Summary
In sum, one of the major sources of variability in studies of attitude change is that attributable to individual differences. The ELM allows individual differences to be an integral part of theoretical thinking. Specifically, theory and research on need for cognition suggest that, unless overbearing situational constraints are operative, individuals high in need for cognition are characterized generally by higher levels of elaboration likelihood than individuals low in need for cognition. Hence, individuals high in need for cognition are consistently more likely to base their attitudes on a diligent analysis of relevant information, whereas individuals low in need for cognition should be more likely to utilize cognitively less taxing peripheral processes (see Cacioppo & Petty, 1984b; Heesacker, in press, for reviews). The role of need for cognition in persuasion is addressed explicitly in Chapters 4 and 6.

Retrospective
In this chapter, we discussed methodological factors involved in testing the Elaboration Likelihood Model of persuasion. After discussing our typical procedures for assessing attitudes and persuasion, we operationalized the key constructs in the ELM. Specifically, procedures for assessing the constructs of argument quality, peripheral cues, and message elaboration were addressed. We ended the chapter with a discussion of individual differences in “need for cognition” and the role of this construct in testing the ELM. In the remaining chapters of this book we present the empirical research assessing the validity of the ELM. This research employs the methodological features outlined in this chapter.

Appendix: Examples of Strong and Weak Arguments Used to Create Strong and Weak Messages in Favor of Implementing Senior Comprehensive Exams

Example Strong Arguments
S1. The National Scholarship Achievement Board recently revealed the results of a five-year study conducted on the effectiveness of comprehensive

These arguments, typical of those used in our research employing the senior comprehensive exam topic (e.g., Cacioppo, Petty, & Morris, 1983; Petty & Cacioppo, 1979b, 1984a) are reprinted for illustrative purposes. It is important to note that our conceptualization of strong and weak messages is tied not to particular statements or arguments (such as those above), but to an empirical criterion. Specifically, strong messages should elicit a profile of predominately favorable thoughts (e.g., 65%
exams at Duke University. The results of the study showed that since the comprehensive exam has been introduced at Duke, the grade point average of undergraduates has increased by 31%. At comparable schools without the exams, grades increased by only 8% over the same period. The prospect of a comprehensive exam clearly seems to be effective in challenging students to work harder and faculty to teach more effectively. It is likely that the benefits observed at Duke University could also be observed at other universities that adopt the exam policy.

S2. Graduate schools and law and medical schools are beginning to show clear and significant preferences for students who received their undergraduate degrees from institutions with comprehensive exams. As the Dean of the Harvard Business School said: “Although Harvard has not and will not discriminate on the basis of race or sex, we do show a strong preference for applicants who have demonstrated their expertise in an area of study by passing a comprehensive exam at the undergraduate level.” Admissions officers of law, medical, and graduate schools have also endorsed the comprehensive exam policy and indicated that students at schools without the exams would be at a significant disadvantage in the very near future. Thus, the institution of comprehensive exams will be an aid to those who seek admission to graduate and professional schools after graduation.

S3. A member of the Board of Curators has stated publicly that alumni nationwide have refused to increase their contributions to the University because of what they feel are lax educational standards. In fact, the prestigious National Accrediting Board of Higher Education (NAB) has recently rejected the University's application for membership citing lack of a comprehensive exam as a major reason. Accreditation by the NAB enhances a university's reputation to graduate schools, employers, and demonstrates to alumni that the school is worth supporting. A recent survey of influential alumni in corporations and the state legislature has revealed that contributions would improve significantly if the exams were instituted. With increased alumni support, continued increases in tuition might be avoided.

favorable, 35% unfavorable) when subjects are instructed to think about them, but weak messages should elicit a profile of predominately unfavorable thoughts (e.g., 65% unfavorable, 35% favorable) when subjects are instructed to scrutinize them. Since the thoughts elicited by particular arguments and messages might be expected to vary with different people, times, and contexts, pretesting is an essential aspect of message construction for any given experiment. For example, over the past 10 years we have found that students have generally become more knowledgeable about and accepting of the senior comprehensive exam idea. One consequence of this is that over the years we have had to develop arguments that are more specious in order to create empirically “weak” messages on this topic.
S4. A study conducted by the Educational Testing Service of Princeton, New Jersey, revealed that most of the Ivy League schools and several of the Big 10 universities have senior comprehensive exams to maintain their academic excellence. Professors at those schools who were interviewed recently said that senior comprehensive exams assured that only high quality and knowledgeable students would be associated with the university. This, of course, increases the prestige of current students, alumni of the school, and the university as a whole. The exams should be instituted to increase the academic reputation of the university. A national educator’s publication recently predicted that within the next 10 years, the top universities would have the exam policy, and the weaker ones would not.

S5. An interesting and important feature of the comprehensive exam requirement is that it has led to a significant improvement in the quality of undergraduate teaching in the schools where it has been tried. Data from the Educational Testing Service confirm that teachers and courses at the schools with comprehensive exams were rated more positively by students after the exams than before. The improvement in teaching effectiveness appears to be due to departments placing more emphasis on high quality and stimulating teaching because departments look bad when their majors do poorly on the exam. For example, at the University of Florida, student ratings of courses increased significantly after comprehensive exams were instituted.

S6. One aspect of the comprehensive exam requirement that students at the schools where it has been tried seem to like is that all regular final examinations for seniors are typically eliminated. This elimination of final exams in all courses for seniors allows them to better integrate and think about the material in their major area just prior to graduation rather than “wasting” a lot of time cramming to pass tests in courses in which they are really not interested. Students presently have to take too many courses in subjects that are irrelevant to their career plans. The comprehensive exam places somewhat greater emphasis on the student’s major and allows greater concentration on the material that the student feels is most relevant.

S7. Faculty members at universities with the comprehensive exams who were interviewed by researchers from the Carnegie Commission on Higher Education revealed that the comprehensive exams appeared to provide an incentive for students to study the material in their major area. A thorough study undertaken by the Department of Education at the University of Notre Dame showed that universities with comprehensive exams have resisted the national trend of declining scores on standardized achievement tests. Average scores on achievement tests for the universities with comprehensive exams have actually risen over the last five years.

S8. Data from the University of Virginia, where comprehensive exams were recently instituted, indicate that the average starting salary of graduates
increased over $4000 over the two-year period in which the exams were begun. At comparable universities without comprehensive exams, salaries increased only $850 over the same period. As Saul Siegel, a vice-president of IBM put it in Business Week recently, “We are much quicker to offer the large salaries and executive positions to these kids because by passing their area exam, they have proven to us that they have expertise in their area rather than being people who may or may not be dependable and reliable.” Another benefit is that universities with the exams attract larger and more well-known corporations to campus to recruit students for their open positions. The end result is that students at schools with comprehensive exams have a 55% greater chance of landing a good job than students at schools without the exams.

S9. A study by the U.S. Department of Education revealed that universities with the comprehensive exam requirement average about 32% more financial aid available to students than comparable universities without the exams. Richard Collings, Director of Financial Aid at the University of Southern California (USC) has written that since the comprehensive exam was instituted at USC five years ago, more individuals and corporations have been willing to donate money for student scholarships.

Example Weak Arguments

W1. The National Scholarship Achievement Board recently revealed the results of a study they conducted on the effectiveness of comprehensive exams at Duke University. One major finding was that student anxiety had increased by 31%. At comparable schools without the exam, anxiety increased by only 8%. The Board reasoned that anxiety over the exams, or fear of failure, would motivate students to study more in their courses while they were taking them. It is likely that this increase in anxiety observed at Duke University would also be observed and be of benefit at other universities that adopt the exam policy.

W2. Graduate students have always had to take a comprehensive exam in their major area before receiving their degrees, and it is only fair that undergraduates should have to take them also. As the Dean of the Harvard Business School said, “If a comprehensive exam is considered necessary to demonstrate competence for a masters or doctoral degree, by what logic is it excluded as a requirement for the bachelors degree? What administrators don’t realize is that this is discrimination just like discrimination against Blacks or Jews. There would be a lot of trouble if universities required only whites to take comprehensive exams but not Blacks. Yet universities all over the country are getting away with the same thing by requiring graduate students but not undergraduates to take the exams.” Thus, the institution of comprehensive exams could be as useful for undergraduates as they have been for graduate students.
W3. A member of the Board of Curators has stated publicly that his brother had to take a comprehensive exam while in college and now he is manager of a large restaurant. He indicated that he realized the value of the exams since their father was a migrant worker who didn't even finish high school. He also indicated that the university has received several letters from parents in support of the exam. In fact, 4 of the 6 parents who wrote in thought that the exams were an excellent idea. Also, the prestigious National Accrediting Board of Higher Education seeks input from parents as well as students, faculty, and administrators when evaluating a university. Since most parents contribute financially to their child's education and also favor the exams, the university should institute them. This would show that the university is willing to listen to and follow the parents' wishes over those of students and faculty who may simply fear the work involved in comprehensive exams.

W4. A study conducted by the Educational Testing Service of Princeton, New Jersey revealed that many universities are considering adopting comprehensive exams. Thus, any university that adopted the exams could be at the forefront of a national trend. Some professors at schools with the exams who were interviewed felt that high school students would be impressed by a university that kept pace with current trends. In fact, whether or not a school had a comprehensive exam might be a determining factor in their choice of a university. Therefore, the enrollments of universities with the exams should increase as the information about the exams spreads among high school students.

W5. An interesting and important feature of the comprehensive exam requirement is that if the exams were instituted nationwide, students across the country could use the exam to compare their achievements with those of students at other schools. Data from the Educational Testing Service confirm that students are eager to compare their grades in a particular course with those of other students. Just imagine how exciting it would be for students in the Midwest to be able to compare their scores with those of students at the University of Florida, for example. This possibility for comparison would provide an incentive for students to study and achieve as high a score as possible so they would not be embarrassed when comparing scores with their friends.

W6. One feature of the comprehensive exam requirement that students at the schools where it has been tried seem to like is that passing the exams provides a very difficult challenge. For example, many students want jobs in business when they graduate and the corporate world is very tough. Yet, most students' lives are filled with few challenges whatsoever. Everything has been provided for them since the day they were born. It's not that students are not grateful, but knowing that they had to pass a difficult exam before they graduated would prepare them for the hard and cold realities of
life. Students would be nervous about passing the exam and fear that if they
did not pass and graduate, four years of time would be wasted. However,
that is what life is all about—taking risks and overcoming them. Having to
pass a comprehensive exam is a challenge most students would welcome.

W7. Faculty members at universities with the comprehensive exams who
were interviewed by researchers from the Carnegie Commission on Higher
Education revealed that they liked the exams because it reduced the number
of tests they felt they had to give in their classes knowing that students would
still face one ultimate test of their knowledge in the comprehensive exam. A
study at Norte Dame showed that this reduction in regular course tests
saved enough paper to cover the cost of painting two classrooms.

W8. Data from the University of Virginia show that some students favor
the senior comprehensive exam policy. For example, one faculty member
asked his son to survey his fellow students at the school since it recently
instituted the exams. Over 55% of his son's friends agreed that in principle,
the exams would be beneficial. Of course, they didn't all agree but the fact
that most did proves that undergraduates want the exams. As Saul Siegel, a
student whose father is a vice-president of IBM wrote in the school
newspaper: "The history of the exams can be traced to the ancient Greeks. If
comprehensive exams were to be instituted, we could feel pleasure at
following traditions begun by Plato and Aristotle. Even if there were no
other benefits of the exams, it would be worth it just to follow tradition."

W9. A study by the U.S. Department of Education revealed that several
national testing companies were developing comprehensive exams for use
by universities in the U.S. The tests would be similar to the SAT and ACT
tests which currently generate millions of dollars for the companies that
make them. Richard Collings, a former Director of Financial Aid at the
University of Southern California who now works for the Educational
Testing Service, wrote recently in Business Week: "At ETS, we are not
pushing comprehensive exams simply because of the huge amount of
money involved. We are genuinely interested in marketing a good product.
Just as our SAT and GRE tests are used to determine who is qualified for
college and graduate work, so too should our comprehensive exams be used
to determine who should graduate from college. We expect to have 32% of
the market in 5 years."

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