

Age Differences in Problem-Solving Style: The Role of Emotional Salience

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Qualitative differences in problem-solving style for situations varying in emotional salience were examined among adolescents, young, middle-aged, and older adults. Participants wrote essays on how each of 15 problem situations should be resolved. There were minimal age differences for problem-focused strategies, with all age groups using this strategy the most. Age differences for problem-solving strategy were highly dependent on the degree to which the situation was emotionally salient. All individuals were more likely to use an avoidant-denial strategy in low emotionally salient situations and passive-dependent and cognitive-analysis strategies in high emotionally salient situations. However, older adults used both passive-dependent and avoidant-denial strategies more than younger age groups. Problem-focused strategies were used least in high emotionally salient situations. Implications of findings are discussed from an adult developmental perspective.

There has been a proliferation of research identifying and measuring types of everyday problem-solving skills required for effective functioning during adulthood and aging (Berg, Klaczynski, Calderone, & Strough, 1994; Blanchard-Fields & Camp, 1990; Denney, 1989; Sinnott, 1989). A number of researchers referred to the social intelligence literature, which suggests that optimal task performance in a social (or everyday) context should be evaluated in terms of the achievement of personal goals of the individual; therefore, no specific set of optimal strategies can be consistently applied across time and contexts (e.g., Cantor & Kihlstrom, 1989). Cantor and Kihlstrom suggested that an intelligent person is one who uses social knowledge flexibly and adaptively to meet personal goals and create good feelings.

Thus, by developing problems similar to those that adults use in their everyday lives, researchers have demonstrated that older adults may show adaptive functioning in the context of everyday problem solving. For example, effective performance on an everyday problem-solving inventory was shown to increase with age, whereas performance on more traditional problem-solving tasks declined after middle age (Cornelius & Caspi, 1987). Although younger and older adults differed on type of strategy used to solve everyday problems, they did not differ in perceived effectiveness of their strategies (Berg et al., 1994; Camp, Doherty, Moody-Thomas, & Denney, 1989).

A common finding among studies on age differences in problem-solving strategies is that changes in strategy preference are

most evident in interpersonal situations, especially when the way the individual perceives and structures the problem situation is taken into consideration (Berg et al., 1994; Blanchard-Fields, 1986; Camp et al., 1989; Labouvie-Vief, 1992; Luszcz, 1989). However, the role of emotion in how an individual construes a problem (particularly in an interpersonal context) and, in turn, adopts a problem-solving strategy has been largely overlooked in the problem-solving literature. Those who have acknowledged that emotion plays a role in problem solving often discuss either a primarily regulatory role of affect (such as anxiety inhibiting the use of more flexible decision criteria; Geen, 1985) or the association of particular emotions with distinctive patterns of cognitive appraisal (Folkman & Lazarus, 1988; Manstead & Tetlock, 1989; Weiner, 1986). However, there remains a paucity of research directly examining the role of emotion in problem-solving style in general and strikingly less emphasis on this role in problem-solving style within an adult developmental context.

In the adult developmental literature, a few studies have examined the role of emotional salience in social reasoning. For example, with increasing age and emotional maturity, individuals engage in more mature social reasoning (e.g., increased relativistic thinking) in emotionally laden situations (Blanchard-Fields, 1986); older adults with high affective intensity demonstrate more dialectical thinking (Kramer, 1990); higher levels of ego maturity involving emotional regulation and openness to affective experience relate to more mature coping and social cognitive reasoning (Blanchard-Fields, 1986; Labouvie-Vief, Hakim-Larson, & Hobart, 1987); older adults make more relativistic causal attributions in problem situations that are high in emotional salience (Blanchard-Fields & Norris, 1994); and emotional salience plays an important role in age differences in coping with stress (Folkman & Lazarus, 1988).

Blanchard-Fields and Camp (1990) examined different styles of problem solving in adolescence through older adulthood. They found that low emotionally salient problems

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yielded no age differences in problem-solving style. In high emotionally salient problem domains (e.g., conflicts with family), older adults endorsed strategies evincing an awareness of when to avoid or passively accept a situation within interpersonal, emotional domains (e.g., family) compared with low emotionally salient problem domains (e.g., consumer matters). Younger adults opted more for a problem-focused or cognitive-analytic approach to all problems. They concluded that older adults may be engaging in a more differentiated approach to problem situations in that they use diverse strategies in handling problems as a function of whether the situation was more instrumental or interpersonal in nature (Blanchard-Fields & Camp, 1990). Similarly, Folkman, Lazarus, Pimley, and Novacek (1987) found that older adults were more likely to endorse emotion-focused strategies than younger adults, who adopted more problem-focused strategies.

The present study attempted first to extend the findings from the Blanchard-Fields and Camp (1990) study by directly assessing the impact of emotional salience on the preferred problem-solving strategies of adolescents, young, middle-aged, and older adults. Second, to obtain a more ecologically valid assessment of everyday problem solving, self-generated problems obtained from individuals from adolescence to older adulthood in previous studies were used. Finally, some literature has emphasized the need to move away from experimenter-defined problem solutions to a more qualitative assessment of self-generated cognitive style (Adams, 1991; Berg et al., 1994; Blanchard-Fields & Camp, 1990; Sinnott, 1989). Thus, in the present study, participants were asked to generate their own problem solutions.

Overall, it was expected that the results of Blanchard-Fields and Camp (1990) would be replicated when directly manipulating three levels of emotional salience of the problem situation as it related to the type of problem-solving style adopted. Thus, for problems high in emotional salience, older age groups were expected to adopt more emotion-regulation strategies (e.g., passivity or accepting the problem) than younger age groups, whereas for problems at all levels of emotional salience, there would be no age differences in the use of more instrumental styles of problem solving (e.g., problem focused).

Method

Participants

Participants in this study were recruited on a volunteer basis from two southeastern metropolitan areas and consisted of the following age groups: 70 adolescents (35 girls, 35 boys), ages 14 to 17 years ($M = 15.9$ years, $SD = 1.1$); 69 young adults (32 women, 37 men), ages 25 to 35 years ($M = 28.5$ years, $SD = 3.4$); 74 middle-aged adults (41 women, 33 men), ages 45 to 55 years ($M = 48.7$ years, $SD = 3.3$); and 74 older adults (34 women, 40 men), ages 65 to 75 years ($M = 68.7$ years, $SD = 3.4$). Adolescents were included because they represent a critical point of transition from childhood into adulthood. The sample was primarily middle class and Caucasian. Age differences in verbal ability, education, and health were analyzed using one-way analyses of variance (ANOVAs). Alpha levels for Student-Newman-Keuls (SNK) post hoc tests were set at $p < .05$. The Information subscale of the Wechsler Adult Intelligence Scale—Revised was administered as a measure of verbal ability, and a significant age effect was obtained, $F(3, 284) = 22.837$, $p < .001$. Older ($M = 20.28$, $SD = 5.45$), middle-aged ($M = 20.55$, $SD = 4.82$), and young ($M = 21.20$, $SD = 4.08$) adults scored significantly

higher on verbal ability than did adolescents ($M = 15.17$, $SD = 5.45$). This sample appeared to be similar to other samples represented in this general area of research. There were significant differences in years of education among the age groups, $F(3, 284) = 52.007$, $p < .001$, with adolescents ($M = 10.61$, $SD = 1.49$) significantly lower than young adults ($M = 15.32$, $SD = 2.56$), middle-aged adults ($M = 14.81$, $SD = 2.57$), and older adults ($M = 13.67$, $SD = 2.87$). In addition, the middle-aged and young adults had achieved higher levels of education than the older adults. Individuals were assessed on a 4-point self-rated health measure (1 = *poor*, 4 = *excellent*); there was a significant main effect for age, $F(3, 283) = 4.13$, $p < .007$. Means of 3.44, 3.43, 3.26, and 3.12 were obtained for adolescents, young adults, middle-aged adults, and older adults, respectively. Analyses revealed that adolescents and young adults rated their health significantly higher than did older adults.

Measures

Problem-Solving Vignettes

In addition to a brief two-page background questionnaire, 15 vignettes representing problem situations (varying in levels of emotional salience) were used to assess problem-solving styles. Initially, 25 vignettes were culled from everyday problem situations reported by younger, middle-aged, and older adults in a previous study (Camp et al., 1989). These vignettes were rated by 21 students (age range = 18–55 years) enrolled in an adult development and aging class at the University of New Orleans. Each vignette was rated as representing high, medium, or low emotional salience. Only vignettes that achieved 90% agreement or greater among raters were considered for inclusion in the study. Fifteen vignettes were selected for use in the present study, five representing each level of emotional salience (e.g., low, medium, and high). The problem situations rated as low on emotional salience included returning defective merchandise, a teenager's use of the family car, a poker game, a tenant's problem, and budgeting time between family and others' needs. The problem situations rated medium on level of emotional salience included a wife returning to the workforce, moving to a new town, an older family member having difficulty driving, a bully at school, and a sibling's accusation of stealing. The problem situations rated high on level of emotional salience included taking care of an ill and aging parent, a spouse's affair, an alcoholic spouse, an unplanned pregnancy, and child custody concerns. See Appendix for the complete vignettes.

To determine whether the vignettes were perceived as varying in emotional salience by our participants, all participants rated the level of "emotional involvement" that each vignette elicited in them on a scale ranging from 1 (*no emotional involvement*) to 5 (*extreme emotional involvement*). For each participant, ratings from each of the five vignettes associated with a specific emotional salience level (low, medium, or high) were summed into a single score, yielding one summed overall emotional involvement score for each of the three salience levels of vignettes. These data were analyzed using a 4×3 mixed-design model ANOVA, including age group (adolescents, young adults, middle-aged adults, and older adults) as the between-subjects factor and emotional salience (low, medium, and high) as the within-subject factor.

There was no significant effect for age group, $F(3, 283) = 1.9$, $p < .13$. There was a significant effect for emotional salience, $F(2, 566) = 394.0$, $p < .001$. Overall ratings ($M \pm SD$) for the low, medium, and high saliency vignettes were 14.2 ± 4.1 , 16.3 ± 4.3 , and 20.1 ± 4.9 , respectively. In addition, the Age Group \times Emotional Salience effect reached significance, $F(6, 566) = 6.4$, $p < .001$. Simple main effects tests comparing age groups at each level of emotional salience were conducted. Age group only reached significance at the high emotional salience level, $F(3, 283) = 6.1$, $p < .001$. An SNK post hoc analysis of these data revealed that the average score of the older participants at this level ($M = 18.2$, $SD = 5.9$) was significantly different from those of the

adolescent ($M = 21.2$, $SD = 3.7$), young adult ($M = 21.1$, $SD = 4.6$), and middle-aged ($M = 20.0$, $SD = 4.5$) groups, respectively. These three younger groups did not differ from each other. It should be noted, however, that even for the oldest group average scores increased with increasing emotional salience of vignettes. For this group, ratings ($M \pm SD$) for the low, medium, and high salience vignettes were 14.0 ± 4.8 , 15.6 ± 5.2 , and (as reported earlier) 18.2 ± 5.9 , respectively.

In summary, participants' emotionality ratings agreed with the emotionality levels assigned to the vignettes by the experimenters. All age groups gave the lowest overall emotionality ratings to our low emotionally salient vignettes and the highest overall emotionality ratings to our high emotionally salient vignettes.

Procedure

Individuals were asked to read each vignette and then write, in their opinion, how the situation should be resolved.

Scoring Procedure

The scoring procedure for the problem-solving vignettes was developed on the basis of the four problem-solving response styles generated by Cornelius and Caspi (1987). These included problem-focused action, cognitive problem analysis, passive-dependent behavior, and avoidant thinking and denial. Problem-focused and cognitive analysis represent more instrumental, proactive modes of problem solving, whereas passive-dependent and avoidant-denial modes represent emotional management strategies (Blanchard-Fields & Camp, 1990; Folkman et al., 1987). Both problem-focused and cognitive-analysis strategies involve direct efforts to solve the problem either through direct action or logical analysis. In contrast, passive-dependence and avoidant-denial strategies involve emotional withdrawal and managing one's emotions.

The following are more detailed descriptions of the four problem-solving styles. The examples are responses to the problem situation of a divorced man who desires to see his child more than just the weekends, but his wife has custody.

Problem-focused action. These solutions involve self-initiated, overt behaviors that deal directly with a problem and its effects (e.g., taking direct action to alter a situation or seeking information or advice about it). An example of this type of response is, "The man should ask his ex-wife if he could see the child more. If she refuses, he should ask the child who he wants to live with. If the child agrees, he should try to gain legal custody."

Cognitive problem analysis. Solutions involve intrapsychic or cognitive efforts to manipulate one's subjective appraisal of a situation, to understand it better, to solve the problem through logical analysis, or to reinterpret the situation from a different perspective. Examples include, "He should evaluate where the child would be better taken care of," or "The divorced man should question himself on why he didn't get the custody."

Passive-dependent behavior. Solutions include attempts to avoid or withdraw from a situation, the absence of self-initiated behaviors to alter a situation (e.g., doing nothing), or actions involving dependence on another person to solve the problem. Examples include "Learn to live with infrequent visits" or "I say see the child only on weekends" (which is passive given the problem situation).

Avoidant thinking and denial. Solutions include attempts to manage the meaning of a situation or of one's personal responsibility in it, selective attention to things other than the situation itself, and attempts to manage one's affective reaction to a situation through the suppression of one's emotions. Examples include "Enjoy the weekend visits and try not to worry. His child will know he loves him."

Solutions to each vignette for each participant received four scores, one for each problem-solving style. Two raters independently generated

scores for each vignette on the basis of a 4-point scale for how much a particular problem-solving style was used (1 = *no use*; 2 = *vague use*; 3 = *clear use* [defined as more than one problem-solving style but used in addition to another problem style given equal weight by the participant]; and 4 = *major use* [defined as the only or predominant problem-solving style for the vignette]). The following is an example of a total response protocol to the custody vignette and how it would be scored:

The man should explore his options. He should ask his wife to allow him to see the child more, and he should check with the courts to see if he can be granted joint or full custody. If not, wait until the child is older.

This protocol response would receive a score of 4 in the problem-focused category because the first three suggestions make this the predominant response mode. This response would also receive a score of 1 for cognitive analysis given no usage of the strategy, a score of 2 for passive-dependent response given vague usage of the strategy (e.g., minor reference to the option of waiting until the child is older); and a 1 for avoidant-denial response given no usage of the strategy.

A response with only one solution (as in the detailed descriptions of each strategy) would receive a score of 4 in the category represented by that solution and scores of 1 for the remaining three categories. A response clearly using more than one problem-solving strategy, but not using it predominantly, would score 3 in the categories used. For example, a response might contain solutions from two categories (e.g., "He should evaluate where the child would be better taken care of and enjoy the weekend visits and try not to worry"). This response would receive a score of 1 for problem-focused action, 3 for cognitive analysis, 1 for passive-dependent action, and 3 for avoidant-denial action.

Thus, four scores were generated for the response to each vignette and depicted how much each of the four problem-solving styles had been used by a particular participant in the solution to a particular vignette. Scores for the five vignettes at each level of emotional salience were summed across each of the problem-solving styles for each participant. For example, scores associated with problem-focused action were summed across the five low emotionally salient vignettes to create an overall problem-focused action usage score for low emotionally salient items. Overall usage scores for each problem-solving style were created at each level of emotional salience, yielding 12 scores (an overall problem-solving usage score for each of the four problem-solving styles in each of the three emotional salience levels) for every participant. Each of these 12 scores could range from 5 (no usage for any of five vignettes) to 20 (high usage for five vignettes). This usage measure was the dependent variable used in statistical analyses reported in the Results section.

Guidelines and a library of illustrative responses were developed for coding. Two graduate students, unaware of participant characteristics and level of emotional salience, rated the protocols containing the 15 vignette responses. A separate score for each of four problem-solving styles was assigned to each vignette response. Coding discrepancies were resolved by discussion among the two coders and Fredda Blanchard-Fields. Ten protocols consisting of a total of 150 solutions were randomly selected for coding to obtain reliability. Interrater reliabilities were .81, .74, .77, and .87 for problem-focused, cognitive-analysis, passive-dependent, and avoidant-denial styles, respectively, with an overall average interrater reliability of .84 using Pearson product-moment correlations.

Results

The major analysis was a 4 (age group) \times 3 (emotional salience level) \times 4 (problem-solving style) mixed-design model ANOVA, including age group, the between-subjects factor, and emotional salience and problem-solving style, the

within-subject factors. Preliminary analyses did not reveal evidence for gender differences; therefore, they were omitted from any further analyses. Problem style usage, as described earlier, was the dependent variable in the analysis. To avoid problems with violation of the sphericity assumption, a multivariate ANOVA approach to testing the significance of within-subject effects was used (Hertzog & Rovine, 1985). For purposes of comparison, however, we have included the mean square error from the averaged tests of significance for the repeated measures factors. In addition, given the number of analyses conducted, the alpha level for significant main effects and interactions was set at $p < .01$. Finally, when significant interaction effects were observed, SNK post hoc tests were conducted with the alpha level set at $p < .05$.

Age Effects

The main effect for age group did not reach significance ($F < 1$). In addition, the Age Group \times Emotional Salience effect was not significant ($F < 1$).

Emotional Salience

A significant effect for emotional salience would be obtained if usage of problem-solving styles became more varied across levels of emotional salience. The main effect for emotional salience reached significance, $F(2, 282) = 6.7, p < .001, MSE = 1.65$. Means ($\pm SDs$) for the low, medium, and high emotionally salient vignettes were 9.0 ± 0.3 , 9.1 ± 0.6 , and 9.2 ± 0.9 , respectively. A greater variety of problem-solving styles was used with increasing levels of emotional salience, although the effect was slight. Increasing individual variability from low to high salience was also noted in examining the standard deviations across levels of emotionality.

Problem-Solving Style

There was a main effect for problem-solving style, $F(3, 281) = 2,182.9, p < .001, MSE = 6.67$. Means ($\pm SDs$) associated with the problem-focused action, cognitive problem analysis, passive-dependent behavior, and avoidant thinking and denial styles were 16.2 ± 1.7 , 6.3 ± 1.3 , 6.6 ± 1.1 , and 7.2 ± 1.3 , respectively. The problem-focused action style was used far more often than other problem-solving styles, which as a group were used somewhat rarely ($p < .05$).

Interactions With Problem-Solving Style

Problem-solving style interacted significantly with age group, $F(9, 684) = 4.0, p < .001, MSE = 6.67$, and emotional salience, $F(6, 278) = 72.0, p < .001, MSE = 4.41$. The three-way interaction of Age Group \times Emotional Salience \times Problem-Solving Style also reached significance, $F(18, 787) = 3.2, p < .001, MSE = 4.41$.

Means ($\pm SDs$) associated with the Age Group \times Problem-Solving Style effect are shown in Table 1.

Simple main effects tests were conducted to determine age effects at each level of problem-solving style. Each significant simple main effect was followed by a post hoc analysis using the SNK procedure. For the problem-focused action problem-

Table 1
Usage Scores as a Function of Age Group
and Problem-Solving Style

Age group	Problem-solving style			
	PF	CA	PD	AD
Adolescents				
<i>M</i>	16.7	6.0	6.6	7.1
<i>SD</i>	1.6	1.1	1.0	1.3
Young adults				
<i>M</i>	16.2	6.8	6.4	7.2
<i>SD</i>	1.6	1.6	1.1	1.2
Middle-aged adults				
<i>M</i>	16.4	6.3	6.5	7.1
<i>SD</i>	1.6	1.3	0.9	1.3
Older adults				
<i>M</i>	15.7	6.0	7.0	7.6
<i>SD</i>	1.9	1.1	1.4	1.4

Note. PF = problem focused; CA = cognitive analysis; PD = passive-dependent; AD = avoidant-denial.

solving style, the simple main effect was significant, $F(3, 283) = 4.7, p < .003, MSE = 2.8$. The SNK analysis showed that the older adults used the problem-focused style significantly less than the other groups, which did not differ from each other. For the cognitive-analysis problem-solving style, the simple main effect was significant, $F(3, 283) = 5.7, p < .001, MSE = 1.6$. The SNK analysis showed that the young adult group used the cognitive-analysis style significantly more than the other groups, which did not differ from each other. For the passive-dependent problem-solving style, the simple main effect was significant, $F(3, 283) = 4.0, p < .008, MSE = 1.2$. The SNK analysis showed that the older adults used the passive-dependent style significantly more than the other age groups, which did not differ from each other. The simple main effect for the avoidant-denial problem-solving style did not reach significance, $F(3, 283) = 2.7, p < .04, MSE = 1.6$.

Overall, all age groups used the problem-focused style substantially more than any other style. In addition, all age groups used the avoidant-denial style more among the remaining three problem-solving styles. With the exception of the young adults, the cognitive-analysis style was used least often.

Means ($\pm SDs$) associated with the Problem-Solving Style \times Emotional Salience effect are shown in Table 2.

Simple main effects tests were conducted to determine emotional salience effects at each level of problem-solving style. These consisted of a series of totally within-subject ANOVAs. At each level of problem-solving style, an ANOVA was conducted across the three levels of emotional salience. For all four problem-solving styles, this ANOVA was significant ($p < .001$). Each of these ANOVAs was followed by a series of dependent t tests. For the problem-focused style, usage was significantly greater ($p < .001$) at the low level of emotional salience compared with either medium or high salience levels. Medium and high salience levels were not different from each other in usage. For the cognitive-analysis problem-solving style, usage was significantly less ($p < .001$) at the low level of emotional salience than at the medium or high salience levels, which were not different from

Table 2
Mean Usage Scores as a Function of Emotional Salience and Problem-Solving Style

Emotional salience	Problem-solving style			
	PF	CA	PD	AD
Low				
<i>M</i>	16.9	5.4	5.7	8.0
<i>SD</i>	2.3	1.1	1.2	1.8
Middle				
<i>M</i>	16.1	6.7	7.1	6.5
<i>SD</i>	2.5	1.8	2.2	2.0
High				
<i>M</i>	15.8	6.7	7.0	7.2
<i>SD</i>	2.8	2.4	2.1	2.0

Note. PF = problem focused; CA = cognitive analysis; PD = passive-dependent; AD = avoidant-denial.

each other. The same pattern obtained for the cognitive-analysis style was obtained for the passive-dependent style. For the avoidant-denial style, usage at each level was significantly different than from any other level ($p < .001$). The avoidant-denial style was used most with low salience vignettes and least with medium emotional salience vignettes.

Means (\pm SDs) associated with the Problem-Solving Style \times Emotional Salience \times Age Group effect are shown in Table 3.

Simple main effects tests were conducted to determine age group differences within each problem-solving style at each level of emotional salience. These consisted of a series of one-way ANOVAs followed by SNK post hoc tests when appropriate. All F tests reported in this section had degrees of freedom of 3 and 283.

At the low level of emotional salience, significant age differences were found for problem-focused, $F = 4.5$, $p < .004$, and avoidant-denial, $F = 5.1$, $p < .002$, problem-solving styles. SNK analyses revealed that older adults used problem-focused strategies significantly less than adolescents and avoidant-denial strategies significantly more than adolescents. No other comparisons reached significance at this level of emotional salience.

At the medium level of emotional salience, significant age differences were found for the problem-focused, $F = 2.8$, $p < .04$, cognitive-analysis, 8.3 , $p < .001$, passive-dependent, $F = 3.4$, $p < .02$, and avoidant-denial, $F = 2.7$, $p < .05$, problem-solving styles. Older adults used the problem-focused style less than adolescents. Younger adults used the cognitive-analysis style more than each of the other age groups, which did not differ from each other. Older adults used the passive-dependent style more than young adults, and older adults used the avoidant-denial style more than the other age groups. Thus, all problem-solving styles showed age effects at the middle level of emotional salience, although the pattern of such differences varied across problem-solving styles.

At the high level of emotional salience, the only significant age effect found was for the passive-dependent style, $F = 2.7$, $p < .05$. Older adults used the passive-dependent style more than younger adults for high emotional salience vignettes.

In summary, age effects were found for 7 of the 12 simple main effects used to evaluate the Problem-Solving Style \times Emo-

tional Salience \times Age Group effect. In six of these comparisons, older adults were significantly different than another age group. Specific differences among age groups varied across levels of emotional salience and problem-solving styles.

Discussion

In support of current thinking emphasizing the importance of the relationship between cognition and emotion (Blanchard-Fields & Camp, 1990; Cantor & Kihlstrom, 1989; Labouvie-Vief, DeVoe, & Bulka, 1989), emotional salience did prove to be a critical determinant of the degree to which individuals en-

Table 3
Mean Usage Scores as a Function of Age Group, Emotional Salience, and Problem-Solving Style

Age group	Problem-solving style			
	PF	CA	PD	AD
Low emotionally salient items				
Adolescents				
<i>M</i>	17.5	5.3	5.8	7.4
<i>SD</i>	2.4	0.9	1.3	1.9
Young adults				
<i>M</i>	17.0	5.5	5.8	8.0
<i>SD</i>	2.1	1.5	1.3	1.7
Middle-aged adults				
<i>M</i>	16.9	5.5	5.6	8.1
<i>SD</i>	2.1	1.1	1.1	1.8
Older adults				
<i>M</i>	15.7	5.4	5.6	8.6
<i>SD</i>	1.9	0.9	1.1	1.9
Medium emotionally salient items				
Adolescents				
<i>M</i>	16.4	6.3	7.0	6.5
<i>SD</i>	2.8	1.8	2.2	2.1
Young adults				
<i>M</i>	16.1	7.6	6.6	6.2
<i>SD</i>	2.1	1.9	2.0	1.7
Middle-aged adults				
<i>M</i>	16.4	6.8	7.0	6.2
<i>SD</i>	2.4	1.7	2.1	1.7
Older adults				
<i>M</i>	15.4	6.3	7.7	7.0
<i>SD</i>	2.7	1.7	2.5	2.4
High emotionally salient items				
Adolescents				
<i>M</i>	16.2	6.4	6.9	7.3
<i>SD</i>	2.7	2.0	2.1	2.0
Young adults				
<i>M</i>	15.7	7.3	6.6	7.2
<i>SD</i>	2.5	3.0	1.7	1.6
Middle-aged adults				
<i>M</i>	15.8	6.7	7.0	7.0
<i>SD</i>	2.9	2.4	1.9	2.2
Older adults				
<i>M</i>	15.5	6.3	7.6	7.2
<i>SD</i>	3.2	2.1	2.6	2.2

Note. PF = problem focused; CA = cognitive analysis; PD = passive-dependent; AD = avoidant-denial.

dorsed a particular problem-solving style. Further, of primary interest to the present study was the finding that age groups differed in their use of problem-solving strategies depending on the degree of emotional salience of the problem situation.

First, it should be noted that, compared to the other problem-solving styles, all individuals endorsed problem-focused strategies more across all emotional salience levels. In addition, there were no age differences for the cognitive-analysis strategy except for situations rated as medium in emotional salience. These findings are somewhat consistent with the Blanchard-Fields and Camp (1990) study in that they found no age differences in the two instrumental and proactive problem-solving strategies: problem focused and cognitive analysis. In contrast with other research (e.g., Denney, 1989), it suggests that older adults have the ability to engage in cognitively complex strategies.

Young adults did prefer cognitive-analysis strategies more than any other age group. This makes sense in that cognitive-analytic strategies (i.e., logical analysis) are more conspicuously relevant for adaptive functioning in an academic context for a youthful college population. In addition, older adults endorsed problem-focused strategies less than the younger age groups (except in high emotionally salient situations). However, to understand age differences in instrumental strategies more fully, the emotional salience of the problem situation and emotion-focused strategies need to be taken into consideration.

Problem-solving style was influenced by emotional salience of the situation in consistent ways across all age groups. Problem-focused strategies decreased in use with greater emotional salience, whereas passive-dependent response and cognitive analysis increased in use with greater emotional salience. However, both passive-dependent and cognitive-analysis styles may reflect a floor effect in the low emotionally salient situations, given the low endorsement of these strategies by all age groups. The low emotionally salient situations do not necessarily require a considerable degree of analysis (e.g., cognitive-analysis style) in that solutions to such instrumental everyday problems are more obvious. In addition, the instrumental nature of these types of situations would not lead an individual to simply "do nothing" (e.g., passive-dependent style) but, instead, be more proactive.

Despite these age group similarities, there were also systematic age differences as a function of emotional salience. First, although all individuals endorsed avoidant-denial strategies as the second most frequent strategy for low emotionally salient situations, overall, older adults were more likely to use this type of problem-solving style than the younger age groups (at low and medium levels of emotional salience). Second, not only did all individuals endorse more passive-dependent strategies when the problem situations were higher in emotional salience, but older adults used this strategy more in these situations compared with the younger age groups. Similarly, Blanchard-Fields and Camp (1990) found that older adults endorsed more passive-dependent and avoidant strategies than young and middle-aged adults, and type of problem-solving strategy was influenced by the problem domain. In this case, more pronounced age differences in emotion-focused strategies were found in a more emotionally salient situation: the friend domain.

Do older adults deliberately opt for more defensive and emotionally regulating responses given the emotional demands of a

problem situation, or do they lack the ability to use more cognitively oriented strategies in emotionally salient contexts? The findings from this study tend to lend support to the first premise (i.e., older adults' responses are related to the nature of the problem situation). First, there were no age differences in high emotionally salient contexts for problem-focused and cognitive-analysis strategies. Second, older adults, like the other age groups, used more problem-focused strategies in less emotionally salient and more instrumental task situations (e.g., returning defective merchandise). Third, all individuals used less passive-dependent strategies (giving in to the situation) in the low emotionally salient, instrumental situations. However, when the situations were less instrumental and more emotionally salient (e.g., moving to a new town, taking care of an older parent), older adults used more emotion-regulation strategies (e.g., suppressing emotions, not trying to alter an uncontrollable situation).

Given these findings, perhaps older adults possess a broad repertoire of problem-solving strategies and choose more emotionally regulative styles if the situation warrants it, in this case in more highly emotionally laden situations. This is supported in current research on emotion regulation in older adulthood. A number of studies have shown that, in general, older adults use more emotion-focused styles of coping than do younger adults (Folkman et al., 1987; Prohaska, Leventhal, Leventhal, & Keller, 1985). For example, Lawton and his colleagues (Lawton & Albert, 1990; Lawton, Kleban, & Dean, 1993) found that older adults report fewer negative emotions and appear to be better equipped with cognitive coping skills for negative emotions. Other research also suggests that the ability to accept uncontrollable events passively is related to more effective adaptation (Rodin & Langer, 1977; Rothbaum, Weisz, & Snyder, 1982). Indeed, older adults have been shown to use more emotion-focused coping when the problem situation is appraised as uncontrollable compared with younger adults (Blanchard-Fields & Irion, 1987; Folkman & Lazarus, 1980; Labouvie-Vief et al., 1987).

A number of researchers taking a life-span developmental perspective with respect to emotion regulation proposed that, in the latter half of the life span, individuals prefer to use more emotion-regulation strategies (Carstensen, 1992; Labouvie-Vief et al., 1987). Carstensen found that older adults are more emotionally conscious in considering the function of activities and social interactions in affect regulation. For example, she found that older adults emphasize the affective potential in selecting social partners by decreasing the rate of social interactions. In addition, the social cognitions accompanying this decrease in social interaction suggest that the older adult plays an active role in maintaining intimacy in long-term relationships while limiting social contacts that have less of a likelihood for positive emotional outcomes (i.e., acquaintances and novel social partners; Frederickson & Carstensen, 1990).

Conclusion

In contrast to previous research, we directly manipulated the emotional salience of the problem situation, revealing age differences in problem-solving style. Similar to research showing that older adults adopt emotion-focused strategies in uncon-

trollable situations or choose to decrease the rate of social interactions with new acquaintances, the present study highlighted differential use of emotion-regulation strategies on the part of older adults. In addition, older adults as well as young adults engaged in more instrumental strategies (e.g., problem focused) depending on the appropriateness of the context.

Research suggests that adaptive problem solving involves the selective application of problem-solving strategies that best fit the specific characteristics of a given situation (Blanchard-Fields & Camp, 1990; Cornelius & Caspi, 1987; Sternberg & Soriano, 1984). We did not directly address this criterion of effectiveness of the strategies in this study. However, the pattern of responding, which includes both instrumental and emotional regulation strategies with increasing emotional salience, suggests a broader and more flexible style of responding that is sensitive to situational variation. Further research is needed to test this implication directly.

It is also important to point out that previous research on everyday problem solving has sometimes demonstrated a decline in older adulthood (e.g., Denney, 1989). However, measures in past studies have not dealt explicitly with the influence of emotional salience. Thus, developmental-age differences demonstrating decline might have emerged only on measures more sensitive to information-processing and mechanistic manipulations. In the present study, stimuli were varied in emotional salience and were high in ecological validity. As a result, older adults were revealed as differentiated problem solvers, particularly in emotionally salient situations. Overall, both research perspectives are needed to determine when age differences on the part of older adults can be attributed to production deficiencies and when they can be attributed to flexibility in responding. As Baltes (1987) noted, both types of developmental changes can exist in parallel and may even complement each other.

Finally, it is necessary to note several limitations of the present study for assessing age differences in problem-solving style. First, the problem-solving style differences that emerged from this research were based solely on hypothetical situations. Future research needs to examine problem-solving style differences in self-generated problem situations. Second, given that problem-focused problem solving far exceeded the other three problem-solving styles, it may be that the medium used for generating responses (handwritten essays) was not conducive to eliciting a more comprehensive sampling of participants' solutions to problems. Audiotape recordings with interview prompts (e.g., Camp et al., 1989) may be more advantageous in future research. Finally, given the cross-sectional nature of this study, longitudinal designs will shed more light on the nature of change in problem-solving styles over time.

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Appendix

Problem-Solving Vignettes

1. A family takes care of their blind and diabetic mother. She is beginning to have serious kidney trouble and is hard to care for. The doctor is recommending a nursing home. What should the family do?
2. A woman wants to have a job, but her husband is opposed to it. She has no transportation of her own, and the bus is 15 blocks away. Her husband drives her to the bus stop for a while but then he stops, saying that he doesn't have time. What should the woman do?
3. A father has a 16-year-old daughter who keeps taking his car several times a week. The family has only one car. What should he do?
4. A man discovers that his wife is having an affair with someone else and that it has been going on for several months. What should he do?
5. A man wants to move to the town where he was born and raised, but his wife is very much opposed to moving. What should he do?
6. A divorced man has a child he is only able to see on the weekend; his wife has custody. He wants to be with the child all the time. What should he do?
7. A man is playing poker with a group of people, and he finds that some of them are cheating. What should he do?
8. A woman is married to an alcoholic. She feels no emotional support from the marriage. They lost their house and car. She has three children aged 3, 7, and 10 years. What should she do?
9. A person has an 86-year-old grandmother who drives a car and likes to feel mobile and independent. However, the person feels that the grandmother is physically incapable of driving safely and that her driving is a danger both to herself and to the public. What should the person do?
10. A man rents part of a house from a woman, and he is doing some repair work for her without first agreeing on a price for it. He spends a lot of time on the job and expects to be paid, but he is afraid to charge her much for it because the amount hasn't been discussed and he knows she doesn't have a lot of money. What should the man do?
11. A young man has a girlfriend who has become pregnant. Neither wants to get married, but she wants to have the child, whereas he thinks it would be best for her to have an abortion. What should he do?
12. A person bought dresses for her daughters that turned out to be clearly defective. She tries to return them to the store, but the manager will do nothing about it. What should she do?
13. A boy in high school is troubled by someone who is always picking a fight with him. The boy does not want to fight. What should the boy do?
14. A woman spends a lot of time helping her aunt take care of things, but she is busy with a family of her own, and she is beginning to feel like her aunt is just taking her for granted. What should the woman do?
15. A person has a sister who is accusing him of taking money from their mother. He did not steal any money and is mad at the sister. What should he do?

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