogeneity hypothesis which posits that people tend to perceive out-

group members as being more homogeneous in their characteristics than in-group members (Linville, 1998).

In a study of memory for positive and negative actions for in-groups and out-groups, Howard and Rothbart (1980) found that college students remembered more positive actions for their in-group. They also found that when they made the groups similar, people still attributed more positive behaviors to their in-group. If persons can maintain their in-group images as more positive, then they can think of themselves in a more positive way. Schaller and Maass (1989) found just the opposite of Howard and Rothbart. They found that people remembered more negative actions of in-group members. This could happen because it was hard for people to believe someone in their own in-group would do those negative actions, so they remembered them more. The major problem with the Schaller and Maass study was that people were presented with half the number of negative behaviors compared to positive behaviors. This difference in the amount of information presented could cause the differences in overall remembering because the negative behaviors were more novel, or they may have been inconsistent with the stereotype and were therefore better remembered.

Stereotypes only appear to be altered when a person becomes individuated and the evaluation of that person is based more on specific details about that person and less on the social category to which he or she belongs (Kite et al., 2005). But can persons' perspectives be changed if they are made to look at who they may be in the future, by projecting to their future selves? Packer and Chasteen (2006) found that college students who had a weak identification with their own age group tended to have a more positive

attitude towards older adults when they were primed to think of themselves as older persons. Making people think of how they will be when they get older may alter their age stereotypes because they are forced to think about having that stereotype about themselves. This brings up questions on whether identifying with a new in-group will affect memory about that new group.

Priming Age Stereotypes

Priming produces an increased awareness of a stimulus due to recent exposure to the stimulus. Priming happens outside of a person's consciousness but makes the person more aware of the primed stimuli. Packer and Chasteen (2006) found that when younger adults, who had a high identification with their age group, were primed to think of themselves as older adults, they had a more negative attitude towards older people than those primed to think of themselves one year in the future. This shows that when participants thought of themselves as older adults they had a more negative view toward older people. Hess, Hinson, and Statham (2004) examined older and younger adults who were primed with negative and positive stereotyped words (through the use of sentences including positive and negative words) such as weak or competent. On a task of word recall those who were primed with words associated with the negative stereotyped group recalled significantly fewer words than those who received the sentences with positive words. This happens because both younger and older adults associate memory loss with

older people. This shows that people can identify with stereotypes without ever knowing that they are present.

Priming age stereotypes affects all age groups. Levy (1996) found that when she primed older adults with negative stereotypes (e.g., senile) they had a decrease in memory performance compared to older adults who were primed with positive age stereotypes (e.g., wise). The idea of aging can even affect people's self identity and cause them to conform to the stereotype they are trying to avoid. Levy (1996) also found that there was a significant difference in word recall and photo recall among people who were primed for wisdom (positive) and senility (negative) stereotypes. She found that there was a significant decline in memory performance from the pre-test (baseline) to the post-test after participants had been primed negatively.

In a study done to replicate Levy's findings, Stein, Blanchard-Fields and Hertzog (2002) also found that memory performance was more affected in a photo recall task for participants who were negatively primed than positively primed participants. Memory differences seem to occur when people are primed with age stereotyped words. Younger adults can even be primed in a way that causes them to behave according to a negative age stereotype. Bargh, Chen, and Burrows (1996) found that when younger adults were primed with old age stereotypes they seemed to personalize that stereotype by developing a protective cautious behavior; thus they walked significantly more slowly when leaving the experiment than those who were primed with young stereotypes.

The current research ascertains whether young adults keep their stereotypes about aging or take on new ones when they are seeing pictures of older people and thinking of themselves as older adults.

Current Study

Research has shown that having young adults write about their future selves can affect their stereotypes about older adults (Packer & Chasteen, 2006). The idea young adults will age and join a new in-group (older persons) is not a new concept. How people define themselves within their social group makes up an important aspect of their social identity. Can a social identity be primed and cause young adults to think of themselves in the older adult in-group? Social identity theory states that people will think about their in-group more positively than out-groups.

In this study, participants were shown a series of photos of older people, some of which reflected positive stereotypes and some of which reflected negative stereotypes. These photos also showed actions that are consistent with age stereotypes and actions that are inconsistent. This study aimed to ascertain if making young adults think about their future selves will also make them remember more positive stereotypes about older adults. Along with positive stereotypes, young adults primed to think of themselves as older adults should also remember more inconsistent information because, as suggested by Jones, Wood and Quattrone (1981), people tend to see their own group as more diverse than other groups. The focus of this study is to determine if young adults can be primed

to think of themselves as older adults and through that priming change their stereotypes about adults.

Hypotheses

Bargh Chen, and Burrows (1996) found that when primed as an older age group people tend to identify with stereotypes they have about older persons (ie. walking slower when leaving the experiment). This suggests that a near future age prime should remember more than distant age prime because they will not take on a loss of memory stereotype (one highly associated with older adults). Therefore hypothesis 1 states:

H1: *People primed to think of themselves in the distant future will remember fewer images than those primed to think of themselves in a near future prime or with no prime (control condition).*

Social identity theory, as tested by Tajfel and Turner (1979) posits that people are motivated to see their own group--their in-group--more positively than people of other groups, the out-group, to maintain self-esteem; therefore, hypothesis 2a states:

H2a: *People primed to think of themselves in the distant future will remember more positive images of older people and those primed in the near future or with no prime will remember more negative images of older people.*

Social role theory proposes that viewing people in different roles (or performing different actions) is a good basis for beliefs about the group. By seeing images of older adults performing different actions, participants can draw on stereotypic beliefs about aht

group. Also, people try to diversify their own group and the associative network model suggests people remember more consistent information for out-groups and more inconsistent information for their in-group.. Therefore, hypothesis 2b states:

H2b: *People primed to think of themselves in the distant future will remember more stereotype inconsistent images of older adults and those primed to think of themselves in the near future or with no prime will remember more stereotype consistent images.*

Social identity theory proposes that people will try to enhance their in-group by remembering more positive things about that group. Along with that, the associative network model states that people will remember more consistent information for out-groups, therefore, hypothesis 3 states:

H3: *Positive and inconsistent pictures will be remembered more by participants in the distant future prime condition, and negative and consistent pictures will be remembered more by the near future prime and no prime condition.*

METHODS

Pre-test

Twenty-two adults (ages 18-50 [M = 22.52, SD = 8.48], 15 females and 7 males) from the psychology participant pool were tested as a group and were compensated with extra credit.

After signing the informed consent, participants were shown 100 pictures, with each picture projected onto a screen at the front of a classroom for 12 seconds. The pictures were selected from books, internet sites and magazines. The pictures were shown on a Power-Point slides and participants were asked to rate the pictures on how positively or negatively the pictures portrayed older adults. Each picture was rated on a continuous 7-point Likert-type scale with 1=Extremely, 7=Extremely Negative. Pictures were also rated on how consistent or inconsistent each picture was with their ideas of older adult stereotype. Each picture was rated on a continuous 7-point Likert-type scale with 1=Extremely Consistent, 7=Extremely Inconsistent. See Table A1 for means and standard deviations of images selected. Lastly, participants were asked to estimate the age of the person in the picture. Participants were tested in groups, sitting at least one chair length apart.

Pictures rated for each of the four conditions with the highest mean scores were selected. This group was further reduced by selecting pictures with the lowest standard deviations. Seven pictures from each category, positive/inconsistent,

negative/inconsistent, positive/consistent, and negative/consistent were selected because of their overall means and standard deviations. See Table A1 for rating of the 28 selected pictures. For estimated age of pictures, only images rated as depicting people over the age of 65 were selected (M = 74.7, SD = 7.35).

Study

Participants

Sixty-one adults (ages 18-25 [M = 19.03, SD = 1.58] 49 females and 12 males) from the psychology participant pool were tested and compensated with course credit.

Procedure

When signing up for the research, participants answered two questions about attitudes towards older adults ("It is irritating to have to listen to older people talk about the good old days and I think that older people have a lot to contribute to society") and two questions about how they identify with their own age group ("I feel an attachment to other members of my age group and I have a strong sense of belonging to my own age group"). Each of the four questions above was rated on a 7-point Likert-type scale with 1=Strongly Agree, 7=Strongly Disagree. These questions were used as a manipulation check to assess whether participants recalled images of older adults differently as a function of attitudes towards aging or age identification. In this study that attitudes and age identification had no effect on types of images remembered. Participants were split into high identifiers and low identifiers with their age group through a median split.

Results show no differences for identification and types of images remembered, F (1,59) = .005, p = .945. Also, participants were split into positive attitudes and negative attitudes towards older adults through a median split. Results show no differences for attitudes and types of images remembered, F (1,59) = .006, p = .944.

Each participant was tested individually in a 10'x4'x9' room. After signing the informed consent, participants were randomly assigned to a distant future self condition (where participants wrote about typical day at age 70), a near-future self condition (where participants wrote about a typical day one year in the future), or a control condition (where participants wrote no story). Using Packer and Chasteen (2006) as a model, participants in the distant future self condition were given these instructions:

> The future is full of possibilities, both good and bad. This task will ask you to spend a few minutes thinking deeply about your own future. Imagine yourself at the age of 70. Your task is to write a short narrative essay about a typical day in your life at that time. Really try to put yourself in the shoes of your future self and attempt to understand what life will be like for you then. What sorts of things will you be doing? How will you feel? What sorts of things will you think about? (p. 225)

The near-future self condition had similar instructions but participants were asked to imagine themselves "one year from now." Participants in the control condition wrote no story (so as to not induce affect). Participants in the distant future self and near-future self condition were given 5 minutes to complete the essay. All participants then had 3 minutes to view 28 images, on Microsoft Power Point, of older adults on a computer screen,

Averatec 3700 series laptop with a 15 inch monitor, for 4 seconds per image (7 positive/consistent, 7 positive/inconsistent, 7 negative/consistent and 7 negative/inconsistent images). The images were counterbalanced over three versions of the computer program. Examples of pictures included: positive consistent images (an older woman sitting with her cat), positive inconsistent images (an older adult sky diving), negative consistent images (an older adult lying in a hospital bed), and negative inconsistent images (an older homeless adult sleeping on a bench). See Figures B1 thru B4 for picture examples. Participants were then asked to recall actions ("what people are doing in the images") by writing descriptions (a maximum of 2 to 3 words) of as many of the images they could remember. See Figure B5 for instructions. Lastly, participants were told what the study was about and asked if they had any questions or further comments to add.

RESULTS

Images for all conditions were counted as correctly recalled if a participant correctly described the image (M = 12.03, SD = 2.35). There were two approaches to analyzing the results. First a 3 (Prime Condition) X 4 (Picture Type [ie. pos/con, pos/incon, neg/con and neg/incon]) mixed factorial analysis of variance was conducted. This test showed a significant difference in the type of picture remembered (regardless of the condition): positive consistent images (M = 1.967, SD = 1.29), positive inconsistent images (M = 3.081, SD = 1.16), negative consistent images (M = 3.321, SD = 1.27) and negative inconsistent images (M = 3.687, SD = 1.03), F (3,174) = 23.593, $p < .001$. There were no interactions between overall picture type and condition, F (6,174) = 1.352, p = .237.

The second analysis used a 3 (Prime Condition) X 2 (Picture Valence) X 2 (Consistency of Image) mixed factorial analysis of variance. All results reported below are based on the 3 X 2 X 2 mixed factorial analysis. There was no significant difference found for the number of images remembered by participants in the near-future self condition (M = 2.93, SD = 1.04), the distant self condition (M = 3.11, SD = 1.05) and the control condition (M = 3.00, SD = 1.04), F (2, 58) = .492, p = .614. The mixed factorial ANOVA calculated an overall mean for items recalled correctly in the four picture types for each of the three conditions. The highest of images any participant could remember in

each image category was seven. Therefore, these means reflect the overall mean, calculated from the means in each of the four image categories.

Although the total number of images remembered by the groups was not significantly different, all participants, regardless of condition, remembered significantly more negative images (M = 3.50, SD = .772) compared with positive images (M = 2.52, SD = .943), F (1,58) = 37.73, $p < .001$ and all participants, regardless of condition, also remembered significantly more inconsistent images (M = 3.38, SD = .686) compared to consistent images (M = 2.64, SD = .928), F (1,58) = 26.77, $p < .001$.

Although there were significant differences in the types of images remembered there was no significant interaction between valence of images remembered and condition, F (2,58) = 1.04, p = .358; see Figure B6 for means and standard errors. Also like the results for positive and negative images there was no significant interaction between consistency of images and condition, F (2,58) = 1.99, p = .146; see Figure B7 for means and standard errors. In the test for condition by overall picture type (ie. pos/con, pos/incon, neg/con and neg/incon) there were no differences, F (2, 58) = 1.134, p = .329; see Figure B8 for means and standard error. There was a significant interaction between valence and consistency, not dependent on the type of prime condition, positive/consistent (M = 1.967, SD = 1.29), positive/inconsistent (M = 3.08, SD = 1.16), negative/consistent (M = 3.321, SD = 1.26) and negative/inconsistent (M = 3.687, SD = 1.02), F (1, 58) = 5.85, p = .019; see Figure B9 for means and standard errors.

See Table A2 for all means and standard deviations and Table A3 for an analysis of variance summary table.

Because of trends in the 3 X 2 X 2 interaction, individual 2 (Picture Valence) X 2 (Consistency of Images) ANOVAs were run for each individual group to further assess differences within each condition. For participants primed with the near-future self condition, the ANOVA shows there were no overall significant interactions found for the positive/consistent images (M = 2.00, SD = 1.18), positive/inconsistent images (M = 3.14, SD = 1.15), negative/consistent images (M= 2.76, SD = 1.37) and negative/inconsistent images (M = 3.81, SD = .873), F (1,20) = .034, p = .855. For the near-future condition, post hoc Scheffé tests, comparing each condition, show that significantly fewer positive/consistent images were recalled compared to all other image types and significantly fewer negative/consistent images were recalled compared to negative/inconsistent images. For participants primed with the distant future self condition, there were no significant interactions found for positive/consistent images (M = 1.85, SD = 1.14), positive/inconsistent images (M = 3.10, SD = 1.25), negative/consistent images (M= 3.65, SD = 1.18) and negative/inconsistent images (M = 3.85, SD = 1.18), F (1,19) = 3.464, p = .078. For the distant future condition, post hoc Scheffé test, comparing each condition, show that significantly fewer positive/consistent images were recalled compared to all other image types. Lastly, for participants in the no prime condition there were no significant interactions for positive/consistent images (M = 2.05, SD = 1.54), positive/inconsistent images (M = 3.00, SD = 1.08), negative/consistent images (M= 3.55, SD = 1.23) and negative/inconsistent images (M = 3.40, SD = .995), F (1,19) = 4.346, p = .051. Post hoc Scheffé tests, comparing each condition, show that

significantly fewer positive/consistent images were recalled compared to all other image types.

DISCUSSION

Social identity theory posits that people try to enhance their self-esteem by viewing their own in-group more positively than out-groups and research has confirmed this. However, the current study showed that priming younger adults to think of themselves as older adults had no effect on the type or overall number of images of older adults they remembered; thus, hypothesis 1 was not supported.

All of the participants remembered more of the negative age stereotyped pictures than the positive age stereotyped pictures. Baumeister, Bratslavsky, Fickenauer and Vohs (2001) showed that people have a tendency to remember bad (negative) over good (positive) in many different domains. For younger adults, negative images seem to have more of an impact on memory and are significantly remembered more than positive or neutral images (Charles, Mather & Carstensen, 2003). This could explain why younger adults remembered more of the negative images, despite their prime, because people are drawn more to negative images and process them more fully than positive images. Remembering negative images of older adults by younger adults may also help maintain self-esteem, and this may be related to social identity theory. One qualification that needs to be addressed is that the participants did not always describe the action of the image but just the people in the image. These were still accepted as correctly remembered images. One image (an older man sitting in a washtub, wearing flippers) was remembered by 96%

of all participants. Because images were not from a standardized source the negative images may have been more novel.

Contrary to the associative network model, the study found that people encode and process stereotype inconsistent information more fully than stereotype consistent information, in line with Stern et al., (1984). This may be the reason that participants in this study remembered more of the inconsistent pictures because they were so novel or different that participants recalled them better. The trend to remember inconsistent pictures happened over all three conditions and may show that people remember pictures that are negative and/or inconsistent to the stereotypes that they hold. However, since the age stereotypes of participants were not measured, this remains conjecture and must be tested with further research.

When assessing hypotheses 2a and 2b, we see they are not supported because participants remembered more negative and inconsistent images no matter the condition they were primed with. As stated earlier, this may have been due to maintenance of self-esteem or the novelty of the images. In post hoc results it was also shown that participants remembered significantly fewer positive/consistent images than any other image type. This could be due to novelty of the other images. This may also show a broader view of how society works. If something is positive and consistent (such as the images in this study) it is ignored because that is what is expected. Thinking about older adults may have made participants think of their cookie baking grandmother or story telling grandfather (something that may be tested in the future), therefore making the

positive/consistent images even more mundane. The novel images produced the best recall. This may explain why negative/inconsistent images were remembered the most.

There was a significant difference for picture valence and consistency of picture type. The results also show that the priming may not have been effective because although valence and consistency of picture type showed statistical significance, the trend was for all conditions to remember more negative inconsistent images than any other images. All of the pictures were of individuals and that may be why more inconsistent images were remembered. Previous research (Stern et al., 1984) has shown that people remember more inconsistent information when it is associated with an individual. In fact, participants who were primed with the 70 year old, distant future condition, remembered the least number of the positive images (M = 2.48) and the most of the negative images (M = 3.75). This could have served as an ego-protection (Snyder & Miene, 1994) because college students had just thought of themselves as old and wanted to draw out all of the negative differences between who they are now and their future selves. Another issue with the images is that many of the older adults in them could have been viewed as old-old (85+) and this may have had an effect on the prime because participants were only asked to write about themselves at the age of 70. This may have made participants in the distant future prime feel that the images did not apply to them and therefore negated the prime. Future research should focus on older adult pictures that are more closely associated with the 70 year old prime.

Although there was significance for valence and consistency of pictures, the results were in opposite directions from the hypotheses. Although researcher error needs

to be taken into account when assessing priming studies, it is also important to note that there may be more drawbacks to priming studies than psychologists are willing to accept. Based on the results of a meta-analysis, DeCoster and Claypool (2004) concluded that when people are aware of a prime they may try to correct for it. Participants in the current study never stated that they thought the study was priming them but during debriefing many wondered why they wrote about being old and then saw older adult images. In their meta-analysis, DeCoster and Claypool (2004) stated that positive and negative information is not always processed in the same way after a prime. Participants may have been processing the negative images differently or felt they were more novel and that may be why they remembered them more. The pre-screening questions showed that 63.9% of participants had a positive attitude towards older adults, and 33.3% had a negative attitude. Nevertheless participants remembered more negative images. They may have remembered the negative images because they were contrary to their attitudes. The young adults may also be aware of negative age stereotypes, and they are trying to change their own feelings.

Limitations and Future Research

This study failed to show effects of priming conditions for old age. However, there were no manipulation checks to determine if the priming worked or if it there were experiment design problems. Another problem is that students' contacts with older adults was not measured, and this contact may change a person's views of older adults. When

people are exposed to a different age group they tend to learn more about that group and diversify the information they know about that group. This is one area that could be expanded for future research. Another area that should be assessed in the future is high or low identification with participants' own age group; a more diversified group (a more even split between high and low identification) may produce different results. College students who do not identify with their age group could show a better memory for positive images towards older adults, similar to what Packer and Chasteen found (2006).

Another area of interest for future research would be the type of prime used. Studies have shown that having college students read negative age related words made them walk slower (Bargh, Chen & Burrows, 1996), but are there other primes that make young adults think about themselves as older adults? Future research could also focus on whether teaching college students about the diversity of older adults influences memory for positive images.

The final area that needs to be addressed for future research is whether there really are universally accepted pictorial stereotypes, both positive and negative, for older adults. One of the new aspects of this study was the use of images to depict older adults whereas most other aging studies have used words (ie, senile, old, wise, or sage). Many of the older adults in the pictures may have been considered old-old and this could have affected the distant future prime. Also, in the pre-testing for images, many of the images were rated as neutral so there may not be universally accepted pictorial stereotypes for older adults. Is there really a stereotype for older adults or are they individually based and not universally accepted? Addressing this question may affect how age stereotypes are

studied. Also, the pictures may have made participants think of the people as individuals and not as a group (older adults) and may be why inconsistent pictures were remembered more often (Stern et al., 1984). A confound that could be addressed in the future is that pictures were not just positive/negative or consistent/inconsistent so it becomes hard to parse out whether participants were remembering images for one aspect or the other. Post hoc tests showed that positive/consistent images were remembered the least for all groups but was it because they were positive or consistent that made them least memorable?

One final note on the use of images is that there may have been a confound in this study because participants were asked to recall actions in the images and in some of the images there were no actions, so participants just described the picture. A better set of directions might produce different results

Conclusions

This study adds to the knowledge base about age stereotypes because it shows that although most studies have been able to establish set words that apply to older adult stereotypes, it may be harder to find pictures that depict those stereotypes. This study also shows the problems with the interpretation and use of priming (be it experimenter error or another factor) and how it may be hard to artificially place college students into a new age group. It also shows that college students remember more negative information about older adults. This type of negative information may help young adults make distinctions now but may hurt them when they are actually part of that age group.

APPENDIX A

Tables

Table A1

Pretest Scores of Pictures Selected

Positive / Inconsistent pictures					Estimated Age
Picture #	Positive		Inconsistent		
	Mean	Std. Dev.	Mean	Std. Dev.	
16	3.07	1.38	5.2	1.37	82.2
71	2.13	0.87	4.83	1.53	65.3
75	3.4	1.26	4.69	1.49	79
81	2.22	1.44	5.78	1.13	65
87	2.81	1.52	5.06	1.53	71.3
89	1.61	0.722	4.74	1.52	78.6
92	2.35	1.07	5.04	1.46	66.7
Negative / Inconsistent pictures					
Picture #	Negative		Inconsistent		
	Mean	Std. Dev	Mean	Std. Dev.	
29	6.35	0.83	5.35	1.15	65.1
48	5.63	0.96	5.38	1.31	78
51	6.26	0.81	5.04	1.22	81.5
53	4.78	1.24	4.56	1.36	69.9
79	5.06	1.55	5.18	1.54	77.8
94	6.22	1.2	4.51	1.31	74.2
95	4.55	1.5	5.82	1.13	72.8
Positive / Consistent					
Picture #	Positive		Consistent		
	Mean	Std. Dev.	Mean	Std. Dev	
8	2.74	0.69	2.74	0.91	78.1
37	3.17	0.98	3.39	0.94	65
43	3.55	1.23	3.04	1.22	81.8
49	2.61	0.94	3.13	1.22	66.2
52	3.09	0.81	3.5	1.22	66.6
55	2.22	0.67	3.6	1.45	74.3
65	3.4	1.38	2.57	0.66	87.1
Negative / Consistent					
Picture #	Negative		Consistent		
	Mean	Std. Dev.	Mean	Std. Dev.	
10	5.82	1.14	3.5	1.01	90.1
11	4.47	0.96	2.81	0.66	65.5
15	5.35	0.98	3.26	0.96	85.2
31	5.04	1.02	3.4	1.21	71.7
54	4.61	1.23	3.3	1.06	74.4
77	4.91	0.79	3.35	1.23	80.1
83	4.57	1.04	3.13	0.87	77.6

Note. Values are the mean reported on a 7-point scale (1 = *strongly positive or strongly consistent, 7 = strongly negative /inconsistent).* Pictures with the highest mean scores were selected.

Table A2

Number of Total Images Remembered by Condition

	Young Prime		Old Prime		No Prime	
	M	SD	M	SD	M	SD
Positive images	2.57	1.61	2.48	1.65	2.53	1.61
Negative images	3.29	1.32	3.75	1.35	3.48	1.19
Consistent images	2.38	1.58	2.75	1.62	2.81	1.61
Inconsistent images	3.28	1.18	3.48	1.21	3.21	1.19
Positive Consistent	2.00	1.18	1.85	1.14	2.05	1.54
Positive Inconsistent	3.14	1.15	3.10	1.25	3.00	1.08
Negative Consistent	2.76	1.37	3.65	1.18	3.55	1.23
Negative Inconsistent	3.81	0.87	3.85	1.18	3.40	0.99

Note: A total of 28 images (14 positive, 14 negative) and (14 consistent and 14 inconsistent) were presented in random order: 7 positive/consistent, 7 positive/inconsistent, 7 negative/consistent, and 7 negative inconsistent images.

Table A3

Results of 3 X 2 X 2 (Condition, Image Valence, Image Consistency) Mixed Factorial Analysis of Variance for Images Remembered

Source	df	MS	F	η	*P*
		Between Subject			
Condition	2	0.7	0.49	0.017	0.61
Error	28	1.43			
		Within Subject			
positive/negative	1	58.53**	37.73	0.39	0.00
pos/neg * condition	2	1.62	1.04	0.04	0.36
Error (pn)	58	1.55			
consistent/inconsistent	1	33.39**	26.77	0.32	0.00
con/incon * condition	2	2.48	1.99	0.06	0.15
Error (ci)	58	1.25			
pos/neg * con/incon	1	8.54**	5.85	0.09	0.02
pn * ci * condition	2	1.66	1.13	0.04	0.33
Error (pn*ci)	58	1.46			

Note: pn stands for positive/negative images and ci stands for consistent/inconsistent images. ** represents significant results.

APPENDIX B

Figures

Figure B1. Example of a positive/consistent picture.

Figure B2. Example of a negative/consistent picture.

Figure B3. Example of a positive/inconsistent picture.

Figure B4. Example of a negative/inconsistent picture.

Please write a one to three word description, describing the action, of as many of the pictures as you remember.

An example of a good description for the picture below would be
"Reading a Newspaper"

Figure B5. Instruction

Note: Participants viewed these instructions and had lined spaces on the bottom of the page to remember as many of the images as they could.

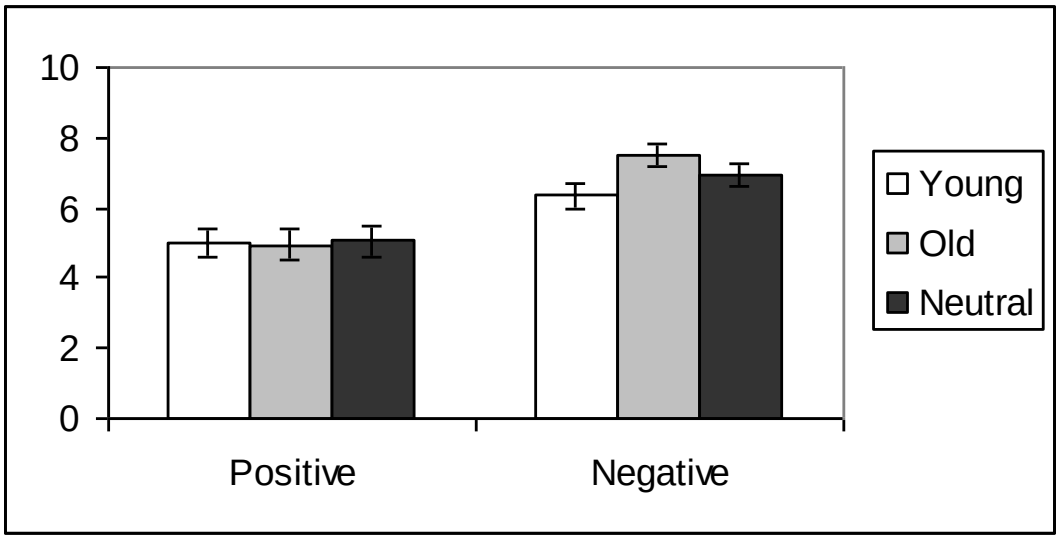

Figure B6. Positive/negative picture by prime.

Note. Scores represent the number of pictures remembered. Bars represent +1 and -1 standard error of the mean.

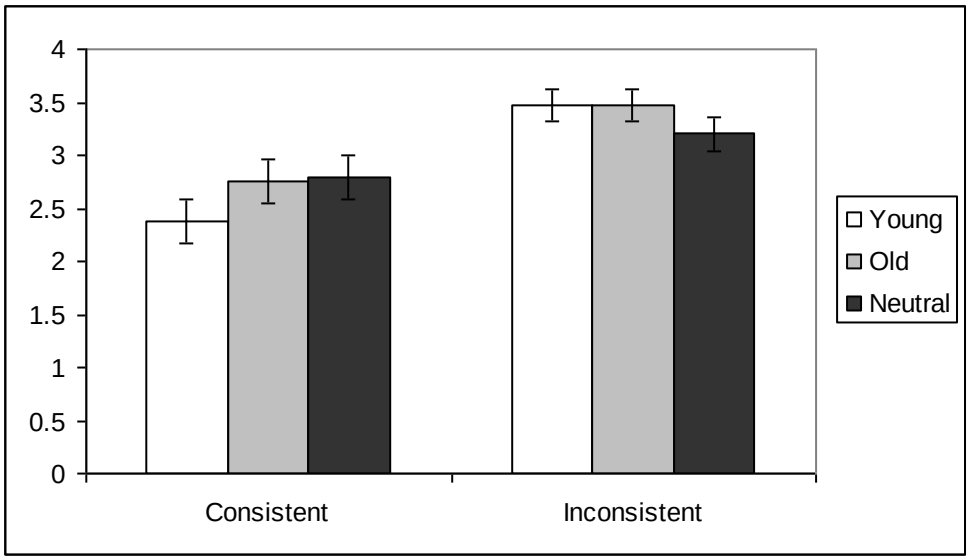

Figure B7. Number of consistent/inconsistent images remembered.

Note. Scores represented the number of pictures remembered. Bars represent +1 and -1 standard error of the mean.

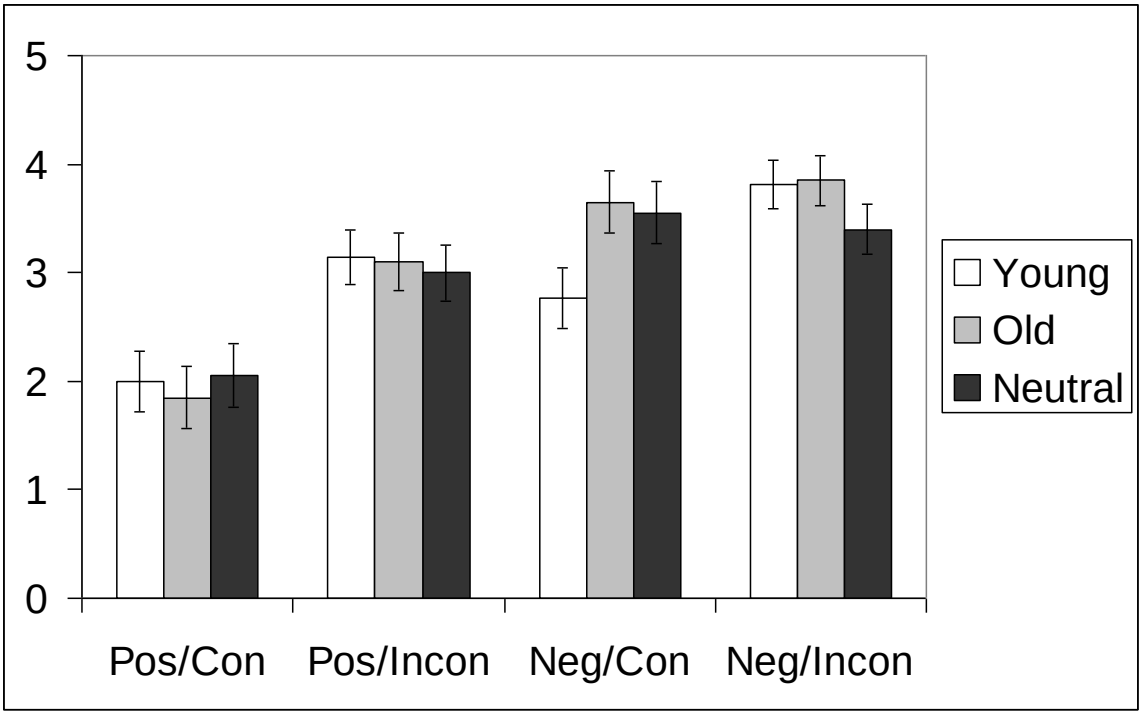

Figure B8. Number of pictures remembered by the type of prime.

Note: Bars represent +1 and -1 standard error of the mean.

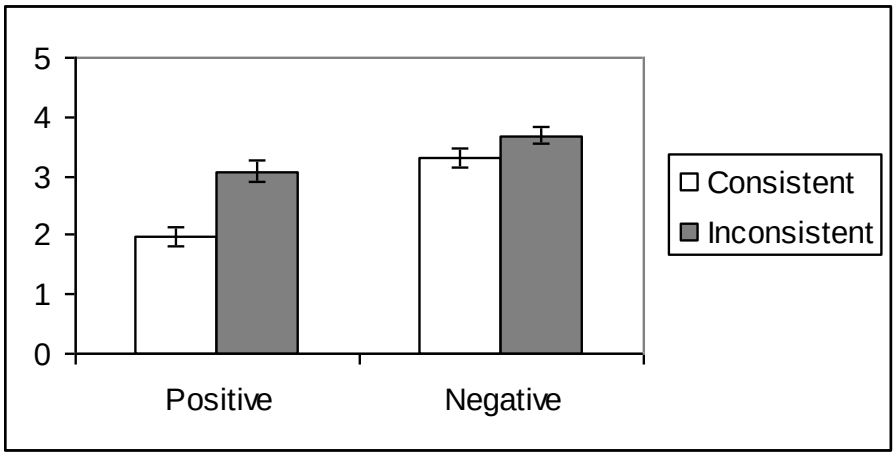

Figure B9. Number of each images (negative/positive – consistent/inconsistent) remembered.

Note. Post hoc results show that positive/consistent images were significantly different from negative/consistent and negative/inconsistent images. Bars represent +1 and -1 standard error of the mean.

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