

**Economic Education Retrospective:  
25 Years of Contributions from *The American Economist***

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**Abstract**

*The American Economist* has a long and significant history of publishing research in the field of economic education. This paper provides a review and synthesis of the 70 economic education articles published by the journal over the past 25 years. The authors discuss *The American Economist's* contribution to the field of economic education according to four primary themes; program design, instructional and assessment methodology, instructional materials, and student outcomes.

**Keywords:** economic education, research, journal, publication

**JEL Codes:** A20, A21, A22, A23

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**I. Introduction**

Over the last 50 years *The American Economist* has served as the academic journal of Omicron Delta Epsilon, The International Honor Society in Economics. Since its inception, the journal has published research articles from all fields and schools of economic thought. As a general interest journal read by those educating the next generation of economists, *The American Economist* encourages submissions from both young researchers as well as prominent scholars who have shaped the discipline (Grimes, 2015). While most issues of the journal reflect the eclectic nature of modern economic thought and inquiry, as a publication produced by an honor society founded to recognize and honor academic achievement in the classroom, *The American Economist* has attracted a significant number of contributions focused on economic education. Virtually every volume during its publication history has included at least one article with an education focus.

In a recent study, Asarta et al. (2014) reported that *The American Economist* ranks third in the quantity of economic education research published among all economics journals included in the *Social Sciences Citation Index* over the past 25 years. During this span, *The American Economist* published 70 articles in which researchers employ a combination of qualitative and quantitative methodologies to support the development of evidence-based practices in the field of

economic education. Reviewing *The Journal of Economic Literature* (JEL) code sub-classifications for economic education articles published in *The American Economist* over the past 25 years reveals that the journal published six general economic education articles, five pre-college articles, 54 undergraduate articles, three graduate articles, and two articles that pre-dated the index coding. The goal of this paper is to summarize this significant body of work that represents *The American Economist's* contribution to the field of economic education over the past 25 years.

Rather than employing the JEL classifications (which merely reflect the level of schooling) to organize this review, the 70 articles reviewed are synthesized into four thematic categories: program design, instructional and assessment methodology, instructional materials, and student outcomes. Each of these categorizations are further broken down by topical area and discussed in turn.

## **II. Program Design**

Articles in *The American Economist* have explored a wide range of issues concerning the design of economics programs, primarily at the undergraduate college level. These works have examined the structure of curriculum, the role of interdisciplinary approaches, specific course design, prerequisite issues, program requirements, and teacher preparation. Of these, two examined the overall trend in the popularity of the college economics major. First, Brue (1996) explored the number of undergraduate students majoring in economics through a synthesis of literature documenting the evolution of undergraduate economic education between 1970 and 1995. Later, Skoorka and Condon (2002) examined undergraduate economics majors at 20

colleges and universities in New Jersey between 1979 and 2000. Skoorka and Condon's analysis revealed university-specific trends in Bachelor degrees awarded, professional school enrollments, and that a proxy for business cycle conditions had a positive and significant effect on the number of undergraduate economics degrees awarded by the 20 institutions. Although such factors are outside the direct control of economic educators, Brue concluded that the decline he observed in economics majors may be mitigated by a "systematic reexamination" of undergraduate economics programs (p. 49). To this end, Brue recommended economic educators develop methods of interdisciplinary study, redesign existing courses, and reevaluate course prerequisites and program requirements.

### *Interdisciplinary Study*

Fuess (2001) examined the development of the Department of International Economics at Senshu University in Tokyo, Japan. The international economics program deviated from traditional economics programs in Japan and the United States in both course offerings and program structure. To support the internationalization of economics, Senshu University developed courses in regional and comparative studies, and required students to complete additional coursework in foreign and applied language studies. Additionally, to support interdisciplinary study, Senshu University promoted the inclusion of "perspectives from environmental studies, sociology, anthropology, history, and political science" (p. 48). Furthermore, Senshu University required concurrent enrollment in general and major-specific courses throughout each year of study to consistently support students' integration of interdisciplinary perspectives in economics coursework.

## *Course Design*

Grimes and Nelson (1998) examined the effectiveness of two models of introductory economics instruction: a traditional introductory economics sequence and a course predicated on Social Issues pedagogy. The authors employed probit and two-stage least squares models to evaluate the effect of student-level characteristics, attitudes as measured by the Attitude Toward Economics (ATE) instrument (Soper & Walstad, 1983), and economic content knowledge as measured by the third edition of the *Test of Understanding College Economics* (Saunders, 1991) on learning outcomes and course completion. The authors found the Social Issues pedagogy did not have a significantly different effect on student learning outcomes when compared to traditional introductory macroeconomics pedagogy. On the other hand, the Social Issues pedagogy had a negative and significant effect when compared to traditional introductory microeconomics pedagogy. However, the authors also found that the Social Issues format had a positive and significant effect on students' probability of course completion when compared to traditional introductory macroeconomics and microeconomics. The authors concluded that a Social Issues approach to introductory economics may be a close substitute to traditional introductory macroeconomics but lacks the depth of analysis to adequately develop introductory microeconomic tools. Furthermore, incorporating the Social Issues pedagogy in traditional introductory economics courses may positively affect course completion and address declining undergraduate enrollment in economics courses.

Zweig and Dawes (2000) presented an alternative to the traditional introductory economics sequence via a synthesis of traditional introductory microeconomics, macroeconomics, and trade pedagogies into two new courses: Introduction to Economic Reasoning and Introduction to Economic Analysis. The former course focuses on the social

content of economics whereas the latter focuses on quantitative analysis. The authors contended that this redesigned introductory course sequence provides students an opportunity to select an initial introductory course based on personal interests in economics while allowing students who need to complete mathematics prerequisites to postpone coursework in quantitative analysis.

### *Course Prerequisites*

Benedict and Hoag (2002) examined the effect of student-level characteristics, questionnaire data, and enrollment in introductory microeconomics or macroeconomics on students' course-related apprehension. The authors found students' mathematical proficiency as measured by ACT Math score had a negative and significant effect on the probability of student apprehension. Furthermore, enrollment in introductory macroeconomics, as opposed to microeconomics, did not significantly influence the probability of student apprehension. The authors concluded that providing students supplementary instruction or requiring prerequisite mathematics courses may decrease their apprehension towards introductory economics coursework.

Schuhmann et al. (2005) evaluated the effect of student-level characteristics, including mathematical proficiency, on economic content knowledge as measured by a subset of questions from the *Test of Understanding College Economics*. The authors found the correlation between mathematical proficiency and students' economic content knowledge to be positive and significant both prior to and following instruction. Specifically, students' ability to solve a system of equations, compute a percentage, and read increases and decreases on a graph had a positive and significant effect on economic content knowledge following instruction. Thus, the authors claimed introductory economics students may benefit most from mathematics instruction focused on algebraic and graphing skills.

Bosshardt and Manage (2011) employed regression analysis as well as matching and propensity estimation to evaluate the effect of completing calculus prior to introductory economics on economics learning outcomes. The authors found prior completion of a calculus course had a positive and significant effect on the course grade earned by students in both introductory microeconomics and macroeconomics. Additionally, the authors found “the largest gains seemed to be for the groups who were 20% to 60% likely to take calculus” (p. 35). To this end, the authors conclude enrollment in calculus as a prerequisite to introductory economics may support otherwise disinclined students’ economic content knowledge acquisition.

### *Program Requirements*

Reyes (2010) and DeLoach et al. (2012) supported the inclusion of an undergraduate research program within the economics major. Reyes proposed a one-semester seminar course designed to scaffold students’ development of foundational research skills. She presents a narrative to describe her course structure, assignments, and learning outcomes within the context of a liberal arts economics program. Alternately, DeLoach et al. proposed six guidelines for the development of a comprehensive undergraduate research program. The authors argued that economic educators should integrate Hansen’s proficiencies in lower division courses, develop a research methods course, require a research experience within the context of existing capstone experiences, develop research teams, and seek both institutional and external support. To ensure research methodology aligns with government mandates, Lopus et al. (2007) suggested economics departments familiarize economic educators with the Federal Policy for the Protection of Human Subjects as well as local Institutional Review Board policies and procedures.

Grimes et al. (2013) proposed economics departments should reevaluate university articulation agreements or consider implementing placement exams to ensure transfer students are adequately prepared for upper division coursework. The authors employed maximum likelihood estimation and regression analysis to evaluate the effect of student-level characteristics, including transfer provenance, on students' grade point average (GPA) at Mississippi State University (MSU). With respect to introductory microeconomics, the authors found earning a B as opposed to C letter grade at MSU had a positive and significant effect on students' overall GPA while transferring a B as opposed to C letter grade in introductory microeconomics did not have a significant effect on students' overall GPA. Identical relationships held with respect to introductory macroeconomics. The authors concluded that grades earned by transfer students in introductory economics courses were inflated by as much as a full letter compared to MSU and suggested an institutional reevaluation of articulation agreements may be necessary to ensure all economics students are adequately prepared for upper division coursework.

### *Teacher Preparation*

Butters et al. (2011) used the third edition of the *Test of Economic Literacy* (Walstad & Rebeck, 2001) to examine the effect of student-, instructor-, and school-level characteristics on high school students' economic content knowledge. The authors found that high school teachers' economic content knowledge and postgraduate training in economics had a positive and significant effect on their students' economic knowledge acquisition. To this end, the authors "support requirements for rigorous college-level instruction in economics for any teacher who will be teaching economic content" (p. 55).



At the college level, Finegan and Siegfried (1998) argued that increased graduate-level economics instruction among undergraduate economic educators may not improve their students' economic content knowledge acquisition. The authors evaluated the effect of instruction from an educator with a doctoral as opposed to master's degree in economics on the economic knowledge acquisition of undergraduate students. The authors found that instruction from an educator with a doctoral degree did not have a significant effect on students' economic content knowledge acquisition in introductory macroeconomics but had a negative and significant effect on students enrolled in introductory microeconomics. The authors argued a future shortage of graduates with a doctoral degree in economics would not be detrimental to undergraduate introductory economics education. However, Finegan (2014) recognized evaluating such trends may be difficult due to persistent inaccuracies found in the estimation of doctoral degrees in economics granted by universities in the United States. The author determined the *Survey of Earned Doctorates* overestimates degree counts due to misclassification, the Integrated Postsecondary Education Data System underestimates degree counts due to undercounting and misclassification, and the list of doctoral dissertations published by *The Journal of Economic Literature* underestimates degree counts due to underreporting by economics departments.

Marvasti (2007) as well as Milkman and McCoy (2014) furthered existing research on undergraduate economics instruction by evaluating graduate teaching assistants. Marvasti utilized an ordered probit model to evaluate the effect of foreign-born teaching assistants on students' economic content knowledge acquisition. The author found that instruction by a foreign-born teaching assistant had a negative and significant effect on both foreign and domestic students' probability of receiving a higher grade when compared to instruction by a teaching assistant born in the United States. Furthermore, Marvasti indicated students'

perception of foreign-born teaching assistants' English proficiency did not have a significant effect on students' probability of receiving a higher grade. This finding is consistent with Finegan and Siegfried's (2000) evaluation of student ratings of non-native English speakers' teaching effectiveness in introductory economics courses. The authors used regression analysis to determine that an incremental improvement in students' perception of non-native English speakers' language proficiency did not have a significant effect on students' perception of teaching effectiveness.

Milkman and McCoy (2014) examined graduate student teacher training programs offered by nine universities "regarded within the academic community for having exemplary programs in preparing graduate students to teach economics" (p. 20). The authors found the programs did not adhere to a common training structure but incorporated common instructional content. At least seven of the nine universities provided graduate students instruction in six areas: university policies, development of learning objectives, microeconomics teaching practices, alternate teaching strategies, and lecture and assessment techniques. Additionally, eight of the nine universities directly supervised graduate students' teaching. Furthermore, the authors suggested universities may improve graduate student teacher training programs through instruction related to learning modalities and student-centered pedagogy.

### **III. Instructional and Assessment Methodology**

The economics professoriate has a long tradition of experimenting with classroom pedagogy and alternative means of delivering economic education based on their target audiences and how their students learn. Additionally, academic economists began to

systematically evaluate their work in this area long before the current wave of formalizing educational assessment practices began. These facts are revealed in large number of articles published by *The American Economist* over the past 25 years. The focus of these articles can be divided into four primary themes; active learning strategies, learning preferences, conceptual-graphical-mathematical instruction, and assessment methodology.

### *Active Learning Strategies*

Weisman (2012) proposed 12 teaching principles to enhance teaching effectiveness via teacher disposition, educational philosophy, and instructional methodology. With respect to instructional methodology, Weisman delineated three pedagogical techniques designed to improve student learning outcomes. First, Weisman argued that economic educators should engage students as active participants in the construction of economic content knowledge. Second, Weisman suggested economic educators should design lessons predicated on a heterogeneous combination of learning preferences. Finally, Weisman put forth that economic educators should synthesize conceptual, graphical, and mathematical methods of presentation.

Six articles published in *The American Economist* proposed best practices related to incorporating active learning exercises and projects in economic education. Christoffersen (2002) described an active learning exercise designed to introduce undergraduate introductory and international economics students to the concept of allocation on the first day of the semester. Hadsell (2005) presented three active learning exercises designed to engage introductory microeconomics students in an analysis of fairness and equity via the free rider problem, free-market capitalism, and externalities. Wagner and Newman (2013) depicted an active learning exercise designed to engage students in a critical analysis of Malthusian and Ricardian scarcity. Additionally, Mago (2014) presented an active learning exercise designed to demonstrate the

effectiveness of fiscal stimuli as a method of government intervention to increase aggregate output.

McGoldrick et al. (2000) described an active learning project designed to engage undergraduate managerial economics students in service-learning via student-based instruction. The authors argued that students may reinforce, extend, and develop real world applications for economic content knowledge by providing instruction at afterschool programs, seminars, or presentations. McGoldrick (2003) presented an active learning project in which undergraduate students developed a presentation based on the long term, cumulative effect of women's personal decisions on their professional careers. The author concluded that the collaborative project engaged students in a semi-autonomous critical analysis of course content while allowing the educator to facilitate students' economic content knowledge acquisition.

### *Learning Preferences*

Boatman et al. (2008) examined the effect of learning preferences on student learning outcomes in introductory economics courses. The authors found both visual and reading/writing learning preferences had a positive and significant effect on learning outcomes as measured by final course grade. Furthermore, visual learning preference had a positive and significant effect on learning outcomes as measured by the third and fourth editions of the *Test of Understanding College Economics* (Walstad, Watts, & Rebeck, 2007). Given students with visual learning preferences consistently outperformed students with non-visual learning preferences, the authors suggested that economic educators may improve students' access to instruction by realigning existing teaching practices with varied learning preferences.

Three articles provided evidence of best practices related to engaging students of varied learning preferences through technological and media integration. First, Gillette (1994) described two methods of computer aided instruction designed to support economic educators' integration of computer applications throughout periods of direct instruction as well as activate students' knowledge of alternate content areas via interdisciplinary connections. Gregorowicz and Hegji (2000) presented two methods of integrating computer spreadsheet applications to scaffold instruction in undergraduate international economics and finance courses. Lastly, Gillette (2001) described the role of e-mail, electronic conferencing, and the internet in simultaneously extending the boundaries of the traditional learning environment as well as providing resources to support and advance students' development of economic content knowledge.

Three articles indicated written and visual media integration may support economic educators' access to students' prior knowledge, interests, and varied learning preferences. Miller and Felton (2002) described the use of eight Greek myths to teach game theory to undergraduate economics students without the need for formal mathematical modeling. Gills & Hall (2010) described the use of nine episodes of *The Simpsons* to separate normative from positive economics when teaching public policy to introductory economics students. In a similar vein, Luccasen et al. (2011) described the use of episodes from four animated television series (including *The Simpsons*) to support introductory macroeconomic teachers' presentation of velocity of money, inflation, unemployment, interest rates, and gross domestic product.

#### *Conceptual, Graphical, and Mathematical Instruction*

Cohn et al. (2004) used regression and probit analyses to evaluate the relationship between introductory economics students' content knowledge and attitude regarding graphs. The

authors found self-reported graphing difficulties had an inconsistent effect on students' performance on course exams. Such difficulties did not have a significant effect on student performance for one of three instructors but had a negative and significant effect for the remaining two instructors. This finding is consistent with Hill and Stegner's (2003) evaluation of the effect of student-level characteristics on graphing ability. The authors found student characteristics typically associated with success in economics, such as gender and socioeconomic status, did not significantly affect students' probability of successfully graphing. Furthermore, Cohn et al. found students' belief that graphs were helpful during instruction did not have a significant effect on performance. The authors suggested economic educators may improve their students' content knowledge acquisition by revising existing methods of graphical instruction as well as synthesizing graphical representations with conceptual and mathematical instruction.

Four articles proposed best practices related to synthesizing graphical instruction with conceptual and mathematical methods of presentation. Ahsan (1991) described a synthesis of graphical and mathematical instruction to facilitate intermediate microeconomics students' analysis of optimal allocation. Poast (2001) presented a synthesis of graphical and conceptual instruction to support introductory macroeconomics students' connection between aggregate demand/aggregate supply models and the Phillips curve. Furthermore, Kyer and Maggs (2005) described a synthesis of graphical and conceptual instruction to support undergraduate macroeconomics students' decomposition of cyclical government budget changes into revenue and expenditure effects. Finally, Zetland et al. (2010) presented a method of transitioning between homogeneous and heterogeneous combinations of graphical and mathematical representations to support introductory economics students' comprehension of direct and inverse demand.

## *Assessment Methodology*

Quddus and Bussing-Burks (1997) presented 10 discipline-specific learning techniques to support introductory economics students' content knowledge acquisition and assessment performance. Loviscek and Cloutier (1997) furthered existing research on the effect of study and test-taking skills on student learning outcomes through an analysis of the Supplemental Instruction program at the University of Wisconsin-Parkside. After controlling for self-selection bias, the authors found introductory microeconomics students' participation in study and test-taking skills oriented review sessions had a positive and significant effect on final course grade. Thus, the authors suggested introductory economics students would benefit from review sessions that extend beyond recitation of course content to include study and test-taking skills.

O'Neill (2001) argued that the validity of post-course standardized assessments of students' economic content knowledge may be dependent on instructors' assessment methodology. Based on regression and probit analyses, O'Neill found introductory macroeconomics instructors' use of constructed response, as opposed to multiple choice, assessments did not have a significant effect on students' average course exam score. However, instructors' use of constructed response assessments had a negative and significant effect on students' content knowledge acquisition as measured by changes in standardized test scores. Therefore, O'Neill suggested economic educators should be cognizant of varied methods of measuring student learning outcomes and align all forms of assessment methodology.

In contrast to O'Neill (2001), Lopus and Hoff (2009) argued that high school economic educators' assessment methodology has a significant effect on course-specific measures of students' economic knowledge. The authors evaluated the effect of student- and instructor-level variables on student learning outcomes as measured by three program-specific assessment

methods: multiple choice questions, constructed response questions, and a creative poster activity. The authors found that male gender had a positive and significant correlation with multiple choice scores. On the other hand, students of black or Hispanic ethnicity had a negative and significant correlation with multiple choice scores. Additionally, male gender had a negative and significant correlation with creative poster activity scores, while students of Asian ethnicity had a positive and significant correlation with such scores. The authors suggested economic educators should consider implementing varied assessment methodologies to ensure all students have an equitable opportunity to demonstrate economic knowledge acquisition.

Burrus et al. (2013) contributed to existing research on assessment methodology by evaluating the effect of student-level characteristics and perceptions on students' propensity to cheat. The authors found that students' perception of peer-based vigilance in reporting academic dishonesty had a negative and significant effect on the probability and frequency of cheating. Alternately, students' perception of faculty-based detection of academic dishonesty did not have a significant effect on the probability or frequency of cheating. The authors concluded that educators may create a culture of academic integrity and reduce the incidence of academic dishonesty through the encouragement of peer-based reporting of cheating.

#### **IV. Instructional Materials**

As noted by Gunther (2013), *The American Economist* consistently included aspects of economic education between 1963 and 1982 via publication of prominent university professors' reading lists. Gunther argued that the reading lists garnered popularity among students studying for qualifying exams and professors seeking insight into the instructional materials used by their



colleagues. While *The American Economist* discontinued publishing professor-specific reading lists in 1982, Venkateswarlu (1997; 1999; 2002) synthesized data from American and Canadian universities' economics departments into topic-specific reading lists for a variety of fields including law and economics, regulatory economics, and economic development. Venkateswarlu categorized readings into a list of core texts and emergent key concepts in addition to briefly noting emergent trends in course structure, objectives, assessments, grading, and prerequisites. Aligned with Gunther's analysis of professor-specific reading lists, Venkateswarlu argued that topic-specific reading lists serve as an informative resource for instructors' course development and provide students, publishers, and librarians a consolidated resource to support research.

Critical reviews and analyses of textbooks are also prevalent throughout *The American Economist's* history. For example, Lombardi (1990) provided an informal review of a managerial economics textbook while embracing a promotional tone and professional admiration for its author. Alternately, Nelson (1995) presented a critical analysis of the inclusion of fundamental principles of economics in Webster's (1857) *Blue-Backed Speller*. Nelson found only 30 of approximately 1400 sentences included aspects of economic education despite claims that the *Blue-Backed Speller* taught the fundamental principles of economics. Although narrow in scope of analysis, both Lombardi and Nelson incorporated recurring themes of subsequent critical textbook analyses: content analysis and concept applications.

### *Content Analysis*

Northrop (2000) evaluated the inclusion of ethical judgments and value-based propositions in 19 introductory economics textbooks. The author found evidence of normative statements within the textbooks' presentation of scarcity and economic growth, insatiable wants, market transactions and efficiency, ethics, and individualism. Additionally, Perkins (2010)

evaluated the presentation of the economic method in seven introductory economics textbooks. Perkins found textbooks provide a cursory overview of the economic method and presents a framework for developing students' understanding of the relationship between facts, models, economic policies, and economic goals. Furthermore, Brock and Lopus (2015) evaluate the inclusion of the fair trade social movement in 20 introductory economics textbooks. The authors found only one textbook included the fair trade social movement while an additional textbook included the concept of fair trade outside the scope of the larger social movement.

Four articles examined authors' use of graphs and models to support their presentation of economic content in textbooks. Graves and Sexton (2009) evaluated the presentation of cross price and income elasticities of demand in 17 introductory and intermediate microeconomics textbooks. The authors found an inconsistent use of *demand* and *quantity demanded*, with textbooks frequently referring to a change in quantity demanded when describing a shift in the demand curve. Chaudhuri (2002) evaluated the presentation of the Stackelberg model in six intermediate microeconomics and industrial organization textbooks. The author found that most of the textbooks include a simplified analysis of firm interaction within the context of the Stackelberg model, but omit an extension of the model to include firm entry into an industry. To this end, Chaudhuri presented an algebraic framework to support and evaluate firm entry.

Fan and Fan (2002) evaluated the inclusion of the Mundell-Fleming model in 14 intermediate macroeconomics and international economics textbooks. The authors found six of the textbooks did not include the Mundell-Fleming model, and none of the textbooks analyzed the effect of fiscal and monetary policies on small open economies with perfect capital mobility. Fan and Fan offered an instructional model to support students' evaluation of the relationship between marginal propensity to save and the effectiveness of government intervention. Finally,

Rieber (2010) examined elasticity and slope in the context of *dumping* in 14 international economics textbooks. The author determined three of the textbooks misstate the connection between elasticity and slope while six of the textbooks compare the elasticity of two demand curves without reference to a constant price.

### *Concept Applications*

Becker (2007) suggested that economic educators should develop methods of extending and challenging textbook concept applications. Four articles published in *The American Economist* provide examples of concept applications which may support educators' extension of textbook content. Marchand et al. (2000) presented an application of price discrimination to prove firms can profit from third degree price discrimination techniques regardless of market slippage. Scott (2002) provided an application of indifference curves which does not rely on the properties of monotonicity or transitivity to prove indifference curves cannot intersect. Additionally, Wang and Yang (2003) demonstrated that applications of 2 x 2 games can be used to model firms' strategic business decision making behavior. Finally, Kuperberg (2013) provided an application of time inconsistency to demonstrate a consistent mathematical analysis of dynamic inconsistency and inflation across five macroeconomic environments.

## **V. Student Outcomes**

Although academic economists have focused primarily on student learning as measured by standardized test scores, several articles published by *The American Economist* have extended the analysis beyond this perspective. Ray (1992) developed a student-centered model of economic education based on the structure-conduct-performance paradigm, envisioning the

classroom as a market in which students combine educational inputs to produce learning outcomes. The author argued that the student-centered model provides a framework for the application of experimental methods to study economic learning outcomes. In this capacity, researchers may evaluate the effect of economic education on students' beliefs, attitudes, behavior, as well as academic achievement.

### *Student Beliefs*

Jackstadt et al. (1990) evaluated the effect of undergraduate introductory economics instruction on students' response to 26 economic propositions. The authors found introductory economics students experienced a significant change in point of view on 17 economic propositions following instruction. Furthermore, introductory economics and world history students had a significant difference in point of view on 12 economic propositions following instruction. Thomas and Campbell (2006) evaluated the effect of an economics teacher training program on the point of view of economic educators in transitioning economies. The authors found that prior teaching experience and a pro-market point of view prior to instruction had a positive and significant effect on teachers' probability of a pro-market point of view following instruction. On the other hand, they found that teaching in a country experiencing a period of reform had a negative and significant effect on teachers' probability of a pro-market point of view following instruction.

### *Student Attitudes*

Grimes (1995) evaluated the effect of *Choices and Changes* (National Council on Economic Education, 1989), "an economic education program designed specifically to help 'at-risk' ...students use economic concepts and reasoning in their decision making processes"

(Grimes, 1995, p. 71), on elementary and junior high school students' economic attitudes. Grimes found that "cognitive performance in economics appears to strongly affect student attitudes concerning their role in the economy" and "the effect of learning on attitudes is stronger than the effect of attitudes on learning" (p. 80). Additionally, O'Neill (2001) used the *Attitude Toward Economics* index (Soper and Walstad, 1983) to examine the effect of student-level characteristics and instructors' assessment methodology on students' attitude regarding economics. O'Neill found that students' attitude about economics prior to instruction, age, expected course grade, and difference between actual and expected course grade had a positive and significant effect on their attitude about economics following instruction. On the other hand, the author found that students' attitude about economics following instruction was not affected by the economic educators' method of assessment.

### *Student Behavior*

Miller et al. (2013) examined the effect of student- and instructor-level characteristics on the likelihood of students using an electronic textbook. The authors found that students majoring in business and economics were significantly more likely to use an electronic textbook than students of alternate majors. Zhou (2013) studied the effect of undergraduate economics instruction on the probability of exhibiting reduced risk averse and irrational behaviors. The author found that students who major in economics, as well as non-economics majors who completed economics coursework, were significantly less likely to exhibit risk averse behavior. Furthermore, economics majors were significantly more likely to exhibit irrationality as measured by the lottery effect, and significantly less likely to exhibit irrationality as measured by the framing and reflection effects. Alternately, non-economics majors who completed coursework in economics were significantly less likely to exhibit irrationality as measured by the

certainty effect. Finally, McCannon (2014) used regression analysis to evaluate the prevalence of pro-social behavior among undergraduate students, finding the number of economics courses completed had a positive and significant effect on trusting and reciprocating behaviors.

### *Student Academic Achievement*

Lopus and Maxwell (1994) examined the effect of high school economics curriculum on undergraduate students' economic knowledge prior to taking introductory economics. The authors found that enrollment in a microeconomics-focused high school course had a positive and significant effect on students' economic knowledge prior to, but not following, undergraduate introductory microeconomics. On the other hand, enrollment in a macroeconomics-focused high school course had a positive and significant effect on students' economic knowledge following, but not prior to, undergraduate introductory macroeconomics. More recently, Clark et al. (2012) used propensity score matching analyses to evaluate the effect of Advanced Placement Economics (AP-E) instruction on high school students' high-stakes, end-of-course test performance. After controlling for self-selection bias, the authors found that AP-E instruction had a positive and significant effect on high school students' economic knowledge.

## **VI. Conclusion**

Over the past 25 years, *The American Economist* published 70 articles which support the development of evidence-based practices in the field of economic education. This places the journal near the top of all academic publications contributing to the ongoing evolution of progress in the field. As evidenced by the review presented here, *The American Economist* made significant contributions to the study of program design through research providing insight

into methods of interdisciplinary instruction, introductory economics course design, course prerequisites, and program requirements. The journal's authors also contributed to the on-going debates in instructional and assessment methodology by investigating methods of engaging students in active learning, designing lessons to account for varied learning preferences, and exploring the benefits of conceptual, graphical, and mathematical instruction. Additionally, *The American Economist* published several articles concerning instructional materials including research providing insight into field-specific course reading lists as well as critical analyses of textbook content and concept applications. Furthermore, the journal's authors examined a wide range of student outcomes including the effect of economic education on students' beliefs, attitudes, behavior, as well as academic achievement.

With over six-thousand subscribers, most of whom are members of Omicron Delta Epsilon, *The American Economist* has one of the largest reader bases in the economics discipline. Given the academic background of this readership and the journal's mission to recognize and honor academic achievement, it is highly likely that economic education will remain one of the favorite topics of research for the journal's contributors. Thus, *The American Economist* will continue to be a major source for the dissemination of economic education research into the foreseeable future.

## References

- Ahsan, Syed M. 1991. "A geometric method for analyzing many-firm or many-period problems in micro theory." *The American Economist* 34(2): 86-89.
- Asarta, Carlos J., Melody Lo, Franklin Mixon, and M.C. Sunny Wong. 2014. "Ranking Economics Journals and Articles, Economics Departments, and Economists Using Teaching-Focused Research Productivity: 1991-2012." Newark, DE: University of Delaware, Department of Economics Working Paper.
- Becker, William E. 2007. "Quit lying and address the controversies: There are no dogmata, laws, rules or standards in the science of economics." *The American Economist* 51(1): 3-14.
- Benedict, Mary E. and John Hoag. 2002. "Who's afraid of their economics classes? Why are students apprehensive about introductory economics courses? An empirical investigation." *The American Economist* 46(2): 31-44.
- Boatman, Kara, Richard Courtney, and William Lee. 2008. "See how they learn!: The impact of faculty and student learning styles on student performance in introductory economics." *The American Economist* 52(1): 39-48.
- Bosshardt, William and Neela Manage. 2011. "Does calculus help in principles of economics courses? Estimates using matching estimators." *The American Economist* 56(1): 29-37.
- Brock, John R. and Jane S. Lopus. 2015. "A note on teaching about fair trade." *The American Economist* (Forthcoming).
- Brue, Stanley L. 1996. "Controversy and change in the American economics curriculum." *The American Economist* 40(2): 44-51.



- Burrus, Robert T., Jr., Adam T. Jones, Bill Sackley, and Mike Walker. 2013. "It's the students, stupid: How perceptions of student reporting impact cheating." *The American Economist* 58(1): 51-59.
- Butters, Roger B., Carlos J. Asarta, and Tammie J. Fischer. 2011. "Human capital in the classroom: The role of teacher knowledge in economic literacy." *The American Economist* 56(2): 47-57.
- Chaudhuri, Ananish. 2002. "A simple algebraic approach to teaching oligopoly models." *The American Economist* 46(1): 36-41.
- Christoffersen, Susan. 2002. "An active learning tool for the principles of economics: The allocation exercise." *The American Economist* 46(2): 65-68.
- Clark, Christopher, Benjamin Scafidi, and John R. Swinton. 2012. "Does AP Economics improve student achievement?" *The American Economist* 57(1): 1-20.
- Cohn, Elchanan, Sharon Cohn, Donald C. Balch, and James Bradley, Jr. 2004. "The relation between student attitudes toward graphs and performance in economics." *The American Economist* 48(2): 41-52.
- DeLoach, Stephen B., Elizabeth Perry-Sizemore, and Mary O. Borg. 2012. "Creating quality undergraduate research programs in economics: How, when, where (and why)." *The American Economist* 57(1): 96-110.
- Fan, Liang-Shing and Chuen-Mei Fan. 2002. "The Mundell-Fleming model revisited." *The American Economist* 46(1): 42-49.
- Finegan, T. Aldrich. 2014. "Counting economics PhDs: How many new graduates do U.S. universities produce?" *The American Economist* 59(1): 1-19.

- Finegan, T. Aldrich and John J. Siegfried. 1998. "Do introductory economics students learn more if their instructor has a Ph.D.?" *The American Economist* 42(2): 34-46.
- Finegan, T. Aldrich and John J. Siegfried. 2000. "Are student ratings of teaching effectiveness influenced by instructors' English language proficiency?" *The American Economist* 44(2): 17-29.
- Fuess, Scott M., Jr. 2001. "Globalizing the economics curriculum: A view from Japan." *The American Economist* 45(2): 40-50.
- Gillette, David H. 1994. "Hyperlecturing and linkages." *The American Economist* 38(2): 58-65.
- Gillette, David H. 2001. "Extending traditional classroom boundaries." *The American Economist*, 45(2): 57-68.
- Gillis, Mark T. and Joshua Hall. 2010. "Using The Simpsons to improve economic instruction through policy analysis." *The American Economist* 55(1): 84-92.
- Graves, Philip E. and Robert L. Sexton. 2009. "Cross price elasticity and income elasticity of demand: Are your students confused?" *The American Economist* 54(2): 107-110.
- Gregorowicz, Philip and Charles E. Hegji. 2000. "Teaching international trade and finance using computer spreadsheets." *The American Economist* 44(2): 46-50.
- Grimes, Paul. W. 1995. "Economic education for at-risk students: An evaluation of choices and changes." *The American Economist* 39(1): 71-83.
- Grimes, Paul. W. and Paul S. Nelson. 1998. "The social issues pedagogy vs. the traditional principles of economics: An empirical examination." *The American Economist* 42(1): 56-64.

- Grimes, Paul W., Jon P. Rezek, and Randall C. Campbell. 2013. "Academic success and the transfer of community college credits in the principles of economics." *The American Economist* 58(1): 27-40.
- Grimes, Paul W. 2015. "Fifty years of *The American Economist*: A bibliographic analysis." Pittsburg, KS: Working Paper, Kelce College of Business, Pittsburg State University.
- Gunther, William D. 2013. "The history of Omicron Delta Epsilon: The international honor society in economics." *The American Economist* 58(2): 84-101.
- Hadsell, Lester. 2005. "Exploring values in the classroom: Three exercises for introductory economics." *The American Economist* 49(2): 51-59.
- Hill, Cynthia D. and Tesa Stegner. 2003. "Which students benefit from graphs in a principles of economics class?" *The American Economist* 47(2): 69-77.
- Jackstadt, Stephen L., Lee Huskey, Don L. Marx, and Pershing L. Hill. 1990. "Economics 101 and an economic way of thinking." *The American Economist* 34(2): 79-87.
- Kuperberg, Mark. 2013. "Teaching time-inconsistency consistently." *The American Economist* 58(2): 153-159.
- Kyer, Ben L. and Gary E. Maggs. 2005. "A note on government budgets." *The American Economist* 49(2): 87-89.
- Lombardi, W. J. 1990. "Book review." *The American Economist* 34(2): 94.
- Lopus, Jane S., Paul W. Grimes, William E. Becker, and Rodney A. Pearson. 2007. "Human subjects requirements and economic education researchers." *The American Economist* 51(2): 49-60.

- Lopus, Jane S. and Jody Hoff. 2009. "An empirical analysis of alternative assessment strategies in the high school economics class." *The American Economist* 54(2): 38-51.
- Lopus, Jane S. and Nan L. Maxwell. 1994. "Beyond high school: Does the high school economics curriculum make a difference?" *The American Economist* 38(1): 62-69.
- Loviscek, Anthony L. and Norman R. Cloutier. 1997. "Supplemental instruction and the enhancement of student performance in economics principles." *The American Economist* 41(2): 70-76.
- Luccasen, R. Andrew, Michael Hammock, and M. Kathleen Thomas. 2011. "Teaching macroeconomic principles using animated cartoons." *The American Economist* 56(1): 38-47.
- Mago, Shakun D. 2014. "The multiplier effect: A classroom exercise." *The American Economist* 59(2): 182-194.
- Marchand, James R., Marry L. Rigdon, and John Roufagalas. 2000. "Third degree price discrimination: A profitable arbitrage case, a note." *The American Economist* 44(2): 92-94.
- Marvasti, Akbar. 2007. "Foreign-born teaching assistants and student achievement: An ordered probit analysis." *The American Economist* 51(2): 61-71.
- McCannon, Bryan C. 2014. "Do economists play well with others? Experimental evidence on the relationship between economics education and pro-social behavior." *The American Economist* 59(1): 27-33.

- McGoldrick, K. (2003). "The game of life': Using a student developed course project to create a learning community in the classroom." *The American Economist* 47(2): 52-68.
- McGoldrick, KimMarie, Ann Battle, and Suzanne Gallagher. 2000. "Service-learning and the economics course: Theory and practice." *The American Economist* 44(1): 43-52.
- Milkman, Martin and James McCoy. 2014. "Characteristics of exemplary programs in preparing graduate assistants to teach economics." *The American Economist* 59(1): 20-26.
- Miller, James D. and Debbie Felton. 2002. "Using Greek mythology to teach game theory." *The American Economist* 46(2): 69-79.
- Miller, Jon. R., Andrew W. Nutting, and Lori Baker-Eveleth. 2013. "The determinants of electronic textbook use among college students." *The American Economist* 58(1): 41-50.
- National Council on Economic Education. 1989. *Choices & Changes teacher training handbook*. New York, NY: Joint Council on Economic Education.
- Nelson, C. Louise. 1995. "Neglect of economic education in Webster's Blue-Backed Speller." *The American Economist* 39(1): 66-70.
- Northrop, Emily. 2000. "Normative foundations of introductory economics." *The American Economist* 44(1): 53-61.
- O'Neill, Patrick B. 2001. "Essay versus multiple choice exams: An experiment in the principles of macroeconomics course." *The American Economist* 45(1): 62-70.
- Perkins, William C. 2010. "An introduction to the economic method." *The American Economist* 55(1):73-83.

- Poast, Paul. D. 2001. "The short-run mirror-image teaching model: Exploring the relationship between the Phillips Curve and the AD-AS model." *The American Economist* 45(2): 75-84.
- Quddus, Munir and Marie Bussing-Burks. 1997. "Learning techniques in economics at the principles level." *The American Economist* 41(2): 54-61.
- Ray, Margaret A. 1992. "Economic education, experimental methods and the structure-conduct-performance paradigm." *The American Economist* 36(2): 66-71.
- Reyes, Jessica W. 2010. "Teaching the art of economic research in a senior seminar." *The American Economist* 55(2): 111-123.
- Reiber, William J. 2010. "A note on the teaching of dumping in international economics textbooks." *The American Economist* 55(2): 170-172.
- Saunders, Phillip. 1991. *Test of understanding in college economics: Examiner's manual* (3rd ed.). New York, NY: National Council on Economic Education.
- Schuhmann, Peter W., KimMarie McGoldrick, and Robert T. Burrus. 2005. "Student quantitative literacy: Importance, measurement, and correlation with economic literacy." *The American Economist* 49(1): 49-65.
- Scott, John. 2002. "Transitivity is not necessary to show that indifference curves cannot intersect, a note." *The American Economist* 46(2): 88.
- Skoorka, Bruce M. and Carol M. Condon. 2002. "Factors underlying trends in economics majors: A cause for concern?" *The American Economist* 46(2): 54-64.

- Soper, John. C. and William B. Walstad. 1983. "On measuring economic attitudes." *The Journal of Economic Education* 14(4): 4-17.
- Thomas, M. Kathleen and Randall C. Campbell. 2006. "Teacher training and market attitudes in transitioning economies." *The American Economist* 50(2): 32-41.
- Venkateswarlu, Tadiboyina. 1997. "Law and economics course readings: A survey of North American universities." *The American Economist* 41(1): 89-93.
- Venkateswarlu, Tadiboyina. 1999. "Regulatory economics: Survey of reading materials in universities in Canada and the United States of America." *The American Economist* 43(1): 91-97.
- Venkateswarlu, Tadiboyina. 2002. "Economic development: Survey of course outlines in North American universities." *The American Economist* 46(1): 71-77.
- Wagner, John E. and David H. Newman. 2013. "The Simon-Ehrlich bet: Teaching relative vs. absolute scarcity." *The American Economist* 58(1): 16-26.
- Walstad, William B. and Ken Rebeck, K. 2001. *Test of economic literacy: Examiner's manual* (3rd ed.). New York, NY: National Council on Economic Education.
- Walstad, William B., Michael W. Watts, and Ken Rebeck. 2007. *Test of understanding in college economics: Examiner's Manual* (4th ed.). New York, NY: National Council on Economic Education.
- Wang, X. Henry and Bill Z. Yang. 2003. "Classification of 2x2 games and strategic business behavior." *The American Economist* 47(2): 78-85.

Webster, Noah. 1857. *The elementary spelling book, being an improvement on 'the American spelling book.'* New York, NY: D. Appleton & Co.

Weisman, Dennis. L. 2012. "An essay on the art and science of teaching." *The American Economist* 57(1): 111-125.

Zetland, David, Carlo Russo, and Navin Yavapolkul. 2010. "Teaching economic principles: Algebra, graph or both?" *The American Economist* 55(1): 123-131.

Zhou, Zhengyi. 2013. "Impact of economics learning on risk preferences and rationality: An empirical investigation." *The American Economist* 58(1): 4-15.

Zweig, Michael and William Dawes. 2000. "Qualitative and quantitative methods: A new design for introductory economics." *The American Economist* 44(2): 30-35.