

Age Differences in Everyday Problem-Solving Effectiveness: Older Adults Select More Effective Strategies for Interpersonal Problems

Fredda Blanchard-Fields, Andrew Mienaltowski, and Renee Baldi Seay

School of Psychology, Georgia Institute of Technology, Atlanta.

Using the Everyday Problem Solving Inventory of Cornelius and Caspi, we examined differences in problem-solving strategy endorsement and effectiveness in two domains of everyday functioning (instrumental or interpersonal, and a mixture of the two domains) and for four strategies (avoidance–denial, passive dependence, planful problem solving, and cognitive analysis). Consistent with past research, our research showed that older adults were more problem focused than young adults in their approach to solving instrumental problems, whereas older adults selected more avoidant–denial strategies than young adults when solving interpersonal problems. Overall, older adults were also more effective than young adults when solving everyday problems, in particular for interpersonal problems.

DESPITE cognitive declines associated with advancing age (Zacks, Hasher, & Li 2000), older adults function independently. Furthermore, evidence is equivocal as to the impact that cognitive decline has on older adults' abilities to navigate complicated social situations (see, e.g., Cornelius & Caspi, 1987; Marsiske & Willis, 1995). Some research suggests that older adults are more effective than young adults when solving everyday problems (Cornelius & Caspi; Blanchard-Fields, Chen, & Norris, 1997; Blanchard-Fields, Jahnke, & Camp, 1995; Blanchard-Fields, Stein, & Watson, 2004). Our goal in the current study was to examine age differences in (a) the strategies selected to solve everyday problems from different problem domains and (b) how effective these strategy choices are relative to ideal everyday problem solutions.

Blanchard-Fields and colleagues (1995, 1997, 2004) demonstrated that older adults are equally likely, if not more likely, than young adults to choose proactive strategies to directly confront instrumental problems. However, when they are facing interpersonal problems, older adults are more likely than young adults to choose passive emotion regulation strategies. Differential strategy preferences may reflect a maturing of the strategy repertoire of older adults. As people age, experience may hone strategy preferences on the basis of successes and failures, making it easier for older adults to invest energy into strategies that have been effectively used when dealing with problems in the past.

The important issue is what constitutes effective strategy use. Past research defines it as one's sensitivity to the context that is underlying problems when one is selecting strategies (Blanchard-Fields et al., 1995), the number of strategies and one's satisfaction with problem solution (Thornton & Dumke, 2005), or the evaluation of strategy choices on an everyday problem-solving inventory against a panel of external judges (Cornelius & Caspi, 1987). In the current study we examined the latter approach to problem-solving effectiveness from the level of domain-specific strategy use in order to simultaneously investigate age differences in effective problem solving and age differences in strategy selection (i.e., differential strategy preference related to context). We sought to replicate past research examining interpersonal and

instrumental problem-solving contexts, while also determining whether age differences in strategy preferences actually lead to more effective problem solving in the two domains. Because domain effects are sensitive to the amount of overlap that is allowed between problem definitions when problems are classified (e.g., Artistic, Cervone, & Pezzuti, 2003), we expanded the typical instrumental–interpersonal dichotomy by adding a mixed-problem domain to describe problems that are not unambiguously instrumental or interpersonal.

We expected older adults to show a greater preference than young adults for emotion-focused strategies when they were solving interpersonal problems. For instrumental problems, we expected older adults to prefer more problem-focused strategies than did young adults. We also expected older adults to have higher effectiveness scores than young adults (Cornelius & Caspi, 1987). Finally, we expected older adults to be more effective than young adults in their application of emotion-focused strategies.

METHODS

Participants

We recruited young adults ($n = 53$, with 36 women and 17 men; age = 18–27 years, $M = 20.6$, $SD = 1.6$) and older adults ($n = 53$, with 33 men and 20 women; age = 60–80 years, $M = 68.9$, $SD = 4.9$) from a southeastern metropolitan area. Participants were primarily Caucasian (~77%) and reported similar levels of education (i.e., some college). On average, both groups indicated good health [young adults, $M = 3.49$, $SE = 0.08$; older adults, $M = 3.15$, $SE = 0.09$; $t(1, 102) = 2.89$, $p < .01$].

Materials

Everyday problem-solving task.—We selected 24 of 48 hypothetical problems from the Everyday Problem Solving Inventory (EPSI; Cornelius & Caspi, 1987). We randomly selected 4 problems from each of the six original problem domains (i.e., home management, information use, consumer

Table 1. Problem Solving Strategies Included in the Everyday Problem Solving Inventory

Strategy Type	Description
Emotion-focused strategies	
Avoidance-denial	Efforts to control the meaning of a situation through cognitive avoidance, to deny the situation or one's personal responsibility in it, to attend to other matters outside of the situation, or to suppress emotions evoked by the situation.
Passive dependence	Efforts directed at withdrawing from a situation, at deliberately abstaining from self-initiated behavior that impacts the situation, or at relying on others to solve the problem.
Problem-focused strategies	
Planful problem solving	Self-initiated, overt behaviors that deal directly with a problem and its effects (e.g., taking direct action to alter a situation or seeking advice or information about the situation).
Cognitive analysis	Internal, conscious cognitive efforts to manage one's subjective appraisal of a situation, to understand it better, to solve the problem through logical analysis, or to interpret the situation from a unique perspective.

issues, conflicts with friends, work-related issues, and family conflicts). We presented participants with a single manifestation of each strategy type tailored to each problem (without strategy labels) and asked them to indicate how likely they were to use each of four strategies to solve each problem: avoidance-denial, passive dependence, planful problem solving, and cognitive analysis (see Table 1 for strategy definitions).

Dependent variables.—Strategy endorsement ratings indicated participants' preferred methods for solving hypothetical everyday problems. Higher scores represented greater endorsement of a particular strategy. We calculated effectiveness scores for each domain and strategy by correlating participant strategy endorsement ratings with those of a panel of external judges (Cornelius & Caspi, 1987).¹ Correlations (range: $r = -1.0$ to $r = 1.0$) represented the degree of similarity between a participant's responses and the ideal solutions nominated by judges. Large positive correlations indicated effective problem solving.

Classification of problem type.—Eight coders (independent undergraduate, graduate, and postdoctoral researchers) could categorize problems only as instrumental or interpersonal. Our coder instructions were based on the procedure of Berg, Strough, Calderone, Sansone, & Weir (1998):

For each problem indicate whether it is an (A) instrumental problem, or (B) interpersonal problem. *Instrumental problems* involve competence concerns and stem from complications that arise when one is trying to accomplish, achieve, or get better at something. Instrumental problems are situations in which one is having difficulty achieving something that is personally relevant. *Interpersonal problems* involve social/interpersonal concerns and stem from complications that arise when one is trying to reach an outcome that involves other people. Interpersonal problems are situations in which one is dealing with a social conflict or obstacle in a relationship. Please provide only *one* classification per problem.

Coders rated their confidence in their problem categorizations (10-point Likert scale; 0% to 100%). Out of the 24 problems, there was 100% agreement for 17 problems, with 10 coded as instrumental (confidence, $M = 95\%$, $SE = 1.7\%$) and 7 as interpersonal (confidence, $M = 94\%$, $SE = 1.8\%$). For the remaining 7 problems, coders were 75% reliable and less confident in their categorizations ($M = 77\%$, $SE = 2.4\%$). We took these 7 problems to reflect a mixed-problem category, consisting of a strong achievement-oriented component yet depending on social interactions for resolution. (See the appendix for the EPSI problems we used.)

RESULTS

We conducted 2 (age: young, old) \times 3 (domain: instrumental, mixed, interpersonal) \times 4 (strategy: avoidance-denial, passive dependence, planful problem solving, cognitive analysis) mixed-model analyses of variance on the strategy endorsement and effectiveness scores. Age was the between-subjects factor. We followed each analysis of variance by contrasts to examine age differences for each strategy by domain.

Strategy endorsement ratings.—For each domain (interpersonal, instrumental, or mixed), we calculated average endorsement ratings for each strategy type (e.g., avoidance-denial). Analyses indicated that main effects of domain, $F(2, 312) = 34.57$ ($\eta_p^2 = .25$, $p < .001$), and strategy, $F(2, 312) = 265.54$ ($\eta_p^2 = .72$, $p < .001$), were qualified by Strategy \times Age, $F(3, 312) = 5.46$ ($\eta_p^2 = .05$, $p = .001$), Domain \times Strategy, $F(6, 624) = 46.59$ ($\eta_p^2 = .31$, $p < .001$), and Domain \times Strategy \times Age, $F(6, 624) = 5.30$ ($\eta_p^2 = .05$, $p < .001$), interactions. The patterns of age differences in strategy endorsement varied by domain (see Table 2 for mean strategy endorsement ratings). For instrumental problems, young adults preferred avoidance-denial more than old adults did, $t(104) = 2.26$ ($p < .05$), whereas old adults preferred passive dependence, $t(104) = 2.28$ ($p < .05$), planful problem solving, $t(104) = 3.74$ ($p < .001$), and cognitive analysis, $t(104) = 3.30$ ($p < .01$), more than young adults did. For mixed problems, young adults preferred avoidance-denial, $t(104) = 4.36$ ($p < .001$), and passive dependence, $t(104) = 3.87$ ($p < .001$), more than old adults did. The opposite pattern held for interpersonal problems. Old adults preferred avoidance-denial, $t(104) = 2.15$ ($p < .05$), and cognitive analysis, $t(104) = 2.39$ ($p < .05$), more than young adults did. Old adults also marginally preferred passive dependence more than young did, $t(104) = 1.42$ ($p = .08$, one-tail).

Effectiveness scores.—For each domain and each strategy, we calculated an overall effectiveness score across problems by correlating each participant's strategy endorsement ratings with the effectiveness ratings of the judges (e.g., avoidance-denial strategies for each interpersonal problem and judges' average rating for avoidance-denial for the same problems). Analyses indicated main effects of age, $F(1, 92) = 7.15$ ($\eta_p^2 = .07$, $p < .01$), and domain, $F(2, 184) = 18.66$ ($\eta_p^2 = .17$, $p < .001$). Older adults ($M = 0.46$, $SE = 0.02$) were more effective than young adults ($M = 0.39$, $SE = 0.02$) in their overall choice of strategies (Cornelius & Caspi, 1987). These main effects were qualified by Domain \times Age, $F(2, 184) = 3.04$ ($\eta_p^2 = .03$, $p = .05$), and Domain

\times Strategy, $F(6, 552) = 44.19$ ($\eta_p^2 = .32$, $p < .001$), interactions (see Table 2 for mean strategy effectiveness scores). Although both age groups were more effective at solving instrumental problems (young adults, $M = 0.40$, $SE = 0.02$; old adults, $M = 0.48$, $SE = 0.02$) and mixed problems (young adults, $M = 0.50$, $SE = 0.03$; old adults, $M = 0.50$, $SE = 0.03$) than interpersonal problems, young adults were especially less effective than old adults at solving interpersonal problems (young adults, $M = 0.27$, $SE = 0.03$; old adults, $M = 0.41$, $SE = 0.03$).

Although the Domain \times Strategy \times Age interaction failed to reach significance, $F(6, 552) = 1.67$ ($\eta_p^2 = .02$, $p = .13$), we conducted planned contrasts to investigate age differences in problem-solving effectiveness for each strategy by domain. For interpersonal problems, old adults were more consistent than young adults in endorsing avoidance–denial, $t(103) = 1.90$ ($p < .05$, one-tail), passive dependence, $t(104) = 1.30$ (only marginal at $p = .10$, one-tail), planful problem solving, $t(105) = 1.65$ ($p < .05$), and cognitive analysis, $t(96) = 1.72$ ($p < .05$), at levels that were deemed to be effective by the judges. For instrumental problems, old adults were more consistent than young adults in endorsing avoidance–denial, $t(104) = 4.21$ ($p < .001$), at the level deemed to be effective by the judges. No age differences emerged for mixed problems.²

DISCUSSION

Consistent with past research, in our research the older adults preferred more passive emotion-focused strategies (e.g., avoidance or passive dependence) than the young adults did when facing interpersonal problems, and they preferred more proactive strategies such as planful problem solving (in combination with emotion regulation strategies) for instrumental problems (Blanchard-Fields et al., 1995, 1997; Watson & Blanchard-Fields, 1998). In contrast, young adults used similar amounts of planful problem solving, irrespective of the type of problem. It is interesting to note that young adults preferred (a) more passive emotion-focused strategies in mixed problems and (b) more avoidance emotion-focused strategies in instrumental problems than older adults. Perhaps young adults are motivated to behave more passively when managing personally relevant achievement-oriented problems, especially those involving potentially awkward social interactions. This deserves further research.

Second, we moved beyond previous indices of effectiveness by basing problem-solving efficacy on the degree of similarity in strategy endorsement between participants and a panel of judges to control for individual differences in strategy accessibility. Older adults were more effective at solving problems than young adults were (which is similar to the findings of Cornelius & Caspi, 1987). More importantly, we found that older adults' greater effectiveness was driven by strategy selection within interpersonal problems. Extending past research, we assessed effectiveness at the level of the problem domain and at the level of specific strategies. Thus, it is not simply that older people use more or less of a strategy in various domains; they use these strategies appropriately (as determined by panel effectiveness scores) to match the context of the problem. This adaptivity may be crucial to interpersonal problems. Although proactive strategies are typically key to resolving causes of problems (e.g., Thornton & Dumke, 2005), older adults' use of passive (emotion regulation) strategies may buffer them from intense

Table 2. Mean Strategy Endorsement and Problem-Solving Effectiveness Ratings by Age and Domain

Strategy	Instrumental Problems		Mixed Problems		Interpersonal Problems	
	Young Adults	Older Adults	Young Adults	Older Adults	Young Adults	Older Adults
Strategy Endorsement Ratings						
ADE	2.80 (0.07)	2.58 (0.07)	2.80 (0.06)	2.44 (0.06)	2.48 (0.08)	2.72 (0.08)
PD	3.07 (0.06)	3.27 (0.06)	3.37 (0.07)	2.99 (0.07)	3.00 (0.07)	3.14 (0.07)
PPS	3.65 (0.06)	3.98 (0.06)	3.79 (0.07)	3.77 (0.07)	3.64 (0.05)	3.73 (0.05)
CA	3.39 (0.06)	3.66 (0.06)	2.92 (0.07)	2.99 (0.07)	3.82 (0.06)	4.04 (0.06)
Problem Solving Effectiveness Scores						
ADE	0.21 (0.05)	0.50 (0.04)	0.77 (0.03)	0.77 (0.03)	0.17 (0.06)	0.33 (0.06)
PD	0.48 (0.04)	0.47 (0.03)	0.35 (0.05)	0.33 (0.05)	0.32 (0.06)	0.45 (0.05)
PPS	0.37 (0.05)	0.36 (0.04)	0.33 (0.05)	0.31 (0.04)	0.49 (0.05)	0.60 (0.05)
CA	0.55 (0.04)	0.59 (0.04)	0.55 (0.05)	0.59 (0.04)	0.11 (0.06)	0.25 (0.06)

Notes: Strategy endorsement ratings ranged from 1 (definitely would not do) to 5 (definitely would do). Problem-solving effectiveness scores ranged from $r = -1.0$ to $r = 1.0$. Parenthetical material represents the extreme ends of the strategy endorsement ratings. ADE = Avoidance–denial, PD = passive dependence, PPS = planful problem solving, and CA = cognitive analysis.

emotional reactions in order to maintain tolerable levels of arousal given increased vulnerability and reduced energy reserves (Consedine, Magai, & Bonanno, 2003).

One limitation of the EPSI is that effective solutions tend to be biased toward instrumental strategies. Nevertheless, we still find older adults to be more effective in their application of emotion-focused strategies in the interpersonal domain. Future research must include a greater balance in situations in which both problem-focused and emotion-focused strategies are judged effective. Another limitation is that the EPSI problem contexts are sparse. Thus, problem appraisal could possibly play a role in producing age differences in strategy preference. Past research demonstrates age differences in problem definitions (Berg et al., 1998) and goals evoked when approaching problems (Strough, Berg, & Sansone, 1996). A third limitation of the current study is that we did not control for age relevance of each problem. Future research should address how age relevance influences problem-solving effectiveness, especially as it pertains to emotion regulation in interpersonal problems and to whether age differences in effectiveness are maintained for the oldest-old individuals.

Given recent interest in the role of emotion in older adulthood, these findings are significant because they provide further evidence for the capacity of older adults to draw on accumulated experience in socioemotional realms to solve problems successfully. Older adults' strategy use suggests that they are capable of complex and flexible problem solving. Furthermore, whereas advancing age is associated with cognitive decline, such declines do not readily translate into impaired everyday problem-solving effectiveness. Instead, both types of developmental trajectories exist in tandem and may even complement one another.

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Address correspondence to Fredda Blanchard-Fields, School of Psychology, Georgia Institute of Technology, Atlanta, GA, 30332-0170. E-mail: fb12@prism.gatech.edu

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END NOTES

¹Cornelius and Caspi (1987) recruited 23 judges to determine which of four strategies could be used to effectively solve a series of everyday problems. Of these 23 judges, 18 were “laypersons without formal training in psychology” and 5 were “graduate students majoring in developmental psychology” (p. 146). Overall, the panel consisted of young adults ($n = 9$, ages 24–40, $M = 28.4$), middle-aged adults ($n = 8$, ages 44–54, $M = 50.3$), and older adults ($n = 6$, ages 62–72, $M = 67.3$). Ten members of the panel were men and 13 were women. Given that the panel (a) consisted of such small samples from each of the three age groups, (b) was probably sampled from a single geographic region, and (c) was sampled about 20 years ago, it is possible that the effective solutions endorsed by this particular panel are not entirely representative of those effective solutions that might be offered by individuals sampled today and who are living in different regions of the country. Future research should examine the metric properties of the EPSI to see if the effective solutions reported by the earlier panel (Cornelius & Caspi) are consistent with those endorsed by a more current sample of everyday problem solvers.

²If we examine the effectiveness scores by using the six original EPSI domains, the results replicate those of Cornelius and Caspi (1987). Older adults were more effective than younger adults in the consumer (young adults, $M = 0.20$, $SE = 0.04$; old adults, $M = 0.36$, $SE = 0.04$), $t(104) = 2.80$ ($p < .01$), home (young adults, $M = 0.37$, $SE = 0.04$; old adults, $M = 0.45$, $SE = 0.03$), $t(104) = 1.75$ ($p < .05$, one-tail), information (young adults, $M = 0.61$, $SE = 0.03$; old adults, $M = 0.66$, $SE = 0.03$), $t(104) = 1.32$ ($p < .10$, one-tail), and work (young adults, $M = 0.53$, $SE = 0.04$; old adults, $M = 0.61$, $SE = 0.03$), $t(104) = 1.69$ ($p < .05$, one-tail), domains.

APPENDIX

EPSI Problems Used in the Current Study

Instrumental problems

1. You have let your home become too cluttered with items you use infrequently but that have much sentimental value for you. (home)
2. In grocery shopping, you find that many items (e.g., spices, fruits) are packaged in quantities that are much larger than your needs. (consumer)
3. Because of a lack of time you have let household chores begin piling up. (home)
4. There have been a number of burglaries near your home in recent months. (home)
5. A small electrical appliance (e.g., a lamp, clock, iron) you bought at a garage sale appears to have a short in the wire. (home)
6. You are experiencing difficulty and feel frustrated trying to learn new procedures on how to operate a new machine in your job. (work)
7. You are completing your income tax form but finding it difficult to interpret some of the instructions. (information)
8. You find out you have been passed over for a better job or promotion you wanted. (work)
9. You would like to make a food dish in a much smaller number of servings than the recipe is designed for. (information)
10. A complicated form that you completed was returned because you misinterpreted the instructions on how to fill it out. (information)

Mixed problems

1. You lost or broke an expensive item that you borrowed from someone. (friend)
2. After waiting for several weeks to get a pair of shoes repaired, you go to pick them up. The store manager tells you that an employee quit recently so that they still are not fixed. (consumer)
3. You continually receive mail advertisements from a firm for products that you do not want and for which you have no desire to purchase. (consumer)
4. You would like to buy a birthday gift for a friend but cannot afford it at the time. (consumer)
5. A coworker ridicules you because you do not know something. (work)
6. You find out that your child is having a problem with a teacher at school. (family)
7. You are doing something that you know perfectly well how to do by yourself and someone begins giving you advice that you neither need nor want. (information)

Interpersonal problems

1. You have done something that offended one of your friends. (friend)
2. You are with a group of people who begin gossiping about one of your friends. (friend)
3. A friend criticizes you for an important decision that you make about one of your children or parents. (friend)
4. You are competing for a better job with a fellow employee you like, and it is upsetting your relationship with him or her. (work)
5. You have an argument with your parent or child about an issue that is important to you. (family)
6. You feel like your parents or children do not have enough time to spend with you. (family)
7. You have a quarrel with your parent or child about an issue and become angry. (family)