

# Academic Aptitude and Prior Knowledge as Predictors of Student Achievement in Introduction to Psychology

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Earlier research has shown that prior knowledge of psychology is positively associated with course achievement. But are these effects attributable to preexisting differences in general ability or aptitude? The authors administered 2 pretests to 353 students early in an introductory psychology course and obtained measures of general student aptitude (i.e., ACT scores), subsequent course participation, and exam performance. In regression analyses, the pretest of psychological knowledge uniquely predicted significant variance in exam scores even with the influences of ACT scores and course participation controlled. A second pretest judging the accuracy of everyday psychological concepts also positively correlated with exam performance but did not predict unique variance in the regression. Thus, beyond general ability, domain-specific prior knowledge facilitates student learning in introductory psychology.

When undergraduates take an introductory class, what determines whether they succeed or fail? Faculty carefully design their courses to promote student learning through lectures and discussions in class, reading assignments, written projects, and performance evaluations to motivate student effort. However, significant influences on student success also exist outside of curricular incentives. This study focused on two: general academic aptitude and prior knowledge of the topic.

Prior knowledge can assist or hinder new learning. Individuals with greater preexisting knowledge of a topic understand and remember more than those with more limited prior knowledge (Committee on Developments in the Science of Learning, National Research Council, 1999; Schneider & Pressley, 1997). Moreover, prior knowledge within specific domains benefits students' learning and achievement (Alexander & Judy, 1988; Dochy, Segers, & Buehl, 1999). This conclusion has been supported by studies of a variety of academic content domains, including physics and mathematics (Hudson & Rottmann, 1981), writing ability and text processing (McCutcheon, 1986), economics (Dochy, 1992), and computer programming (Klahr & Carver, 1988), with students ranging from elementary grades to graduate school.

However, if prior knowledge is inaccurate, incomplete, or misleading, it can hinder understanding or learning new information

(Alexander & Judy, 1988; Committee on Developments in the Science of Learning, National Research Council, 1999; Dochy et al., 1999). Although interference from prior knowledge is most often observed with young children, mistaken assumptions and prior beliefs can also undermine college students' learning of physics (Clement, 1982), biology (Fisher, Wandersee, & Moody, 2000), geology (Hoz, Bowman, & Kozminsky, 2001), and other topics (Guzzetti, Snyder, Glass, & Gamas, 1993). These prior mistaken beliefs can be surprisingly resistant to change, even in the context of formal coursework (Fisher et al., 2000).

The potential influence of prior knowledge is especially important when students enroll in courses like psychology because of widespread interest in psychological concepts and their applications to everyday life. Students are thus likely to begin an introductory course in psychology with considerable prior knowledge derived from many sources, including earlier coursework, information from the media, folk theories, and the lessons of everyday experience. Although prior understanding can often facilitate students' comprehension of psychological concepts in class, it can also potentially impair student understanding when that knowledge is misleading (e.g., folk theories that "familiarity breeds contempt" in interpersonal attraction; everyday beliefs concerning the veracity of eyewitness memory and its resistance to misleading suggestion) or incomplete (e.g., portrayals of "left-brain" and "right-brain" functioning in the popular culture; media reports of how early experiences determine lifelong brain development). The simultaneously facilitating and impeding influences of prior knowledge on new learning are perhaps expectable in psychology because of how sources of prior understanding, such as the media, represent scientific knowledge accurately but often incompletely and can exaggerate, obscure, or misrepresent current knowledge (Thompson & Nelson, 2001). For faculty, however, this presents important challenges in understanding the effects of students' prior understanding on their success in an introductory course and in

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accommodating instruction to the nature of the knowledge that students bring with them to class.

Several studies have reported that assessments of prior knowledge are positively associated with student performance in introductory psychology courses (Carstens & Beck, 1986; Federici & Schuerger, 1976; Griggs & Jackson, 1988; Thompson & Zamboanga, 2003; but see Hedges & Thomas, 1980, for contrary findings). In a recent study, Thompson and Zamboanga (2003) found that prior content knowledge (measured by a pretest) was a uniquely positive and significant predictor of subsequent exam performance, even with other influences on student achievement (including attendance and homework) controlled. When all this research is taken together, prior knowledge appears to have a facilitating, rather than hindering, influence on new learning in an introductory psychology course.

Two important questions remain, however, and these were the focus of this study. First, could the apparently facilitating effects of prior knowledge in psychology be due instead to differences in general student ability or aptitude? Differences in academic aptitude are likely to influence course performance, of course, and may be related to prior knowledge because students with higher aptitude are more likely to absorb and retain information, such as that from the media, related to psychological topics. Thus, the association between prior knowledge and course performance identified in earlier research may arise because each is associated with general student aptitude. To be sure, earlier studies with children have indicated that cognitive skills are improved by prior knowledge independent of differences in IQ scores (Schneider & Bjorklund, 1992; Schneider, Körkel, & Weinert, 1989). Prior knowledge is influential in part because it enhances interest in a topic and also facilitates metacognitive processes in both children and adults (Tobias, 1994, 1995). Two prior studies have reported that Scholastic Aptitude Test (SAT) scores were modestly correlated with measures of prior knowledge in psychology and with final course grades in introductory courses (Carstens & Beck, 1986; Griggs & Jackson, 1988), but in neither study was course performance predicted in regressions that included measures of academic aptitude together with assessments of prior knowledge. In this study, we sought to determine whether pretest scores would positively predict exam performance in regressions that included measures of student aptitude as well as course-related influences on student achievement.

Second, are different forms of prior knowledge relevant to course achievement? Prior understanding is an important influence on new learning in at least two ways: as a source of accurate knowledge that can provide a basis for new learning (consistent with constructivist theory) and as a source of misconceptions and erroneous ideas that can undermine accurate understanding. It is important to know, especially with respect to psychology, not only whether students have accurate information related to psychological concepts but also whether they have misunderstandings derived from the popular culture, media, folk theories, and other general sources that may be contrary to, and can thus confound, their understanding of course topics. Many earlier studies have focused on the first kind of prior knowledge by measuring student performance on assessments testing their comprehension of psychological concepts.

Misconceptions about psychology are pervasive and can significantly bias what students learn (see, e.g., Furnham, Callahan, &

Rawles, 2003; Gardner & Dalsing, 1986; McCutcheon, Furnham, & Davis, 1993). A high proportion of adolescent and adult students exhibit considerable misunderstanding of psychological concepts prior to the beginning of instruction, and personal experience and the media are each significant influences on their misconceptions (McCutcheon, Apperson, Hanson, & Wynn, 1992; Taylor & Kowalski, 2004). Unfortunately, these sources of prior knowledge also strengthen students' beliefs in the accuracy of their mistaken conceptions, which is a significant impediment to the development of more accurate understanding (Taylor & Kowalski, 2004). On the other hand, critical thinking skills have been shown to be important contributors to changing prior misunderstanding, especially when instructional approaches use bridging techniques from prior to new conceptions and enlist active learning strategies (Committee on Developments in the Science of Learning, National Research Council, 1999; McCutcheon et al., 1992).

In this study, therefore, we created a second pretest that assessed students' endorsement or rejection of ideas from the popular culture related to topics in psychology. This pretest on popular psychology evaluated the influence of prior knowledge as it related to students' ability to assess the accuracy of common ideas in the popular culture (e.g., eyewitness memory is accurate and resistant to misleading suggestion) that are often inconsistent with psychological science. Taken together, the two pretests—one on psychological knowledge and the other on psychological ideas from the popular culture—enabled us to evaluate prior knowledge more comprehensively and to examine the extent to which each was predictive of student course achievement over and above the influence of general student aptitude and course-related involvement and participation.

In this study, the two pretests were administered on the second day of class in a large-enrollment Introduction to Psychology course. Students were subsequently assessed on the same test items later in the semester after they had been acquainted with relevant course topics to evaluate, in a pretest–posttest design, whether student knowledge improved throughout the semester. In addition, student scores on the American College Test (ACT) were obtained from admissions records at the university (the ACT, rather than the SAT, was the preferred college entrance examination used at this university). As an index of student course participation and involvement, records of student attendance and homework assignments in the recitation sections that accompanied the course were used, together with student performance on a recitation exam, taken at the end of the semester, that assessed student learning in recitation. We used indexes of course involvement from recitation because it was impractical to record attendance in large lectures and there were few homework assignments in the lecture section; moreover, student participation in recitation sections has been found in our experience with this course to be a good proxy for general student course involvement. Finally, measures of student year in school, major or intended major, and prior psychology coursework were included as additional variables to predict course achievement. We expected, consistent with prior research, that aptitude test scores would significantly predict overall course achievement but that beyond this, scores from each pretest would also uniquely and positively predict student achievement with other predictors controlled.

## Method

### Participants

Three hundred fifty-three undergraduates who were enrolled in two sections of an Introduction to Psychology course at a large Midwestern state university and who completed the course were participants (*n*s ranged from 347 to 353 for specific analyses owing to attendance and enrollment fluctuations). The same instructor taught each section in an identical manner, and all other aspects of the course for each section (e.g., exam content, pretest format) were identical. Students from each section also participated together in weekly recitation meetings. Consistent with typical enrollments for an introductory psychology course, the sample consisted of 36% male and 64% female students; 85% were frosh, 9% were sophomores, 4% were juniors, and 2% were seniors. Eleven percent of the sample intended to major in psychology, with the remaining students undeclared (31%) or with intended majors in other fields. Most students were residents of the state and thus reflected the state's predominantly White, middle-income population.

### Measures

Students completed four noncumulative exams at approximately one-month intervals throughout the semester. The mean of the four exam scores constituted the measure of overall course achievement. The exams were identical in format, consisting of 50 five-alternative multiple-choice questions assessing students' direct recall and comprehension of course concepts and their ability to apply these concepts to new situations and to analyze them in novel ways. Each exam incorporated 6 or 7 questions that had previously appeared on the pretest of psychological knowledge to assess students' performance on these items after course instruction. The internal consistency of each 50-item exam was high, with alphas ranging from .84 to .87.

*Predictors of course achievement.* The predictors of course achievement consisted of (a) student ACT scores as an index of general ability (obtained from university records), (b) two pretests as indexes of prior psychological knowledge, and (c) measures of recitation attendance, homework, and recitation exam performance as indexes of course participation and involvement.

The two pretests were administered on the second day of class. Scores from each pretest were used to predict overall course achievement. In addition, students were reassessed on each pretest subsequently in the semester to determine whether their performance improved as the result of course instruction. As earlier noted, items from the pretest of psychological knowledge were incorporated into unit exams following the sections of the course addressing those items. The pretest on popular psychology was readministered with the recitation exam during the last week of instruction.

The pretest of psychological knowledge was a 25-item five-alternative multiple-choice test. To create pretest questions, we surveyed psychology faculty members to identify the central concepts, issues, or ideas that they believed students in an introductory psychology course should know, and we sought to include on the pretest the range of topics typically included in an introductory course. The pretest included questions about history and theories, research methods, brain and behavior, hereditary influences, states of consciousness, motivation and emotion, sensation and perception, classical and operant conditioning, memory, thinking and reasoning, developmental psychology, social psychology, psychological disorders, and personality theory and therapy. We selected topics for which formal or informal sources of general knowledge and information from earlier coursework might be influential. Each correct response received one point, with the range of scores from 0 to 25.

The pretest on popular psychology required students to identify the accuracy of 16 statements about psychological ideas using a 4-point Likert-type scale, with options ranging from 1 = *Very sure it's false* to 4 = *Very sure it's true*. The statements were designed to assess students'

endorsement of ideas about psychology that are encountered in the popular media or about which people tend to have strong intuitions or folk theories that are often inconsistent with the conclusions of psychological science. Statements included "People's recall of early childhood experiences tends to be clear and accurate," "Eyewitness memory for events is vivid and accurate, and resistant to misleading suggestion," and "Obesity is primarily the result of overeating." Some items were reverse scored, such as "Most children who are abused do not grow up to become abusive parents," in which an endorsement is accurate. Each statement was relevant to specific issues that would be subsequently discussed in the course lecture. Respondents received 1 to 4 points for each item based on the accuracy and certainty of their response on the Likert-type scale, with accurate *very sure* responses receiving 4 points and inaccurate *very sure* responses receiving 1 point. The range of scores was 16 to 64.

There were several indexes of course participation and involvement based on student performance in the recitation sections. First, a cumulative recitation attendance score was based on weekly attendance checks by the teaching assistant, with students receiving one point for each week attended. Second, a cumulative homework score was calculated based on evaluations of homework assignments and extra credit projects throughout the semester. Finally, students' scores on a 25-item multiple-choice recitation exam during the last week of classes indexed student achievement in recitation.

*Background measures.* From course records or student self-report, we obtained information concerning each student's (a) major or intended major field of study (0 = nonpsychology, 1 = psychology), (b) year in school (1 = frosh, 2 = sophomore, 3 = junior, 4 = senior), and (c) prior coursework in psychology (1 = no prior psychology courses, 2 = one prior course, 3 = two or more courses in psychology). The first two measures were entered as background variables in the analyses. The third measure indexed prior knowledge to complement the two pretests.

### Procedure

In this Introduction to Psychology course, students met twice weekly in a 75-min lecture section in a large auditorium and once weekly in a 50-min smaller recitation section led by a graduate teaching assistant. The lecture section consisted of the presentation of new information through lecture using presentation software, discussions, and videos. The recitation section emphasized demonstrations, informal experiments, discussions, and preparation for exams and other class assignments. On the second day of class, students completed the two pretests, which were described by the instructor as an effort to improve instruction by assessing students' prior understanding of psychological concepts and ideas. Students were unaware at that time that items from either pretest would be readministered later in the semester.

## Results

### Descriptive Analyses

Mean scores, standard deviations, and the range of scores are presented in Table 1 for each of the four exams and the composite measure of course achievement, as well as for the predictors: ACT score, pretest of psychological knowledge, pretest on popular psychology, and cumulative recitation attendance, cumulative homework, and recitation exam performance. The scores for recitation attendance and homework each indicate that although on average students reliably came to class and completed assignments, there was a broad range of variability in student participation. Student exam performance was consistent throughout the semester, with scores ranging from 73% to 75% of the total possible points. Scores for the recitation exam were comparably

Table 1  
Descriptive Statistics for Student Course Achievement and Its Predictors

Measure	Range of scores	Observed range	M	SD
ACT	0–36	15–35	22.84	3.49
Pretest of psychological knowledge	0–25	2–17	9.46	2.58
Pretest on popular psychology	16–64	21–49	38.20	4.35
Exam 1	0–50	16–49	37.25	6.21
Exam 2	0–50	17–50	36.54	6.66
Exam 3	0–50	16–50	36.75	7.60
Exam 4	0–50	16–50	37.34	7.27
Course achievement (average exam score)	0–50	19–49	36.98	6.03
Cumulative recitation attendance	0–11	0–11	9.83	1.70
Cumulative homework score	0–12	0–12	9.48	2.26
Recitation exam	0–25	10–25	20.03	3.09

high. By contrast, students scored only 38% on the pretest of psychological knowledge and a comparable 60% on the pretest on popular psychology (the minimum score was 0 for the pretest of psychological knowledge but 25% for the pretest on popular psychology). From performance on both pretests, it is clear that students had some knowledge of psychology on the second day of class, but their understanding was limited and incomplete. This is also reflected in the range of scores for these assessments. By contrast with the perfect or near-perfect maximum scores obtained by some students on the exams, the highest score for the pretest of psychological knowledge was 17 (68%) correct answers and, for the pretest of popular psychology, was 49 (76%) correct answers. The low scores were 8% and 33%, respectively.

*Improvements in Pretest Performance*

When pretest scores at the beginning of the semester are compared with scores on the subsequent administration of the same items, student performance is found to improve significantly. On the pretest of psychological knowledge, student scores more than doubled from 9.46 to 19.09,  $t(349) = -50.37, p < .001$ , and on the pretest on popular psychology, scores increased from 38.20 to 44.88,  $t(346) = -23.69, p < .001$ . For each pretest, mean scores and the range of scores by the end of the semester are comparable with overall exam performance, with several students scoring perfect or near-perfect scores on the second administration of each

exam. Thus, student performance improved significantly throughout the semester.

*Interrelations Among Predictor and Outcome Measures*

The intercorrelations among measures of course achievement and the predictive measures appear in Table 2 (all correlations reported below  $p < .01$ ). As expected, individual differences in exam performance were highly intercorrelated (mean  $r = .67$ ). Student ACT scores were highly positively correlated with exam performance (mean  $r = .50$ ). The two pretest exams were significantly intercorrelated, and each was also significantly associated with exam performance, although more highly for the pretest of psychological knowledge (mean  $r = .32$ ) than for the pretest on popular psychology (mean  $r = .18$ ). ACT scores were also significantly correlated with each pretest score. Concerning the other predictors, the three measures of course involvement in recitation were significantly intercorrelated (mean  $r = .41$ ). The course involvement measures were also significantly associated with the exam scores (mean  $r = .37$ ), which suggests that they indexed student participation and involvement because of the relevance of recitation activities to course achievement.

*Predicting Course Achievement*

To determine the unique prediction of ACT scores, pretest exam scores, and other potential influences on student course achieve-

Table 2  
Intercorrelations Among Predictor and Outcome Measures of Student Course Achievement

Measure	1	2	3	4	5	6	7	8	9	10	11
1. ACT	—	.37**	.24**	.53**	.50**	.50**	.46**	.57**	.13*	.13*	.48**
2. Pretest of psychological knowledge		—	.28**	.37**	.30**	.32**	.30**	.37**	-.10	.11*	.28**
3. Pretest on popular psychology			—	.18**	.19**	.19**	.14**	.20**	.02	.08	.16**
4. Exam 1				—	.62**	.66**	.66**	.84**	.20**	.29**	.62**
5. Exam 2					—	.68**	.66**	.85**	.20**	.38**	.60**
6. Exam 3						—	.74**	.89**	.19**	.26**	.62**
7. Exam 4							—	.90**	.18**	.32**	.59**
8. Course achievement (average exam score)								—	.22**	.36**	.70**
9. Cumulative recitation attendance									—	.58**	.31**
10. Cumulative homework score										—	.33**
11. Recitation exam											—

Note.  $n = 347-353$ .  
\*  $p < .05$ , two-tailed. \*\*  $p < .01$ , two-tailed.

ment, the final set of analyses consisted of hierarchical linear regression models to predict the course achievement measure. Predictors were included in three blocks in the following order. First, three background variables (ACT score, year in school, and major) were entered as the first block to include variance attributable to preexisting student characteristics before domain-specific and course-specific predictors were entered. Second, measures of prior knowledge (pretest of psychological knowledge, pretest on popular psychology, and prior psychology coursework) were entered next as the set of domain-specific predictors to tap general knowledge systems before course-specific influences were included. The third block consisted of course-specific measures (i.e., course participation and involvement): cumulative recitation attendance, cumulative homework score, and the recitation exam. The results appear in Table 3.

The addition of each block of predictors significantly incremented the proportion of variance explained in course achievement. In the first step, each of the background measures significantly predicted course achievement, with ACT scores the largest predictor. With the addition of measures of prior knowledge in the second step, each of the background measures remained significant predictors. Only the pretest of psychological knowledge predicted course achievement, however; neither the pretest on popular psychology nor the amount of prior coursework in psychology was significant. In the final equation after the third step, course achievement was significantly predicted by ACT scores, school year (with more advanced students performing better on the exams), the pretest of psychological knowledge, cumulative homework scores in recitation, and the recitation exam score. The recitation exam was the strongest predictor of overall course achievement, followed by ACT exam scores and cumulative homework scores. Taken together, the regression model accounted for 60% of the explained variance in student course achievement (a

subsequent regression that included the interaction of ACT scores with the pretest of psychological knowledge yielded no increase in variance explained). It is important to note that measures from all three domains of course performance—background skills, prior knowledge, and course-related participation—significantly predicted course achievement. Measures of prior knowledge, at least as indexed by the pretest of psychological knowledge, remained significant even with variance owing to ACT scores and course participation included in the final regression equation.

## Discussion

The findings of this study are consistent with other literatures in psychology showing that prior knowledge influences new learning. In studies of the confirmation bias, concept development, mental sets, preattentive processing, selective perception, prejudice, and learning and skill acquisition, researchers have shown how prior knowledge and expectations influence how people respond to new situations and contribute to new learning (Committee on Developments in the Science of Learning, National Research Council, 1999; McCormick & Pressley, 1997). The influences of prior knowledge in this study were not attributable to general academic aptitude, and different forms of preexisting understanding were differentially related to achievement.

The pretest of psychological knowledge positively and significantly predicted exam performance in this study, even with measures of academic aptitude (i.e., ACT scores) and course involvement (i.e., cumulative attendance, homework scores, and the recitation exam) controlled. To be sure, the amount of variance explained in exam performance owing to pretest scores was modest, especially compared with other studies where assessments of prior understanding explained 42% to 60% of the variance in later learning (Dochy, 1992; Tobias, 1994). Earlier studies did not

Table 3  
*Regression Analyses of Predictors of Student Course Achievement*

Step	Variables entered	$\Delta R^2$	$R^2$	$df$	$\Delta F$	$\beta$ (Step 1)	$\beta$ (Step 2)	$\beta$ (Step 3)
1: Background	ACT	.35	.35	3, 349	63.19***	.58***		
	School year					.14**		
	Major					-.11*		
2: Prior knowledge	ACT	.02	.37	3, 346	4.21**		.51***	
	School year						.12**	
	Major						-.09*	
	Pretest of psychological knowledge						.15**	
	Pretest on popular psychology						.02	
3: Course involvement	Prior psychology coursework	.23	.60	3, 343	65.79***		.02	
	ACT							.29***
	School year							.09*
	Major							-.06
	Pretest of psychological knowledge							.09*
	Pretest on popular psychology							.01
	Prior psychology coursework							.02
	Cumulative recitation attendance							-.06
Cumulative homework score			.19***					
Recitation exam			.47***					

Note. All betas are standardized.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

control for preexisting differences in academic aptitude, however, suggesting that some of the apparent effects of prior knowledge may be attributable instead to differences in general ability. However, even with these differences controlled in this study, the finding that a pretest inventory of psychological knowledge explained significant unique variance underscores that prior knowledge remains important in predicting student learning. The large sample of this study contributes to the strength and reliability of this conclusion.

We used two pretests of prior knowledge. Both pretests were significantly correlated with exam scores, but the pretest of psychological knowledge was more strongly associated with student achievement than was the pretest on popular psychology and was the only pretest that explained unique and significant variance in the regression. Although there remains reason to believe that student ability to carefully evaluate potentially mistaken ideas about psychology from everyday sources is important, this skill may not be as relevant to an introductory course in which comprehension of basic concepts and findings is emphasized. We suggest that there is value in further exploring students' capacities to critically evaluate the accuracy of cultural and folk beliefs and media portrayals of psychological issues as a form of prior knowledge that is relevant to student achievement in psychology in advanced as well as introductory courses.

Exam performance in this course was significantly predicted by measures from each of the domains of potential influence we sampled: background (e.g., aptitude), prior knowledge, and course involvement (e.g., attendance and homework). It was surprising that of the course-related predictors, recitation homework scores and exam performance significantly predicted course achievement but recitation attendance did not (these patterns replicate the findings reported by Thompson & Zamboanga, 2003). In light of the strong prediction of homework and exam scores, however, these findings suggest that attendance may not be as reliable an index of course involvement, especially in an introductory course, if students find other ways of keeping up with course topics. Among the remaining predictors, ACT scores were strongly related to exam performance, which underscores the important influence of preexisting differences in student aptitude or ability. Prior coursework in psychology was unrelated to course achievement, suggesting that merely having taken one or more courses in psychology is not necessarily related to achievement in a collegiate introductory course. It is, instead, the prior knowledge attained from earlier coursework and other sources that is significant.

Finally, it is important to note that prior knowledge was an important predictor of course success even though students did rather poorly on both pretests early in the semester. This suggests that even modest prior understanding has a facilitating, rather than hindering, effect on new learning despite the diverse sources on which prior understanding may be based, especially concerning psychology. Fortunately, course experience contributed to significant improvements on student performance on each pretest such that, by the close of the semester, students were performing on pretest items at a level comparable with their scores on the four exams. It is perhaps unsurprising that student performance on a test of psychological knowledge would improve, but it is more noteworthy that performance on a test that requires evaluating the accuracy of popular ideas about psychology would also strengthen during the semester. This suggests that with the growth of student

learning, there was growth also in critical thinking about misconceptions about psychology arising from various extracurricular sources.

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### New Editors Appointed, 2006–2011

The Publications and Communications Board of the American Psychological Association announces the appointment of seven new editors for 6-year terms beginning in 2006. As of January 1, 2005, manuscripts should be directed as follows:

- *Experimental and Clinical Psychopharmacology* ([www.apa.org/journals/pha.html](http://www.apa.org/journals/pha.html)), **Nancy K. Mello, PhD**, McLean Hospital, Massachusetts General Hospital, Harvard Medical School, 115 Mill Street, Belmont, MA 02478-9106.
- *Journal of Abnormal Psychology* ([www.apa.org/journals/abn.html](http://www.apa.org/journals/abn.html)), **David Watson, PhD**, Department of Psychology, University of Iowa, Iowa City, IA 52242-1407.
- *Journal of Comparative Psychology* ([www.apa.org/journals/com.html](http://www.apa.org/journals/com.html)), **Gordon M. Burghardt, PhD**, Department of Psychology or Department of Ecology & Evolutionary Biology, University of Tennessee, Knoxville, TN 37996.
- *Journal of Counseling Psychology* ([www.apa.org/journals/cou.html](http://www.apa.org/journals/cou.html)), **Brent S. Mallinckrodt, PhD**, Department of Educational, School, and Counseling Psychology, 16 Hill Hall, University of Missouri, Columbia, MO 65211.
- *Journal of Experimental Psychology: Human Perception and Performance* ([www.apa.org/journals/xhp.html](http://www.apa.org/journals/xhp.html)), **Glyn W. Humphreys, PhD**, Behavioural Brain Sciences Centre, School of Psychology, University of Birmingham, Edgbaston, Birmingham B15 2TT, United Kingdom.
- *Journal of Personality and Social Psychology: Attitudes and Social Cognition* section ([www.apa.org/journals/psp.html](http://www.apa.org/journals/psp.html)), **Charles M. Judd, PhD**, Department of Psychology, University of Colorado, Boulder, CO 80309-0345.
- *Rehabilitation Psychology* ([www.apa.org/journals/rep.html](http://www.apa.org/journals/rep.html)), **Timothy R. Elliott, PhD**, Department of Psychology, 415 Campbell Hall, 1300 University Boulevard, University of Alabama, Birmingham, AL 35294-1170.

**Electronic submission:** As of January 1, 2005, authors are expected to submit manuscripts electronically through the journal's Manuscript Submission Portal (see the Web site listed above with each journal title).

Manuscript submission patterns make the precise date of completion of the 2005 volumes uncertain. Current editors, Warren K. Bickel, PhD, Timothy B. Baker, PhD, Meredith J. West, PhD, Jo-Ida C. Hansen, PhD, David A. Rosenbaum, PhD, Patricia G. Devine, PhD, and Bruce Caplan, PhD, respectively, will receive and consider manuscripts through December 31, 2004. Should 2005 volumes be completed before that date, manuscripts will be redirected to the new editors for consideration in 2006 volumes.