

## **Undergraduates' Perceived Knowledge, Self-Efficacy, and Interest in Social Science Research**

Stefanie S. Boswell<sup>1</sup>

*University of the Incarnate Word, San Antonio, TX 78209*

---

### **Abstract**

This study investigated the relationship between perceived knowledge of research methods, research self-efficacy, interest in learning about research, and interest in performing research-related tasks in one's career. The study also investigated the effect of a research methods course with both didactic and experiential components on these variables. Participants were 33 undergraduates enrolled in a research methods for the social sciences course. At Time 1, perceived knowledge of research was related to all variables; at Time 2, it was related to research self-efficacy and learning interest only. Both perceived knowledge and research self-efficacy increased significantly over the semester; however, interest did not. Implications for teaching and outcome assessment are discussed.

**Keywords:** Research self-efficacy, undergraduates, research training.

---

Over 1,650,000 bachelor's degrees were awarded by U.S. postsecondary granting institutions in 2009-2010 (National Center for Educational Statistics, 2012). The majority of these new degree-earners will enter the workforce (versus pursue graduate studies); this places great pressure on recent graduates to be competitive employment candidates (Landrum & Harrold, 2003). One way to improve one's competitiveness in the workforce is to increase one's knowledge and skills in domains that employers desire most. Employers desire a broad variety of abilities from new workers; for example, communication, decision-making, and time management skills (Aubrecht, 2001; Casner-Lotto, Barrington, & Wright, 2006; Landrum & Harrold, 2003). Critical thinking ability is another domain often identified as desirable by potential employers; this domain encompasses statistical and research abilities (Casner et al., 2006; Landrum & Harrold, 2003).

### ***Knowledge of Research***

Institutions of higher education make great efforts to prepare undergraduates to competently perform job functions that involve research and statistical skills. Undergraduate research and statistics course offerings have increased across the United States, along with expansion of efforts to involve undergraduates in institutional and extramural research experiences (Ciarocco, Lewandowski, & Van Volkom, 2013; May, Cook, & Panu, 2012; Shostak, Girouard, Cunningham, & Cadge, 2010). Despite the proliferation of re-

---

<sup>1</sup> Corresponding author's email: [ssboswel@uiwtx.edu](mailto:ssboswel@uiwtx.edu)

search and statistics course offerings (Bertelsen & Goodboy, 2009; Perlman & McCann, 2005), a challenge to workforce readiness exists: undergraduates often hold negative attitudes toward these courses and do not wish to learn about these subjects (Rajecki, Appleby, Williams, Johnson, & Jeschke, 2004; Sizemore & Lewandowski, 2009). Undergraduates' attitudes toward research are of particular importance given their influence upon motivation for research preparedness training; students show greater persistence and motivation for better performance for academic tasks that they value and perceive to be relevant (Eccles & Wigfield, 2002; Wigfield, 1994; Wigfield & Eccles, 2000). If undergraduates' attitudes toward research could be improved, it is possible that they will seek out greater opportunities to learn about and perform research-related tasks.

Several researchers have investigated factors that may be associated with undergraduates' negative attitudes toward research and statistics. For example, questions regarding the utility and validity of research and biases regarding the relevance of research to career practice have been associated with attitudes toward research methodology instruction (e.g., Bolin, Lee, GlenMaye, & Yoon, 2012; Manning, Zachar, Ray, & LoBello, 2006). Previous research has investigated the utility of research methods education as a tool to improve students' interest in research. Results of these studies, however, have been mixed; research methodology education has been associated with improved *and* diminished interest in research (e.g., Harlow, Burkholder, & Morrow, 2002; Manning et al., 2006; Sizemore & Lewandowski, 2009). Given that repeated exposure to a topic tends to improve attitudes toward it, (Jones, Young, & Claypool, 2011; Zajonc 1968, 2001), the current study hypothesized that research methods education would increase undergraduates' familiarity with the topic and in turn, improve their attitude toward it.

### ***Research Self-Efficacy***

Another possible avenue for improving undergraduates' marketability is research self-efficacy. Self-efficacy refers to individuals' confidence that they possess the skills necessary to execute a task or accomplish a goal (Bandura, 1977). Self-efficacy can be broad, but it can also be narrow and vary from domain to domain (Bandura, 1977, 1982). For example, an individual may possess high self-efficacy for art but low self-efficacy for athletics. As self-efficacy for a task increases, so does the likelihood that the individual will attempt that task again in the future (Bandura, 1977, 1982, 1989). Self-efficacy is also dynamic and evolves in response to experience. For example, individuals engage in positive self-attributions following perceived successes. These positive self-attributions heighten the individual's confidence in future success. With a heightened sense of self-efficacy for the task, the individual is more likely to seek out additional domain-specific goals in the future (Bandura, 1989). Research self-efficacy is a form of self-efficacy and is defined as confidence in one's ability to successfully execute research-related tasks (Bieschke, Bishop, & Garcia, 1996). It has been associated with increased interest in conducting research as well as actual research productivity (Bishop & Bieschke, 1998; Kahn & Scott, 1997; Lambie & Vaccaro, 2011; Syzmanski, Ozegovic, Phillips, & Briggs-Phillips, 2007). Given research self-efficacy's relationship with increased interest and productivity in research, it is possible that improving undergraduates' beliefs about

their ability to successfully perform these tasks may improve their attitudes and interests toward additional research training as well as research-oriented career paths.

### ***Purpose of Study***

Given the importance of research skills to workforce readiness, the purpose of the current study was to investigate the relationship between perceived knowledge of research, research self-efficacy, interest in learning about research, and interest in performing research-related tasks in one's career. It was hypothesized that participants' perceived knowledge of research would be significantly related to research self-efficacy, interest in learning about research, and performing research-related tasks in their careers. Additionally, this study investigated the effect of a research methods course on these variables. The semester-long research methods course contained both didactic and experiential components. It was hypothesized that there would be significant increases in students' perceived knowledge of research, research self-efficacy, interest in learning about research, and interest in performing research-related tasks in a career.

## **Method**

### ***Participants***

Power analysis was conducted using G\*Power 3 (Erdfelder, Faul, & Buchner, 1996; Faul, Erdfelder, Lang, & Buchner, 2007). A power of .80 and an alpha level of .05 were used to calculate the minimum number of participants needed to detect a medium effect size. The analysis indicated that data from a minimum of 24 participants would be needed for the study. Participants ( $n = 33$ ) were ethnically diverse; 20 (60.6%) identified as Latino/a, six (18.2%) identified as Black, five (15.2%) identified as White, and two (6%) identified as other. The sample contained 24 (72.7%) females and nine (27.3%) males. The sample was predominantly composed of upper-division students (75.8%; junior,  $n = 12$ ; senior,  $n = 13$ ). Lower-division students (first year student,  $n = 1$ ; sophomore,  $n = 5$ ) comprised 18.2% of the sample. Two participants (6.1%) identified their college classification as other. Participants reported their major as either psychology ( $n = 28$ , 84.8%), sociology ( $n = 2$ , 6.1%), athletic training ( $n = 2$ , 6.1%), or criminal justice ( $n = 1$ , 3%). All participants reported that they enrolled in the course because it was a graduation requirement for the major. Participants were recruited from a research methodology for the social sciences courses at a medium-sized, open-enrollment university in the southwestern United States. All participants had previously completed a statistics for the social sciences course.

### ***Measures***

**Demographic information.** Participants completed a questionnaire to gather information about age, sex, ethnicity, college class, and major.

**Perceived knowledge of research and statistics.** Participants completed the Research Methods Proficiency scale (Cassidy & Eachus, 2000), a measure of perceived knowledge of research methodology and statistics. The scale contains 38 items that are rated on a

scale of 1 (*I have never heard of this*) to 5 (*I am very confident about my understanding of and use of this*). Sample items are “a hypothesis,” “chi-square,” “counterbalancing,” and “inferential statistics” (Cassidy & Eachus, 2000, p. 321). The scale is scored by averaging each participant’s answers; higher scores indicate greater perceived knowledge of research and statistics. Cassidy and Eachus (2000) reported high internal reliability for the scale,  $\alpha = .94$ , and also found evidence for its construct validity. The internal reliability coefficient for the scale was  $\alpha = .89$  in the current study.

**Research self-efficacy.** Participants completed the Research Self-Efficacy Scale (Holden, Barker, Meenaghan, & Rosenberg, 1999), a self-report measure of confidence in one’s ability to execute research related behaviors. The scale contains nine items that are rated on a scale of 0 (*not at all confident*) to 100 (*very confident*). Examples of scale items are, “How confident are you that you can formulate a clear research question or testable hypothesis?” and “how confident are you that you can effectively present your study and its implications?” (Holden et al., 1999, p. 470). A total score is derived by averaging the participants’ answers on all nine items; higher scores are indicative of greater research self-efficacy. Holden et al. (1999) reported high internal reliability for the scale,  $\alpha = .94$ . In the current study, the internal reliability coefficient for the scale was  $\alpha = .95$ . Holden et al. (1999) also found evidence for construct validity of the measure.

**Interest in learning about research.** Participants rated their degree of interest in learning about research using a 7-point, Likert-type scale. The scale ranged from 1 (*not at all interested*) to 7 (*very interested*).

**Interest in performing research-related tasks in a career.** Participants rated their degree of interest performing research-related tasks as a part of their careers using a 7-point, Likert-type scale. The scale ranged from 1 (*not at all interested*) to 7 (*very interested*).

### ***Procedure***

A within-subjects (pre-test, post-test) design was utilized to examine change in participants’ perceived knowledge, research self-efficacy, and interests over the course of the semester. Participants received a verbal and written description of the study; they were informed that participation was voluntary and that they could withdraw from the study at any time without prejudice or penalty.

To protect participants’ identity and maintain confidentiality, names or other identifying information (ex: student identification number) did not appear on any study questionnaires. To enable matching of data for study analyses, each participant created a unique code name that was used to match pre-test and post-test questionnaires. Participants completed all study measures during class time; measures were administered on the first and last days of class. The university’s Institutional Review Board reviewed and approved this study.

Over the course of a 16-week semester, participants attended classroom sessions and completed outside reading on topics germane to research methodology in the social sci-

ences. Topics were diverse and included the scientific method, qualities of good research hypotheses, ethics, constructs and operational definitions, and various research designs. Additionally, participants also developed an original research proposal for a research question of their own interest. Participants developed this proposal through a series of homework assignments; they progressed through literature searches, annotations and American Psychological Association formatting, refinement of research hypotheses, selection of study measures, composition of an introduction and literature review, development of a methodology, and selection of appropriate statistical analysis. Each participant received personalized feedback files after the submission of each assignment. Participants created a final research proposal and presented this to the class. Portions of class time were devoted to discussion of individual research projects throughout the semester; this allowed students to see the link between research activities and classroom modules. It also allowed participants to collaborate with classmates as they encountered practical concerns during the proposal process.

## Results

Bivariate correlations for perceived knowledge, research self-efficacy, interest in learning about research, and interest in performing research-related tasks in one's career at Time 1 and Time 2 are presented in Table 1. As predicted, at Time 1 perceived knowledge of research was positively correlated with interest in learning about research ( $r = .52, p = .01$ ), interest in performing research-related tasks in one's career ( $r = .40, p = .05$ ), and research self-efficacy ( $r = .50, p = .01$ ). At Time 2, perceived knowledge of research was again correlated with interest in learning about research ( $r = .47, p = .01$ ) and research self-efficacy ( $r = .66, p = .01$ ), but not interest in performing research-related tasks in one's career.

**Table 1. Bivariate Correlations for Study Variables at Time 1 and Time 2.**

	1	2	3	4
1. Perceived Knowledge	--	.50**	.52**	.40*
2. Research Self-Efficacy	.66**	--	.27	.28
3. Learning Interest	.47**	.26	--	.63**
4. Career Interest	.32	.13	.62**	--

*Note.* Correlations for Time 1 are presented above the diagonal; bivariate correlations for Time 2 are presented below the diagonal.

\*  $p = .05$ ; \*\*  $p = .01$

A RMANOVA was conducted to determine study variables changed over the course of the semester; it was predicted that all four variables would increase over time. As predicted, perceived knowledge and research self-efficacy significantly increased over time; however, neither interest in learning about research nor interest in performing research-related tasks in one's career changed over time. Means, RMANOVA results, observed power, and effect sizes are presented in Table 2.

**Table 2. Means, Repeated Measures Analysis of Variance for Study Variables.**

Variable	Mean		$F(1, 32)$	$p$	Observed Power	$\eta_p^2$
	Pre	Post				
Perceived Knowledge	3.68	4.42	80.50	< .001	1.00	.72
Research Self-Efficacy	62.69	89.31	37.70	< .001	1.00	.54
Learning Interest	5.61	5.58	0.03	.86	0.05	.00
Career Interest	5.00	5.03	0.02	.89	0.05	.00

## Discussion

The present study investigated the relationship between perceived knowledge of research methods, research self-efficacy, interest in learning about research, and interest in performing research-related tasks in one's career. The study also investigated the effect of a research methods course with both didactic and experiential components on these variables.

### *Perceived Knowledge*

With respect to perceived knowledge of research, participants reported a significant increase over the course of the semester. This may be attributable to the combined didactic/experiential (active-learning) approach of the course. An approach that engages students in discussion, activities, and writing, such as the one employed in this course, typically produces better learning outcomes than passive approaches (e.g., students attend lecture only) (Malik & Janjau, 2011; Prince, 2004). Although the absence of a control group in this repeated-measures study does limit causal interpretation of the data, this finding does have important implications for the outcome assessment. Participants perceived that their knowledge of research increased following participation in a semester-long research methods course; this indicates that one of the main objectives (increased knowledge) of the course was met. In addition to enhancing students' knowledge base, this increase in perceived knowledge may also enhance students' attractiveness to potential employers. With greater perceived knowledge of the mechanics of research, undergraduates may be better able to speak from an informed perspective about job tasks involving research-oriented skills. Additionally, students may be better able to present themselves as a "good fit" for employers looking for individuals with analytical skills.

### *Perceived Knowledge and Interest*

Consistent with study hypotheses, perceived knowledge was significantly related to interest in learning about research at both the beginning and end of the semester. Individuals with greater knowledge of research tended to possess greater interest in learning about research. This relationship may be attributable to the exposure's effect on attitude (Zajonc 1968, 2001); individuals with greater exposure to information about research methodology may develop more favorable attitudes toward it, including interest in learning

more about it. Improving undergraduates' attitudes toward research could be particularly fruitful given that students' motivation to persist or even attempt particular academic tasks is in part governed by their beliefs about the value of the activity (Eccles & Wigfield, 2002; Wigfield & Eccles, 2000). An increase in undergraduates' knowledge and interest in research could influence students to become more involved in research-related activities. However, the correlational nature of this portion of the study prohibits a causal interpretation of the data; it is possible that individuals with greater interest in research had previously sought out learning opportunities, either formal or informal. Indeed, results of the analysis of interest in research's change over time support the latter of these two possible explanations of the data; participation in the didactic and experiential research methods course produced no significant change in participants' interest in learning about the topic. Perceived knowledge was significantly related to interest in performing research-related tasks in one's career at the beginning of the semester; individuals with greater interest in executing research-related tasks on the job tended to report greater amounts of perceived knowledge. This finding was consistent with study hypotheses. However, the significant relationship between these variables disappeared by the end of the semester. Moreover, interest in performing research-related tasks in one's career did not change over the course of the semester. Taken together, these findings are consistent with that of Manning et al. (2006); their research found students to be less interested in research following completion of a research methods course. Undergraduates may begin research coursework with a positive bias toward the subject (Manning et al., 2006); this positive perspective toward research may be related to a lack of understanding of the technicalities of the research process (Sizemore & Lewandowski, 2009). As students gain greater experience with the detailed mechanics of research over the course of the semester, their interest in it may wane. Additionally, students may lose interest in learning about and conducting research because they perceive research-related tasks to be unrelated to their post-graduation plans. For example, students who do not plan to attend graduate school for advanced discipline-specific training may perceive research methods courses as having little personal value (Vittengl et al., 2004). Moreover, students who are interested in careers in applied environments (e.g., licensed social worker, counselor) may view research-related skills as unrelated to their specific career goals (Sizemore & Lewandowski, 2009).

### ***Perceived Knowledge and Research Self-Efficacy***

Consistent with study hypotheses, participants' research self-efficacy was significantly related to perceived knowledge at both the beginning and end of the semester. Individuals with greater perceived knowledge tended to rate themselves as more capable of completing research-oriented tasks. Furthermore, the relationship between these variables was larger at the end of the semester; this suggests the more one learns about research, the more confident one becomes in the ability to perform it. This conclusion is supported by the analysis of research self-efficacy's change over time. As hypothesized, participants' self-efficacy for research-related tasks increased over the course of the semester. Participants reported greater confidence in their ability to execute research-related tasks spanning from conceptualization of a research idea to presentation of a final project. Students likely benefited from the step-by-step approach to completion and presentation of the re-

search project. Following completion of each step of the project, participants received individualized feedback and suggestions for improvement from the course instructor. Additionally, participants were able to utilize sections of class time to consult with their peers regarding the practical concerns of the research process (e.g., suggestions for refining research hypotheses, methods to operationalize variables). Participants' likely engaged in positive self-attributions for success during these experiences; in turn, participants' self-efficacy for research was enhanced. This interpretation is consistent with that of self-efficacy theory (Bandura, 1977, 1982) which states that confidence in one's ability to perform a task is dynamic – perceived success in the execution of increasingly complex tasks improves expectations for completion of future tasks in that domain.

### ***Implications for Scholarship of Teaching and Learning***

This study's findings have multiple implications for the scholarship of teaching and learning. First, this study's design (a pre- and post-course assessment) is an example of the scholarship of teaching and learning in practice (Lambie, Ieva, & Ohrt, 2012). Measuring perceived knowledge at the beginning and end of the semester provides a way to assess the degree to which students believe that they profited or learned from a course. Additionally, change in research self-efficacy may also provide an additional means of outcome assessment in teaching. If students perceive that they are truly learning material, they likely will view themselves to be more capable of performing tasks related to that material. These methods of outcome assessment could be utilized in addition to current approaches (ex: completion of projects, attainment of a specific grade).

### ***Limitations and Future Directions***

The self-report nature of the data is a limitation of the current study. Students perceived greater knowledge of research methods and greater confidence in their ability to perform research-related tasks; however, they may have overestimated their abilities. Participants may not actually possess the enhanced knowledge and competence for research.

The absence of a control group is also a limitation to the current study. Because of this, it is not fully possible to draw causal inferences about the effect of this approach to social science research methodology instruction. Although participants' perceived knowledge and research self-efficacy changed over the course of the term, in the absence of a control group, the effect of this change may not be fully attributable to participation in the experiential and didactic components of the course. This author is planning a future study that will utilize a control group, better enabling causal inferences to be drawn regarding the effect of participation in an active-learning research methods course.

## **References**

- Aubrecht, L. (2001, Winter). What can you do with a BA in psychology? *Eye on Psi Chi*, 5, 29-31.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.

***The Journal of Effective Teaching, Vol. 13, No. 2, 2013, 48-57***

©2013 All rights reserved



- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37, 122-147.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44, 1175-1184.
- Bertelsen, D. A., & Goodboy, A. K. (2009). Curriculum planning: Trends in communication studies, workplace competencies, and current programs at 4-year colleges and universities. *Communication Education*, 58, 262-275.
- Bieschke, K. J., Bishop, R. M., & Garcia, V. L. (1996). The utility of the research self-efficacy scale. *Journal of Career Assessment*, 4, 59-75.
- Bishop, R. M., & Bieschke, K. J. (1998). Applying social cognitive theory to interest in research among counseling psychology doctoral students: A path analysis. *Journal of Counseling Psychology*, 45, 182-188.
- Bolin, B. L., Lee, K. H., GlenMaye, L. F., & Yoon, D. P. (2012). Impact of research orientation on attitudes toward research of social work students. *Journal of Social Work Education*, 48, 223-243.
- Casner-Lotto, J., Barrington, L., & Wright, M. (2006). *Are they really ready to work? employers' perspectives on the basic knowledge and applied skills of new entrants to the 21st century U.S. workforce.*
- Cassidy, S., & Eachus, P. (2000). Learning style, academic belief systems, self-report student proficiency and academic achievement in higher education. *Educational Psychology: An International Journal of Experimental Educational Psychology*, 20, 307-22.
- Ciarocco, N. J., Lewandowski, G. W., & Van Volkom, M. (2013). The impact of a multi-faceted approach to teaching research methods on students' attitudes. *Teaching of Psychology*, 40, 15-19.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109-132.
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavioral Research Methods, Instruments, & Computers*, 28, 1-11.
- Faul, F., Erdfelder, E., Lang, A., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- Harlow, L. L., Burkholder, G. J., & Morrow, J. A. (2002). Evaluating attitudes, skill, and performance in a learning-enhanced quantitative methods course: A structural modeling approach. *Structural Equation Modeling*, 9, 413-430.
- Holden, G., Barker, K., Meenaghan, T., & Rosenberg, G. (1999). Research self-efficacy: A new possibility for educational outcome assessment. *Journal of Social Work Education*, 35, 463-476.
- Jones, I. F., Young, S. G., & Claypool, H. M. (2011). Approaching the familiar: On the ability of mere exposure to direct approach and avoidance behavior. *Motivation and Emotion*, 35, 383-392.
- Kahn, J. H., & Scott, N. A. (1997). Predictors of research productivity among counseling psychology doctoral students. *Counseling Psychologist*, 25, 38-67.
- Lambie, G. W., Ieva, K. P., & Ohrt, J. H. (2012). Impact of a counseling ethics course on graduate students' learning and development. *International Journal for the Scholarship of Teaching and Learning*, 6.

- Lambie, G. W., & Vaccaro, N. (2011). Doctoral counselor education students' levels of research self-efficacy, perceptions of the research training environment, and interest in research. *Counselor Education and Supervision, 50*, 243-258.
- Landrum, R. E., & Harrold, R. (2003). What employers want from psychology graduates. *Teaching of Psychology, 30*, 131-133.
- Malik, S., & Janjua, F. (2011). Active lecturing: An effective pedagogic approach. *International Journal of Academic Research, 3*(2), 963-967.
- Manning, K., Zachar, P., Ray, G. E., & LoBello, S. (2006). Research methods courses and the scientist and practitioner interests of psychology majors. *Teaching of Psychology, 33*, 194-196.
- May, S. R., Cook, D. L., & Panu, A. M. (2012). A quantitative model for predicting which features of undergraduate research aid acceptance into graduate education. *Council on Undergraduate Research Quarterly, 32*, 18-22.
- National Center for Educational Statistics. (2012). *The condition of education 2012* (NCES Publication 2012-045). Washington, DC: Author.
- Perlman, B., & McCann, L. I. (2005). Undergraduate research experiences in psychology: A national study of courses and curricula. *Teaching of Psychology, 32*, 5-14.
- Prince, A. (2004). Does active learning work? A review of the research. *Journal of Engineering Education, 93*, 223-231.
- Rajecki, D. W., Appleby, D., Williams, C. C., Johnson, K., & Jeschke, M. P. (2004). Statistics can wait: Career plans activity and course preferences of American psychology undergraduates. *Psychology Learning & Teaching, 4*, 83-89.
- Shostak, S., Girouard, J., Cunningham, D., & Cadge, W. (2010). Teaching graduate and undergraduate research methods: A multipronged departmental initiative. *Teaching Sociology, 38*, 93-105.
- Sizemore, O. J., & Lewandowski, G. W. (2009). Learning might not equal liking: Research methods course changes knowledge but not attitudes. *Teaching of Psychology, 36*, 90-95.
- Szymanski, D. M., Ozegovic, J. J., Phillips, J. C., & Briggs-Phillips, M. (2007). Fostering scholarly productivity through academic and internship research training environments. *Training and Education in Professional Psychology, 2*, 135-146.
- Vittengl, J. R., Bosley, C. Y., Brescia, S. A., Eckhardt, E. A., Neigig, J. M., Shelver, K. S., & Sapenoff, L. A. (2004). Why are some undergraduates more (and others less) interested in psychological research? *Teaching of Psychology, 31*, 91-97. doi: 10.1207/s15328023top3102\_3
- Wigfield, A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review, 6*, 49-78. doi: 10.1007/BF02209024
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology, 25*, 68-81. doi: 10.1006/ceps.1999.1015
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology, 9*, 1-27.
- Zajonc, R. B. (2001). Mere exposure: A gateway to the subliminal. *Current Directions in Psychological Science, 10*, 224-228.