

Social - class differences in one's sensitivity toward others' preferences in both young and older adults

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I investigated how social-class effects differ with age in the domain of choice. Young (less than 40) and old (over 60) participants from working-class and middle-class backgrounds indicated their preferences and choices about consumer products before and after seeing others' preferences (consistent or conflicting with their own) for the same products. The result showed that social-class differences in choice were maintained into late adulthood. Replicating the effects among young participants, old working-class participants were more sensitive to social feedback in their choices, preferences, and recognition memory than old middle-class participants although older participants had poorer memory for the feedback, suggesting social cues were implicitly processed.

Keywords : Age, Social-class, Choice, Preference

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An emerging literature suggests that working - class contexts promote the self as flexible and interdependent whereas middle - class contexts promote the self as controlling of others and independent (Stephens, Fryberg, & Markus, 2011; Stephens, Markus, & Townsend, 2007). These different models of the self then guide various behaviors (Markus & Kitayama, 2010). For example, working - class individuals have a tendency to focus on external / contextual factors (e.g., other individuals) whereas middle - class individuals tend to focus on one's internal states (e.g., goals or preferences) (Kraus, Piff, Mendoza - Denton, Rheinschmidt, & Keltner, 2012). Although these effects have been well - documented (Cohen, 2009; Kraus, Piff, & Keltner, 2011), whether and how these social - class differences vary in late adulthood (e.g., over 60) have been relatively ignored. Therefore, the present work examined social - class differences among older adults compared with younger adults. Of particular interest is the extent that social - class effects would remain significant in late adulthood in spite of the changes in memory (Park et al., 1996) and socio - emotional selectivity (Carstensen, 1992) that occur with age.

The present work investigated the effects of age and social - class in the domain of choice. Middle - class individuals make choices based on their personal / internal attributes (e.g. personal preferences), whereas other social factors (e.g., others' expectation or social norms) are more important among working - class individuals (Na, McDonough, Chan, & Park, 2016; Stephens et al., 2011; Stephens et al., 2007). For example Stephens and colleagues (2007) found that middle - class

participants favored a unique pen that was different from other options more than did working - class participants. They also reported that working - class participants showed more positive reaction than did middle - class participants when their friends made the same choice. In other words, others' preferences (what others like) is critical to one's choice in working - class contexts, whereas personal preferences (what I like) is critical in middle - class contexts. Building on these findings, the present research examined how the sensitivity to personal vs. others' preferences would vary as a function of social - class by manipulating the consistency between personal and others' preferences. It was predicted that, as in the previous work, young working - class individuals would be more likely to align their choices with others' preferences than young middle - class individuals.

More importantly, the present research also examined the extent that this social - class difference would be maintained in old age. On the one hand, it was considered that working - class old might be less responsive to others' preferences, compared with their young counterparts. For others' preferences to affect one's own choice, he or she needs to retain information about what others like when making choices. However, memory declines as a function of age (Park et al., 1996), thus limiting the opportunity for older adults to explicitly remember others' preferences to inform subsequent choices. Furthermore, socio - emotional selectivity theory posits that older adults focus selectively on satisfying and positive information over conflicting and negative information in memory and attention

(Carstensen, 1992). More specifically, as time horizons shrink, people become increasingly aware that they may not have enough time to deal with or fix negative things in their life and consequently, their motivational focus is shifted toward positive and satisfying goals. Following the logic of the socio - emotional selectivity theory, even old working - class individuals may selectively attend to others' preferences only when those preferences are satisfying or consistent with their own preferences while relatively ignoring conflicting opinions. On the other hand, social - class could continue to exert influence equally into old age. Although memory declines with age, explicit memory might not be necessary for others' preferences to be effective because social cues can be processed and influence behavior implicitly (Bargh, 1996; Rydell & McConnell, 2006). Moreover, because of structural and financial constraints that continue throughout one's life (Kraus et al., 2012), one's choice is likely to be contingent on others' choices in working - class contexts in young and old age. Therefore, in spite of age - related changes in socio - emotional selectivity, working - class old might be required to consider others' preferences regardless of whether they are satisfying or not.

As outlined above, different theories make opposing predictions as to whether social - class differences in choice would be maintained into old age. Thus, the present work attempted to provide an important clue in answering this question. Specifically, the present work tested the degree that social - class would influence how younger and older adults would use others' preferences to inform how one makes choices. Furthermore, to

better understand the mechanisms underlying the social - class and aging effects, the present research also measured explicit memory for others' preferences that were either consistent or conflicted with participants' preferences. In addition to these theoretical contributions, the present research can also have practical implications. For example, older adults do have important choices to make such as how to allocate their retirement money so they can live comfortably. Given that older adults often take advice from their peers, it would be quite important to understand how older adults use personal and others' preferences to make choices and what role social class would play in this process.

Methods

Participants

The present study was conducted in the US. Participants were 46 young adults (age mean = 23.19 & age range: 18 - 39) and 34 old adults (age mean = 71.24 & age range: 65 - 86). Young participants were college students at the University of Texas at Dallas (35 females; 44 European Americans). Older participants were recruited from a large ongoing study (27 females; 28 European Americans). More specifically, I had an access to an existing database at the Center for Vital Longevity and called older adults in the database. If they were interested in the study, they were invited to the lab. Both young and older adults were paid \$20 for their participation.

Social - class was indexed using (personal and

Table 1. Demographic information

	Young (46)		Old (34)	
	Working - class (19)	Middle - class (27)	Working - class (15)	Middle - class (19)
Gender	M: 3 F: 16	M: 8 F: 19	M: 2 F: 13	M:5 F:14
Mean Age	23.82	22.77	73.47	69.47
Age Range	18 - 39	18 - 29	65 - 86	65 - 80
MMSE (Std)	29.16 (.90)	28.78 (1.25)	28.40 (1.55)	28.89 (.94)
MMSE Range	27.00 - 30.00	26.00 - 30.00	25.00 - 30.00	27.00 - 30.00

parental) educational attainment, specifically college education, following previous studies (Snibbe & Markus, 2005; Varnum, Na, Murata, & Kitayama, 2012)¹⁾. Education is one of the most frequently used indicators of social - class investigating differences in making choices (Stephens et al., 2011; Stephens et al., 2007). Young participants were considered middle - class if their mother had at least a bachelor's degree and working - class if their mother did not have a bachelor's degree. Older participants were considered middle - class if they had at least a bachelor's degree and working - class if they did not. Participants' scores in the Mini - Mental State Examination (MMSE, Folstein, Folstein, & McHugh, 1975) were not less than 25 (a conventional index of cognitive impairment) and these scores did not significantly vary across age and social - class. This suggests that all of the

participants did not suffer from cognitive impairment (see Table 1 for details).

Procedures

The study was introduced as a consumer survey. First, participants performed a computer - based choice task which consisted of three phases: choice phase, change phase, and recognition phase. There were 60 trials in the choice phase. In each trial, two consumer products of the same kind were first presented one at a time and participants reported their preference for each product on a 7-point scale (1: not like very much to 7: like very much). Then, the two products just shown appeared side - by - side on the screen and participants chose one product they would like to purchase by pressing a designated key. After making a choice, participants received a manipulation regarding the popularity of the chosen object (% of previous participants who made the same choice). In one half of the trials, social feedback was consistent with their choice such that the majority of previous participants chose the same product as the participant (% of participants randomly varied from 75% to 95%).

1) I reasoned that socio - cultural contexts that parents provide was particularly important for young participants (i.e., college undergrads) but not necessarily so for older participants. In addition, I note that some old working - class participants might be more adequately classified as middle - class because educational attainment of a bachelor's degree had been less common. Thus, the present work is a conservative test of social - class differences among older adults because of using a lenient classification of working class.

In the remaining half, social feedback conflicted with their choice such that only a minority of previous participants made the same choice (% of participants randomly varied from 5% to 25%). To ensure that participants understood the feedback, they were asked to indicate the popular item immediately after the feedback by pressing the designated keys.

The second part (change phase) was the same as the choice phase except for the absence of social feedback. In other words, the same pairs of consumer products were given and participants once again indicated their preferences and choice. They were instructed to focus on their current feelings rather than their memory for previous choices. This repetition allowed us to examine whether their preferences and choices would change in response to consistent / conflicting feedback.

Finally, their recognition memory about the feedback was assessed. In the recognition phase, participants viewed 97 pairs of consumer products (60 'old' pairs used in the previous phases and 37 'new' pairs). They were asked to indicate which product pairs were 'old' or 'new' and if 'old', which item in the pair was designated as more popular (i.e., source memory)².

After the choice task, cognitive function was measured with two tasks and demographic information was collected. First, visuospatial working memory was measured with a computerized backward Corsi Block - Tapping task (Kessels et al., 2000). In the task, nine white cubes were shown on the screen and one cube

temporarily turned blue every second without replacement (block span: 2 to 8 & two trials per block span). Then, participants were asked to reproduce the presented block sequence in the reverse order. Visuospatial memory was calculated by multiplying the last correctly - solved block span with the number of correctly reproduced sequences (Kessels, van Zandvoort, Postma, Kappelle, & de Haan, 2000). Second, processing speed was measured using a pattern matching task (Salthouse, 1996). The task consisted of two pages with 30 sets of five geometric figures (1 target and 4 alternatives). Participants were given 30 sec per page to indicate which was identical to the target. The index of processing speed was the number of correctly solved items, averaged across two pages. Cognitive tasks were included in order to see whether age - related cognitive declines would have any effect on the main research question (namely, whether or not social - class differences in choices would be maintained into late adulthood). Lastly, their demographic information (including education attainment) was collected with a questionnaire.

Results

Cognitive Function

First, I tested if cognitive style would vary as a function of social - class and age group. The two measures of cognitive function (i.e., visuospatial memory and processing speed) correlated with each other, $r = .56$, $p < .001$. Thus, I conducted a principal component analysis on the two measures

2) The description of the choice task was adapted from Na et al. (2016).

and found that the component accounted for 78% of variance. Note that one component was extracted since there were only two measures. The resulting component score served as an index of cognitive function. A 2 (age: young vs. old) × 2 (class: working vs. middle) ANOVA showed an age main effect (young > old): Working Class: $M_s = 0.72$ vs. -1.0 & Middle Class: $M_s = 0.64$ vs. -0.80 , $F(1, 76) = 117.32$, $p < .001$, $\eta_p^2 = .61$. No other effect was significant. In the following analyses, controlling for cognitive function did not change the pattern of results, which suggests that the main findings are independent of age-related cognitive declines.

Changes In Choice

The main question examined whether variations in relative importance of personal vs. others' preferences would differ as a function of age and social-class while making choices. To test this question, the number of times participants made changes in their choice after either consistent or conflicting feedback was entered into a 2 (age:

young vs. old) × 2 (social-class: working vs. middle) × 2 (trial-type: consistent vs. conflicting) mixed ANOVA with trial-type as a within-subject factor. The only significant main effect was trial-type which occurred because participants' choice changed more often after conflicting compared to consistent feedback, $F(1, 76) = 16.59$, $p < .001$, $\eta_p^2 = .18$. This effect, however, was qualified by a social-class × trial-type interaction, $F(1, 76) = 4.61$, $p = .035$, $\eta_p^2 = .06$. More importantly, the social class × trial-type interaction was not qualified by age, $F < 1$. Also, all the other effects were not significant.

Looking at the data more closely, young working-class participants made significantly more changes after conflicting feedback than consistent feedback, $M_s = 4.05$ vs. 1.89 , $t(18) = 2.88$, $p = .01$, whereas the difference was not significant for young middle-class participants, $M_s = 2.70$ vs. 2.04 , $t(26) = 1.47$, ns (see Figure 1). Thus, consistent with previous studies, young working-class participants were more sensitive to others' preferences than young middle-class participants. Furthermore, the effect of social-class on choice

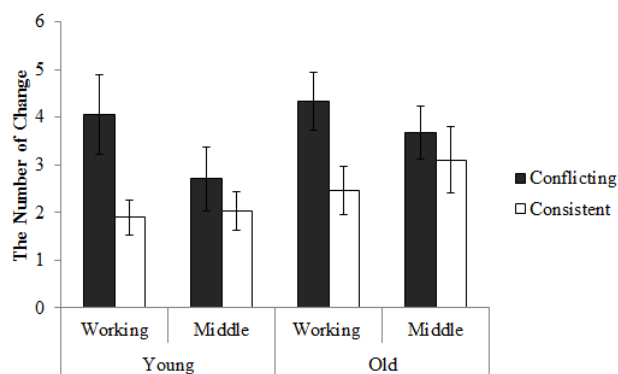


Figure 1. The number of change in choice by age, social class, and trial type. Error bars reflect standard errors.

was maintained into late adulthood. Older working - class participants changed their choice after conflicting feedback more than after consistent feedback, $M_s = 4.33$ vs. 2.47 , $t(14) = 2.54$, $p = .024$, whereas such difference was not statistically significant among older middle - class participants, $M_s = 3.68$ vs. 3.11 , $t(18) = .85$, *ns*.

Changes in Preferences

Next, I looked at how preferences changed in response to social feedback. I reasoned that, if sensitive to others' preferences, one's preferences would increase for chosen items but decrease for unchosen items after consistent feedback (i.e. majority also selected the chosen item over the unchosen item). The opposite would be the case after conflicting feedback. Thus, a sensitivity index was calculated separately for consistent and conflict trials. For consistent trials, preference change (i.e., ratings in the change phase - rating in the choice phase) among unchosen items was subtracted from preference changes among chosen items. For conflict trials, preference change among chosen items was subtracted from preferences changes among unchosen items. Higher scores in the respective sensitivity index reflect more sensitivity to social feedback.

For consistent trials, a 2 (social - class) \times 2 (age) ANOVA on the sensitivity index revealed that only the social - class effect was significant, $F(1, 76) = 9.46$, $p = .003$, $\eta_p^2 = .11$. Both young and old working - class individuals were more sensitive to social feedback than middle - class individuals, Young participants: $M_s = .12$ vs. $-.03$, $t(44) = 1.80$, $p = .07$, $d = 0.54$, and Old: $M_s =$

$.16$ vs. $-.13$, $t(32) = 2.34$, $p = .026$, $d = 0.83$. In contrast, for conflicting trials, the same ANOVA yielded no significant effect. There was no significant difference in the sensitivity index between working - class and middle - class, Young: $M_s = .02$ vs. $.06$, and Old: $M_s = .06$ vs. $.09$.

Taken together, the findings in consistent trials also showed that working - class participants were more sensitive to social feedback than middle - class participants, regardless of age groups. However, the social - class effect was limited to consistent trials. This may suggest that personal preferences among working - class individuals are more affected by others' opinions especially when the opinions confirm their own position.

Recognition Memory

Lastly, I investigated recognition memory for social feedback. There were 'old' (used in the previous phases) and 'new' pairs in the recognition phase. First, I examined whether there would be any differences across groups in terms of how well they differentiated "old" and "new" pairs. Toward this end, a series of 2 (social - class) \times 2 (age) ANOVAs were conducted on hit rates for old pairs (old pairs being correctly identified as old), false alarm for new items, and the discrimination index or d' (calculated using hit and false alarm; Snodgrass & Corwin, 1988). The results showed that none of the recognition measures varied across social - class or age groups, $.91 < M(\text{hit rates}) < .94$, $.06 < M(\text{false alarm}) < .09$, & $3.34 < M(d') < 3.64$, all $F_s < 2.6$. Thus, replicating common findings in the cognitive aging literature using pictures (Park, Puglisi, & Smith, 1986),

recognition memory was equivalent across groups. That is, all of the participants differentiated “old” and “new” pairs equally well.

Next, I analyzed source memory which commonly shows age-related declines (Cansino et al., 2013). For each participant, I calculated the probability of accurately identifying the popular item in each pair that was correctly recognized as old. As shown in Figure 2, a 2 (age) × 2 (social-class) × 2 (trial-type) mixed ANOVA on these probabilities revealed 1) an age effect (accuracy: young > old), $F(1, 76) = 31.67, p < .001, \eta_p^2 = .29$, 2) a trial-type effect (accuracy: consistent > conflicting trials), $F(1, 76) = 5.08, p = .027, \eta_p^2 = .06$, and moreover, 3) a marginally significant social-class × trial-type interaction, $F(1, 76) = 2.90, p = .093, \eta_p^2 = .04$. The interaction occurred because middle-class participants had better memory for consistent than for conflicting feedback, Young: $M(\text{accuracy}) = .76$ vs. $.64, t(26) = 2.60, p = .015$ & Old: $M(\text{accuracy}) = .64$ vs. $.51, t(18) = 1.86, p = .08$, whereas no such difference was found among working-class

participants, $M(\text{accuracy}) = .75$ vs. $.78$ & $.57$ vs. $.57$ for young and old, respectively, $t_s < .80$. Only middle-class participants believed that what they chose was also popular among others. Thus, for middle-class participants, memory for others’ preferences was influenced by their own choices, corroborating the proposition that working-class individuals are more sensitive to social feedback than middle-class individuals. Furthermore, I note that source memory (i.e., accuracy) was above chance (.50) in all conditions for young participants, all $t_s > 3.61$, all $p_s < .01$, whereas, for old, source memory was at chance except for consistent trials in middle-class old, $t(18) = 3.06, p = .007, d = 1.44$. That is, even though old working-class participants had no explicit memory for others’ preferences, they were still affected by others’ preferences (as demonstrated in the previous sections). This finding suggests that conscious awareness was not necessary to influence changes in preference and choice, at least in older adults.

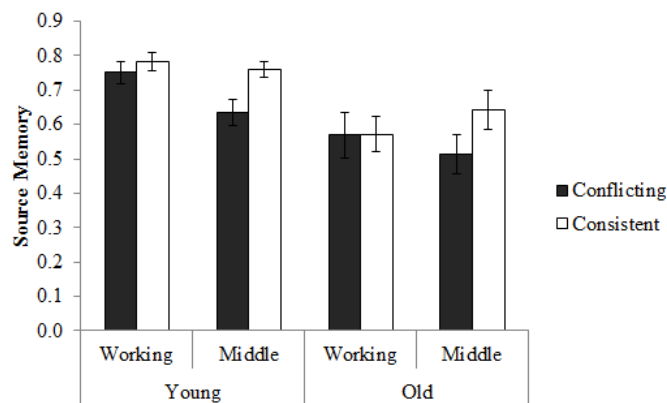


Figure 2. Source memory by age, social class, and trial type. Error bars reflect standard errors.

Discussion

The present research convincingly demonstrates that psychological differences that exist between working - class and middle - class in a choice task are maintained into old age. Old working - class participants, just like young working - class participants, were responsive to others' preferences in their choice, personal preferences, and recognition memory whereas there was little evidence for such sensitivity among old middle - class participants, just like their younger counterparts.

The finding that older working - class participants changed their choice in response to the receipt of conflicting information suggests that age does not blunt the effect of social class. Given the robust effect of the positivity bias (i.e., selective attention to positive information) among older adults (Kennedy, Mather, & Carstensen, 2004), one might have expected less sensitivity to conflicting information because the conflicting information might result in negative affect. However, the present results suggest that an exposure to conflicting opinions of others may not be necessarily perceived as negative by working - class participants. Instead, it may be considered as an opportunity to adjust their choice so as to be consistent with others. Thus, this entire process of social adjustment can be experienced as positive in working - class contexts. Then, the present finding conforms to the premise that one's emotional experiences are interpreted in the milieu of his or her socio - cultural contexts (Kitayama, Mesquita, & Karasawa, 2006). Moreover, to the extent that working - class old habitually attend to negative as

well as positive opinions of others, the positivity bias may have less of an influence in working - class contexts in spite of general age - related differences in socio - emotional selectivity (Carstensen, 1992).

Moreover, the present results demonstrate the persistent and implicit effects of social - class in guiding behaviors, even into old age. Old working - class participants showed the same responsiveness to others' preferences as young working - class participants even when older adults could not consciously remember them. This may seem surprising but, as amply demonstrated by Bargh and Morsella (2008), implicit and automatic processes can guide behaviors in complex and highly adaptive ways. The present findings add to this literature by showing that social - class can influence these types of processes among older adults.

Aside from the age findings, the present work also identified interesting social - class differences. Participants reacted differently depending on their social - class backgrounds in response to others' preferences that were in conflict with their choices. More specifically, working - class participants were more likely to change their behaviors in accordance with others' opinions than middle - class participants. In contrast, unlike working - class participants, middle - class participants showed worse source memory for conflicting others' preferences than for consistent ones. Thus, only middle - class participants falsely considered others' preferences to be consistent with their choices. To sum up, it can be said that the way we deal with social influences is heavily influenced by our social - class backgrounds.

Before closing, it is warranted to discuss several limitations of the present research. First, the current sample was predominantly female and more generally, I recruited only small number of participants for each age and social-class group. Thus, it would be worthwhile to replicate the present findings with more diverse samples in future. Second, social-class was defined by education attainment in the present work. Although education level is one of the most frequently used indicators of social-class in previous research (e.g., Na et al., 2016), the scope of social-class may be too broad to be measured by a single (Krieger, Williams, & Moss, 1997). Therefore, it may be necessary to test the interaction between age and social-class using other indicators of social-class than education such as occupational prestige or annual income. Finally, although the present research found that social-class differences might be based on implicit processes rather than explicit processes in particular among older adults, I have to admit that the evidence is only suggestive. I believe that the investigation of this issue is a worthy endeavor in its own right.

An emerging literature has shown substantial effects of social class on one's psychological processes across diverse areas (Diener, Ng, Harter, & Arora, 2010; Kraus et al., 2012; Stephens, Markus, & Fryberg, 2012). Based on these initial observations of social-class effects, the field is beginning to explore how aging may moderate these relationships (e.g., Kraus et al., 2012). In response to such initiation, the present research clearly demonstrated that socio-cultural factors such as social-class could have important

implications for older adults as well as young adults.

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