Memory & Cognition
2007, 35 (2), 304-316

Individual differences in current events knowledge: Contributions of ability, personality, and interests

David Z. Hambrick
Michigan State University, East Lansing, Michigan

Elizabeth J. Meinz
Southern Illinois University, Edwardsville, Illinois

and

Frederick L. Oswald
Michigan State University, East Lansing, Michigan

What accounts for individual differences in the sort of knowledge that people may draw on in everyday cognitive tasks, such as deciding whom to vote for in a presidential election, how to invest money in the stock market, or what team to bet on in a friendly wager? In a large sample of undergraduate students, we investigated correlates of individual differences in recently acquired knowledge of current events in domains such as politics, business, and sports. Structural equation modeling revealed two predictive pathways: one involving cognitive ability factors and the other involving two major nonability factors (personality and interests). The results of this study add to what is known about the sources of individual differences in knowledge and are interpreted in the context of theoretical conceptions of adult intelligence that emphasize the centrality and importance of knowledge (e.g., Ackerman, 1996; Cattell, 1971).

The basic idea of the *knowledge-is-power hypothesis* is that what distinguishes successful from unsuccessful cognitive performance in real-world environments such as the classroom and the workplace is simply what people know. That is, individual differences in acquired knowledge translate into individual differences in a variety of complex tasks—problem solving, decision making, language comprehension, complex learning, and so on (e.g., Minsky & Papert, 1974). This hypothesis is supported by a wealth of evidence. For example, comparisons of novices and experts in domain-relevant tasks, such as choosing a move in a chess game or playing a hand in a bridge game, have yielded massive effect sizes—among the largest consistently observed in the behavioral sciences (see Ericsson, 1996, for a review). The importance of knowledge in fundamental, everyday tasks such as reading (e.g., Spilich, Vesonder, Chiesi, & Voss, 1979) and writing (e.g., Kellogg, 2001) has been amply demonstrated as well. In light of such evidence, there has been much emphasis in recent years on the importance of acquired knowledge as a central component of intelligence (e.g., Ackerman, 1996; Ceci, 1996). For example, Schank and Birnbaum (1994) proposed the following: "The bottom line is that intelligence is a function of knowledge. One may have the potentiality of intelligence, but without knowledge, nothing will become of that intelligence" (p. 102).

Why, then, do some people know more than others? What are the characteristics of individuals that drive differences in acquiring and retaining information? In the present study, this question is considered in the context of current events knowledge—the sort of world knowledge that people may draw on in everyday tasks, such as deciding whom to vote for in a presidential election, how to invest in the stock market, or what team to bet on in a friendly wager. Today, news information is more accessible than ever. For example, on most college campuses, students have free access to the Internet and can catch up on the news of the day in a few mouse clicks. Why, then, do some people know more about current events than others? Obviously, being exposed to information about a topic is a prerequisite for acquiring knowledge of that topic. For example, to learn about politics, a person must either be passively exposed to such information or actively engage in such activities as reading the newspaper, listening to the radio, or watching television. Thus, individual differences in exposure to media might be expected to account for a significant proportion of individual differences in current events knowledge. Consistent with this speculation, Stanovich and colleagues found that exposure to print accounted for a large proportion of the variance in cultural knowledge, above and beyond cognitive ability (e.g.,

D. Z. Hambrick, hambric3@msu.edu

Stanovich & Cunningham, 1992, 1993; West, Stanovich, & Mitchell, 1993). But why are some people more likely than others to seek out information in the first place? And why do some people seem to acquire more information through experience than do others? That is, above and beyond the opportunity for knowledge acquisition that exposure provides, what are the factors that contribute, directly or indirectly, to individual differences in acquiring and remembering information about the world?

Perspectives on Individual Differences in Knowledge

One long-standing perspective on individual differences in knowledge emphasizes the role of general intelligence, or *g*. The essence of this view, which Stanovich and Cunningham (1992, 1993) termed the *cognitive efficiency hypothesis*, is that individual differences in knowledge reflect individual differences in the efficiency and effectiveness of basic cognitive processes, such as reasoning and memory. In a symposium on intelligence (Thorndike, 1921), Woodrow alluded to this view when he described intelligence as an "acquiring capacity" (p. 207), as did Henmon when he stated that "the intelligent person is capable of readily appropriating information or knowledge" (p. 195). Later, Cattell and Horn (e.g., Cattell, 1963; Horn, 1968; Horn & Cattell, 1966, 1967) made a distinction between two aspects of general intelligence. *Fluid intelligence* (*Gf*) refers to the ability to solve novel problems and is usually measured with tests of abstract reasoning, in which past experience is assumed to have minimal influence on performance. By contrast, *crystallized intelligence* (*Gc*) refers to knowledge acquired through experience, as typically assessed with tests of vocabulary and general information. Cattell (1971) proposed that individual differences in *Gc* arise through the *investment* of *Gf* in learning activities.

The cognitive efficiency hypothesis is supported by a number of different sources of empirical evidence. For example, in cross-sectional comparisons, *Gf* and *Gc* correlate positively and moderately (see Horn & Noll, 1997, for a review), and in a longitudinal study, Ferrer and McArdle (2004) found *Gf* to be a leading indicator of developmental change in accumulated academic knowledge (see also Schmidt & Crano, 1974). There even is evidence for a "snowball" effect in knowledge acquisition, whereby the *Gc* that reflects individuals' past knowledge itself facilitates the acquisition of new knowledge. For example, Ackerman, Bowen, Beier, and Kanfer (2001) observed direct effects of *Gc* on knowledge in several broad domains (e.g., physical sciences/technology and biology/psychology), as did Beier and Ackerman (2001) in a study of knowledge of current events information ranging from the 1920s through the 1990s (see Ackerman & Kanfer, 2004, for a recent review). One interpretation of this evidence is that preexisting knowledge can provide a meaningful organizing framework for assimilating new information. Laboratory studies provide further evidence for the role of preexisting knowledge in learning. As examples, vocabulary facilitates paired-associates learning (e.g., Kyllonen & Tirre, 1988; Kyllonen, Tirre, & Christal, 1991; Thurstone, 1938), and there have been many reports of positive effects of prior knowledge on learning from text (e.g., Spilich et al., 1979; see Hambrick & Engle, 2002, for a review). As another example, in a longitudinal study, Hambrick (2003) found that preexisting knowledge of basketball facilitated acquisition of new knowledge about basketball over a season.

To summarize, both fluid and crystallized aspects of intelligence (*Gf* and *Gc*) might be expected to contribute to individual differences in recently acquired current events knowledge. However, theory and evidence—as well as intuition—suggest that nonability factors may also play an important role. Consider the role of interests. A consistent finding in studies of text-based learning is that a high level of interest in a given topic is associated with superior comprehension and retention of information about that topic (see Hidi, Renninger, & Krapp, 2004, for a recent review), and there is a large literature documenting the positive relationship between interests and scholastic achievement (see Renninger, Hidi, & Krapp, 1992, for an edited volume on the topic). Research on vocational interests provides further evidence for the role of nonability factors in knowledge acquisition. For example, Ackerman and colleagues (e.g., Ackerman, 2000; Rolfhus & Ackerman, 1996, 1999) observed correlations between vocational interests (e.g., investigative, realistic) and knowledge of various domains. One interpretation of this evidence is that a person's interests guide information-seeking activities toward some topics and away from others. More directly, interest in some topic may direct attention toward information about that topic, resulting in more focused and effective processing (e.g., Hidi, 1990, 1995; McDaniel, Waddill, Finstad, & Bourg, 2000).

Beyond interests, certain personality characteristics might be expected to contribute to individual differences in knowledge. For example, Cattell (1945) reported positive correlations between measures of *Gc* and a cluster of personality characteristics he labeled *intellectual/wide interests*. More recently, Cacioppo and Petty (1982) developed a measure of what Cohen, Stotland, and Wolfe (1955) termed *need for cognition*—one's preference or propensity for intellectual engagement. In the Need for Cognition scale, participants rate level of agreement/disagreement with statements describing a preference for intellectual engagement—statements such as "I prefer watching educational to entertainment programs" and "I would rather do something that requires little thought than something that is sure to challenge my thinking abilities." To date, little is known about the role of need for cognition in knowledge acquisition. However, it seems quite plausible to predict that people who agree strongly with the first statement and disagree with the latter one might be likely to seek out knowledge of the world around them through a variety of activities—for example, reading the newspaper or watching public television.

This hypothesis of a relationship between need for cognition and knowledge acquisition has apparently not been specifically tested, but there is some supportive evidence in the literature. For example, Salthouse, Berish, and Miles (2002) reported a positive correlation between need for cognition and vocabulary. Furthermore, in a meta-analysis, Ackerman and Heggestad (1997) found *Gc* to be positively

correlated with *openness* ($r = .30$)—a dimension of Costa and McCrae's (1992) five-factor theory of personality that has been observed to correlate positively and moderately with need for cognition (e.g., McCrae, 2000; Sadowski & Cogburn, 1997). Finally, Goff and Ackerman (1992) reported positive correlations between the *intellectual engagement* factor of their Typical Intellectual Engagement scale and knowledge, as well as interest in arts/humanities, science, and social science (see also Rolfhus & Ackerman, 1999). This evidence is relevant to the suggested connection between need for cognition and knowledge, because the concept of need for cognition seems similar to the concept of typical intellectual engagement, which Goff and Ackerman defined as people's "typical expression of a desire to engage and understand their world, their interest in a wide variety of things, and their preference for a complete understanding of a complex topic or problem" (p. 539).

The Present Study

Once again, the question is what accounts for individual differences in knowledge. The primary aim of this study was to evaluate the relative contributions of ability, personality, and interests to individual differences in recently acquired current events knowledge. We predicted that cognitive ability factors (*Gf* and *Gc*) would correlate positively with individual differences in current events knowledge. More specifically, consistent with previous research, we predicted that there would be positive effects of *Gf* on *Gc* and of *Gc* on current events knowledge (e.g., Ackerman et al., 2001; Beier & Ackerman, 2001). The more important question was whether, above and beyond the contribution of cognitive ability, there would be independent contributions of the nonability factors. This study extends previous efforts to address this question in two ways. First, we distinguished between two types of nonability factors—*proximal* and *distal*—and tested specific predictions about their relations to knowledge. Specifically, we conceptualized need for cognition as a distal measure of interest in intellectual activities and predicted that it would positively predict proximal interest in a variety of current events topics, which, in turn, would positively predict engagement in information-seeking activities. Second, we assessed participants' interest in each of the specific domains in which we assessed knowledge (politics, business, sports, etc.). That is, we tailored our assessment of interests to our assessment of knowledge. Beier and Ackerman reported weak correlations between vocational interests (e.g., realistic, investigative) and current events knowledge. One possible explanation for this finding, which stems from the idea that predictive validity is greatest when predictor and criterion variables are matched in terms of specificity (i.e., Brunswik symmetry), is that there was a mismatch between the interest and knowledge measures, so that the former were more general than the latter (Wittmann & Süß, 1999).

Traditionally, cognitive research on human learning and memory has relied on laboratory paradigms, such as paired-associates tasks, in which the participants' exposure to information is controlled. A potential advantage of this sort of approach is that individual differences can be attributed to factors other than exposure. However, a potential disadvantage is that the conditions of learning may be different from those encountered outside of the laboratory (e.g., Neisser, 1978). For example, use of arbitrary stimuli in laboratory studies (e.g., nonsense syllables) precludes examination of potentially important predictor variables, such as interests, and outside of the laboratory, learning often occurs over an extended period of time and under self-paced conditions. In our study, we used a psychometrically oriented, naturalistic research approach. That is, instead of assessing knowledge acquisition (learning) in a laboratory paradigm, we created tests designed to assess knowledge of a broad range of current events, acquired under natural learning conditions. A limitation of this study is that the research design was cross-sectional, rather than longitudinal. That is, we assessed knowledge of current events and the ability, personality, and interest factors that we thought might be involved in its acquisition at a single point in time. However, because the focus was on knowledge of recent current events, it seemed reasonable to conceptualize these factors as predictors of knowledge acquisition.

To preview, over 500 undergraduate students completed tests and questionnaires to assess cognitive ability (*Gf* and *Gc*), as well as need for cognition, current events interests, and exposure to news. They then completed tests to assess knowledge of current events in 2002 and 2003. To investigate individual-difference characteristics that contribute to the acquisition of current events knowledge, we used structural equation modeling, with measures of current events knowledge as the criterion variables and other variables as predictors.

METHOD

Participants

The participants (67% of them female) were 527 undergraduate students recruited from two Midwestern universities: Michigan State University (MSU; $n = 369$) and Southern Illinois University, Edwardsville (SIUE; $n = 158$). The participants received credit in an introductory psychology course for volunteering. We assume that the range of cognitive ability was somewhat restricted in our sample, given that all the participants were college students at the time of the study. However, it still appears that our participants represented a relatively wide range of ability. For example, self-reported ACT scores ranged from 15 to 33 ($M = 23.4$, $SD = 3.8$). Thus, our sample was selective, but not extremely so, relative to all students who apply to college ($M = 20.8$, $SD = 4.8$; see www.act.org). ACT scores were higher on average in the MSU sample ($M = 24.7$, $SD = 3.2$) than in the SIUE sample ($M = 22.0$, $SD = 3.4$), although the range of scores was similar across samples (MSU = 16–33; SIUE = 15–32). The sample means are similar to the corresponding institution means for 2004 (MSU = 24.5; SIUE = 22.0; College Board, 2004).

Materials

The participants completed tests and questionnaires designed to measure the following constructs: (1) cognitive ability (*Gf* and *Gc*), (2) need for cognition, (3) news exposure, (4) current events interest, and (5) current events knowledge.

Cognitive ability. We assessed cognitive ability with tests designed to assess *Gf* and *Gc*. The major criterion for selecting the tests was evidence from previous research for adequate psychometric properties (i.e., reliability and validity).

The *Gf* tests were the 18 odd-numbered items from Raven's progressive matrices (Raven, 1962) and 20 items from the ETS Letter

Sets test, 10 items from each of the two forms (Ekstrom, French, Harmon, & Derman, 1976). Each Raven item consisted of a 3 × 3 matrix in which each cell, except the one in the lower right-hand corner, contained a pattern. The task was to choose, from among eight alternatives, a pattern that made logical sense in the missing ninth cell. Each letter set item consisted of five sets of letters. The task was to infer the rule that made these letter sets similar and to identify the letter set that did not fit this rule. For each test, the time limit was 10 min. Along with positive correlations with two other measures of abstract reasoning, Hambrick (2003) reported coefficient alphas of .70 for the 18-item version of Raven's and .64 for a slightly shorter version of the Letter Sets test (14 items).

The two *Gc* tests were 25 items (Items 16–40) from the Shipley Institute for Living Scale vocabulary test (Zachary, 1986) and a 36-item general information test (Hambrick, Salthouse, & Meinz, 1999). Each vocabulary item consisted of a target word printed in all capital letters, along with four words appearing to the right of this word in lowercase letters. The task was to select the alternative that was the most similar in meaning to the target word. Each general information item was a multiple-choice question; there were three questions for each of the following 12 topics: (1) art, (2) civics, (3) economics, (4) geography, (5) American history, (6) world history, (7) American literature, (8) world literature, (9) mythology, (10) music, (11) politics, and (12) sports. Hambrick et al. reported a coefficient alpha of .89 for a measure of general information based on many of the items used in this study and strong positive correlations of this measure with vocabulary. The Shipley test is widely administered and has been shown to have good psychometric properties (Zachary, 1986).

Need for cognition. We assessed need for cognition with a scale developed by Cacioppo, Petty, and Kao (1984). Each of the 18 items on this scale was a statement describing an attitude toward or propensity for thinking and engagement in intellectual activities (e.g., "I prefer my life to be filled with puzzles I must solve"). Half of the statements were positively worded, and half were negatively worded. Using a 5-point rating scale (1 = *completely inaccurate* to 5 = *completely accurate*), the participants were to assign each item a value reflecting the degree to which they believed the statement was an accurate description of them. There was no time limit, but most of the participants finished within 3–5 min. Cacioppo, Petty, and Kao reported a coefficient alpha of .90 for this scale.

News exposure. We assessed exposure to news media with a paper-and-pencil questionnaire. The participants were to estimate, for a typical week, the number of times they had engaged in each of the following five activities and how long they had spent on each activity each time they engaged in it: (1) reading the newspaper, (2) reading news magazines, (3) watching news programs on television, (4) listening to news programs on the radio, and (5) reading the news on the Internet. For each activity, the exposure estimate was the frequency estimate multiplied by the time estimate (minutes/week). The participants were also asked to list the newspapers, news magazines, news programs, and news Web sites they had relied upon most.

As an additional assessment of news exposure, the participants completed a newly developed scale (*Need for News*). Modeled after the Need for Cognition scale, each of the 12 items was a statement describing a propensity for engaging in a news-seeking activity (e.g., "While waiting for a flight or bus, I often like to catch up on the news") or a general attitude toward staying abreast of news (e.g., "I am a news junkie"). Using the same 5-point rating scale as in Need for Cognition, the participants were to rate the degree to which each statement described them. Half of the items were positively worded, and half were negatively worded.

Current events interests. We assessed the participants' interest in news-related topics using a newly developed inventory called *News Interests*, in which each item was a news headline. Using a 5-point scale (1 = *not at all interested* to 5 = *very interested*), the participants were to indicate how interested they would be in reading or hearing about the news story. There were nine items for each of the following seven news categories: (1) business/economy, (2) crimes/accidents/disasters, (3) entertainment, (4) U.S. politics/government, (5) world politics/government, (6) science/medicine, and (7) sports. Cutting across these categories, there also were local news headlines, with nine Michigan items and nine Illinois/Missouri items. Thus, there was a total of 81 items. We obtained the headlines through electronic searches of the *New York Times* and local newspapers (e.g., the *Lansing State Journal* and the *St. Louis Post-Dispatch*). No headline pertained to an event asked about on one of the tests of current events knowledge. Sample items appear in Appendix A.

To select items for this inventory, we conducted a pilot study in which 96 Michigan State undergraduates rated 240 items, with 30 items for each of the categories just listed, as well as 30 items for the Michigan local category. With a separate analysis for each category, we entered the items into a principal axis factor analysis and selected the 9 items with the highest positive loadings on the first factor for use in the present study. The goal of this analysis was to create a scale for each interest category with high internal consistency reliability. We then entered the retained items into a single-factor analysis to determine whether each interest scale showed discriminant validity with respect to the other scales. This was the case: The U.S. and world politics/government items loaded onto a single factor, but the factors were otherwise clearly interpretable as reflecting the hypothesized categories. We conducted an additional pilot study with 60 Southern Illinois University undergraduates and selected 9 items for the Illinois/Missouri local category.

Current events knowledge. We assessed the participants' knowledge of current events with two multiple-choice tests, each consisting of 99 four-alternative questions, with 11 questions for each of the nine current events categories (including two local). The first test covered current events in 2002. The second test covered 2003 and the first 3 months of 2004 (January–March). (We will refer to the latter test as Current Events 2003, because over 90% of the items were from 2003.) Sample items appear in Appendix B. We wrote the current events questions in such a way as to minimize the possibility that the participants could answer the questions correctly without having been exposed to the information and without having prior knowledge. Consider Item 52 from the 2002 test:

> Nearly four days after nine mineworkers were trapped underground by rising floodwaters in this state, rescue workers freed all nine men and brought them back above ground to safety:
>
> a. West Virginia
> b. Virginia
> c. Ohio
> d. Pennsylvania

Pennsylvania is the answer, but *West Virginia*, *Virginia*, and *Ohio* are all plausible, because there are active coal mines in each of these states. To select items, the participants in the pilot study described above also completed longer versions of these current events tests. With a separate analysis for each test, we entered the items for a given category into a factor analysis and retained the 11 items having the highest positive loadings on the first unrotated factor.

Procedure

The study occurred in a single session of approximately 2 h, with 10 to 25 participants per session. With the exception of the background and news exposure questionnaires, the participants marked all responses on machine-scoreable Scantron forms. Materials were presented in three-ring binders, and the bottom of each page included a reminder to the participants to check their scantrons for accuracy (e.g., "Make sure that you just marked #22 on your scantron"). The experimenters also provided frequent reminders, and they asked the participants to make sure that the number for the last question of each test matched the last response marked.

After signing an informed consent form and completing a background form with questions about age, gender, ethnicity, and ACT score, the participants completed the materials in a fixed order of (1) background questionnaire, (2) news exposure, (3) need for cognition, (4) need for news, (5) news headlines, (6) Raven's matrices, (7) current events 2002, (8) synonym vocabulary, (9) letter

sets, (10) current events 2003, and (11) general information. Upon completion of the session, the participants were debriefed.

RESULTS

Data Screening and Preparation

We handled missing values by discarding the data for the participants who responded to fewer than 75% of the items on any given Scantron-based test or questionnaire (with the exception of the speeded abstract-reasoning tests). This resulted in eliminating 26 participants (4.9% of the total sample).[1] For the remaining 501 participants, the score for each test or questionnaire was the mean rating or percentage correct of items attempted. The score for each abstract-reasoning test was the percentage of the total number of items correct. Next, we screened the data for outliers. We defined an extreme outlier as a score that was more than 4 standard deviation units from the mean of that variable and more than 0.5 standard deviation units from the next closest score. Thirty self-report estimates of news exposure (1.2% of all the estimates) met this criterion. We truncated each of these values, all of which were implausibly high, to within 0.5 standard deviation units of the next score.

Table 1
Descriptive Statistics for Predictor Variables

Variable	No. of Items	*M*	*SD*	α
Ability				
Raven's matrices	18	.52	.16	.66
Letter sets	20	.70	.18	.80
General information	36	.56	.13	.70
Synonym vocabulary	25	.54	.13	.60
Nonability				
Need for cognition	18	3.2	0.51	.80
Business/economy interest	9	3.0	1.3	.91
Crimes/accidents/disasters interest	9	4.5	1.2	.90
Entertainment interest	9	3.8	1.5	.92
Science/medicine interest	9	4.4	1.2	.87
Sports interest	9	4.4	1.2	.93
U.S. politics/government interest	9	3.3	1.3	.92
World politics/government interest	9	2.8	1.2	.91
News exposure				
Newspaper (min/wk)	–	59.1	62.5	–
TV news (min/wk)	–	99.2	144.0	–
Web news (min/wk)	–	43.2	73.0	–
Magazine news (min/wk)	–	13.1	38.3	–
Radio news (min/wk)	–	26.1	62.1	–
Need for news	12	4.7	2.8	.74

Note—Values for nonability variables reflect average ratings. Values for ability variables reflect proportions correct. α = coefficient alpha.

Descriptive Statistics and Correlations

Table 1 displays descriptive statistics and coefficient alphas for the predictor variables (see Table 3 for intercorrelations). Self-report estimates of news exposure were substantially nonnormal (average skewness = 3.10), because for each variable, there was a relatively large number of small values, relative to large values. We therefore performed a square-root transformation on each news exposure variable. The resulting distributions were less skewed (average skewness = 1.29), and thus, we used the transformed variables in all the subsequent analyses. Coefficient alphas for the predictor measures were generally high ($\alpha > .70$), indicating adequate internal consistency reliability. Alphas were somewhat low for Raven's matrices ($\alpha = .66$) and the synonym vocabulary test ($\alpha = .60$), but we retained them for the subsequent analyses because they correlated moderately with the other ability measures. The alpha for the total score from the Need for News scale was also acceptable ($\alpha = .82$). However, a factor analysis of the 12 items from this scale revealed that positive and negative items loaded onto different factors, which were only weakly correlated ($r = .21$). Furthermore, the positive items were more strongly correlated with the news exposure estimates (average $r = .21$) than were the negative items (average $r = .02$). One possible explanation for this finding is that there was a social desirability bias in the participants' responding to the negative items (e.g., "I think the news is boring"). For this reason, we based the need-for-news variable on the six positive items and discarded the negative items. The retained positive items had adequate reliability ($\alpha = .75$).

We could not compute coefficient alphas for the self-report news exposure estimates. Nevertheless, with the exception of radio listening, these variables correlated positively and significantly with each other. (We excluded radio listening from subsequent analyses, due to the possibility that it had poor reliability.) Furthermore, it is apparent that the participants represented a wide range of news exposure. For example, estimated time spent reading the newspaper ranged from 0 to over 6 h per week ($M = 1.0$, $SD = 1.0$), and although most newspaper readers listed a local newspaper as the newspaper they read most often, a sizeable number of the participants reported reading a national newspaper on a regular basis (e.g., 15.6% for the *New York Times*). As another example, estimated time spent watching television news ranged from 0 to over 18 h per week ($M = 1.7$, $SD = 2.4$). In short, it seems reasonable to assume that our participants differed widely in how much they had been exposed to the information asked about on the current events knowledge tests.

In fact, there were large and reliable individual differences in current events knowledge. That is, as is shown in Table 2, coefficient alphas for Current Events 2002 and Current Events 2003 were high (αs = .83 and .81, respectively), and scores ranged from chance to near-perfect (maximum of 88% for 2002 and 92% for 2003). An inspection of Table 2 also reveals that coefficient alphas for the individual current events knowledge measures (e.g., business/economy, crimes/accidents/disasters, etc.) were lower than those for the total scores (average $\alpha = .48$). This was expected, because each individual measure was based on only 11 items. Furthermore, the individual knowledge measures correlated moderately with each other (average $r = .31$), and all but 1 of the 91 correlations among these measures was statistically significant (see Table 3). Therefore, we retained all of the current events knowledge variables for the subsequent analyses.

Exploratory Factor Analyses

We investigated relations among the variables in exploratory factor analyses, with separate analyses for the predictor

Table 2
Descriptive Statistics for Knowledge Variables

Variable	*M*	*SD*	α
Business/economy '02	.44	.18	.39
Crimes/accidents/disasters '02	.40	.18	.44
Entertainment '02	.85	.17	.66
Science/medicine '02	.42	.20	.27
Sports '02	.44	.27	.63
U.S. politics/government '02	.40	.20	.56
World politics/government '02	.33	.18	.44
Total '02	.47	.13	.83
Business/economy '03	.39	.17	.40
Crimes/accidents/disasters '03	.83	.16	.37
Entertainment '03	.46	.18	.58
Science/medicine '03	.43	.17	.41
Sports '03	.49	.23	.67
U.S. politics/government '03	.48	.19	.43
World politics/government '03	.37	.18	.44
Total '03	.49	.12	.81

Note—Values reflect proportions correct. Each knowledge variable is based on 11 items. α = coefficient alpha.

variables (ability and nonability measures) and the criterion variables (knowledge measures). We inspected eigenvalues and scree plots to determine the number of factors for a principal axis factor analysis with an oblique rotation (Promax) in each analysis, in order to allow the factors to correlate if they were in fact correlated. The goal of these analyses was to guide the specification of the latent variables and their respective indicators for use in the structural equation analyses reported in the next section (see Fabrigar, Wegener, MacCallum, & Strahan, 1999). A specific question of interest was whether there would be evidence for factors reflecting general interest in and knowledge of current events.

Table 4 displays the results for the predictor variables. (For this and all the subsequent analyses, we created three item parcels for use as indicators of need for cognition, which were more normally distributed than the individual items.[2]) We extracted five factors. Factor 1 can be interpreted as reflecting general interest in current events (current events interest), because five of the seven interest variables had strong positive loadings on this factor: business/economy (.75), U.S. politics/government (.84), world politics/government (.90), and science/medicine (.56). Factors 2, 3, and 4 clearly reflect need for cognition, news exposure, and cognitive ability, respectively.[3] Entertainment interest (.71) and sports interest (.46) had the strongest positive loadings on Factor 5 (sports and entertainment interest). Note that crimes/accidents/disasters interest had positive loadings on Factor 1 (.61) and Factor 5 (.44). One possible explanation for this split loading is that news stories in this category are sometimes covered and sensationalized to the point that they essentially become entertainment stories (e.g., criminal cases involving celebrities). Nevertheless, given that crimes/accidents/disasters interest had its highest loading on Factor 1, we treated it as an indicator of general current events interest in the structural equation analyses.

Table 5 displays the results for the current events knowledge variables, which are straightforward. Factor 1 clearly reflects general knowledge of current events (current events knowledge) and is defined by knowledge variables from the categories that defined the general interest factor in the preceding analysis (reported as 2002/2003): business/economy (.67/.51), crimes/accidents/disasters (.59/.54), U.S. politics/government (.60/.57), world politics/government (.69/.63), and science/medicine (.54/.58). Factor 2 reflects sports knowledge (.80/.81), and Factor 3 reflects entertainment knowledge (.74/.75). Hence, there was evidence for a general factor of current events knowledge, which encompasses knowledge of a broad range of topics, as well as evidence for factors reflecting specialized knowledge in the areas of sports and entertainment.

Predictors of Current Events Knowledge

First, consider the participants' knowledge of local current events (Table 6). MSU participants knew more about Michigan current events than did SIUE participants (MSU = .56 vs. SIUE = .30; $t = 16.76$, $SE = 0.015$, $p < .01$, $d = 1.50$). Prior to the study, the MSU participants were presumably more exposed to Michigan news than were the SIUE participants. Of course, the opposite was true for Illinois/Missouri current events (SIUE = .45 vs. MSU = .27; $t = 15.99$, $SE = 0.011$, $p < .01$, $d = 1.43$). Furthermore, a composite variable reflecting *Gc* correlated positively and significantly with Michigan knowledge in MSU participants ($r = .37$) but was near zero for Illinois/Missouri knowledge ($r = .07$) and correlated positively and significantly with Illinois/Missouri knowledge in SIUE participants ($r = .53$) but was near zero for Michigan knowledge ($r = -.03$). This same pattern of correlations was evident for *Gf*, although none of the correlations reached statistical significance. Taken together, these results make the point that exposure had a large impact on individual differences in the knowledge assessed in this study and suggest that there was no appreciable influence of ability on performance in the current events tests independent of exposure. But what contributes to individual differences in current events knowledge beyond the opportunity for knowledge acquisition that exposure provides?

Structural Equation Analyses

We used structural equation modeling to address this question.[4] Two major steps were involved. First, we conducted confirmatory factor analyses to establish measurement models for both the predictor variables and the criterion variables. The model for the predictor variables included cognitive ability factors (*Gf* and *Gc*), need for cognition, news exposure, and current events interest. Indicators for current events interest were the five interest variables that defined Factor 1 in the exploratory factor analysis of the predictor variables. Model fit was just at the level considered acceptable [$\chi^2(109) = 315.88$, $p < .01$; comparative fit index (CFI) = .93, nonnormed fit index (NNFI) = .90, root-mean squared error of approximation (RMSEA) = .06], and inspection of modification indices revealed no obvious misspecification of constructs. For current events knowledge, a single-factor model with the knowledge variables that defined Factor 1 in Table 5 serving as indicators provided an excellent fit to the data [$\chi^2(35) = 63.71$, $p < .01$; CFI = .98, NNFI = .95, RMSEA = .04].

Table 3
Correlation Matrix

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Ability																															
1. Raven's matrices																															
2. Letter sets	.44																														
3. General information	.26	.23																													
4. Synonym vocabulary	.27	.28	.51																												
Nonability																															
5. Need for cognition	.20	.12	.25	.23																											
6. Business/economy interest	−.02	−.05	.15	.12	.24																										
7. Crimes/accidents/disasters interest	.00	.07	.01	−.06	.13	.38																									
8. Entertainment interest	−.03	.10	−.14	−.27	−.15	.00	.34																								
9. Science/medicine interest	.16	.09	.23	.22	.35	.36	.47	−.06																							
10. Sports interest	−.03	.07	.06	−.11	.02	.23	.17	.31	−.01																						
11. U.S. politics/government interest	.03	.01	.25	.20	.32	.74	.36	−.03	.44	.09																					
12. World politics/government interest	.00	−.05	.26	.21	.31	.74	.42	−.10	.43	.12	.81																				
News exposure																															
13. Newspaper (min/wk)*	.03	.02	.16	.15	.23	.28	.10	−.07	.09	.20	.25	.23																			
14. Television (min/wk)*	−.08	−.12	.00	−.03	−.01	.20	.11	−.01	.08	.11	.16	.15	.21																		
15. Internet (min/wk)*	.00	−.03	.15	.14	.08	.22	.03	.00	.11	.14	.17	.22	.27	.13																	
16. Magazines (min/wk)*	−.11	−.11	.00	.01	.04	.15	.00	−.10	.08	−.02	.16	.14	.18	.18	.17																
17. Radio (min/wk)*	−.07	−.10	−.12	−.04	−.07	.09	.07	.01	.01	−.10	.05	.05	.04	.22	.01	.09															
18. Need for news	.00	−.01	.21	.13	.22	.49	.28	−.02	.25	.20	.52	.52	.47	.30	.46	.22	.08														
Current events knowledge																															
19. Business/economy '02	.11	.07	.40	.38	.22	.28	−.04	−.28	.15	.00	.26	.26	.20	.06	.12	.00	.01	.27													
20. Crimes/accidents/disasters '02	.05	.10	.29	.24	.11	.08	.02	−.17	.08	.05	.14	.14	.17	.07	.17	.05	−.02	.27	.36												
21. Entertainment '02	.17	.29	.38	.32	.15	−.01	.05	.03	.06	.07	.05	.02	.19	−.05	.02	−.05	−.08	.11	.21	.28											
22. Science/medicine '02	.14	.15	.40	.32	.20	.10	.03	−.21	.23	−.11	.20	.21	.17	.06	.06	−.04	−.11	.19	.39	.27	.25										
23. Sports '02	.02	.03	.24	.12	.05	.12	−.07	−.16	−.05	.48	.04	.09	.25	.14	.17	.03	−.02	.24	.22	.25	.22	.12									
24. U.S. politics/government '02	.13	.08	.45	.39	.16	.18	−.01	−.24	.10	.07	.25	.28	.27	.09	.24	.05	−.06	.33	.44	.46	.34	.32	.35								
25. World politics/government '02	.09	.06	.36	.28	.14	.22	.03	−.23	.18	.05	.27	.36	.21	.12	.23	.05	−.08	.31	.37	.36	.16	.30	.25	.51							
26. Business/economy '03	.19	.19	.44	.34	.13	.22	−.01	−.19	.16	.01	.19	.20	.19	.03	.16	−.04	−.01	.24	.42	.35	.30	.28	.22	.35	.32						
27. Crimes/accidents/disasters '03	.07	.05	.29	.21	.09	.09	.06	−.21	.14	.02	.10	.20	.16	.10	.18	.00	−.01	.20	.29	.42	.18	.27	.25	.37	.32	.34					
28. Entertainment '03	.16	.28	.45	.33	.14	.02	.08	.00	.10	.08	.09	.08	.17	−.02	.01	−.07	−.06	.12	.22	.25	.56	.27	.17	.32	.20	.29	.23				
29. Science/medicine '03	.16	.17	.42	.30	.23	.23	.11	−.14	.22	.06	.26	.26	.18	.07	.18	.04	.02	.25	.37	.34	.24	.36	.18	.34	.37	.32	.31	.29			
30. Sports '03	−.01	.11	.27	.09	.05	.11	−.07	−.11	−.07	.53	.02	.03	.25	.15	.11	−.02	−.07	.19	.24	.25	.22	.09	.65	.33	.25	.25	.24	.26	.22		
31. U.S. politics/government '03	.15	.22	.48	.40	.15	.16	.07	−.16	.22	.04	.24	.27	.24	.09	.14	−.02	−.07	.28	.39	.41	.33	.32	.23	.47	.37	.40	.33	.37	.39	.22	
32. World politics/government '03	.15	.17	.41	.31	.18	.18	.07	−.19	.22	.07	.24	.29	.13	.08	.07	−.01	.04	.25	.36	.38	.23	.29	.25	.38	.41	.34	.36	.23	.37	.24	.39

Note—Correlations with an absolute magnitude greater than .12 are statistically significant ($p < .01$). *Square-root transformed.

Table 4
Results of Exploratory Factor Analysis on Predictor Variables

Variable	Factor 1	2	3	4	5
Raven's matrices	−.05	.08	−.12	**.57**	.08
Letter sets	−.08	−.02	−.08	**.67**	.25
General information	.11	−.04	.14	**.53**	−.12
Synonym vocabulary	.10	−.08	.07	**.60**	−.31
Need for cognition–1	−.03	**.78**	.04	−.01	−.02
Need for cognition–2	.02	**.83**	−.07	.04	−.06
Need for cognition–3	.03	**.75**	.02	−.05	−.07
Business/economy interest	**.75**	−.06	.17	−.07	.05
Crimes/accidents/disasters interest	**.61**	.03	−.17	.00	**.44**
Entertainment interest	.01	−.10	.00	.04	**.71**
Science/medicine interest	**.56**	.18	−.19	.14	.01
Sports interest	−.04	−.04	.37	.05	**.46**
U.S. politics/government interest	**.84**	−.01	.06	.00	−.05
World politics/government interest	**.90**	−.04	.05	−.03	−.10
Newspaper (min/wk)	−.08	.09	**.60**	.04	.08
TV news (min/wk)	.08	−.09	**.33**	−.13	.04
Web news (min/wk)	−.03	−.07	**.53**	.06	.05
Magazine news (min/wk)	.06	−.02	.28	−.16	−.12
Need for news	.09	.28	**.53**	.01	.14
Proportion of variance	.22	.10	.06	.05	.04
Correlations					
Factor 1	–				
Factor 2	.40	–			
Factor 3	.51	.32	–		
Factor 4	.19	.37	.15	–	
Factor 5	.00	−.08	−.15	−.18	–

Note—Salient loadings (>.30) are in bold. Total variance accounted for = .47.

Second, we specified the model illustrated in Figure 1 to evaluate the relative contributions of the ability and nonability factors in our data set to individual differences in knowledge of current events. On the basis of the rationale discussed earlier, we sequenced the nonability variables in the model in such a way that need for cognition was a predictor of current events interest, current events interest was a predictor of news exposure, and news exposure was a predictor of current events knowledge. Note also that we allowed *Gc* and current events interest to correlate but did not specify one as a predictor of the other. Our rationale here was that even though it makes sense to assume that being interested in a broad range of topics leads to growth of knowledge (*Gc*), it seems possible that interest in a broad range of topics increases as one acquires general information. For the ability pathway, we specified *Gf* as a predictor of *Gc*. Model fit was acceptable [$\chi^2(309) = 682.12$, $p < .01$; CFI = .92, NNFI = .87, RMSEA = .05].

An inspection of Figure 1 reveals statistically significant positive effects of *Gf* on *Gc* (.47) and of *Gc* on current events knowledge (.87). In other words, there was an indirect effect of *Gf* on current events knowledge through *Gc*. (The direct effect of *Gf* on current events knowledge was nonsignificant.) Therefore, as was predicted, the ability factors made a significant contribution to the prediction of current events knowledge. However, *independently* of this contribution of ability factors, the hypothesized nonability pathway of the model emerged. More specifically, paths from need for cognition to current events interest (.41), current events interest to news exposure (.56), and news exposure to current events knowledge (.25) were all statistically significant. Although there is no formal statistical test for an indirect effect involving this many variables, such an effect is assumed to be statistically significant when each individual path involved in the effect is statistically significant (Kline, 1998). Therefore, it can be concluded that the hypothesized nonability pathway in our model made a statistically significant contribution to the prediction of current events knowledge. Finally, note that need for cognition also had an indirect effect on current events knowledge through *Gc*. That is, need for cognition predicted *Gc* (.24).

Sports and entertainment analyses. As previously has been discussed, there was evidence for interest and knowledge factors in the sports and entertainment domains that were distinct from the general factors (cf. Tables 4 and 5). With a separate analysis for each domain, we performed additional structural equation analyses to see whether there would be evidence for independent ability and nonability pathways predicting knowledge. In each analysis, there was a single indicator for interest and two indicators for knowledge (i.e., 2002 and 2003). Otherwise, the models were specified exactly as in Figure 1. Model fit was excellent in both analyses (CFIs > .96, RMSEAs < .05), and the results can be summarized briefly (all estimates significant at $p < .01$, unless otherwise noted). For both domains, there was evidence for an ability pathway. That is, in addition to the positive effect of *Gf* on *Gc* (.47), *Gc* had a positive effect on sports knowledge (.43) and entertainment knowledge (.74). There also was evidence for a nonability contribution in each domain, because there was a positive effect of sports interest on sports knowledge (.62) and a positive effect of entertainment interest on entertainment knowledge (.20). However, for neither domain did this nonability contribution originate from need for cognition. That is, need

Table 5
Results of Exploratory Factor Analysis on Knowledge Variables

Variable	Factor 1	2	3
Business/economy '02	**.67**	−.03	−.06
Crimes/accidents/disasters '02	**.59**	.04	.01
Entertainment '02	−.02	.03	**.74**
Science/medicine '02	**.54**	−.16	.10
Sports '02	.02	**.80**	−.02
U.S. politics/government '02	**.60**	.13	.05
World politics/government '02	**.69**	.05	−.16
Business/economy '03	**.51**	.01	.10
Crimes/accidents/disasters '03	**.54**	.07	−.04
Entertainment '03	.01	.01	**.75**
Science/medicine '03	**.58**	−.05	.05
Sports '03	−.03	**.81**	.06
U.S. politics/government '03	**.57**	−.04	.17
World politics/government '03	**.63**	.03	−.05
Proportion of variance	.32	.07	.05
Correlations			
Factor 1	–		
Factor 2	.47	–	
Factor 3	.55	.33	–

Note—Salient loadings (>.30) are in bold. Total variance accounted for = .44.

Table 6
Descriptive Statistics for Local Knowledge by Region

	Michigan Knowledge				Illinois/Missouri Knowledge			
			r				*r*	
Sample	*M*	*SD*	*Gc*	*Gf*	*M*	*SD*	*Gf*	*Gc*
MSU	.56	.17	.37*	.10	.30	.10	−.03	−.09
SIUE	.27	.10	−.03	−.09	.45	.16	.53*	.14

Note—Means and standard deviations reflect proportions correct. MSU, Michigan State University; SIUE, Southern Illinois University, Edwardsville. *Gc* is the average of *z* scores for Synonym Vocabulary and General Information tests; *Gf* is the average of *z* scores for Matrix Reasoning and Letter Sets tests. *$p < .01$.

for cognition had a nonsignificant effect on sports interest (.02) and a negative effect on entertainment interest (−.20). Furthermore, *Gc* correlated nonsignificantly with sports interest (−.05) and negatively with entertainment interest (−.34). Finally, the effect of news exposure on knowledge was nonsignificant in both domains: sports (.08) and entertainment (−.01).

DISCUSSION

Why do some people know more about current events than others? To address this question, participants completed tests of recently acquired knowledge of current events in seven categories, ranging from politics to business to sports. The participants also completed tests and questionnaires to assess ability, personality, and interest factors, as well as exposure to current events information. The results are informative about the *structure* of current events information. That is, we found evidence for a general factor of current events knowledge that comprises a variety of topic areas commonly covered in the news media (e.g., business/finance and politics/government). The presence of a general factor indicates that individuals who gained knowledge in one of these content areas tended to gain knowledge in the others. There was evidence for sports and entertainment knowledge factors, which showed moderate correlations with the general knowledge factor (about .45 on average) yet were distinct. A similar factor structure for measures of interest emerged. That is, there was a general factor of current events interest, with a distinct factor defined by sports interest and entertainment interest.

The results are also informative about the *process* of acquiring current events knowledge. We specified a process model that included ability and nonability individual difference characteristics that we conceptualized as both proximal and distal predictors of current events knowledge. The data supported the existence of an ability pathway. that is, consistent with Cattell's (1971) *investment theory*, *Gf* had a positive effect on *Gc*. In turn, *Gc* had a positive effect on current events knowledge. This ability pathway is not surprising, given the long-standing literature on positive correlations between general ability and knowledge measures (see Horn & Noll, 1997, for

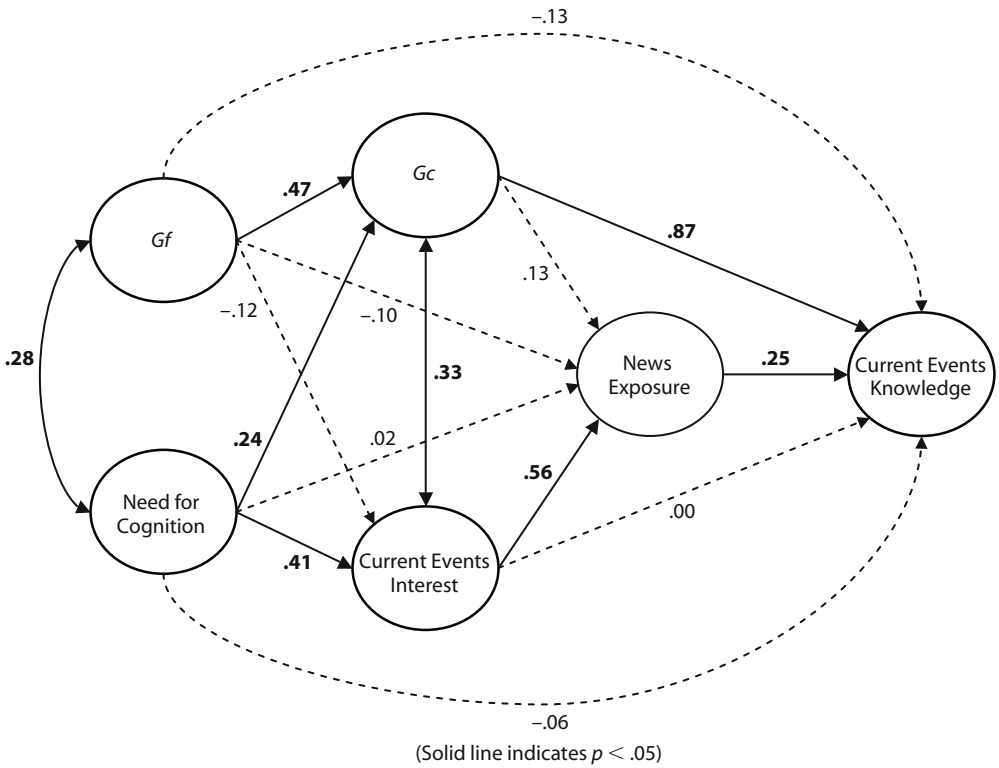

Figure 1. Structural equation model predicting current events knowledge. Values adjacent to single-headed paths are standardized regression coefficients. Values adjacent to double-headed paths are correlations.

a review), including the study by Beier and Ackerman (2001) that focused specifically on current events information. The more incremental discovery in this study was a nonability pathway. This nonability pathway originated from need for cognition, which we conceptualized as a general and distal measure of the likelihood of engaging in information-seeking activities. That is, this factor was a positive predictor of interest in current events. In turn, interest in current events positively predicted exposure to news which had a direct effect on knowledge of current events.

A somewhat different pattern of results emerged for the sports and entertainment domains. There was evidence for an ability contribution in each domain, since *Gc* was a positive predictor of knowledge in each domain. Furthermore, knowledge was positively predicted by interest in each domain. Indeed, for sports, interest was the strongest predictor of knowledge. These results provide further evidence for the importance of nonability factors in acquiring knowledge in specific domains (see also Hambrick, 2003). However, need for cognition was unrelated to interest in sports and was negatively related to interest in entertainment. To the extent that need for cognition in part reflects effortful information seeking, one possible explanation for this finding is that information in domains such as sports and entertainment is more ubiquitous than information in other domains and can, therefore, be acquired with little effort. Another possibility is simply that there are domains in which interest is unrelated to or negatively related to "intellectual" interests.

CONCLUSIONS AND IMPLICATIONS

From a theoretical perspective, the results of this study add to what is known about factors that contribute to individual differences in the processes by which knowledge is acquired, especially under naturalistic learning conditions. More specifically, the evidence presented here supports the perspective that individual differences in knowledge should be viewed within the context of both ability and nonability traits. For example, Ackerman (1996) proposed that personality traits and interests influence knowledge acquisition by determining the intensity and direction of intellectual engagement or "investment" (see also Cattell, 1971). This study provides an empirical demonstration of this idea. Need for cognition—a personality variable—predicted interest in current events. In turn, interest in current events predicted news-seeking activity, such as reading the newspaper, which predicted current events knowledge. The results also support the characterization of knowledge as a central component of the adult intellect (e.g., Ackerman, 1996; Cattell, 1971): Not only is knowledge a major determinant of success in complex cognitive tasks, but also there is evidence that knowledge is self-perpetuating, in the sense that having knowledge makes it easier to acquire new knowledge. As additional support for this hypothesis, Hambrick (2003) found that the best predictor of acquiring knowledge of basketball over the course of an NCAA season was prior knowledge of basketball.

From an applied perspective, the results of this study are potentially informative about how to design interventions aimed at increasing people's knowledge of current events. As has already been discussed, we found evidence for empirically distinct ability and nonability influences on the acquisition of current events knowledge. Clearly, the ability pathway accounted for more variance in current events knowledge than did the nonability pathway (see Figure 1). However, amount of variance accounted for should not be confused with importance. In fact, the nonability pathway, although weaker, may be more informative in terms of what can be done to help individuals acquire knowledge. More specifically, unlike cognitive ability, which may be essentially fixed (e.g., Jensen, 1998), it seems reasonable to suggest that interests—broad and specific—may be modifiable. Therefore, interventions targeted at increasing students' interest in and exposure to current events information may be an effective way of fostering knowledge acquisition.

Limitations and Directions

We note a number of limitations of this study. Given the need to administer a large number of tests and questionnaires in a limited amount of time, we limited our assessment of *Gf* and *Gc* to two indicators per construct. Although we used "gold standard" tests of cognitive ability (e.g., Raven's progressive matrices), it is possible that a different and more extensive combination of *Gf* and *Gc* measures would produce somewhat different results. Furthermore, although *Gf* and *Gc* have been characterized as major dimensions of human intelligence (see, e.g., Carroll, 1993), it is possible that other cognitive ability factors play an important role in knowledge acquisition. For example, in a life span longitudinal study, McArdle, Hamagami, Meredith, and Bradway (2000) found that a short-term memory factor (*Gsm*) predicted changes in *Gc* across time. Our assessment of personality in this study was somewhat narrow as well. More specifically, although our results suggest that one possible manifestation of a high level of need for cognition is information seeking, it is possible that need for cognition is a manifestation of broader dimensions of personality, such as the openness factor of Costa and McCrae's (1992) five-factor theory.

Another limitation is that the design was cross-sectional, rather than longitudinal. Therefore, although we believe that it was reasonable to treat the ability and nonability measures as causally prior predictors of the current events knowledge measures, the results of this study are based on measures obtained at a single point in time. A final limitation concerns our approach to knowledge assessment. As has already been mentioned, we used multiple-choice tests to measure current events knowledge. By making incorrect alternatives plausible, we wrote the questions in such a way as to minimize the possibility of correct guessing, and there is no evidence in our data to suggest that high levels of cognitive ability enabled correct guessing. That is, *Gf* and *Gc* correlated positively and significantly with knowledge from a particular region (i.e., Michigan or Illinois) only in the participants attending a university in that region. Nevertheless, we cannot completely rule

out the possibility of ability-based guessing in the present study, and it should be noted that problems associated with multiple-choice tests are well documented. As one example, Katz, Lautenschlager, Blackburn, and Harris (1990) found that participants answered reading comprehension questions from the Scholastic Aptitude Test at above-chance levels without even receiving the accompanying passages. Goals for future studies in our research program are to measure changes in current events knowledge longitudinally, considering predictive influences of a broader range of ability and nonability constructs, and to devise test formats that will minimize the influence of guessing (e.g., short answer) and increase the efficiency of data collecting (e.g., computer testing).

AUTHOR NOTE

The second and third authors made equal contributions to the research, and their order of authorship was determined by a coin toss. The authors thank Jeff Pink for assistance with data collection and entry. Correspondence concerning this article should be addressed to D. Z. Hambrick, Department of Psychology, Michigan State University, East Lansing, MI 48824 (e-mail: hambric3@msu.edu).

Note—This article was accepted by the previous editorial team, when Colin M. MacLeod was Editor.

REFERENCES

Ackerman, P. L. (1996). A theory of adult intellectual development: Process, personality, interests, and knowledge. *Intelligence*, **22**, 229-259.

Ackerman, P. L. (2000). Domain-specific knowledge as the "dark matter" of adult intelligence: *Gf*/*Gc*, personality and interest correlates. *Journals of Gerontology*, **55B**, P69-P84.

Ackerman, P. L., Bowen, K. R., Beier, M. E., & Kanfer, R. (2001). Determinants of individual differences and gender differences in knowledge. *Journal of Educational Psychology*, **93**, 797-825.

Ackerman, P. L., & Heggestad, E. D. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin*, **121**, 219-245.

Ackerman, P. L., & Kanfer, R. (2004). Cognitive, affective, and conative aspects of adult intellect within a typical and maximal performance framework. In D. Y. Dai & R. J. Sternberg (Eds.), *Motivation, emotion, and cognition: Integrative perspectives on intellectual functioning and development* (pp. 119-141). Mahwah, NJ: Erlbaum.

Beier, M. E., & Ackerman, P. L. (2001). Current-events knowledge in adults: An investigation of age, intelligence, and nonability determinants. *Psychology & Aging*, **16**, 615-628.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality & Social Psychology*, **42**, 116-131.

Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, **48**, 306-307.

Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies.* Cambridge: Cambridge University Press.

Cattell, R. B. (1945). Personality traits associated with abilities: II. With verbal and mathematical abilities. *Journal of Educational Psychology*, **36**, 475-486.

Cattell, R. B. (1963). Theory of fluid and crystallized intelligence: A critical experiment. *Journal of Educational Psychology*, **54**, 1-22.

Cattell, R. B. (1971). *Abilities: Their structure, growth, and action.* Boston: Houghton Mifflin.

Ceci, S. J. (1996). *On intelligence: A bioecological treatise on intellectual development.* Cambridge, MA: Harvard University Press.

Cohen, A. R., Stotland, E., & Wolfe, D. M. (1955). An experimental investigation of need for cognition. *Journal of Abnormal & Social Psychology*, **51**, 291-294.

College Board (2004). *The College Board college handbook*. New York: Author.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI–R) and NEO Five-Factor Inventory (NEO-FFI): Professional manual.* Odessa, FL: Psychological Assessment Resources.

Ekstrom, R. B., French, J. W., Harman, H. H., & Derman, D. (1976). *Kit of factor-referenced cognitive tests.* Princeton, NJ: Educational Testing Service.

Ericsson, K. A. (Ed.) (1996). *The road to excellence: The acquisition of expert performance in the arts and sciences, sports, and games*. Mahwah, NJ: Erlbaum.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, **4**, 272-299.

Ferrer, E., & McArdle, J. J. (2004). An experimental analysis of dynamic hypotheses about cognitive abilities and achievement from childhood to early adulthood. *Developmental Psychology*, **40**, 935-952.

Goff, M., & Ackerman, P. L. (1992). Personality–intelligence relations: Assessment of typical intellectual engagement. *Journal of Educational Psychology*, **84**, 537-552.

Hambrick, D. Z. (2003). Why are some people more knowledgeable than others? A longitudinal study of knowledge acquisition. *Memory & Cognition*, **31**, 902-917.

Hambrick, D. Z., & Engle, R. W. (2002). Effects of domain knowledge, working memory capacity, and age on cognitive performance: An investigation of the knowledge-is-power hypothesis. *Cognitive Psychology*, **44**, 339-387.

Hambrick, D. Z., Salthouse, T. A., & Meinz, E. J. (1999). Predictors of crossword puzzle proficiency and moderators of age–cognition relations. *Journal of Experimental Psychology: General*, **128**, 131-164.

Hidi, S. (1990). Interest and its contribution as a mental resource for learning. *Review of Educational Research*, **60**, 549-571.

Hidi, S. (1995). A re-examination of the role of attention in learning from text. *Educational Psychology Review*, **7**, 323-350.

Hidi, S., Renninger, K. A., & Krapp, A. (2004). Interest, a motivational variable that combines affective and cognitive functioning. In D. Y. Dai & R. J. Sternberg (Eds.), *Motivation, emotion, and cognition: Integrative perspectives on intellectual functioning and development* (pp. 89-115). Mahwah, NJ: Erlbaum.

Horn, J. L. (1968). Organization of abilities and the development of intelligence. *Psychological Review*, **75**, 242-259.

Horn, J. L., & Cattell, R. B. (1966). Refinement and test of the theory of fluid and crystallized intelligence. *Journal of Educational Psychology*, **57**, 253-270.

Horn, J. L., & Cattell, R. B. (1967). Age differences in fluid and crystallized intelligence. *Acta Psychologica*, **26**, 107-129.

Horn, J. L., & Noll, J. (1997). Human cognitive capabilities: *Gf–Gc* theory. In D. P. Flanagan, J. L. Genshaft, & P. L. Harrison (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (pp. 53-91). New York: Guilford.

Jensen, A. R. (1998). *The g factor: The science of mental ability.* Westport, CT: Praeger.

Katz, S., Lautenschlager, G. J., Blackburn, A. B., & Harris, F. H. (1990). Answering reading comprehension without passages on the SAT. *Psychological Science*, **1**, 122-127.

Kellogg, R. T. (2001). Long-term working memory in text production. *Memory & Cognition*, **29**, 43-52.

Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guilford.

Kyllonen, P. C., & Tirre, W. C. (1988). Individual differences in associative learning and forgetting. *Intelligence*, **12**, 393-421.

Kyllonen, P. C., Tirre, W. C., & Christal, R. C. (1991). Knowledge and processing speed as determinants of associative learning. *Journal of Experimental Psychology: General*, **120**, 57-79.

McArdle, J. J., Hamagami, F., Meredith, W., & Bradway, K. P. (2000). Modeling the dynamic hypotheses of *Gf–Gc* theory using longitudinal life-span data. *Learning & Individual Differences*, **12**, 53-79.

McCrae, R. R. (2000). Emotional intelligence from the perspective of the five-factor model of personality. In R. Bar-On & J. D. A. Parker (Eds.), *The handbook of emotional intelligence: Theory, development, assessment, and application at home, school, and in the workplace* (pp. 263-276). San Francisco: Jossey-Bass.

McDANIEL, M. A., WADDILL, P. J., FINSTAD, K., & BOURG, T. (2000). The effects of text-based interest on attention and recall. *Journal of Educational Psychology*, **92**, 492-502.

MINSKY, M., & PAPERT, S. (1974). *Artificial intelligence*. Eugene: Oregon State System of Higher Education.

NEISSER, U. (1978). Memory: What are the important questions? In M. M. Gruneberg, P. E. Morris, & R. N. Sykes (Eds.), *Practical aspects of memory* (pp. 3-24). London: Academic Press.

RAVEN, J. C. (1962). *Advanced progressive matrices: Set II.* London: Lewis.

RENNINGER, K. A., HIDI, S., & KRAPP, A. (EDS.) (1992). *The role of interest in learning and development.* Hillsdale, NJ: Erlbaum.

ROLFHUS, E. L., & ACKERMAN, P. L. (1996). Self-report knowledge: At the crossroads of ability, interest, and personality. *Journal of Educational Psychology*, **88**, 174-188.

ROLFHUS, E. L., & ACKERMAN, P. L. (1999). Assessing individual differences in knowledge: Knowledge structures and traits. *Journal of Educational Psychology*, **91**, 511-526.

SADOWSKI, C. J., & COGBURN, H. E. (1997). Need for cognition in the Big-Five factor structure. *Journal of Psychology: Interdisciplinary & Applied*, **131**, 307-312.

SALTHOUSE, T. A., BERISH, D. E., & MILES, J. D. (2002). The role of cognitive stimulation on the relations between age and cognitive functioning. *Psychology & Aging*, **17**, 548-557.

SCHANK, R. C., & BIRNBAUM, L. (1994). Enhancing intelligence. In J. Khalfa (Ed.), *What is intelligence?* (pp. 72-106). Cambridge: Cambridge University Press.

SCHMIDT, F. L., & CRANO, W. D. (1974). A test of the theory of fluid and crystallized intelligence in middle- and low-socioeconomic-status children: A cross-lagged panel analysis. *Journal of Educational Psychology*, **66**, 255-261.

SPILICH, G. J., VESONDER, G. T., CHIESI, H. L., & VOSS, J. F. (1979). Text processing of domain-related information for individuals with high and low domain knowledge. *Journal of Verbal Learning & Verbal Behavior*, **18**, 275-290.

STANOVICH, K. E., & CUNNINGHAM, A. E. (1992). Studying the consequences of literacy within a literate society: The cognitive correlates of print exposure. *Memory & Cognition*, **20**, 51-68.

STANOVICH, K. E., & CUNNINGHAM, A. E. (1993). Where does knowledge come from? Specific associations between print exposure and information acquisition. *Journal of Educational Psychology*, **85**, 211-229.

THORNDIKE, E. L. (1921). Intelligence and its measurement: A symposium. *Journal of Educational Psychology*, **12**, 123-147, 195-216, 271-275.

THURSTONE, L. L. (1938). Primary mental abilities. *Psychometric Monographs*, No. 1.

WEST, R. F., STANOVICH, K. E., & MITCHELL, H. R. (1993). Reading in the real world and its correlates. *Reading Research Quarterly*, **28**, 35-50.

WITTMANN, W. W., & SÜß, H. M. (1999). Investigating the paths between working memory, intelligence, knowledge, and complex problem-solving performance via Brunswik symmetry. In P. L. Ackerman, P. C. Kyllonen, & R. D. Roberts (Eds.), *Learning and individual differences: Process, trait, and content determinants* (pp. 77-108). Washington, DC: American Psychological Association.

ZACHARY, R. A. (1986). *Shipley Institute of Living Scale.* Los Angeles: Western Psychological Services.

NOTES

1. There was a relatively large amount of missing data for these participants for a variety of reasons, the most common of which was that they either showed up for the session late or had to leave early. There was no evidence that the excluded participants differed in any meaningful way from the other participants.

2. The item parcels for the Need for Cognition scale were the average ratings for (1) Items 1, 4, 7, 10, 13, and 16, (2) Items 2, 5, 8, 11, 14, and 17, and (3) Items 3, 6, 9, 12, 15, and 18.

3. We performed an additional factor analysis, entering only the ability variables and forcing two factors. As was expected on the basis of previous research (e.g., Carroll, 1993), two correlated ($r = .54$) factors emerged and were clearly interpretable as *Gc* (Factor 1) and *Gf* (Factor 2).

4. The χ^2 statistic reflects whether there was a significant difference between the reproduced and the observed covariance matrixes. Therefore, nonsignificant χ^2 values are desirable. However, when moderate-to-large sample sizes are used, even a slight difference between the reproduced and the observed covariance matrixes can result in a significant χ^2. The comparative fit index (CFI) and nonnormed fit index (NNFI) are less sensitive to sample size; both reflect improvement in the fit of a researcher's model, in comparison with a baseline model in which population covariances among the observed variables are assumed to be zero. The RMSEA reflects the average squared difference between the observed and the reproduced covariances. CFI and NNFI values of greater than .90 and RMSEA values in the .06–.08 range indicate an acceptable fit (e.g., Browne & Cudeck, 1993; Kline, 1998).

APPENDIX A
Sample Items From Current Events Interest Inventory

Compaq chief says he is committed to merger (Business/Economy)
Hurricane threatens 4 Caribbean nations (Crimes/Accidents/Disasters)
Madonna's real art: Getting attention (Entertainment)
Democrats again face voter doubts over party's values (U.S. Politics/Government)
Turkey is urged not to turn its back on the European Union (World Politics/Government)
Neural cells, grown in labs, raise hopes on brain disease (Science/Medicine)
College football as it used to be (Sports)
6,000 G.M. workers at Flint plant join auto strike (Michigan)
Copycat radio station challenges a St. Louis institution (Illinois/Missouri)

APPENDIX B
Sample Questions From 2002 and 2003 Current Events Tests

1. This actress was convicted on charges of shoplifting $5000 in merchandise from the Beverly Hills branch of Saks Fifth Avenue:
   a. Jennifer Aniston
   b. Winona Ryder
   c. Uma Thurman
   d. Julia Roberts

APPENDIX B (Continued)

2. In one of the largest-ever cases of false corporate bookkeeping, this corporation acknowledged overstating cash flow by 3.8 billion:
   a. AT&T
   b. MCI
   c. Sprint
   d. WorldCom
3. Hurricane ___ struck the North Carolina coast and plowed inland, causing at least 40 deaths and extensive property damage, especially in Virginia.
   a. Andrew
   b. Isabel
   c. Umberto
   d. Grace
4. The Supreme Court overturned a ___ law banning gay sex—a landmark ruling for gay rights activists that overturned a 17-year-old decision.
   a. Texas
   b. Virginia
   c. Alabama
   d. South Carolina
5. In October, 2002, chief U.N. weapons inspector ___ recommended that inspections should not begin until Iraq released a full inventory of its weapons.
   a. Hans Blix
   b. Scott Ritter
   c. George Robertson
   d. Richard Butler
6. Medical researchers announced that it will soon be possible to scan for this type of cancer using virtual reality:
   a. Breast
   b. Colon
   c. Cervical
   d. Lung
7. This Major League baseball player was ejected from a game after his bat broke, revealing the presence of cork inside it:
   a. Sammy Sosa
   b. Ken Griffey, Jr.
   c. Barry Bonds
   d. Derek Jeter
8. Peter McPherson spent the summer away from his position as president of Michigan State University
   a. to act as financial coordinator for reconstruction of Iraq
   b. to oversee elections in Zimbabwe for the U.N.
   c. as a consultant to Federal Reserve chairman Alan Greenspan
   d. to coordinate relief efforts for Bosnian refugees.
9. This Missouri senator lost a bid to be elected to a full U.S. Senate term to Republican Jim Talent:
   a. Christopher Bond
   b. Claire McCaskill
   c. John Ashcroft
   d. Jean Carnahan

Answers, Categories, and Percentages Correct

1. (b) entertainment 2002 (93%)
2. (d) business/economy 2002 (66%)
3. (b) crimes/accidents/disasters 2002 (50%)
4. (a) U.S. politics/government 2003 (31%)
5. (a) world politics/government 2002 (30%)
6. (b) science/medicine 2003 (42%)
7. (a) sports 2003 (64%)
8. (a) Michigan 2003 (MSU = 70% vs. SIUE = 23%)
9. (d) Illinois/Missouri 2002 (SIUE = 40% vs. MSU = 23%)

(Manuscript received December 7, 2004;
revision accepted for publication October 25, 2005.)