USING AUTO RACING AS A MODEL TO TEACH ECONOMICS FOR GRADES K-12

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ABSTRACT

The auto racing industry has grown to be one of the most popular forms of sports entertainment. In fact, The National Association for Stock Car Auto Racing's (NASCAR) Nextel Cup racing series is the fastest-growing spectator sport in the nation. Its television ratings are the second highest in major sports, with network coverage that attracts fans from all states and all walks of life. Economists have been researching the economic impact of sports on society for several years (Leeds, 2002; Fort, 2003). However, while many college-level books and journal articles on sports economics have been published (Downward & Dawson, 2000; Alexander, D.L., W. Kern, & J. Neill, 2000), there is no definitive curriculum available to teach sports economics to grades K-12. This article presents a model that uses auto racing to increase both teacher and student interest in, and knowledge of, economics. Auto racing provides a contextual framework in which real-world scenarios help students understand and apply basic economic concepts. The authors suggest that additional research should be conducted in the form of pre- and post-tests to determine the effectiveness of auto racing as a model to teach economics.

INTRODUCTION

In today's society, it has become more difficult for K-12 teachers to keep students focused on their studies. Comments from a presentation on this topic at the Allied Academies Spring 2006 Conference indicated that with distractions such as television, video games, and the Internet, students' attentions are often focused upon interests outside of the classroom. In addition, The No Child Left Behind mandates preparing students for standardized tests that take up even more of teachers' class

time. Many of these standardized tests focus on basic skills, in particular reading, math, science and English. Basic economic concepts are not usually included in this testing. In fact, "…educating…students in economics is not the norm; rather it is often ignored for many reasons, including a perceived lack of need for economic education, time constraints in the classroom, and inadequacy of teachers in the field" (Bethune & Ellis, 2000).

As a result, students often fail to learn such basic economic concepts as scarcity, supply and demand, and opportunity cost as effectively as they should. Ironically, many junior high and high school students are still taught home economics, but again, the economics portion is limited. The problem lies in that basic economics skills are not mandated, but are voluntary as laid out in the *Voluntary National Content Standards* in Economics. The 20 content standards described by the National Content Standards in Economics offer benchmarks for grades 4, 8, and 12. However, these standards are voluntary, leaving it up to individual states to decide how to incorporate economics into the school curriculum. For example, in the state of Alabama's "Standards and Benchmarks for Achieving Adequacy in Alabama Public Schools" economics is not listed at all. In the state of Texas, the curriculum for home economics for grades 7-8 is a module of thirteen sections under the heading Skills for Living, but only one section discusses anything related to economics.

Advocates for economic education face an additional two-pronged problem as a result of basic economic concepts not being an important component of K-12 teaching curricula. Many teachers have neither the basic skills nor time to effectively teach economics. Furthermore, economics is often viewed as one of the more difficult fields of study, and as a result is often avoided. Data from a recent survey of educators show that approximately fifty percent of elementary educators have no background in economics, and only twenty-five percent have had just one course in the subject. Therefore, most teachers interviewed in the survey said they experience a severe lack of confidence in their abilities to teach economics well (Schug, 1985).

LITERATURE REVIEW

In this article, the authors suggest a solution to the problem of teaching basic economic concepts in the classroom: introduce basic economic concepts to both teachers and students through auto racing. The auto racing industry has grown to be one of the most popular forms of entertainment. In fact, the National Association

for Stock Car Auto Racing's (NASCAR) Nextel Cup racing series is the fastest-growing spectator sport in the nation. Its popularity and credibility as a national event is recognized by politicians and celebrities. An article recently noted that former New York City Mayor and current Presidential candidate Rudy Giuliani's "recent stop to the Daytona International Speedway for the Pepsi 400 race…has become almost a requirement for politicians as they seek the all-important Southern vote. George W. Bush did it, John McCain attended a race six weeks ago, and even John Kerry professed to be a fan in 2004 (Gordon, 2007)." Given the popularity of this spectator sport, the authors believe that using an auto racing model to teach economics will enhance both teacher capability and student learning. Specifically, the popularity of auto racing ensures a "comfort level" for a subject that is often feared by both teachers and students.

Using sports models and metaphors to teach various topic areas, including economics, is not a new idea. Although there are a number of textbooks and journal articles that discuss various topics related to the economics of sports (Downward, 2000; Alexander, 2000), the authors could find no recent articles that use auto racing as a model to teach economics. However, the authors found one useful article that was written in 1999 by Steven Pinch and Nick Henry. This article analyzes the well-known economist Paul Krugman's theories, as they relate to the concept of economic geography. Economic geography is defined as the design and manufacture of racing cars in Britain. The article does offer some data that could be used to explain the content standards of marketing, the role of government, and money allocation. The article uses the British motor sport industry as an example of economic geography because "It is clustered in a 50 mile radius around Oxfordshire in southern England in what has been termed the 'Silicon Valley of Motor Sport' or 'Motor Sport Valley'… Thus, approximately three quarters of the world's single-seater racing cars are designed and assembled in this region and the vast majority of the most competitive Formula One, Championship Auto Racing Teams and Indy Racing League racing cars are designed and manufactured here" (Pinch & Henry, 1999).

A comparative study of British racing cars vs. NASCAR's American made cars, especially against current economic realities, could be used as a topic of discussion in the classroom. For example, a teacher's class could discuss the cost of dealing with foreign auto makers in terms of regulations; how the declining dollar value, when compared against the British pound, affects the cost of cars, and how these aforementioned factors affect the cost of tickets, purses, and investments. These examples demonstrate that the use of auto manufacturing, which is similar to

auto racing, can offer real-world concepts that can be tailored to students on multiple levels in order to assist them in learning basic economic concepts.

For this paper, the authors discuss how to use auto racing as a model to create lesson plans to address the National Council on Economic Education's *Voluntary National Content Standards* in Economics. Auto racing has a unique advantage over other sports in providing a model for teaching basic economic concepts to both K-12 students and their teachers, because it differs from other sports on the following points:

- Auto racing isn't a team-based sport, as only the car driver puts into action the efforts of the team;
- Auto racing drivers and vehicles can promote multiple sponsors at once; and
- Auto racing has one of the most brand-loyal fan bases in professional sports.

These aforementioned desired qualities of loyalty and market share have been noted by politicians and auto makers. In fact, Ford Motor Company has acknowledged that "its market share among NASCAR fans is five points higher than its share among the general public (Vettraino, 1999)."

The paper will present the following procedural steps utilized to create auto racing economics curriculum materials:

METHODOLOGY

The proposal discussed in this paper was presented at the Allied Academies Annual Conference in the Spring of 2006. The majority of the comments received during this presentation viewed the use of auto racing to teach economics as an innovative idea that would be effective in most of the country.

Other comments concerned the fact that even though the sport of auto racing has traditionally been popular in the rural south, it has developed a wider following over recent years. NASCAR has worked diligently to overcome stereotypes about racing to increase the number of fans who reside in urban and middle class neighborhoods. "If you think NASCAR is only for beer-swilling rowdies waving Confederate flags, you're out of date. NASCAR is mainstream entertainment. An average Winston Cup race draws more than 100,000 spectators, and nine of the 10 best-attended sports events in 1997 were NASCAR races (Vettraino, 1999)." NASCAR opened the Homestead-Miami Speedway in 1995, just 30 miles south of

Miami. In addition, many races have been moved to more urban locations such as Los Angeles, Chicago, and Las Vegas. From the aforementioned activities, it is apparent that the auto racing industry is already beginning to address this stereotype of the sport that was discussed during the constructive feedback stage of the Allied Academies Conference.

Given the constructive feedback provided at the Allied Academies Conference, the authors suggest utilizing the following steps in producing auto racing curriculum materials, which were outlined in the introduction section:

The *Voluntary National Content Standards in Economics*, which is published by the National Council on Economic Education (NCEE), provides a list of 20 content standards in economics. The first step in creating auto racing lesson plans involved a review of the National Council on Economic Education's *Voluntary National Content Standards in Economics*. This review was conducted to match each of the 20 basic economic content standards for grades K-12 to a relevant analogy from the sport of auto racing. Table 1 lists the results of this matching process.

Table 1–National Content Standards and Matching Auto Racing Analogies

Number	Content Standard	Auto Racing Analogy
1	Scarcity	Auto Racing Cars, Auto Racing Drivers, Corporate Sponsorships
2	Marginal Costs/Marginal Benefits	Adding extra driver or crew member to a team
3	Allocation of Goods and Services	Corporate Sponsorships-car makers, retail stores, restaurants, theme parks
4	Role of Incentives	"Purses" for Auto Racing Drivers
5	Gains from Trade	Championship Auto Racing Teams (CART) Inc., Constructors Championship, Drivers Championship, and Manufacturer Championship
6	Specialization and Trade	Proficient pit row crew
7	Markets-Price and Quantity Determination	Auto Racing Investment Cost vs. Benefits of Marketing
8	Role of Price in a Market System	Ticket Cost

Table 1–National Content Standards and Matching Auto Racing Analogies		
Number	Content Standard	Auto Racing Analogy
9	Benefits of Competition	Races and Placement Test Laps
10	Role of Economic Institutions	Advertising, production, and branding revenue
11	Role of Money	Fire suits (fire-resistant clothing required of all participants)
12	Role of Interest Rates	Market driven
13	Role of Resources in Determining Income	Investment opportunities
14	Profit and the Entrepreneur	Auto Racing Team Owners, Auto Racing Track Owners
15	Investment and Economic Growth	Fire suits
16	Role of Government	FIA NASCAR The National Association for Stock Car Auto Racing. and IMSA The International Motor Sports Association
17	Costs of Government Policies	Various racing governing policy
18	Circular Flow–Interdependence	TECH-technical inspection
19	Unemployment and Inflation	Ticket sales
20	Monetary and Fiscal Policy	Winston Million and Winston Cup

The next step is to write a lesson plan based on each of the 20 national content standards. Table 2 lists the proposed steps needed to develop each lesson plan. Scarcity, which is National Content Standard 1, is used as an example to illustrate the lesson plan development process.

Additional comments from the Allied Academies Conference included requests for a complete sample lesson plan. The authors will continue to work on the development of a sample lesson plan that will be included in further research conducted on this topic.

Table 2–Steps to Develop a Lesson Plan Sample-Example for Scarcity	
Section	Description
Content Standard	1, Scarcity
Lesson Plan Title	The Catbird Seat: The Scarcity of Race Car Drivers Objective(s) Understand alternatives and how to choose from them: training vs. professional Define and discuss the term scarcity as it relates to the lack of race car drivers Define and discuss the term opportunity cost-professional schools vs. sanctioning body schools
Vocabulary Covered	Alternative, choice, opportunity cost, scarcity
Time Required	60 minutes
Materials Needed	Internet access for students to compare schools
Lesson Plan Description	Each student will get to choose two schools, comparing cost and rewards. Give students time to conduct the activity, then discuss the results of the activity as a class.
Teaching Procedures	Distribute activity to each student Give students time to complete the activity Ask each student what choice they would make, given the alternatives, and why they made their choices Write the vocabulary terms on the board. Define and discuss each Provide concluding statements to end the activity
Evaluation/ Assessment	Conduct pre- and post-testing of students in the form of a quantitative, multiple choice questionnaire

EVALUATION AND ASSESSMENT

To evaluate the effectiveness of the curriculum materials, the authors suggest that the curriculum producers conduct a series of workshops in which the materials are presented to K-12 teachers. These workshops will address one of the major problems in teaching economics that was previously mentioned: teachers' lack of confidence in their abilities to teach economics. By giving K-12 teachers the opportunity to provide feedback and input on the materials that they will use to

teach economics, they will feel more comfortable with teaching basic economic concepts and principles. The use of pre- and post-testing of the teachers' satisfaction with teaching economics, which will provide a more quantitative evaluation of the curriculum materials, should also be conducted. The teacher evaluations will provide the feedback needed to revise the curriculum materials to make a final version. Once the final versions of the materials are made, the lesson plans will be available to teachers for use in the classroom. The lesson plans will include both pre- and post-tests for students. Again, conducting pre- and post-testing, of the students in this instance, will provide data needed in order to assess the benefits of using the auto racing materials to teach basic economic concepts.

CONCLUSION

Although auto racing is one of the most popular sports in the country, determining the effectiveness of this sport as a tool to teach basic economic concepts cannot be fully determined until the materials have been evaluated by the teachers who would actually use the materials. As was previously noted, ensuring that teachers have a theoretical understanding of basic economic concepts and principles is part of the challenge. The creation of workshops to instruct teachers in these concepts can be an opportunity for collaboration amongst secondary schools, institutions of higher education, and local community businesses.

The authors suggest using local branches of national nonprofits, such as Junior Achievement, to aid in the development and implementation of the auto racing lesson plans. Junior Achievement is the world's largest organization dedicated to educating students in grades K-12 about entrepreneurship, work readiness, and financial literacy through experiential, hands-on programs. Teachers could also use the resources of Jump$tart (a coalition for personal financial literacy for K-12 students) and BestPrep (a nonprofit collaboration of volunteers from business, labor, education, government and social services) to provide technical assistance. The Foundation for Teaching Economics also provides assistance with lesson plans and curriculum development for teachers.

In order to develop productive outcome measurements, the authors suggest conducting procedural, assessment, and evaluation methods outlined in this paper to determine the effectiveness of this innovative teaching tool. The NCEE content standards, when paired with auto racing analogies provided in this paper, provide a foundational guide for the development of a curriculum and corresponding lesson plans. As with any effective outcomes-based measurement, evaluating the

effectiveness of the lesson plans by using pre- and post-testing is important. The authors suggest that, with the proper funding, these aforementioned resources can help both K-12 students and their teachers to become economically literate, and to view the popular sport of auto racing from a more informed perspective.

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