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JOURNAL OF ECONOMICS AND ECONOMIC EDUCATION RESEARCH

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- *The National Council on Economic education and its affiliated network of state councils and 275 university centers is a non-profit partnership of education, business and labor dedicated to improving economic literacy.*

- *Founded in 1949 as the Joint Council, today the National Council is the leading and largest source of teacher training, educational materials and curriculum reform in economics.*

- *Each year the network trains about 120,000 teachers serving over 7 million students. Approximately 70,000 schools nationwide conduct comprehensive programs in economic education with assistance from the network.*

- *For more information contact Dr. Robert Duvall at [212] 730-1063 or write:*

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LETTER FROM THE EDITOR

Welcome to the first edition of the Journal of Economics and Economic Education Research, an official publication of the Allied Academies' Academy of Economics and Economic Education Research, dedicated to the study, research and dissemination of information pertinent to the improvement of methodologies and effective teaching in the discipline of economics with a special emphasis on the process of economic education. The editorial board is composed primarily of directors of councils and centers for economic education affiliated with the National Council on Economic Education. This journal attempts to bridge the gap between the theoretical discipline of economics and the applied excellence relative to the teaching arts.

The Editorial Board considers two types of manuscripts for publication. First is empirical research related to the discipline of economics. The other is research oriented toward effective teaching methods and technologies in economics designed for grades kindergarten through twelve. These manuscripts are blind reviewed by the Editorial Board members with only the top programs in each category selected for publication, with an acceptance rate of less than 25%.

A special invited article, written by the President of the National Council on Economic Education, Dr. Robert Duvall, President and CEO of the National Council on Economic Education, provides an overview of the economic education movement in this country with some insight into the direction of future projects in the new millennium. The National Council has also provided some financial support for this Journal through its affiliated Centers at Arkansas State University and the University of Akron. I wish to thank Dr. Fred Carr, Director of the Akron Center, for his invaluable help in compiling this journal. I also wish to commend Dr. Carr for financial help in the distribution of this first *Journal* to all centers and councils affiliated with the economic education network.

I would also like to thank the Students in Free Enterprise for their financial and physical support for the journal and the Allied Academies in particular.

We are inviting papers for the second edition of the Journal for Economics and Economic Education Research and encourage you to submit your papers to the Editor.

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ECONOMIC EDUCATION: BUILDING ON STRENGTH, THE KEY TO THE FUTURE

Robert F. Duvall, President & Chief Executive Officer
The National Council on Economic Education

In 1999, the National Council on Economic Education (NCEE), the nation's premier organization in the cause of improving economic literacy, celebrated its fiftieth anniversary of leadership and service . Founded by visionary citizens from business, education, and labor, the Council continues to pursue its mission of getting sound economics taught in the nation's schools as the fourth "R". The birthday party for NCEE was also a benchmarking occasion and a time for strategic planning for the future. That future for the economic education movement looks bright indeed.

During the economic upheavals of the 1920s and 1930s, leaders from education and business began to recognize the value of economic "literacy." A critical outcome of their interest was the establishment in 1942 of the Committee for Economic Development (CED), to promote better economic understanding and to address how to prepare Americans to deal with the post-war economy.

By 1947, the CED, the President's Council of Economic Advisors, and other leaders in a unique coalition of business, education, and labor were actively involved in discussions about the state of economic education. They concluded that "...the public schools are poorly equipped for providing youth with the tools and skills for understanding our distinctively American economic institutions. Appropriate materials of instruction are scarce and, most critical of all, the teachers in elementary and secondary schools have had little training in economics."

In 1948, "The Curriculum Workshop in Problems of Economic Education," organized by G. Derwood Baker of the New York University School of Education and funded by the CED, brought school administrators and teachers from 22 states together to focus on three questions: What key facts about our economic system should every citizen know? What are suitable objectives for economics understanding at the secondary school level? What materials are available or needed for classroom use?

One of the participants in that conference, which resulted in the creation of what was called the Joint Council and then became the National Council on Economic Education, stated the guiding purpose of the organization – which holds

true to this day, and for the day after tomorrow. Ernest O. Melby, Dean of the NYU School of Education, wrote:

> "Democracy will live if it works and it will die if it does not work. Moreover, regardless of what democracy may do in the cultural and Human relations area, if it fails on the economic front it will most certainly go down in defeat. Therefore, there is no kind of education more important than that which seeks to make the average American intelligent about our economic system and effective as a citizen in relation to it."

Consequently, the Council undertook three inter-related tasks to teach teachers how to make economics come alive in K-12 classrooms, and through those teachers to reach the ultimate audience, the nation's youth. The first step was to build a nationwide network of state councils, which could correlate mission and method with local circumstances and state standards, and university centers, for both pre-service and in-service teacher training. Today there are 49 state councils and 275 university centers for economic education affiliated with the National Council.

Second, the councils and centers, and the teachers, were armed with curricula and teaching strategies. And third, curriculum designs, to teach basic and applied economics and to infuse economics into subjects such as the social studies, history, geography, mathematics and science, were supported by publications and materials, in what has become a comprehensive, upwardly spiraling K-12 program – now called Economics America.

In recent years, this program has been dynamically extended and enhanced nationally, by the applications of technology to enlarge resources and reach, and internationally, through Economics International. Economics International teaches teachers in the transition economies of Eastern Europe and the countries of the former Soviet Union how to understand and utilize market economics.

Today, the effective and excellent educational work of the National Council on Economic Education and its network of affiliates focuses on four themes: basic economics, that people can use in their lives, all their lives, in the home, in the workplace, in the marketplace, and in the voting booth; school-to-work – that is, workplace readiness – in terms of economic literacy; personal financial decision-making skills; and understanding the globalization of the economy.

We know the need. In 1999, the National Council commissioned a poll, conducted by Louis Harris, which showed that 96% of the adults surveyed believe that basic economic and financial principles should be taught in our nation's schools, but 51% answered "Don't know" to questions about those basics. 68% of Americans

couldn't pass an 8th grade economics test. Most are investors, voters, and parents, many of whom are working for our nation's companies.

To meet the need, NCEE and its Economics America Network have embarked on a concerted Campaign for Economic Literacy – an intensive and extensive, focused five-year drive to raise public consciousness about the importance of economic education and to provide demonstration models, nationally and locally, of what can be done to improve on economic and financial illiteracy. The campaign is a call to action.

What the Campaign for Economic Literacy effort will yield essentially is more teachers, better prepared and assisted, with more and better materials (print and electronics), based on national content standards, to give all students a better grounding in decision-making skills based on sound economics.

Twenty major corporations have already rallied behind this effort with substantial commitments to support component parts of the national program – and that number is growing apace. Corporations, foundations, and associations are partnering with NCEE to advance education in the basics of the American economic system, in a highly visible and substantive way, that will serve to inspire others.

The National Council wrote the book, as it were: designated by the Department of Education to do so, we published in 1997 the Voluntary Content Standards in Economics – which essentially define what we mean by economic literacy. NCEE then commissioned its poll, conducted by Louis Harris and supported by Merrill Lynch, based on the Standards. The results of the economic literacy poll show that high school students and adults in the workforce flunk a test of basic knowledge of economics. So, while the economy may be thriving today, that lack of understanding of why and how is alarming for the future. The Campaign for Economic Literacy is designed to address this issue pro-actively, as the extension of our fifty-year mission and proved track-record of effectiveness.

For example, the National Council is presently working in partnership with the Human Resources Task Force of the Business Round Table (BRT) to develop a "tool kit" for economic education in the workplace, by adapting materials proven to be effective in the schools. To meet the competitive challenges of today, and tomorrow, economic educators intend to improve on the knowledge base, especially in regard to the issues of the global marketplace.

For another example, NCEE has developed a website, EconEdLink (www.nationalcouncil.org), sponsored by MCI WorldCom. The award-winning EconEdLink features dynamic, standards-based economics lessons for grades 3-12, developed for the Internet. New lessons are continuously in development and Spring 2000 plans call for a revision of Datalinks and the launch of an economic-forecasting league.

Together with other education partners and associations, economic educators know that teaching teachers how to increase economic and financial

literacy is basically about improving decision-making abilities. People need to know how to make responsible choices – as workers, consumers, savers and investors, and citizens. The Campaign for Economic Literacy is really about "the skills of freedom."

NCEE's effort is analogous in many ways to the national campaign already under way to increase reading literacy: to the idea that "reading is fundamental", we would add, yes, and "economics is essential." If a young person cannot read or manage his or her affairs, that person will likely not survive, let alone thrive, in a rapidly changing world.

Progress is being made. Economics and personal finance are receiving more emphasis in schools. NCEE's survey showed that economics is now part of the graduation standards in 38 states. However, economics is still most often an elective. While a remarkable 96% of Americans think that basic principles of economics should be taught in the schools, only 58% of high school students are being taught.

Therefore, the clear and compelling goals of the Campaign for Economic Literacy are:

- to insure that economic literacy becomes a priority in the education agenda of the nation and of every state;
- to expand the effective teaching of high-quality, standards-based economics into every state and every school district; and,
- to teach all Americans the economic reasoning and decision-making skills they need in their lives – that is, economics for life.

To accomplish these goals, the national campaign, convened and led by the National Council on Economic Education, is pursuing the following objectives:

- A communications program to heighten public awareness of the need to orchestrate public demand for sound economic education is being conducted.
- Technology enhanced forms of delivering economic education to new and extended audiences are being implemented.

- An "Economics for Life" volunteer initiative to increase volunteer opportunities for working with and through NCEE's nationwide network is being developed.

- Innovative work in professional development for K-12 teachers is being accomplished.

- Electronic and print materials to advance the teaching of economics in such areas as environmental economics, personal finance and consumer education, for every grade level, K-12, as well as for life-long learning, are being produced.

To accomplish the goals and objectives of the Campaign for Economic Literacy, the NCEE has a nationwide network that delivers quality economic education through curriculum assistance, standards development, teacher training, materials dissemination, and evaluation. The NCEE has established an outstanding track record in assisting economic education reform in transition countries of the former Soviet Union. The Council's federally-funded international program is based on the instructional methods, materials, and university-based delivery system used in the U.S. The program, in turn, strengthens economic education here at home.

Senator Akaka (D-HI) has taken the lead in proposing legislation that will provide resources for improving economic education in schools in the U.S. Original co-sponsors for this bi-partisan initiative include Senator Cochran (R-MS). The proposed "Excellence in Economic Education Act" (S. 1487) would provide funds for the National Council on Economic Education and its nationwide network for new instructional materials, teacher training, assisting school districts that are incorporating economics into their curricula, evaluating impacts, and strengthening and expanding the network's work in all states.

We know from over 50 years of experience that children who are taught how our free-market system works, work better in it. Students who recognize the importance of survival skills taught to them in school have a higher motivation to stay in school and to succeed in school and thereafter. Economics is essential; we tell them why. Students prepared for the workforce of the 21st century will bring the skills to the marketplace that will allow the U.S. to maintain its competitive edge in the world economy. And that is the vision, direction, and promise of the economic education movement.

AN INTER-DISCIPLINARY COMPARISON OF PUBLISHING PERFORMANCE

Javed Ashraf, University of West Florida

ABSTRACT

This article compares publishing performance in economics with that is other departments. The primary thesis of this study is that the frequency of article publication is not uniform across principles. This article should help faculty members make more informed judgements when they are called upon to serve as peer reviewers outside their own disciplines.

INTRODUCTION

Faculty performance has long been gauged in academics by the frequency and quality of published journal articles. Annual merit reviews, promotion to higher ranks, and the granting of tenure are all tied to this criteria. Within each academic discipline, there is broad consensus on the number and quality of published articles that rank as meritorious. Judgements on the quality of journals is generally not a problem at this level, since departmental peers tend to be well-informed about the stature of academic publications in their own fields.

A problem arises however, in the assessment of publication performance outside a faculty member's own field of expertise. At many schools, assessments of performance are made by committees at the departmental, college and university levels. There tends to be general agreement within departments as to what constitutes a "sufficient" number of publications to justify tenure or promotion. As indicated earlier, colleagues within a department tend to be well-informed about both the stature of academic publications in their own field as well as what constitutes a reasonable quantity of such output. This is less true at the college level. Within a College of Science for example, a Mathematics professor is likely not to be familiar with journals in Biology. This problem is compounded even further when review committees are constituted at the university level. With professors drawn from fields as diverse as Nuclear Physics and Music, the judgement of performance across different disciplines is an arduous undertaking.

This article attempts to make such judgments easier by providing a comparison of the average number of articles published within each faculty rank for four different kinds of schools over the twenty-one year period from 1969 to 1989

for a large number of disciplines. This study is unique in that such an inter-departmental comparison of publication frequency has not previously been made in any published study. Studies abound on related issues such as the relative quality of economics departments based on the number and quality of publications produced by them.[1] Similarly a number of authors have ranked journals by their quality.[2] In this article, the average number of articles published by faculty (of different ranks) at four different kinds of academic institutions is listed for a wide variety of disciplines. These listings should provide Promotion and Tenure Committees with a means to compare publication performance across different departments.

DATA

The data used in this article have been drawn from six national surveys of college faculty in the United States (1969, 1972, 1977, 1984, 1988, and 1989). The 1969, 1984, 1988 and 1989 surveys were carried out by the Carnegie Foundation for the Advancement of Teaching. The 1972 data are from *Teaching Faculty in Academe 1972-73*, originally collected by the American Council of Education, and made available by the Inter University Consortium for Political and Social Research. The 1977 data are from *The 1977 Survey of the American Professoriate* conducted by Ladd and Lipset.

Tables 3-8, displayed at the end of this article, list the average number of published articles for four types of academic institutions as categorized by the Carnegie Foundation: *Research, Doctoral, Comprehensive* and *Liberal Arts*. *Junior Colleges*, a fifth classification was not used in this article since the structure of rewards at such institutions is usually not based on research output. At each of these four kinds of institutions, faculty were classified by the traditional three ranks: Professors, Associate Professors and Assistant Professors. Lecturers, Instructors, Adjunct Faculty, etc. were eliminated from the data since the irregular nature of such positions precludes them from being active participants in customary faculty roles (other than teaching). The average number of articles published for each rank within each of the four kinds of academic institutions was computed for each of the academic disciplines reported in the six data sets. There was a large variance in the number of disciplines reported in the data sets. The 1984 data reported only nine disciplines although these were very broadly defined, each encompassing several narrower disciplines. Social Sciences, for example, consisted of a large number of departments. On the other hand, the 1988 data listed as many as 114 disciplines. Thus the 1988 data with four kinds of academic institutions and three faculty ranks had 1,368 cells. The reason for several of them being blank (Table 7) is because there were just not enough observations to fill every cell. For example, none of the respondents in that year happened to be an Assistant Professor in Music History at a Research University.

INFERENCES FROM THE DATA

A clear pattern in the data is the increase in the number of publications in virtually every discipline between 1969 and 1989. This could be for a number of reasons. The most or one likely reason is the increased pressure on faculty to publish to gain tenure or promotion. This together with the increase in faculty strength over the years has led to the emergence of a large number of new journals to satisfy the burgeoning demand for research outlets. The increased availability of easily accessible research data at low cost is another reason publication output has risen sharply. The increasingly computer-literate faculty, along with much improved computer hardware and software has also considerably reduced the time taken to produce a research paper.

Table 1 takes the publication averages from five of the data sets for Economics faculty to gauge how publishing rates have changed over time for economics instructors (the 1984 data did not list Economics separately).

Table 1
Average Number of Articles Published by Economics Faculty

	Research			Doctoral			Comprehensive			Liberal Arts		
Year	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
1969	10.69	5.09	1.21	12.60	5.45	1.39	12.43	4.50	2.23	11.12	3.75	1.40
1972	24.23	9.74	3.55	15.78	6.50	2.92	10.77	5.17	1.38	11.13	4.39	1.96
1977	20.28	12.33	12.00	22.00	7.00	-	27.00	7.00	-	40.25	-	-
1988	55.77	23.00	12.22	22.56	12.00	1.67	12.62	10.50	3.33	-	0.00	2.25
1989	32.91	16.43	7.13	32.40	8.73	3.83	14.75	7.88	2.00	23.56	5.50	2.70

It is evident from the data that the number of articles published by economics faculty has been rising over the twenty years between 1969 and 1988[3]. This is true of all faculty ranks. At Research Universities, the average number of published articles for Professors had risen from ten in 1988 to over 56 by 1989. For Associate Professors, there was an almost five-fold increase from 5 to 23. The highest percentage rise was for Assistant Professors (from a little over 1 to about 12). As is evident from the table, gains were quite strong at Doctoral Universities also. The reported increases in the average number of publications was not as pronounced at Comprehensive Universities, however. This might be taken as an indication of research being weighed less heavily in promotion and tenure decisions at such Universities than at their Research and Doctoral counterparts. Alternatively, it could be a result of the generally higher teaching loads at Comprehensive Universities, which leads to relatively less time for research-oriented activities.

COMPARISON OF ECONOMICS WITH OTHER DEPARTMENTS

Table 7 (computed from 1988 data) being more comprehensive than Table 8 (which uses 1989 data) in the sense of reporting far more departments, is used to compare frequency of publishing by economics faculty, relative to instructors in other departments. Some of the results from Table 7 are presented in Table 2, where the average publishing performance of Professors in economics is compared to that of their counterparts in certain selected disciplines.

Table 2
Comparison of Average Publishing Performance of Full Professors in Economics with Full Professors in Other Departments

	Research	Doctoral	Comprehensive
Economics	56	23	13
Some High - Publishing Departments			
Italian	163	-	16
Physical Sciences	147	-	11
Astronomy	128	-	36
Library Science	121	52	3
Pharmacy	120	104	16
Chemistry	112	64	25
Biology	112	55	17
English Comp	104	46	10
Some Low - Publishing Departments			
Music	15	14	5
Home Economics	10	8	18
Accounting	10	5	5
Drama	6	8	10
Adult Education	3	-	1

The basic thesis of this article is clear from Table 2: basing performance of faculty drawn from different departments simply on the number of published articles is likely to lead to misleading conclusions. The variance in publishing rates across disciplines is very high. Among Research Universities, the average number of articles reported for Professors in Economics was 56. This compares with 162 for Professors of Italian. On the other extreme, Professors in Adult Education had an

average of only 3 published articles at Research Universities. Of course, it must be granted that article-publication may not be the most important way in which faculty demonstrate merit in some disciplines. Music and the Fine Arts may be some such examples. More importantly however, the process of producing a publishable research paper may be a much more drawn-out process in some disciplines than it is in others. Thus basing merit decisions on raw number of published articles alone would be inappropriate, if inter-departmental comparisons are being made.

CONCLUDING REMARKS

This article has attempted to compare publishing performance in economics with that in other departments. Within individual departments, broad consensus generally exists on the output necessary for tenure and promotion. Difficulties arise when faculty members on Promotion and Tenure Committees at the University level attempt to assess the threshold levels of articles for departments other than their own. The primary thesis of this study is that the frequency of publishing is not uniform across all disciplines. Statistics computed from six national surveys of faculty members confirm that this is indeed true. Promotion and Tenure Committees must be aware of this variability in making inter-departmental judgements. It is hoped that this article will help in not only promoting this awareness, but in helping faculty members make more informed judgements where they are called upon to serve as peer reviewers outside their own disciplines.

END NOTES

1 See for example, Graves et al. (1982), Tschirhart (1989), Laband (1986), etc.

2 See for example Leibowitz and Palmer (1984), Malouin and Outreville (1987), Ashraf (1992), etc.

3 For inexplicable reasons, the reported publishing rate was lower in the 1989 data than it was in 1988. Discussion of publishing performance in economics (Table 1) ignores the 1989 data.

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Table 3
Average Number of Articles per Faculty Member, 1969

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Education	13.28	4.86	1.64	7.92	8.82	2.56	7.31	2.20	2.04	9.39	2.11	2.38
Elem/Sec Education	9.95	4.66	5.13	5.29	3.23	1.72	8.64	4.06	2.41	10.82	5.40	2.78
Found. Education	3.75	6.50	0.00	8.83	10.19	1.20	10.64	2.40	4.20	10.70	6.36	3.89
Ed. Psychology	12.50	4.18	3.32	14.05	4.38	3.22	10.17	6.41	4.03	13.08	6.02	3.01
Ed. Administration	12.04	7.44	5.38	13.17	15.50	5.25	12.73	9.06	2.21	12.70	5.90	1.90
Other Education	13.97	6.98	2.48	11.40	5.80	2.50	13.89	7.94	5.85	14.27	6.72	2.62
Engineering	17.50	6.28	1.73	8.83	1.67	7.50	11.95	3.03	2.39	11.37	5.63	2.23
Chemical Engineering	19.22	14.31	6.45	16.69	9.34	3.83	18.93	11.03	2.50	16.43	9.17	4.18
Civil Engineering	15.11	11.43	4.33	14.77	3.81	4.14	16.15	5.42	4.59	13.76	6.60	2.54
Electrical Engineering	13.95	13.62	3.46	12.96	7.52	4.73	12.32	7.15	3.14	11.60	6.90	3.46
Mech Engineering	14.48	9.53	3.14	13.00	5.37	2.63	13.07	5.47	4.96	11.77	4.95	2.27
Other Engineering	16.18	5.87	3.97	14.35	8.62	3.34	14.09	7.43	2.47	13.29	7.69	3.06
Fine Arts	11.21	3.90	0.21	10.30	0.00	3.50	6.50	2.68	0.72	5.12	1.31	2.22
Art	9.16	3.03	1.40	5.40	2.55	0.93	6.00	2.48	1.16	6.47	3.14	1.08
Drama	12.12	3.29	2.19	10.42	6.22	1.68	8.66	4.27	1.32	7.35	5.72	2.36
Music	6.42	4.26	1.26	3.89	1.83	0.62	6.23	2.00	1.81	5.23	3.04	1.10
Other Arts	4.50	0.00	2.75	-	-	0.75	8.83	4.17	0.70	12.94	4.42	2.78

Table 3
Average Number of Articles per Faculty Member, 1969

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Geography	13.71	10.35	2.21	12.20	8.43	3.32	10.05	4.77	3.20	15.07	5.23	3.19
Health	19.19	15.57	5.15	19.00	4.40	5.00	23.42	17.70	3.97	16.86	15.50	9.48
Medicine	20.28	14.63	8.64	21.71	16.40	10.05	20.64	18.64	9.27	21.46	17.13	9.25
Nursing	9.70	2.02	1.40	4.57	1.52	0.69	10.64	2.27	0.48	5.99	2.96	1.02
Other Health	18.04	10.56	5.36	19.45	10.57	5.38	18.88	16.45	6.81	14.85	9.46	6.24
Home Economics	5.83	2.85	1.05	7.38	4.86	1.21	10.68	3.68	1.15	11.15	3.41	0.96
Humanities	13.55	5.75	2.05	10.30	1.67	0.00	9.10	0.30	1.96	6.76	3.79	1.20
English Language	10.04	5.10	2.20	10.34	5.18	2.25	8.19	4.60	1.99	10.95	5.48	1.81
Foreign Languages	10.33	2.88	1.92	8.93	1.20	0.78	8.86	1.61	2.11	11.45	5.49	1.38
French	13.55	4.10	0.96	8.39	6.06	0.94	16.54	3.38	2.10	8.19	4.21	1.24
German	10.23	8.07	0.98	12.88	6.53	0.83	16.35	6.83	1.03	11.81	3.91	1.33
Spanish	9.06	8.10	1.21	12.63	5.39	3.54	17.68	4.90	1.75	12.39	4.17	2.60
Other Languages	11.04	5.24	2.70	12.03	7.25	1.78	15.90	6.61	3.67	13.98	5.27	2.18
History	7.44	3.89	1.66	9.02	3.95	1.39	8.77	3.35	1.27	8.22	4.77	1.61
Philosophy	14.61	5.20	1.92	11.10	6.56	0.66	12.66	5.50	1.52	10.98	5.70	1.21
Religion	9.47	2.88	1.98	11.20	5.14	2.63	12.17	5.06	1.36	7.63	3.64	2.59
Other Humanities	10.88	—	1.00	14.13	5.50	0.83	13.90	4.00	1.75	13.02	11.22	2.42
Industrial Arts	6.13	1.00	1.63	2.25	0.83	0.70	4.25	5.06	1.25	6.57	3.57	0.50
Journalism	5.17	5.95	1.39	10.93	1.00	2.50	10.40	3.96	2.19	11.53	7.15	2.71
Law	11.54	2.57	1.69	10.48	3.64	2.50	10.52	2.38	1.79	9.11	4.20	1.91
Library Science	7.19	1.80	1.13	15.13	9.10	0.00	12.38	2.77	3.28	12.57	5.30	1.96
Math/Statistics	15.17	5.79	2.40	12.75	6.84	2.25	11.89	4.71	2.21	12.83	6.54	2.45
Physical Education	7.95	2.81	1.16	7.33	6.15	1.68	6.41	2.63	2.55	7.65	3.29	2.50
Physical Sciences	0.00	-	0.00	3.50	5.00	2.25	13.64	1.60	5.43	9.27	5.71	4.36
Chemistry	16.91	11.50	7.80	17.23	12.69	6.18	18.39	9.30	5.41	17.94	11.53	6.64
Earth Sciences	19.10	13.38	6.20	17.64	11.75	6.20	18.90	9.90	6.66	18.25	11.06	5.04
Physics	19.12	11.98	8.10	16.70	10.37	6.71	18.51	13.22	6.22	17.13	10.73	6.00
Other Physics	23.65	16.89	8.31	18.56	9.38	10.58	21.11	9.60	13.22	22.36	12.50	5.61
Psychology	17.74	9.13	3.61	19.02	10.40	4.76	13.08	8.81	3.77	16.26	8.25	4.25
Clinical Psychology	10.00	18.25	2.94	25.00	8.14	3.17	2.50	13.33	3.93	16.30	9.98	3.57
Experimental Psych	23.54	13.00	5.33	20.35	10.12	5.13	21.53	14.67	6.29	18.14	12.93	5.71
Social Psychology	-	12.20	4.83	16.67	8.50	1.75	22.63	7.50	2.17	21.64	9.94	5.21
Counseling	0.75	0.00	1.69	-	-	0.75	11.50	7.50	-	8.50	5.29	1.00
Other Psychology	12.50	12.17	4.92	15.08	10.75	6.00	14.17	14.67	3.38	13.95	11.73	3.71

Table 3
Average Number of Articles per Faculty Member, 1969

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Social Sciences	-	2.43	2.10	8.50	4.80	1.00	13.30	0.00	2.36	6.20	2.75	1.83
Anthropology&Arch.	19.42	11.41	4.83	22.00	10.33	5.24	21.15	7.15	3.44	16.99	10.05	4.34
Economics	10.69	5.09	1.21	12.60	5.45	1.39	12.43	4.50	2.23	11.12	3.75	1.40
Political Science	9.74	5.30	2.86	12.62	8.19	2.39	10.83	3.85	1.55	10.62	5.33	1.22
Sociology	13.59	4.81	2.89	11.10	6.00	2.85	10.66	4.00	1.71	14.23	6.29	3.02
Other Social Sciences	16.67	7.50	0.50	17.70	10.58	3.07	17.63	6.00	5.05	13.89	8.44	4.04
Social Work	8.28	3.29	1.01	7.56	3.68	1.70	15.94	5.41	0.88	10.39	4.26	1.12
All Other	11.35	9.72	2.25	10.24	9.40	2.47	8.43	7.46	1.28	9.79	5.07	2.15
Arch. & Design	8.64	5.03	0.45	5.34	2.95	1.53	7.24	4.11	2.42	6.02	2.90	1.28
Biological Sciences	15.65	11.64	4.59	17.17	9.31	2.89	14.57	8.42	4.19	14.83	10.58	4.11
Bact.	20.88	17.52	9.27	22.69	17.85	8.67	23.31	16.47	9.20	20.47	16.02	7.89
Bio. Chemistry	19.94	19.43	9.96	22.40	20.26	12.39	22.31	21.83	12.38	22.55	18.00	12.70
Botany	25.00	9.80	8.57	22.29	12.09	4.92	19.86	13.83	6.58	19.11	10.26	5.05
Physiology	22.84	17.20	7.19	23.09	15.89	10.37	22.24	18.17	9.00	21.37	14.58	8.52
Zoology	17.82	14.18	8.84	18.17	13.37	5.37	20.79	13.79	6.50	17.85	11.99	6.53
Other Biology	20.22	15.46	8.76	21.93	18.48	10.18	19.98	14.65	12.59	20.70	15.54	8.90
Business	9.17	4.91	2.05	9.11	4.88	1.69	9.90	4.08	1.18	9.65	4.17	1.67
Marketing	25.00	12.00	3.75	0.00	-	3.88	15.50	3.50	3.63	11.00	1.60	3.92
Agriculture	18.17	12.43	7.06	18.44	11.85	6.45	16.24	8.68	5.97	17.01	11.05	5.32

Table 4
Average Number of Articles per Faculty Member, 1972

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Agriculture	31.27	18.82	9.52	23.13	13.05	6.08	9.31	4.70	2.40	0.75	4.50	1.50
Architecture	13.25	4.99	2.45	4.14	5.28	2.89	11.64	2.19	2.50	-	8.50	-
Bio. Sciences	39.76	19.46	10.25	30.66	18.55	8.42	14.58	9.13	3.75	13.00	5.33	4.75
Bact./Virology	41.42	25.97	15.31	32.87	9.85	7.50	18.75	19.70	4.88	3.75	4.50	2.17
Bio. Chemistry	44.66	29.32	16.49	41.48	20.74	9.77	53.50	0.00	-	3.50	5.00	-
Botany	36.07	21.88	7.64	38.47	13.85	5.78	13.05	13.77	5.75	25.50	0.00	1.50
Physiology	39.97	24.79	12.05	39.85	18.91	10.78	5.25	-	3.88	-	8.70	2.50
Zoology	38.16	20.83	12.68	23.32	20.55	10.05	10.25	13.69	8.95	29.20	15.50	5.00
Business	25.99	12.78	4.68	9.04	6.57	2.46	7.82	3.17	0.87	5.73	2.16	0.38
Accounting	18.96	7.74	3.93	8.44	5.76	4.14	6.76	2.95	0.70	3.25	0.00	0.60

Table 4
Average Number of Articles per Faculty Member, 1972

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Finance	15.39	10.53	5.55	10.88	6.45	1.72	5.00	10.39	0.71	0.00	-	-
Marketing	22.34	15.87	7.09	11.41	5.42	3.67	14.39	5.00	0.50	5.00	19.50	0.00
Management	21.24	11.34	4.67	18.20	9.21	2.75	7.18	3.70	2.18	15.50	13.33	4.50
Comp. Science	28.05	14.19	6.09	19.97	7.95	2.18	6.00	5.80	2.14	9.00	2.25	3.42
Education	24.84	12.48	4.15	18.26	8.02	3.51	10.35	3.72	2.46	8.22	2.17	1.03
Elem./Secondary Ed.	21.32	9.75	5.53	18.48	9.51	4.41	9.93	5.16	2.51	3.27	3.95	2.42
Ed. Administration	23.52	10.01	5.18	18.02	4.58	3.55	10.74	6.09	1.58	5.33	-	7.50
Ed. Psychology	27.14	14.06	6.62	19.46	8.24	4.16	6.15	4.64	2.17	0.00	7.75	0.75
Other Education	24.91	12.45	6.60	19.19	11.43	3.29	12.47	5.79	2.54	7.20	5.20	1.61
Engineering	29.89	14.48	5.81	21.38	11.28	4.06	7.95	4.13	3.21	7.90	8.25	9.00
Aero. Engineering	25.83	14.27	6.09	24.31	10.25	5.50	-	-	-	-	-	-
Chem. Engineering	31.93	18.16	8.71	28.93	12.48	5.94	13.29	14.50	2.80	10.25	-	-
Civil Engineering	29.10	11.98	5.67	15.78	6.49	4.38	8.50	3.94	4.40	-	-	-
Electrical Engineering	27.15	16.05	6.93	18.08	10.14	5.93	5.17	4.85	0.86	9.25	-	-
Mech Engineering	25.62	11.69	6.39	18.33	7.76	8.41	4.90	4.58	4.86	15.50	-	-
Art	11.26	6.14	3.96	8.59	3.12	1.55	6.34	3.31	0.90	10.29	2.20	2.31
Drama	18.69	8.05	3.79	11.28	5.45	1.79	7.94	3.49	1.29	5.52	2.22	0.86
Music	9.83	6.09	2.72	9.55	7.03	2.08	7.99	3.46	1.41	5.46	4.71	0.72
Other Art	15.75	5.46	7.29	24.50	5.60	0.43	3.50	4.20	0.75	7.38	0.60	2.56
Geography	29.07	14.52	6.92	17.60	10.58	5.70	7.23	5.80	4.79	9.58	-	2.33
Dentistry	32.12	17.44	6.21	35.25	13.50	1.50	-	-	-	-	-	-
Medicine	40.06	25.05	11.64	28.72	17.32	4.46	0.00	-	-	-	-	3.50
Nursing	16.17	4.94	1.93	9.31	3.10	1.45	5.41	0.89	0.89	2.25	1.13	0.66
Pharmacy	39.49	24.97	14.36	31.48	16.71	9.45	18.67	17.00	3.50	-	-	-
Home Economics	14.75	6.77	3.80	14.47	3.30	1.52	3.41	1.69	0.60	0.75	0.70	0.25
English Language	23.33	9.81	3.96	21.37	6.85	3.34	12.66	4.73	1.75	8.43	4.21	1.69
Foreign Languages	20.76	6.79	3.33	14.53	3.31	2.90	12.32	5.57	0.93	5.79	2.23	1.32
French	26.42	8.32	4.35	20.23	5.80	1.69	15.68	7.15	1.68	8.03	5.79	1.17
German	25.14	8.72	3.29	28.63	4.89	2.76	8.06	2.64	1.10	6.89	4.00	0.89
Spanish	27.74	10.73	4.44	28.95	7.86	5.00	25.00	3.42	1.96	14.33	2.68	2.12
Other Languages	27.95	11.66	4.47	18.13	12.13	3.08	23.22	4.22	5.96	8.04	8.20	1.75
History	18.39	8.32	3.61	14.33	7.99	2.82	9.32	4.59	2.54	9.04	3.90	1.60
Philosophy	24.76	8.89	3.03	18.24	8.80	3.17	9.29	4.01	3.06	9.66	3.63	1.91
Religion	22.63	12.45	4.35	18.23	9.92	4.64	13.80	5.21	5.44	9.71	7.16	2.64

Table 4
Average Number of Articles per Faculty Member, 1972

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Industrial Arts	16.14	8.28	2.36	14.00	0.50	6.25	6.66	2.16	1.34	-	3.50	0.00
Journalism	20.88	9.85	2.80	16.41	9.69	7.86	7.29	5.25	0.81	21.17	3.00	1.50
Law	17.28	5.27	1.95	13.43	3.88	2.81	5.36	11.75	7.63	21.13	3.25	-
Library Science	24.84	11.64	2.83	11.25	2.50	3.43	7.25	3.73	1.71	11.40	1.82	0.38
Math&Statistics	27.50	11.77	5.51	18.23	8.27	4.05	6.50	3.24	1.71	6.73	2.49	1.29
Physical Education	20.55	8.80	3.69	13.53	6.73	3.19	6.53	3.38	1.73	4.48	2.56	1.72
Chemistry	43.46	25.69	15.24	32.77	17.96	11.39	12.42	7.52	4.08	13.97	4.93	5.16
Earth Sciences	36.19	19.58	10.71	28.57	17.58	8.26	10.39	6.59	3.62	13.89	10.29	7.63
Physics	36.21	21.40	13.94	25.46	18.48	12.93	14.73	6.16	3.78	12.43	5.49	4.20
Psychology	34.90	18.30	8.07	30.07	11.72	6.28	13.82	9.27	3.83	12.28	8.15	3.09
Clinical Psychology	35.91	12.00	7.47	24.54	16.92	5.44	15.11	1.00	3.67	5.00	-	-
Exper. Psychology	40.24	19.52	10.97	32.39	15.47	6.83	27.85	9.83	4.08	22.13	8.38	6.42
Social Psychology	32.38	17.71	10.75	19.00	15.50	1.90	25.38	-	2.50	11.00	-	8.50
Counseling	25.15	13.58	3.63	14.11	7.64	3.50	7.27	5.23	2.44	5.00	5.33	0.00
Other Psychology	34.14	18.05	9.22	9.75	8.57	6.80	21.21	2.40	5.64	28.67	2.40	4.17
Anthropology&Arch.	33.32	15.47	8.02	33.56	10.03	5.67	16.00	10.11	3.17	14.77	7.88	4.06
Economics	24.23	9.27	3.63	18.23	8.47	3.03	9.94	4.23	2.06	9.64	5.34	1.95
Political Science	23.25	9.74	3.55	15.78	6.50	2.92	10.77	5.17	1.38	11.13	4.39	1.96
Sociology	26.87	10.97	5.60	19.15	10.41	3.59	12.99	5.42	3.84	8.34	3.50	2.12
Social Work	18.32	5.76	1.51	13.33	5.91	1.25	13.14	3.34	0.33	2.75	5.00	0.75
Vocational Tech	24.58	7.80	6.86	21.83	5.63	6.29	7.33	1.50	2.10	-	-	-

Table 5
Average Number of articles per Faculty Member, 1977

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Agriculture	39.11	17.31	-	38.25	39.00	17.00	30.00	37.00	9.00	-	-	-
Arch./Design	16.50	12.00	7.00	39.00	-	-	-	-	-	-	-	-
Biological Sciences	37.85	17.00	9.00	41.00	17.00	5.00	29.96	18.00	-	-	-	7.00
Mol./Cell. Biology	-	39.00	19.00	-	-	-	-	-	-	-	-	-
Micro Biology	53.90	35.25	37.00	50.25	39.00	3.00	-	-	-	-	-	-
Biochemistry	45.88	27.00	-	27.00	27.00	-	40.25	-	-	-	-	-
Genetics	53.50	-	9.00	-	29.00	-	-	-	-	-	-	-

Table 5
Average Number of articles per Faculty Member, 1977

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Ecology	39.13	37.00	-	43.00	-	9.00	9.00	-	-	-	-	-
Anatomy	53.50	17.00	-	53.50	-	-	-	-	-	-	3.00	-
Physiology	60.00	16.50	9.00	-	-	-	-	-	-	-	-	-
Behavioral Sciences	53.50	21.00	-	-	5.00	-	-	-	-	19.00	-	-
Other Biology	39.17	17.00	14.00	-	-	-	30.25	-	-	-	-	-
Bus Administration	28.39	6.00	7.00	45.00	19.67	6.00	17.50	6.00	11.67	11.00	-	-
Accounting	18.38	12.50	4.00	3.00	11.00	-	5.00	3.00	-	-	-	-
Finance	20.00	11.80	7.00	9.00	-	-	9.17	6.33	-	-	-	-
Marketing	23.55	10.67	7.00	21.10	22.00	11.00	27.00	-	7.00	-	-	-
Management	20.70	8.00	5.50	11.25	-	-	24.17	12.33	9.00	-	-	-
Other Business	26.65	12.67	5.00	9.00	11.00	9.00	-	9.00	-	60.00	-	-
Computer Science	44.25	35.50	3.00	-	-	3.00	-	-	-	-	-	-
Education	27.24	10.28	5.75	20.71	8.50	5.50	19.38	14.00	4.33	9.00	5.00	-
Engineering	57.50	-	5.00	-	-	-	-	9.00	-	-	-	-
Aero. Engineering	7.00	51.50	-	9.00	-	-	-	-	-	-	-	-
Chemical Engineering	53.50	-	-	-	-	5.00	-	-	-	-	-	-
Civil Engineering	31.17	20.79	10.00	15.00	-	-	17.00	-	-	-	-	-
Electrical Engineering	28.60	6.00	7.00	11.00	9.00	-	11.00	-	-	-	-	-
Mech Engineering	27.54	8.00	-	13.50	-	-	-	9.00	-	-	-	-
Other Engineering	38.47	19.40	9.00	24.00	-	-	-	-	-	-	-	-
Art	22.33	-	-	-	9.00	35.50	4.00	-	-	-	-	-
Drama	9.00	15.00	-	-	9.00	3.00	34.50	5.00	3.00	45.50	-	-
Music	17.63	14.00	-	-	-	-	5.00	4.00	11.00	-	-	11.00
Geography	17.67	-	17.00	15.00	15.50	-	-	3.00	5.00	-	-	-
Health Sciences	42.58	-	9.00	60.00	-	-	15.00	-	-	-	-	-
Medicine	42.75	28.40	19.67	53.50	27.00	-	-	-	-	-	-	17.00
Dentistry	23.67	14.00	-	28.00	-	-	-	3.00	9.00	-	-	-
Nursing	17.13	6.00	3.00	-	3.00	3.00	-	-	-	-	-	-
Allied Health	24.00	9.00	-	-	-	3.00	-	-	3.00	-	-	-
Pharmacy	51.50	-	-	-	-	3.00	-	-	-	-	-	-
Public Health	38.50	15.00	15.00	-	-	-	-	-	-	-	-	-
Home Economics	22.00	28.25	-	-	-	5.00	-	-	-	17.00	-	-
Humanities	9.00	27.00	5.00	-	9.00	-	9.00	-	-	-	-	-
English	18.48	19.21	6.33	14.63	6.33	5.67	32.25	3.00	-	-	-	3.00

Table 5
Average Number of articles per Faculty Member, 1977

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Foreign Languages	21.87	8.14	3.50	13.00	17.00	3.00	45.67	-	3.00	19.00	4.00	-
History	19.88	7.67	5.00	9.07	9.00	-	13.75	7.00	-	16.50	-	5.00
Philosophy	23.43	17.00	5.00	-	-	3.00	15.17	12.00	-	24.00	-	-
Religion	-	7.00	-	-	9.00	-	39.00	-	-	-	-	-
Industrial Arts	3.00	-	-	19.00	-	-	-	27.00	-	-	-	-
Journalism	16.50	17.00	29.00	-	-	-	14.00	5.00	-	-	-	-
Law	21.72	11.00	3.00	7.67	-	-	17.00	-	9.00	5.00	-	-
Library Science	27.00	11.50	4.00	25.67	9.00	11.00	5.00	-	-	-	-	-
Math/Statistics	26.84	12.78	9.00	18.33	17.00	-	24.75	9.00	17.00	-	-	-
Physical Education	23.60	-	11.00	9.00	-	-	-	-	-	29.00	10.00	-
Physical Sciences	15.67	-	-	39.00	-	3.00	-	17.00	23.00	-	-	-
Chemistry	45.35	25.32	35.25	37.17	37.00	17.00	31.25	-	-	30.00	5.00	-
Environmental Science	42.00	24.08	-	-	17.00	-	45.25	-	-	-	-	-
Physics	38.85	27.07	22.00	39.00	-	-	9.00	17.00	-	9.00	-	-
Psychology	37.54	26.22	14.23	25.36	-	-	23.67	9.00	-	23.00	-	-
Social Sciences	19.00	10.33	-	-	9.00	-	5.00	5.00	-	53.50	-	-
Anthropology./Arch.	30.06	15.59	5.00	48.25	-	11.00	23.00	17.00	9.00	15.00	-	-
Economics	20.28	12.33	12.00	22.00	7.00	-	27.00	7.00	-	40.25	-	-
Political Science	23.43	11.82	8.43	14.11	6.67	4.00	11.67	7.00	9.67	27.43	7.00	7.67
Sociology	31.90	13.03	9.80	16.60	18.00	8.00	21.67	-	8.00	34.67	-	3.00
Other Social Sciences	29.67	19.00	9.00	23.00	-	-	-	-	-	-	-	-
Social Work	31.17	7.00	9.00	60.00	9.00	-	43.00	3.00	5.00	29.00	-	-
Org. Biology	-	-	-	57.50	27.00	-	-	17.00	-	-	-	-
Evolution	-	17.00	-	55.50	17.00	-	-	-	-	-	-	-

Table 6
Average Number of Articles per Faculty Member, 1984

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Biology	21.33	18.50	12.35	20.03	12.36	13.00	12.24	6.42	5.81	6.28	6.71	10.75
Education	19.78	13.88	8.13	13.97	9.85	7.29	7.94	5.03	4.79	5.61	3.36	1.30
Engineering	18.84	8.23	5.00	16.73	12.21	5.80	9.88	7.93	1.60	3.00	-	3.00
Fine Arts	9.54	5.54	2.14	6.62	5.05	3.10	3.50	2.18	2.12	1.91	2.65	1.90
Health Sciences	21.26	7.09	9.82	20.70	6.81	4.06	14.79	10.05	2.34	-	5.00	0.75

Table 6
Average Number of Articles per Faculty Member, 1984

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Humanity	17.69	10.43	4.58	13.74	6.07	11.94	8.54	6.52	5.58	7.15	5.68	3.06
Physical Sciences	20.53	18.95	12.31	17.79	13.54	10.36	12.86	9.24	6.50	11.00	2.63	3.75
Social Sciences	19.72	16.94	3.82	15.45	8.69	3.71	8.74	5.22	4.00	12.50	6.45	3.40
Professional	16.15	9.03	7.62	9.94	7.63	2.60	7.04	5.04	2.79	-	-	3.25

Table 7
Average Number of Articles per Faculty Member, 1988

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Curr./Instruction	95.33	36.67	14.00	84.60	12.50	-	13.31	13.00	17.60	33.00	-	7.00
Ed. Administration	24.57	16.60	10.00	24.22	25.50	-	3.67	8.75	3.00	5.00	-	-
Ed. Evaluation	55.67	60.00	14.50	-	25.50	10.00	3.00	8.00	7.00	-	-	-
Ed. Psychology	39.80	17.00	5.00	26.67	-	4.50	22.50	6.00	0.00	21.50	7.67	4.00
Spec. Education	47.20	25.00	-	12.00	16.50	3.00	7.75	8.75	5.09	-	-	2.50
Counseling	24.00	7.80	-	17.75	-	10.67	15.13	6.14	4.67	-	-	2.00
Other Education	32.82	18.63	8.00	19.00	16.00	11.33	16.36	11.18	1.89	22.00	0.00	2.67
Pre-Elementary	-	-	4.50	20.00	4.00	0.50	6.50	3.50	3.00	30.00	5.00	-
Elementary	57.50	31.00	-	17.50	10.33	4.50	12.25	5.27	1.45	0.00	0.00	4.00
Second Education	50.00	19.80	-	14.75	16.63	-	19.00	1.60	8.80	-	-	0.25
Teach. Education	45.14	27.71	16.00	41.67	7.25	0.00	5.27	5.31	4.14	0.00	1.00	0.00
Civil Engineering	42.60	37.14	18.00	25.50	53.00	1.00	13.43	6.50	3.00	16.00	-	24.00
Electrical Engineering	29.80	27.67	9.29	39.83	14.33	5.33	14.00	17.75	3.80	-	0.00	-
Mech Engineering	47.00	55.33	9.00	14.20	23.50	6.25	27.67	10.43	9.86	6.00	-	-
Other Engineering	77.75	24.20	10.38	54.38	22.75	6.33	10.40	8.50	13.20	11.00	3.00	20.00
English	20.25	14.00	4.00	11.00	10.00	1.00	18.71	5.36	5.78	7.82	4.50	0.33
Composition	103.67	8.33	3.75	45.50	9.00	46.00	10.29	22.71	14.20	6.00	36.67	0.00
American Literature	21.00	10.67	18.00	56.83	16.00	11.50	10.50	7.44	-	11.00	17.60	3.50
English Literature	47.09	11.94	8.75	38.67	6.50	4.13	11.69	5.83	4.75	10.70	14.50	2.00
Linguistics	53.00	17.57	2.33	16.00	10.67	-	-	1.75	2.20	0.00	-	-
French	65.80	12.30	4.20	36.33	8.50	4.00	7.35	4.64	2.35	2.57	5.33	1.25
German	23.42	14.36	5.00	12.50	4.67	6.00	15.00	3.57	3.83	1.75	2.33	4.75
Latin	21.00	19.00	4.00	6.00	-	3.00	40.75	1.00	2.00	25.00	-	1.50
Slavic	46.67	10.33	4.50	24.00	5.00	2.00	0.00	7.50	-	7.00	7.50	14.25
Spanish	39.86	10.67	10.33	24.17	10.63	7.88	13.36	6.75	5.00	4.00	7.75	1.50

Table 7
Average Number of Articles per Faculty Member, 1988

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Agriculture	46.00	26.00	-	14.00	63.00	-	17.20	5.75	-	-	-	6.00
Agriculture Sciences	73.21	23.44	15.86	37.00	47.00	10.25	20.89	10.25	8.60	-	-	8.00
Fish/Forestry	73.20	11.25	33.50	35.25	27.60	4.33	-	-	-	-	-	-
Architecture	15.75	16.71	21.60	10.00	11.00	2.00	14.00	13.67	4.00	3.00	9.00	6.00
City Planning	30.00	19.00	11.50	-	30.00	-	0.00	-	0.00	-	-	-
Art History	19.50	13.00	8.67	11.00	30.00	1.00	7.33	5.33	67.33	0.00	0.00	0.50
Drama	6.29	39.00	0.60	8.00	4.00	0.00	9.67	7.00	2.20	-	3.00	0.33
Fine Art	8.50	4.80	0.00	13.50	5.20	0.00	13.22	2.00	3.36	0.00	0.00	1.67
Music	14.83	8.33	0.20	14.20	1.60	2.83	4.92	5.40	0.71	8.50	6.60	1.30
Music History	16.50	11.00	-	-	8.50	-	12.33	-	3.00	-	-	2.00
Accounting	10.00	16.17	6.22	5.33	10.00	0.50	5.00	7.38	1.50	0.50	3.00	0.40
Bank	62.00	11.67	2.00	18.00	6.33	5.00	14.60	18.00	0.20	14.00	0.00	-
Management	24.50	24.00	7.00	28.67	8.00	-	38.25	10.83	2.60	8.00	13.00	5.25
Org. Behavior	34.33	42.00	8.67	16.00	-	-	33.00	16.50	3.25	-	-	-
Marketing	25.40	33.00	2.00	-	11.67	6.00	4.00	7.67	1.60	-	-	3.00
Journalism	42.00	-	14.00	15.00	3.50	0.00	86.50	4.78	3.60	10.00	-	1.00
CIS	12.50	28.00	5.25	13.00	-	2.00	13.23	3.83	2.13	3.00	13.50	0.40
Education	15.00	14.00	-	19.50	25.00	-	37.25	3.20	2.50	3.00	3.00	-
Medicine	79.49	-	20.35	76.50	26.88	12.00	46.60	26.00	8.75	-	-	-
Nursing	29.67	44.38	8.87	-	8.36	1.80	3.83	6.73	0.78	6.00	2.33	0.00
Pharmacy	120.14	-	23.75	104.00	32.67	1.00	16.00	12.50	-	-	-	-
Pub. Health	33.00	18.33	14.00	-	-	6.00	111.00	3.50	-	-	-	-
Other Health	51.89	30.67	23.80	32.67	9.71	0.00	33.50	-	5.20	-	-	0.00
Home Economics	10.00	17.00	4.71	8.33	11.00	1.71	18.50	6.40	0.80	0.00	-	-
Industrial Art	-	23.25	18.00	-	0.00	7.00	31.00	8.50	0.00	-	-	-
Law	19.73	20.33	4.80	14.00	-	10.00	7.50	2.00	3.80	41.00	-	-
Library Science	120.67	-	18.00	52.00	-	1.50	3.00	9.00	0.00	1.00	2.00	-
Biology	111.71	36.50	18.33	54.75	12.80	9.00	17.19	10.14	6.83	8.88	4.25	6.00
Botany	147.75	38.60	-	54.50	46.00	-	17.40	-	6.00	10.00	-	-
Chemistry	111.88	38.60	18.63	64.10	25.00	18.71	24.91	8.20	4.71	10.50	8.71	4.17
Geology	56.82	-	10.00	18.00	13.25	15.00	6.00	7.50	4.00	9.50	9.00	12.00
Physics	91.83	23.86	16.00	76.00	35.83	17.00	37.89	6.50	11.67	9.00	6.67	3.00
Physiology	88.00	31.00	14.00	37.00	57.00	-	22.00	0.00	-	-	-	0.00
Zoology	42.00	33.00	17.00	34.00	27.00	-	6.50	25.00	1.00	12.00	25.00	-

Table 7
Average Number of Articles per Faculty Member, 1988

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Mathematics	41.47	16.67	8.82	40.71	16.20	7.33	6.65	6.75	4.75	2.83	7.00	2.00
International Studies	33.00	29.00	7.00	6.00	-	-	10.00	7.67	-	-	-	-
Philosophy/Religion	39.41	12.29	6.34	39.79	12.13	5.05	19.48	7.35	4.19	14.30	7.70	2.08
Psychology	68.31	20.56	10.50	63.00	21.00	9.00	15.00	6.38	5.33	18.33	9.60	7.86
Anthropology	42.88	23.33	8.67	10.00	6.00	-	13.50	7.17	6.50	-	7.00	5.50
Economics	55.77	23.00	12.22	22.56	12.00	1.67	12.62	10.50	3.33	-	0.00	2.25
Geology	25.00	32.50	5.00	-	22.50	-	18.33	6.50	6.00	-	9.00	-
History	29.52	8.74	6.27	19.51	9.97	6.85	13.23	5.44	5.18	6.58	5.55	2.46
Political Science	42.71	10.17	3.67	16.00	10.00	8.00	6.18	2.50	2.75	28.50	4.67	2.67
Sociology	84.83	21.90	3.00	27.00	10.33	5.00	12.00	4.57	3.44	0.00	1.33	0.50

Table 8
Average Number of Articles per Faculty Member, 1989

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Agriculture	61.53	18.13	16.67	45.00	22.90	7.00	10.40	17.00	2.00	-	-	-
Medical Technology	19.67	14.75	2.33	35.67	11.75	3.00	8.00	0.00	1.00	-	-	-
Architecture	26.00	7.93	3.00	18.25	14.33	13.50	-	-	-	-	-	2.00
Biology	67.09	35.47	15.29	45.70	19.00	15.57	13.59	8.06	9.67	19.80	13.23	8.31
Business/Management	37.86	30.55	5.65	29.32	10.25	5.83	8.88	7.86	3.82	13.80	3.10	1.14
Communication Arts	37.33	18.60	7.92	18.62	8.30	5.38	13.33	3.56	2.78	20.17	1.33	0.50
Computer Science	47.00	19.33	9.64	25.46	17.33	7.67	12.00	2.86	0.50	12.50	3.50	1.86
Economics	32.91	16.43	7.13	32.40	8.73	3.83	14.75	7.88	2.00	23.56	5.50	2.70
Education	46.80	21.53	11.33	27.08	13.73	10.20	13.00	7.29	3.20	7.63	2.96	3.71
Engineering	78.70	30.80	13.29	39.40	19.46	8.52	33.22	6.60	9.67	18.25	9.80	0.00
Fine Arts	12.74	4.91	3.92	13.17	5.00	4.60	4.31	4.97	1.75	3.75	3.59	1.59
Foreign Languages	30.48	14.56	5.25	24.45	11.18	5.56	7.26	2.57	2.56	20.35	3.45	5.56
Geography	58.33	18.25	8.00	34.33	30.11	10.00	27.33	7.50	0.50	6.00	18.00	4.00
Health	67.27	25.58	7.33	29.27	9.63	6.47	3.33	8.13	2.28	-	2.00	0.47
Home Economics	22.00	16.38	-	15.83	4.00	5.00	-	6.20	3.50	1.00	2.00	0.50
Humanities	29.42	13.39	9.14	33.52	12.47	5.46	15.37	7.33	3.64	13.16	26.96	5.23
Industrial Arts	-	4.00	-	17.00	1.00	0.00	4.50	0.00	-	-	-	-
Law	-	25.00	6.50	24.00	-	2.00	3.00	-	-	-	-	-
Library Science	39.00	64.00	5.00	74.00	3.00	8.00	-	9.00	6.00	2.00	-	0.00

Table 8
Average Number of Articles per Faculty Member, 1989

	Research			Doctoral			Comprehensive			Liberal Arts		
	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst	Prof	Assoc	Asst
Mathematics	41.59	18.75	11.11	31.67	6.70	3.64	10.75	6.40	1.86	11.32	3.79	2.57
Physical Education.	38.00	13.00	13.33	17.20	9.17	5.17	10.30	5.56	4.27	3.67	2.75	1.94
Physical Sciences	90.58	37.41	22.33	54.69	21.00	15.31	12.65	6.50	9.18	28.42	15.00	7.09
Psychology	73.45	25.44	18.00	31.48	23.46	6.00	8.61	5.07	5.89	21.96	7.84	5.40
Public Affairs	69.75	20.67	-	21.00	10.33	3.00	15.00	0.00	-	-	-	-
Social Sciences	45.67	20.39	6.59	25.45	14.79	5.89	14.38	5.38	2.20	19.89	9.81	3.38

ASSESSING ECONOMIC UNDERSTANDING IN THE EARLY GRADES

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ABSTRACT

The issue of assessment is becoming increasingly important to a society that is demanding more value for, and return on, their educational dollars. Educational reform measures, passed by state legislatures, typically include assessment and productivity requirements. Federal and private grant agencies are also including outcome assessment requirements as part of their submission criteria for funding requests. In all of these cases, the use of pre and post testing is considered a valuable method for measuring success.

In economic education assessment tools exist for use at a variety of educational levels. These include the Test for Understanding College Economics (for college principles courses), the Test of Economic Literacy (Grades 11 and 12), the Test of Economic Knowledge (Grades 7 to 9), and the Basic Economics Test (Grades 5 and 6). All of these are nationally normed and offer a basic evaluation of economic understanding, relevant to each specific education level. Consequently, each is a valid tool for assessing economic knowledge through pre and post test use.

Below the 5th grade level, however, no specific test exists for measuring economic understanding. Since each of the above mentioned tests have reading comprehension as a prerequisite, a lack of this ability in the lower grades may explain why we do not offer assessment tools for these grade levels.

In an attempt to bridge this gap, the authors of this paper are developing a testing device for use in the early grades that is not dependent on reading comprehension and ability. After reviewing the education literature on early grade assessment, a potential instrument is discussed for use as a pre and post testing device, based on the concepts included in the Voluntary National Standards. Finally, potential uses of this assessment device are posited.

INTRODUCTION

In contemporary society, it is becoming increasingly important for students to have a working understanding of the economic principles guiding the market. More often than not, educational institutions tend to focus economic teachings on secondary school students, who are closer to entering the market as independent consumers and/or producers. However, the foundation for an understanding in economics should begin much earlier than this; specifically the basic principles of economics should be implemented into curriculum for students as young as kindergarten. By introducing economics in these very early grades, students will be able to build on the principles they learn throughout their school years and more readily identify with these principles in their own experiences outside the classroom. However, educating elementary 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.

Why is economic in the early years needed? According to Mark C. Schug, editor of *Economics in the School Curriculum,* teaching economics is laying the foundation for learning which policies are best, which economic alternative should be accepted, and for understanding the possible consequences of the resulting action (Schug, p. 21). Economics plays a direct role in our everyday lives, for we act as both consumers and producers; furthermore, it has great influences on local, state, and federal policy (*Voluntary National Content Standards*, Introduction). In our economy, where so much depends on the votes of the citizens in regards to economic policy, it is of major importance that voters be educated so they can make intelligent voting decisions (Schug, p. 32). Therefore, a better understanding of economic principles will benefit our democratic society, for "a democratic market economy" works better when its inhabitants are more knowledgeable in the area of economics (*Voluntary National Content Standards in Economics*, Introduction). It is an education which should begin in elementary school.

The reasons for economic education beginning as early as kindergarten seem very apparent. The argument for early childhood economic education is summarized in a statement made by William L. Goodwin and Laura A Driscoll in their book *Handbook for Measurement and Evaluation in Early Childhood Education*, where they speak of the early years of childhood as "the foundation for later competence and development" (Goodwin & Driscoll, p. 3). Why then is this type of education more often than not overlooked when teachers are planning their curriculum? There are two main reasons for neglecting to convey very valuable economic lessons to students.

The first of these concerns time. Teachers often find themselves constrained by time in the classroom, because they think their main responsibility lies in the

teaching of those basic traditional subjects that are required, whereas economics is not. For example, according to Schug, elementary teachers generally spend about twenty minutes a day on social studies courses, with only one-fifth of this time devoted to economic principles. This translates into a mere twenty-five minutes a week (Schug, p. 15). This is simply not enough time to convey economic principles effectively.

Secondly, teachers suffer from an inadequacy when it comes to the area of economics. Data show that about 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, p. 10).

The National Council on Economic Education has taken great strides to change this trend. The Council has developed several elementary school publications which are designed to aid teachers in implementing economics education in the classroom. A master curriculum guide gives educators a "detailed step-by-step lesson plan" to follow with simple participatory activities for the students. A book entitled *Economics for Kids* has also been written as a "practical guide to information pertaining to what, when, and how to teach economics to young children." Included in the guide are possible ideas for utilizing resources found in the community in order to illustrate basic economic concepts. Finally, *Econ and Me* is a video composed of five, fifteen minute segments covering economic principles in terms with which elementary students can readily identify. Each segment focuses on a particular concept, including scarcity, opportunity cost, consumption, production, and interdependence. In order to help teachers further explain the ideas presented in the video, an instructional guide is included which gives examples of situations that can be used to reinforce the concepts introduced in the video.

Even with these relatively new tools for implementing economic education into elementary classrooms, there exists no direct way to evaluate how effective the tools are in conveying basic economic principles. We are developing a simple test of ten multiple-choice questions covering very basic economic principles which we plan to administer to several kindergarten through second grade classes, in a pre and post test format. We maintain that in doing this, we can begin to understand what children of this age know, what they are capable of learning, and how we can illustrate their understanding with a simple test.

TEST METHODOLOGY

Educational assessment, used to evaluate aptitudes, skills, knowledge, and abilities, is a tool that has been used by educators since the onset of teaching itself.

Although there is very little information in regards to the early history of testing, ancient records have been found which suggest that some sort of evaluation of academic achievement was utilized, even though it did not play a significant role. Most of these evaluations were oral in form; it was not until 1845 that the use of oral testing as the dominant measure of academic achievement began to decline. As the population of students in school grew, oral testing became more and more difficult and time-consuming. With the need for some other form of evaluation, Horace Mann, the Secretary of the Massachusetts Board of Education, used his influence to bring the earliest paper and pencil tests to the United States, which were first administered to pupils in Boston, Massachusetts. The ease of giving and benefits resulting from these examinations led Mann and others to develop similar tests for other areas of the curriculum, such as arithmetic, geography, grammar, and history (Ahmann et. al, p. 10).

The advancements that came from the written testing style of evaluation being utilized at Boston did not readily travel to other parts of the US. For practically the remainder of the nineteenth century, other school systems chose to ignore the existence of paper and pencil tests, opting instead for the familiarity of oral tests. It was not until the early twentieth century that great strides in educational assessment began to take place. It was then that a man later to be regarded as the "father of educational measurement," E.L. Thorndike, published a book containing his views on the state of educational evaluation. In his book he included two tests, the Stone Reasoning Test in Arithmetic and the Thorndike Scale for Handwriting of Children. There was a tremendous response to his work, as many others followed in his path to produce similar tests and research on the subject of testing. Since then, there has been enormous growth in written testing (Ahmann et. al., p. 11). In fact World War I saw the first testing of large numbers of people at the same time after the Binet Simon scale of intelligence was originated in France. Lewis Terman introduced this idea to the US when he developed the Stanford-Binet test; this was the first test to be standardized, meaning it gave specific directions for test givers in both the areas of administering the exam and scoring and evaluating the results. As World War I loomed on the horizon, the need for a large population of people to be tested simultaneously became evident, and the Army Alpha test was introduced to satisfy this need. It consisted of "a group-administered, pencil-and-paper test, which became the prototype of virtually all 'scientific' testing today" (Wigdor & Garner, pp. 8- 9).

Since then, the ability test has come to be defined as the "systematic observation of performance on task" (Wigdor & Garner, p. 9) and can be administered in a number of ways, including pencil and paper group tests, oral question and answer tests, and physical activity tests. Three direct participants have been identified in this testing process: the test producer or developer, the person or institution basing decisions on the test, and the test taker. They are a measure of

several different areas of ability, including individual achievement, excellence, progress, student difficulties, competence, effectiveness of teaching technique, and specific skills (Wigdor & Garner, pp. 10-12).

Since the introduction of the ability test, standardized testing has not just become the norm but the major method of testing in schools. In fact, schools are the number one user of standardized tests in the US. According to the Association of American Publishers, ninety percent of standardized test sales are to schools (Wigdor & Garner, p. 153). However, even with the popularity of such tests, there lies much criticism in their widespread use, particularly in the areas of test construction, test use, and test interpretation. One main argument against standardized testing regards their primary measure of cognitive functions; they do not encompass other important areas of life, such as determination, motivation, interpersonal awareness, social skills, or leadership ability. All of these are vital contributors to good performance, yet they are neglected by standardized testing (Wigdor & Garner, pp. 12-15).

Specifically, multiple-choice tests have been the subject of much criticism over the years. However, as Phillip Saunders in his book *The Principles of Economics Course* suggests, the benefits of this type of testing far outweigh the disadvantages. As already discussed, teachers are under a strict time schedule. These time constraints are greatly reduced with the use of multiple choice testing because they are administered with ease and scored fairly quickly. Another criticism lies in the suggestion that multiple choice tests are less effective in measuring a student's achievement, however, Saunders states that there is virtually no evidence to support this argument. Multiple choice tests are able to include more of the covered material, and teachers are able to measure the depth of understanding by putting a series of questions on one topic on the exam, which leads to more reliable indications regarding what the students actually understand. Finally, another benefit implied by Saunders, is that no bias in multiple choice testing exists due to the limited vagueness in questions and answers (Saunders & Walstad, pp. 192-195).

After reviewing the benefits of multiple choice testing, we believe it is the most efficient manner in which to go about evaluating kindergarten through second grade students in their understanding of basic economic principles.

TEST CONTENT

Each question is designed to relate to one of the Content Standards included in the National Standards. Specifically, the questions address benchmarks to be attained at the completion of Grade 4 (the earliest grade listed). What follows is an example of a test question:

Content Standard 1:	Productive resources are limited. Therefore, people can not have all the goods and services they want; as a result, they have to choose some things and give up others.
Grade 4 benchmark:	People make choices because they can't have everything they want.
Question stem:	Which of the following best shows scarcity?
Answer:	Picture of three children and one ice cream cone.

In constructing multiple choice tests, a critical aspect is the validity of the distracters (incorrect responses). We plan on paying particular attention to these. Three distracters for this question might include pictures of a swing set, a cat and a dog together, and a mouse with a piece of cheese. Once trial testing and evaluations are performed, distracters will change, based on measures of validity.

Also included in the benchmarks from Content Standard 1 is the concept of opportunity cost. Here a question might ask: "Which of the following would be an opportunity cost of doing your home work?" The correct answer would be something like a kid on a swing set.

The other content standards that provide 4th Grade benchmarks are:

Content Standard 2:	Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something: few choices are "all or nothing" decisions.
Content Standard 3:	Different methods can be used to allocate different goods and services. People acting individually or collectively through government, must choose which methods to use to allocate different kinds of goods and services.
Content Standard 4:	People respond differently to positive and negative incentives.
Content Standard 5:	Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and usually among individuals or organizations in different nations.
Content Standard 6:	When individuals, regions, and nations specialize in what they produce at the lowest cost and then trade with others, both production and consumption increase.

Content Standard 7:	Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.
Content Standard 8:	Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.
Content Standard 9:	Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.
Content Standard 10:	Institutions evolve in market economies to help individuals and groups accomplish their goals. Banks, labor unions, corporations, legal systems and not for profit organizations are examples of important institutions. A different kind of institution, clearly defined and enforced property rights, is essential to a market economy.
Content Standard 11:	Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.
Content Standard 13:	Income for most people is determined by the market value of the productive resources they sell. What workers earn, depends primarily on the market value of what they produce and how productive they are.
Content Standard 14:	Entrepreneurs are people who take the risk of organizing productive resources to make goods and services. Profit is an important incentive that leads entrepreneurs to accept the risk of business failure.
Content Standard 15:	Investment in factories, machinery, new technology, and in the health, education, and training of people can raise future standards of living.
Content Standard 16:	There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also redistribute income.

Content Standard 19:	Unemployment imposes costs on individuals and nations. Unexpected inflation imposes costs on many people and benefits some others because it arbitrarily redistributes purchasing power. Inflation can reduce the rate of growth of national living standards because individuals and organizations use resources to protect themselves against the uncertainty of future prices.

As should be evident, some of these standards are most likely more amiable to teaching children in the third and fourth grades, but our test will try to focus on as many of these standards as possible.

EXTENSIONS

Once developed, implemented on a trial basis, and adjusted in response to validity testing, we believe this test will provide educators with a valid pre and post testing device for assessing learning in the K to 2 classroom setting. This should prove useful to grant administrators seeking outcome measures to gauge project success. Further, it should also send signals to concerned teachers as to their effectiveness in covering particular economic topics.

Another use for this test would be to measure the effectiveness, depth, and breadth of existing curriculum materials that are used in the lower grades. This would give teachers some indication of what materials might be best suited for addressing specific topics or standards.

Finally, use of the pretest will provide information with regards to how much younger students know about economics before they are exposed to the subject in school. Also of interest will be the extent to which this knowledge varies based on age alone. Extensions of this might include examining other socioeconomic factors that might play a role in a young child's level of economic literacy.

CONCLUDING COMMENTS

Our testing device, tentatively titled, "Elementary Economics Test" is currently being evaluated for validity, and is entering a second round of experimental implementation. Once completed, we will publish the results of our experiments and make available the final version of the test.

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A VIDEO ON DEMAND PROJECT EVALUATION: IMPLICATIONS FOR DEVELOPING AN ENTREPRENEURIAL MODEL FOR ECONOMIC INSTRUCTION

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ABSTRACT

Video on demand (VOD) is a technological method that has great growth potential in assisting teachers in instructing students. Public Television WNEO/WEAO, 45/49 in Northeast Ohio developed video clips in Math and Science and matched these video clips with the state of Ohio student proficiency objectives for grades 4-9. The project demonstrated that significant concept attainment was possible through the use of VOD. The 45/49 project found that there were various start up difficulties. These difficulties related to teacher and school system inexperience in computer online setups. There were also difficulties related to the initial matching of video clips to subject objectives and the overall length and quality of the clips used. None of these difficulties however prevented the use of VOD as an effective teaching method.

Economic educators, entrepreneurs and the television media have the opportunity to develop innovative materials, which can duplicate the success of this study. Using the experiences of the 45/49 VOD model, various creative and effective VOD programs could be implemented. Economic educators could form beneficial partnerships with entrepreneurs and media organizations to provide cutting edge computerized instructions to meets increasing demands related to student proficiency examinations, many of which contain economic and entrepreneurial concepts.

INTRODUCTION

Video on demand is a growing segment of teacher assistant technological advances. These advances are well documented as reported by Wyman (1997) and Van Dusen (1995), Cawkell (1997) and Hargadon (1995). Teachers with varying technological capabilities are being brought into the world of computer assisted

learning. Economic educators, entrepreneurs, and the public and private television sectors have tremendous potential for using vast video files to enhance this process. Northeastern Ohio Public Television station channel 45/49 has recognized this potential and has started an innovative project to develop a partnership with schools to assist teachers, within it's viewing area, to furthering student concept attainment in science and math through the 45/49 web site. The initial success of this educational effort holds potential applications for the field of economics and economic education. The Video On Demand Project (VOD) also provides a projection of future partnerships, which can be developed between schools, television studios, and those organizations or individuals with and entrepreneurial proclivity towards innovation in instructional methodology.

The future potential for VOD types of project is discussed by Vedro (1995) and Galbreath (1996), who both illustrate the infancy of these types of projects and the great potential teacher assistance partnerships hold for both education and public television. Channel 45/49 is developing a good model from which field of economics and economic education could develop, refine, and enhance instruction for students K-16 in furthering economic concept attainment.

OVERVIEW

Public Television Station WNEO/WEAO, Channels 45/49 in Northeast Ohio has developed an ongoing project, which entails classroom teacher use of, selected video clips in mathematics and science. The project director was Mr. Steve Mitchell, Director of Educational Services for Channels 45/49. Teachers volunteered, from selected schools, for the project. The volunteer participants were asked to view and select from videotapes taken from Channel 45/49 video files concerning topics in mathematics and science. The teachers were then asked to formulate math and science instructional objectives, which would match the content of the videotapes with the State of Ohio Proficiency Competencies for their grade level. The development of the instructional objectives necessitated repeated reviews of the videotapes. Channel 45/49 reduced the selected videotapes to no more than three-minute computerized video clips. After the teachers interpreted the instructional objective(s) within the clips, they composed six questions, which related to the same instructional objective(s). The questions were randomly selected to make up a three-question pretest and a three-question posttest. The overall goal was to create computerized video clips that the teachers could show in their classrooms via the internet, provided by the 45/49 studio web site, that reflected the math and science subject area and grade level at which the teachers realistically instruct.

The Video on Demand (VOD) Project involved twelve teachers from seven school locations located within the Channel 45/49 viewing area in Northeast Ohio.

The schools were selected to represent urban, rural, and suburban neighborhoods. The school levels were two high schools, one middle school, and four elementary schools. The small scale of the 45/49 project was necessary due to the expense and lack of operational maintenance for a beginning project. The research done by Tristram (1995) also found that small video systems are currently the most successful. The teacher participants began evaluation formulation and familiarization processes in February 1997 and concluded with the data collection through December 1997. Participants were to provide qualitative and quantitative data. Teacher participants were asked to provide qualitative data through analyzing project activities at participant determined appropriate occurrence intervals beginning with the formative evaluation process. In addition, teacher participants were given data pre/post test data sheets to provide evaluators with quantitative data. Qualitative and quantitative data was collected from six of the seven schools: one high school, one middle school and four elementary schools. Ten of the thirteen teacher participants provided pre-test/post-test data on 518 students and post-post-test data on 306 students from six teachers. Probable reasons for the differences in total posttest scores recorded and post-posttest scores recorded are discussed in the study limitations section.

EVALUATION PLAN

The evaluation plan was to derive qualitative and quantitative data from all project teacher participants. The effectiveness of the video clips was analyzed from test and a teacher participant journal perspective. Elementary and middle school student knowledge growth was assessed using a pretest-posttest control group design (Cambell & Stanley 1966). The research design was analyzed using the analysis of covariance, co-varying teacher differences (McNeil, Newman & Kelly 1996) (Newman & Benz 1995). High school and middle school students were given a pretest and posttest of their knowledge of the video clip math and science content. Within group and across group evaluations were analyzed using bi-directional tests of significance at alpha level .05. To access each segment, students were required to answer questions about the concept included in the video. After the video segment was viewed, the student was required to answer questions to test whether the concept had been learned. Outside math and science consultants were given questionnaires and asked for qualitative judgments as to the objective matching, effectiveness and quality, of the developed video clips.

Participant teachers were asked to keep a log of what worked and what did not, including statements about their success in using the video clips, computers, and the Internet. A qualitative analysis was then done on the activity logs.

STUDY LIMITATIONS

While the overall results of the study were encouraging, project analysis was hampered by several factors. Schools and teacher participants could not be randomly selected which is not uncommon in educational research data with a start up project that must develop its content. Schools are reluctant to enter a blind pool and therefore administrative support must be solicited for participation resulting in the selection of a limited number of schools. Attempts to gather data from schools with rural, urban and suburban locations was made but the pooled data did not account for an effect breakout by location for this study.

Differences in teacher affect were analyzed in the pre/post text data. However a number of teachers, 3 out of 12 on the pre/post test data and 6 out of 12 on the post/post-test data, did not turn in results. No reasons for teacher incomplete records were gathered. However, from the qualitative activity logs, it can reasonably be assumed that several factors caused this phenomenon:

- Trouble with computer services
- Inexperience with computer applications
- Teacher load and conflicting schedules

It is highly probable that the VOD project will overcome these limitations as the video clips become more refined, teacher participants become more familiar with PC operations and the Internet and the overall project design develops into a more formal and deliverable teaching tool. The data did show, even with these complications, significant results when data results were compared across all test results.

A final limitation was the lack of data collected on student perceptions about the clips and the learning process. The second phase of the VOD project will collect student input on concept attainment using the Internet. The limitations of this study, however, should not detract from the overall completion of the VOD project and the positive learning experiences attained by all the participants.

VIDEO CLIP OBJECTIVES

Two outside experts in science and five outside experts in math were asked to rate the video clips and the instructional objectives. The objectives were rated as to how well they related to the selected video clips in their subject areas. The objective clip question form is presented in Exhibit 1.

Exhibit 1

FM01 Objective
125.0 Clip number

How good a match is this clip to the objective?

5	*4*	*3*	*2*	*1*
Very good	*Good*	*Fair*	*Poor*	*Very Poor*

How effective do you think this clip is in teaching the objective?

5	*4*	*3*	*2*	*1*
Very good	*Good*	*Fair*	*Poor*	*Very Poor*

In general, the quality of this clip is:

5	*4*	*3*	*2*	*1*
Very good	*Good*	*Fair*	*Poor*	*Very Poor*

Comments on this clip.

The form allowed the experts to judge the objectives in three ways. The criteria asked was:

- Did the objective match the clip?
- Was the clip effective in teaching the objective
- The overall quality of the clip in teaching the objective

A Likert style scale of 1 to 5 representing very poor to very good was used to quantify the results. For individual ranking of each math video clip objective, see Appendix A. For individual ranking of each science video clip objective, see Appendix B. Summative data in Exhibit 2 and Exhibit 3 show the mean and standard deviation for the math and science objectives respectively.

The math evaluation results showed that out of 29 clips, approximately 50 percent were rated above average in matching, effectiveness, and overall quality and 50 percent were rated below average. The science evaluation results showed that out of 26 clips, approximately 50 percent were rated above average in matching, effectiveness, and overall quality and 50 percent were rated below average. The math and science evaluations showed the objective/clip match to be in the mid-range (fair, 3.08 for math and fair, 3.06 for science). Similar results were found for effectiveness (3.09 for math and 3.06 for science) and quality (3.1 for math and 3.3 for science). Teachers found it difficult in making the objectives fit the clips. Comments such as "It was very difficult to pin objectives on some of the clips" were

expressed throughout the educators' logs in variety of similar expressions. The clips, however, were shown to be effective in producing significant student gains supported by the pre/post test results, which follow. It could reasonably be expected that clips could be made, with future revisions, to rate in the upper ranges in future VOD phases.

Exhibit 2
Simple Statistics

Variable	Mean	Std. Dev.	Sum	Minimum	Maximum
MATH	1.0000	0	145.0	1.0000	1.0000
MATCH	3.0896	1.1136	414.0	1.0000	5.0000
EFFECTIVE	3.0896	1.1136	414.0	1.0000	5.0000
QUALITY	3.1194	1.1375	418.0	1.0000	5.0000

Exhibit 3
Simple Statistics

Variable	Mean	Std. Dev.	Sum	Minimum	Maximum
SCIENCE	1.0000	0	52.0	1.0000	1.0000
MATCH	3.0652	1.3233	141.0	1.0000	5.0000
EFFECTIVE	3.0652	1.3233	141.0	1.0000	5.0000
QUALITY	3.2826	1.2049	151.0	1.0000	5.0000

QUALITATIVE RESULTS

Project participants entered the project with expressed eagerness and relatively high expectations. There was evidence that the teachers had a wide range of computer experience, which was expressed from very little to widely experienced. Anxiety over being able to accomplish the project requirements was also evident. Participants expressed appreciation for 45/49 support through assignment of staff personnel to the individual schools.

As the project progressed, the teacher participants' expectation levels of what the video clips could accomplish lessened. The clips were seen as being too short, not good enough in content or overall having little effect. Some comments made were of the nature of "clips were too short, not enough (objective) explanation." and "some videos were good, some were cut off too much". Some teacher disillusionment with the project continued but results were confounded by outside variables. Teachers with little computer experience and very little support from their schools experienced a higher frustration level than teachers with greater computer experience and/or support from a colleague with a higher level of computer experience. Disillusionment was also impacted by high teacher expectations that their schools would be on-line with a high level of computer service and functioning in correlation with their video clip instruction. Comments were made throughout the teacher activity logs that were typically reflected by this teachers comment "September - PC's not delivered and Internet not running." When school networks did not come on line in time or failed to perform as anticipated, teacher project participants experienced frustration, which was transferred to difficulties with the project. Comments such as "…(we) have met approximately six times after school to access the clips and to decide which ones we would like to use in our classrooms first. Each time we have done so there has been a problem. It is getting very frustrating. The computers crash, the server is down, or we just cannot simply get to the clips." There were also insightful observations about the group and project reflected by this statement, "I felt very proud today. I think people, in general, have a negative tendency which frustrates me. This project is workable. We are the frontiers for VOD." Overall, concerns were gradually lessened as computer systems came on line and the teachers worked with the materials.

Participants experienced misconceptions, which became evident as the project progressed. The project was thought to have required much more work than was originally anticipated. In addition, participants expressed concern over how much time the project consumed. Comments were made such as "The other frustration I have is that I do not have enough time. It has been a challenge to incorporate the clips into my teaching". Participants were not prepared for, or generally misperceived, the amount of time and work involved.

Other participant misconceptions also occurred in project student outcomes. Initially, the teacher participants had very high student outcome expectations in which a "home run" for subject level improvement was the anticipated norm. The project design did not allow for the immediate "home run" effect. Initial use any material has inherent difficulty of use and combined with beginning use of PC's and the Internet through first year school system set-ups, teachers did not receive immediate positive feedback in many cases. There were, however, many "little hits" which the following quantitative data will support which were not perceived by the

teachers. Had the teachers been aware of the "little hits" during the course of the project, the evaluation of the teachers' subjective perceptions could be expected to be higher than reported. This emphasizes the advantage of doing both qualitative and quantitative data, in that, the quantitative analysis was capable of detecting this "small hit" difference while the quantitative analysis was not.

PROJECT QUANTITATIVE OUTCOME

Subject area pretest/posttest was collected. Pre/post test comparisons were made on subject areas using project developed clips and subject areas not using project-developed clips. Teachers randomly selected certain subject objectives that would be taught by video clips and subject objectives that would be taught without using video clips. The quantitative data was run through two measures of analysis. A Pearson Correlation Coefficient analysis and an Analysis of Variance controlling for teacher difference were run. In the Pearson Correlation (Point-Biserial Correlation), there was a significant difference between the "clip" and "no clip" usage such that the students using project developed clips gained significantly more in concept attainment than when students did not use the project developed clips. Probability was found to be at the 0.0001 level with an n=518 (see Exhibit 4). The results of this project support the study of Branch and Durran (1996) which found VOD system to be a benefit to students, which use it.

Exhibit 4
Pearson Correlation Coefficients / Prob > IRI under H_0: Rho = 0
(Point-Biserial Correlation which is a t-test)

	CLIP	NOCLIP	M	F	PRE
GAIN	0.26418	-0.26418	-0.04440	0.04440	-0.63190
	0.0001	0.0001	0.3132	0.3132	0.0001
	518	518	518	518	518

Post-posttest data run on 306 student subjects showed no significant gain between the posttest and the post-posttest scores. The data demonstrated that the knowledge obtained between the pretest and the posttest period, that gain was not significantly changed ("maintained") since there were found no significant difference between the posttest and the post-posttest scores (p=.49). (See Exhibit 5).

Exhibit 5

Model: MODEL2
Dependent Variable: GAIN2

Analysis of Variance

Source	DF	SS	Mean square	F Value	Prob>F
Model	3	0.24080	0.08027	0.807	0.4907
Error	303	30.13403	0.09945		
C Total	306	30.37483			
Root MSE		0.31536	R-square		0.0079
Dep Mean		-0.00449	Adj R-sq		-0.0019
C.V.		-7030.91344			

There was a concern that the significant difference produced by the Pearson Correlation analysis may in part, have been due to a difference within the participating teacher group. An Analysis of Covariance was run which held any differences related to the instructing teachers constant. Again, the probability value was significant at the 0.0001 level (see Exhibit 6).

Exhibit 6

Model: MODEL1
Dependent Variable: GAIN

Analysis of Variance

Source	DF	SS	Mean square	F Value	Prob>F
Model	6	10.88648	1.81441	21.667	.0001
Error	511	42.79089	0.08374		
C Total	517	53.67737			
Root MSE		0.28938	R-square		0.2028
Dep Mean		0.11834	Adj R-sq		0.1935
C.V.		244.53133			

Exhibit 6 Continued
Parameter Estimates

Variable	DF	Parameter Estimate	Std. Error	T for HO Paramater=0	Prob > ITI
INTERCEPT	1	-0.118119	0.03553292	-3.324	0.0010
CLIP	1	0.175159	0.02552354	6.863	0.0001
TEACH1	1	0.145043	0.05212360	2.783	0.0056
TEACH2	1	0.350123	0.06729452	5.203	0.0001
TEACH3	1	0.024151	0.04968067	0.486	0.6271
TEACH4	1	0.422931	0.05347739	7.909	0.0001
TEACH5	1	0.153231	0.03691427	4.151	0.0001

As shown in the quantitative analytical charts above and as noted earlier, the quantitative data did not support the participant teacher subjective data, which expressed concern over subject clip usage effectiveness. The clips were shown effective in student subject concept attainment.

IMPLICATIONS FOR ECONOMICS AND ECONOMIC EDUCATION

The promise of this creative educational effort should not go unnoticed by private sector entrepreneurs, economists and/or economic educators who believe that innovative technological instructional methods hold forth the potential for effective content and concept attainment by students. Developed video clips, proven to be effective, could be expected to be in high demand in the classrooms of the future.

Educators and creative entrepreneurs in the field of student instruction, who follow the study format, can expect to encounter many of the same difficulties that were encountered by the 45/49 initial project. There will be differences in teachers' technological skill levels. Video's appropriate to the field of economics will have to be located and analyzed, however, any television station with news that pertains to the economy could be a potential computerized instructional video clip.

One major advantage to this type of project is the capability to use local economic events, which have been, recorded by local news shows and public television programs. These local economic news events could be used for realistic

applications of economic concepts with which area students readily identify. An example may be the bankruptcy or successful growth of a local business, with which the local students are familiar, to illustrate the concepts of supply and demand through a computerized video clip. Such clips could also be updated and kept current to make instruction more meaningful and relevant.

One of the most important aspects of this type of effort is that the video clips can be used to develop a partnership between business, education (K-16), and the media. The idea of a profitable entrepreneurial educational VOD development holds promise, especially if the results of the 45/49 VOD project prove to be effective with further refinement and testing. Certainly, economic education would benefit from VOD development if the right financial, media and educational partnerships can be established

SUMMARY

The Video on Demand project showed that video clips produced significant quantitative gains in subjects who were exposed to them. This project also demonstrates the value of taking a qualitative and a quantitative analytical approach simultaneously. Our example clearly demonstrates a meaningful amount of information would have been lost in taking either methodology alone.

Several outside variables which impacted negatively on teacher project perceptions could be expected to disappear in future project efforts as school systems become effective in providing consistent computer network services and teacher computer usage comfort levels increase. In addition, teacher misconceptions about project time consumption and work involved can be expected to decrease greatly as subject clips are refined and support activities are further developed.

The 45/49 VOD project has demonstrated success in its initial development and promises an even greater effective teaching potential with future product refinement. Due to the results of this study, it would be reasonable to expect that an expanded effort of this nature can positively work on a nationwide scope.

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Appendix 1

Obj	Clip	Match	Effective	Quality
FM01	84	4,4,2,1,1	3,4,2,1,1	3,2,3,1,1
FM01	125	3,3,3,2	3,3,3,2	3,3,3,2
FM02	129	3,1,4,1,1	3,1,3,1,1	3,1,4,1,1
FM03	106	1,3,4,4,2	1,3,4,4,3	3,4,4,3,1
FM04	132	1,4,4,1	1,4,4,1	1,4,3,1
FM08	55	3,2,4,4,3	3,2,4,4,3	2,5,4,3,3
FM10	118	4,3,4,3,1	1,4,3,4,3	4,4,4,3,1
FM10	119	5,4,4,3,1	5,4,4,3,1	5,5,5,3,1
FM18	401B	3,2,3,3,2	2,3,2,3,3	3,2,2,3,2
FM20	30	4,4,4,4,3	4,4,4,4,3	4,4,4,3,4
FM20	193	3,4,4,5,4	3,4,4,5,4	3,4,5,5,4
FM21	133	3,2,4,4,2	3,2,3,4,2	2,4,4,2,3
FM22	56	2,1,2	2,1,2	2,1,4
FM23	58	4,1,1	4,1,1	4,1,1
FM24	113	2,3	2,3	2,3
FM24	115	3,5,3,2	3,4,3,2	3,3,3,2
FM25	402B	2,1,4,4,2	2,1,4,4,2	1,4,4,2,2
NM01	152	3,4,4,4,1	4,3,3,1,2	4,3,4,1,2
NM01	154	1,4,4,5,2	2,4,4,5,2	2,4,4,4,2
NM05	199	4,3,4,3,4	3,3,3,3,4	3,3,3,3,4
NM05	200	4,4,5,4	4,4,4,4	4,5,5,4
NM09	166	3,3,4,4,3	3,3,4,4,3	3,4,4,3,3
NM09	167	3,3,3,3,2	3,3,3,3,2	3,4,3,2,3
NM11	196	4,3,4,5,4	4,3,5,5,4	3,5,5,4,4
NM12	205.1	4,4,4,2	4,4,4,2	4,4,4,2
NM13	403B	3,4,4,4,4	3,4,4,4,4	3,4,4,4,4
NM15	189	4,4,3,3,4	4,4,4,4,3	4,4,4,3,4
NM16	185	2,4,4,3,3	2,4,3,4,3	4,4,4,3,2
NM16	186	2,4,4,4,3	2,4,4,4,3	4,4,4,3,2

Note: For match, effective and quality categories, the number under each category represents each judge's ratings of the clips

Appendix 2

Obj	Clip	Match	Effective	Quality
FS01	343			
FS02	209	2,2	2,2	3,2
FS03	369	3,1	3,1	2,1
FS05	210B	5,3	5,3	5,3
FS05	210	5,2	5,2	5,2
FS06	289	3,4	3,4	3,4,4
FS07	202.2	4,1	4,1	4,3
FS08	322	2,3	2,3	2,3
FS11	371	4,2	4,1	4,2
FS12	353	5,4	5,4	5,4
FS12	354	5,1	5,1	5,1
FS13	334	4,2	4,2	4,2
FS14	214	5,4	5,4	5,4
FS15	314	5,3	5,3	5,3
FS16	344	4,1	4,1	4,1
FS17	234	4,4	4,4	4,4
NS05	310	4,1	4,1	4,1
NS07	237	3,1	3,1	3,3
NS08	225B	5,3	5,3	5,3
NS10	223	4,2	4,2	4,4
NS11	217	2	1	2
NS12	400B	4,2	4,1	4,2
NS15	387	4,2	4,1	4,2
NS16	388			
NS18	213	4,3	4,2	4,4

Note: For match, effective and quality categories, the number under each category represents each judge's ratings of the clips

STUDENT PERFORMANCE FACTORS IN ECONOMICS AND ECONOMIC EDUCATION

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ABSTRACT

As professional college educators we are constantly concerned about the factors that influence student performance in the classroom. Utilizing a standard regression analysis and a loglinear model, we examined the role of six factors including: sex, days absent during the semester, number of hours completed, age and hours taken in economics. The study was first conducted in 1991 and repeated again in 1998. The significant factors were sex, with males outperforming females in economics and number of days absent. There was one important exception that was both alarming and challenging and that is the fact that students receiving a grade of C or less are missing significantly more class than in 1991. The importance of attendance seems to be lost on many students as the number of absences continues to climb. We need to encourage regular attendance since we know that is reflected in final grades and overall performance.

INTRODUCTION

As professional college educators we are constantly concerned about the factors that influence student performance in the classroom. In 1991 three professors at two Arkansas Universities, Dr. Larry R. Dale and Dr. Jerry Crawford from Arkansas State University and Mrs. Betty Jones from Henderson State University conducted some research into a variety of factors that we though might influence student behavior. We used two different techniques, a standard regression analysis and a loglinear model to learn the significance of five factors. The characteristics examined included; sex, days absent during the semester, hours accumulated, age, additional courses taken in economics.

We decided to use the same models to retest students in similar situations nearly a decade later to learn if the results would prove different.

RESEARCH DESIGN

In the second study we used all of the original five independent variables and added a sixth - major. The second study included several attitudinal factors such as; enjoyment of the course, useability of the information and grade expected with randomly selected test subjects. All of the attitude factors were rated on a five-point scale from strongly agree to strongly disagree with three representing no opinion. These factors were correlated to the dependent variable of a final grade. The students completed the questionnaire one week before the final exam was administered. An analysis of all equation variables is expressed in the functional relationship; (see table 1 for an explanation)

$$y = a + x1 + x2 + x3 + x4 + x5 + x6 + x7 + x8 + x9 + x10)$$

Table 1
Explanation of the Equation

Symbol	Variable
y	Student's final course grade
Characteristics	
x1	Instructor
x2	Student's Age
x3	Sex
x4	Year in School
x5	Previous Courses in Economics
x6	Course in which student is currently enrolled
Attitudinal Factors	
x7	Enjoyment of the class
x8	Usability or applicability of the course
x9	Grade Expected
x10	Days Absent

For the purposes of this study we deliberately left out the factors of current GPA and ACT scores, which were not readily available to all instructors. Instead,

the final grade was chosen as the critical dependent variable against which the independent variables would be measured.

In the 1991 study, nine different class in seven varied areas of economics from two different Universities in Arkansas and three different instructors were the subjects of this study. A total of 256 students were included in the study conducted in the Spring semester of 1990. Forty-three students came from Henderson State University in two Economics for Teachers classes taught by Mrs. Betty Jones. Dr. Jerry Crawford, at Arkansas State University, taught: Microeconomics (Principles) 30 students; Intermediate Microeconomics with 13 students and Economics for Teachers with 18 students. Dr. Larry R. Dale taught two courses in Economics for Teachers, with 115 students and Comparative Economics, an upper division course for Economics and Business Administration majors, with 41 students.

In the second study ten different class in four varied areas of economics, from two different instructors were the subjects of this study involving a total of 428 students. Dr. Jerry Crawford, at Arkansas State University, taught: Microeconomics (Principles) 181 students; Macroeconomics with 62 students and Economics for Teachers with 22 students. Dr. Larry R. Dale taught two courses in Economics for Teachers, with 95 students and Comparative Economics with 46 students.

The researchers were interested in exploring the values and characteristics that contribute to the success of students under these widely varied circumstances. Conclusions drawn from that study proved interesting. First we needed to make sure that there was no difference in student performance related to the different instructors or institutions. A chi square test of means proved that there was no significant difference between the instructors at the .01 level. There was a significant difference between classes taught, even by the same instructors. Students enrolled in the Economics for Teachers group performed significantly better than students in the basic principles course. All three of the instructors received relatively high ratings with no significant difference by individual instructor.

In the 1991 study, the only significant factors proved to be the grade expected, sex, and the number of days absent. The more recent study determined that sex and the number of days absent were still significant. In addition, hours accumulated also proved significant.

In the first study, the expected grade near the end of class was a relatively good indicator of the student's evaluation of their performance in the course and of the course itself (Seiver 1983, 33). Students who perform better should have a more positive attitude toward the course and instructor. A high correlation between expected grade and grade received is also an indication that the instructor has done a good job of informing students about their performance. Although students had not taken the comprehensive final, which is a significant part of their aggregate grade, their mean grade ranking was only .31, about one third of the grade, higher

than the grades actually received. We decide to leave this factor out of the 1998 study because of its proven track record in predicting performance.

The more important figure was the days absent from class, which proved to be significant at the .01 level in both the 1991 and 1998 study. This factor was significant despite a wide range of teacher and institutional attitudes toward absenteeism. Arkansas State University has adopted a strict policy that does not permit instructors to include attendance as a direct factor in determining grades. Henderson permits attendance to be considered. The instructors also had very different policies. Instructor one included attendance as a factor in grading, instructor two takes roll in all classes; while instructor three took roll expressly for the purposes of this study and did not place as great an emphasis on its importance. Despite the variations in instructor attitude toward attendance from very important to casual, there was no significant difference in student attendance among the three instructors. Attendance in class was highly significant (see table 2). Students in the 1991 study receiving a grade of A missed an average of 1.31 days, students receiving the grade of B missed an average of 2.58 days, the grade of C students missed 3.14 days, and the grade of D students missed 3.50 days, while students receiving an F missed an average of 9.67 days. Students in 1998 receiving a grade of A missed an average of 1.32 days, students receiving the grade of B students missed 1.25 days, the grade of C students missed 4.08 days, and the grade of D students missed 4.13 days, while students receiving an F missed an average of 10.81 days. One factor that tested to be significant between the 1990 and 1998-group was the increase in the average number of days missed by students earning a grade of C, D and F. This is a disturbing trend if it holds nationwide. Class attendance is important in predicting classroom performance. The Park-Kerr study found absences significant but less important than other factors, particularly GPA and ACT Scores. Of particular interest is the fact that attendance seems important regardless of instructor style or expectations about attendance. Students tended to miss an average of nearly one day more than in 1990. The one exception was that student receiving the grade of B actually had a better attendance record in 1998.

Sex also was a significant factor, although less important than the other two, at the .01 level, with males outperforming females in economics. Conventional wisdom and statistical studies have indicated that males tend to outperform females in mathematically oriented subject areas for a variety of cultural reasons. The subjects in this study were overwhelmingly female making up 74.53% of the subjects, primarily because of the Economics for Elementary Teachers courses, with a large female contingent. Interestingly though males outperformed females regardless of which course they were taking. This trend was still significant although the difference between the scores of males and females had fallen between 1991 and 1998. This is a sign that women are displaying an increasing aptitude in dealing with economic subject matter.

Table 2 Statistical Data 1991 Study	
Mean Age:	24.64 years
Sex:	74.53% Female
	25.47% Male
Year in School:	mean 3.19 (Junior)
Days Absent:	mean 2.68
Average Days Absent of Students receiving:	grade A; mean 1.31
	grade B; mean 3.10
	grade C; mean 3.14
	grade D; mean 3.50
	grade F; mean 9.67
Straight Multiple Regression Analysis with Final Grade as the Dependent Variable.	

Table 3 Statistical Data 1998 Study		
Mean Age:	25.13 years	
Sex:	72.31% Female	
	27.69% Male	
Year in School:	mean 2.89 (Junior)	
Days Absent:	mean 3.98	
Average Days Absent of Students receiving:		Difference between 1991 and 1998
	grade A; mean 1.32	+.01
	grade B; mean 1.25	-1.85
	grade C; mean 4.08	+.94
	grade D; mean 4.13	+.63
	grade F; mean 10.81	+1.14

These students were significantly older than average with a mean age of 24.6 years. While this may be a general trend in higher education, part of the explanation is found in the number of older students enrolling in elementary education programs, since that course had an average age of 27.12 years as

compared with 21.43 for the other economics courses. Age alone was not a significant determinant of grade achievement in contradiction to the conventional wisdom that would suggest that older students earn higher grades. This may be explained by the fact that many students were older than would be expected. There may be little difference in performance of students aged 25 as compared with those aged 30. Age may prove more important in comparison with survey courses that enroll younger students, which were not a significant part of this study.

The average student in the survey was a junior with an average of 68.45 hours. Since both upper division economics and Economics for Teachers require a minimum of 60 hours as a prerequisite, this is not surprising.

A two-sample t test comparing age and absences did yield a value of 39.78 in the 1991 study and 46.11 in the 1998 study, which proved to be significant. Older students were absent more frequently than younger students. This may be explained in terms of additional work and/or homemaking responsibilities on the part of the older female student. While the two correlated, the level of significance was not great enough to be reflected in the final grade. Older students can make up days missed and achieve similar grades.

TABLE 4
Straight Multiple Regression Analysis with
Final Grade as the Dependent Variable.

1991 Study	
	Days Absent, Sex and Grade Expected Significant (x9) Significant at .01 level.
	All other dependent variables not significant.
1998 Study	
	Days Absent, Sex and Year in School Significant at .01 level.
	All other dependent variables not significant.
Confirmed by f-test and t-test along with loglinear model.	

Overall demographic features were not significant predictors of success in the course as measured by the final grade, which is consistent with other studies on these same factors (Park and Kerr 1990, 110). The previous number of courses in economics was also not relevant to a final grade received, which surprised the investigators but supports other recent studies (Park and Kerr 1990, 110). A partial explanation for this is that 68% of the students did not have any previous courses in economics making that factor insignificant in their performance. This was

particularly true in the Economics for Teachers course, where 87% of the students had no previous experience in formal economics training. We did not investigate these phenomena in the 1998 study.

The attitudinal factors were not significant in relationship to student grades. Students seemed to enjoy the economics class regardless of the grade they expected to receive or did receive. Student rating on the usefulness or applicability of the course is also not significant, again because of the high rating that factor received. It was interesting that the students enrolled in the Economics for Teachers courses were significantly more likely to rate that course highly relevant [4.78 as compared to 3.89 on a five-point scale] or applicable than were students in more traditional economics courses. This is consistent with the fact that such courses are supposed to contain some instruction in teaching methodology and basic cognitive content. This supports similar findings at other institutions (Dale 1983).

TABLE 4 Continued
Regression Statistics

	1991 Study		1998 Study	
Variable	**Correlation**	**Significant**	**Correlation**	**Significant**
Days absent	.004	yes	.001	yes
Instructor	.250	no	NA	
Sex	.010	yes	.009	yes
Year in School	NA		.007	yes
Age	.610	no	.19	no
Major	NA		.02	no
Previous Courses	.030	no	NA	
Course Enrolled in	.030	no	NA	
Grade Exp.	.006	yes	NA	
Usability	.017	no	NA	

No significant difference exists between the data derived by using the standard correlation matrix or F and T-Test, and that derived from the use of loglinear modeling.

Several studies have examined the qualitative analysis of affective measures related to classroom performance in economics classes. A multinomial logit model was applied to factors determining performance in a money and banking class using attendance records, overall valuing of the course, commuting distance, age, sex, prior courses, hours spent at outside work, GPA and ACT scores as the dependent

variables (Park and Kerr 1990). A second study (Mehdizadeh 1990) uses loglinear analysis of categorical data to examine the significance of factors in determining student ratings of professors. Several have examined additional factors that influence instructor ratings (Kelly 1972; Mirus 1973; Spector and Mazzeo 1980 and Seiver 1983) using a variety of statistical techniques. The consensus seems to be that some variation of loglinear modeling is the most effective method of examining correlations of such qualitative measures. This was used in our testing procedures since loglinear models do not require distinguishing between response variables and independent variables as with logit models, both of which are considered in this study. Interestingly enough there appeared to be no significant difference between the results produced using the loglinear model and a standard regression analysis, F and T tests regression analysis for this study.

CONCLUSIONS

The conclusions of the 1991 study are not significantly different from those indicated in 1998, with one important exception. Class attendance is still a significant predictor of success in economics. The one element of the study that was both alarming and challenging is the fact that students are missing more class than in 1991, particularly at the lower levels. The importance of attendance seems to be lost on many students as the number of absences continues to climb. We need to encourage regular attendance since we know that is reflected in final grades. Students who come to class regularly simply out perform those who do not. The pressure on students to attend college is always a challenge for those who must work in order to pay the fees. When jobs affect attendance they have a devastating effect on performance.

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CUTTING THE DIAMOND OF COMPARATIVE ADVANTAGE

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ABSTRACT

This paper addresses pedagogical issues pertaining to the principle of comparative advantage. It specifically advocates favoring output per unit of labor approach as opposed to the labor per unit of output for teaching the principle of comparative advantage. The output per unit of labor approach is preferred for its direct connections to opportunity cost, the ability to easily incorporate visual pedagogical tools, its connection to discussions of the role of theory, its ease of understanding, and its potential to increase student retention. The paper provides a specific example of the output per unit of labor approach. Suggestions for further research on the effects of the output per unit of labor approach are also included.

INTRODUCTION

David Ricardo left economists an intellectual legacy upon which the foundation for mutually advantageous trade rests. Comparative advantage stands as a monument not only to Ricardo, but also to the practice and methods of economics itself. In our attempts to help students to appreciate and embrace the principles of economics, teaching comparative advantage represents a splendid opportunity to display the logical method and power of economic theory.

The ramifications of comparative advantage on the overall levels of efficiency and wealth of an economy are well known to economists. Voluntary transactions based upon relative efficiencies in production serve to allocate resources more efficiently in a market economy. The populace of a modern democracy with an advanced, industrialized economy can ill-afford to ignore the advantages that accrue through specialization and exchange. Unfortunately, it is our observation that students often fail to understand comparative advantage as an important economic principle underlying the intellectual foundation for gains from trade. Another important reason to dispel confusion is that comparative advantage remains as a fundamental intellectual bulwark against protectionism. As nations continue to expand their roles in the international economy, an educated populace

must understand the tradeoffs that are made when any trading entity chooses to forgo trade.

The predominant method of presenting comparative advantage is based upon a labor per unit of output approach. In Ricardo's original work and in many leading undergraduate texts the first exposure to absolute and comparative advantage is often based upon this reference to labor productivity. It is our experience that students are easily confused in their initial exposure to comparative advantage due to the implicit reference to labor productivity inherent to the analysis. An alternative approach is to couch the initial exposure to absolute and comparative advantage - simply and directly - in terms of opportunity costs. This method is based upon the number of units of output per unit of labor and it links more directly to the conceptual foundations of the production possibilities curve. The logical difference is, for professional economists, a matter of simple conversion. However, we maintain that the pedagogical effects are significant.

The advantages of the alternative approach (output per unit of labor) are numerous. First, the output per unit of labor is firmly anchored in an even more fundamental principle in economics - opportunity costs. Opportunity costs are intuitively understood, lively examples abound, and students are able to relate their calculations to their personal experiences. Second, the approach directly incorporates a graphical exposition of the production possibilities curve. The complementarities between verbal and visual approaches are well documented. Saunders and Walstad (1990) provide a concise summary discussion of the relationship between visual and verbal modes of information processing in Chapter 7 - Learning Theory and Instructional Objectives.

Third, it is less obtuse to students. We have found that the approach better provides the opportunity to help students to understand the inevitable tradeoff between realism and applicability: a problem that haunts economics in the minds of many university and college students. Fourth, the approach begs a discussion of the labor per unit of output approach and does nothing to hinder a subsequent presentation of it. Fifth, and most importantly, it is our observation that students more clearly understand comparative advantage their retention of the principle and their ability to transfer it are improved.

Figure 1: Output per unit of Labor

	Pizza	Sundaes
Sue	3.00	4.00
Bert	2.00	6.00

An example of the method by which comparative advantage is presented under the output per unit of labor approach follows: Sue and Bert are going to throw a party and the menu consists of pizza and ice cream sundaes. First, we construct a matrix (figure 1) which presents the basic production information. The numbers within the matrix represent the quantity of items which each can produce using one unit of labor; in this case one hour. The matrix is clearly labeled as output per unit of labor and a brief explanation concerning the choice of labor unit ensues -- e.g., any labor unit can be used so long as both parties use the same measure.

Based upon the information in the matrix, Sue can produce either 3 pizzas or 4 sundaes and Bert can produce either 2 pizzas or 6 sundaes. Absolute advantage can be easily explained at this point. If Sue can produce three pizzas and Bert can produce only two, a direct comparison of the production capabilities of each reveals that Sue ought to produce pizza. If Sue can produce four sundaes whereas Bert can produce six, then a direct comparison of the production capabilities of each reveals that Bert ought to produce sundaes. Students are then asked to determine the trading patterns using the following production information. This is an exercise that lends itself well to a small group discussion context.

Figure 2: Output per unit of Labor

	Pizza	Sundaes
Sue	3.00	6.00
Bert	2.00	6.00

For pizzas, the production information is the same. Hence, there is no change in the production assignment. In the case of sundaes, however, a dilemma is presented, for the assignment of production is indeterminate under absolute advantage. Because absolute advantage is determined by external costs, and we are looking at the producible commodity across trading entities, we have yet in incorporate internal, domestic, or opportunity costs. To make a comparison based upon opportunity costs requires students to use comparative rather than absolute advantage.

In order to determine trading patterns, we must investigate foregone opportunities within each trading entity based upon internal or domestic costs. Students are reminded that under the concept of opportunity cost, the decision to use one's time to produce pizzas is, after all, simultaneously a decision to not produce sundaes and vice versa. The tradeoff can be made quite explicit by the graphical presentation of the matrix information revealing a constant cost production

possibilities curve. Students are reminded that the production possibilities curve for each trading entity holds constant the quantity of resources - specifically the one unit (hour, day, week, etc.) of labor.

Bert and Sue now decide to divide the work associated with their party based upon the principle of comparative advantage. Because each measurement is based upon the same labor unit, we can present their production decision in the following manner.

Sue	Bert
3 pizzas = 6 sundaes	2 pizzas = 6 sundaes
or	or
3/3 pizzas = 6/3 sundaes	2/2 pizzas = 6/2 sundaes
or	or
1 pizza = 2 sundaes	1 pizza = 3 sundaes

Reducing the equation in terms of pizza yields the fact that in the time Sue could make one pizza she must forgo the production of two sundaes, i.e., the production of one pizza has an opportunity cost of two sundaes. For Bert, the production of one pizza has an opportunity cost of three sundaes; in the amount of time Bert can make one pizza he must forgo the three sundaes he could have produced. If Sue must forgo two sundaes for producing one pizza whereas Bert must forgo three, then Sue is obviously the low-cost producer of pizzas. It would certainly be to their advantage to be giving up two sundaes rather than three sundaes for each pizza made.

What about the sundaes?

Sue	Bert
6 sundaes = 3 pizzas	6 sundaes = 2 pizzas
or	or
6/6 sundaes = 3/6 pizzas	6/6 sundaes = 2/6 pizzas
or	or
1 sundae = 1/2 pizza	1 sundae = 1/3 pizza

Reducing this equation yields the fact that producing one sundae has an opportunity cost of one-half of a pizza for Sue - in the time she can make one sundae she must forgo the production of one-half of a pizza. For Bert, the opportunity cost of producing one sundae is one-third of a pizza. If the cost to Sue of producing one sundae is 1/2 of a pizza while the cost of Bert producing one sundae is 1/3 of a pizza, then Bert is clearly the low opportunity cost producer. It would certainly be to their advantage to be giving up 1/3 of a pizza per sundae as opposed to giving up 1/2 of a pizza per sundae.

A number of other aspects can be easily incorporated into the discussion at this point. Nearly always included are: the irrelevance of the labor or trading unit chosen, the symmetry of the calculations for each party, and the political economy of trade. The later category offers two clear opportunities from a pedagogical perspective. First, one can easily address the multitude of issues that enter into real-world trade negotiations. Bargaining theory, international relations, public choice issues, and resistance to trade by some groups are all topics deserving discussion. Second, these topics nearly always act as a conduit into current issues that face our political decision-makers; hence, the discussion often taps into the students' existing "learning set".

Students can then be asked to determine exactly how many units of output Bert and Sue would need for their party. Regardless of the numbers chosen, it can always be shown that following comparative advantage is superior to its violation. For example, suppose that Sue and Bert have determined that they will need six pizzas and eighteen sundaes. Following comparative advantage, we would assign Sue the task of making pizzas and Bert the task of making sundaes. Sue would produce the six pizzas in two hours, and Bert would produce the eighteen sundaes in three hours. Thus, they spend five labor hours in preparation for the party. If we violate comparative advantage and have Bert make the pizzas and Sue make the sundaes, the preparation takes three and three hours respectively they will spend six hours performing the exact same task.

At times, students have questioned the "fairness" of the one-sided reduction in work effort. This can be treated as an opportunity to discuss the welfare implications of the principle of comparative advantage. When economists speak of the gains from trade, those gains accrue to the society - to the community as a whole. While there can be winners and losers at the sub-societal level, in a world of scarcity, the collective "we" can only benefit from trade. Certainly, a cursory review of trade negotiations points to the inevitability of issues of distribution being considered - but it also seems clear that comparative advantage is important enough to be considered on its own grounds -- namely, the efficacy of an economic system.

Numerous extensions of comparative advantage are possible. The horizontal expansion of the production information matrix allows one to demonstrate decreasing and increasing costs. Implicit assumptions concerning

subjects such as the employment levels and homogeneity of factors, varying cost conditions, and the labor theory of value impact the analysis and can be made explicit. Though, it is our experience that from a pedagogical perspective, it is better to address these issues in subsequent treatments of the relationships between these issues and comparative advantage. For instance, in one of the author's International Economics course, after absolute advantage is presented, he often produces a list of major problems and resolutions in turn. First, absolute advantage fails to provide a consistent explanation of trade patterns when one trading entity has the advantage in both products. Resorting to opportunity costs and comparative advantage solves this problem. Second, constant costs produce horizontal cost curves and complete specialization, which are unrealistic. This can be addressed through the introduction of the influence of the shapes of cost curves on trading patterns incorporating isoquant analysis and current theoretical discussions on the role of increasing costs. Third, the calculations are based solely on cost conditions: we are implicitly accepting the labor theory of value. Consistent use of the matrix approach allows one to easily extend the discussion to incorporate the average cost of production approach that is mutually determined by cost and demand conditions. In addition, the homogeneity of labor can be dropped as an assumption in this step. In international trade courses, the influence of exchange rates upon trading patterns can easily be made explicit.

A brief review of leading undergraduate textbooks reveals that a majority present comparative advantage using the labor per unit of output approach. One obvious research project would be to compare the effects of pedagogical approach on subsequent student knowledge of comparative advantage. Given that students face at least two sources of information in each course - the textbook and the professor - one would have to control for the approach of each. The widespread existence of standardized tests of economic knowledge (the Test of Understanding in College Economics) could be incorporated to test both short-term and long-term retention of the principle.

Another interesting research project would be to compare attitudes towards free trade, pre- and post-comparative advantage exposure. Again, controlling for the method of approach at the textbook and professor level would be important. Ultimately, if we are successful in teaching comparative advantage, its importance and relevance ought to be reflected in the attitudes of those exposed to its implications.

Though recent developments in international trade theory have attacked the static nature of Ricardian comparative advantage, a clear reading of this literature indicates that the crucial questions involve the conflict between static and dynamic analysis and the role of government intervention in the international trading system. It is not a question of whether or not comparative advantage is relevant. Krugman (1992) makes a strong case for continued use of comparative advantage for its

relative simplicity and for its predictive power. As a fundamental principle of economics, comparative advantage remains as one of the transcendent conclusions of economic logic with wide-ranging ramifications.

Current curricular reform movements call for rethinking traditional teaching methods and an increased awareness of economic knowledge among our populace. The area of international relations and international trade is often cited as one of particular concern for American students. Ignorance of the gains from trade and the concept of comparative advantage does not bode well for us in an era of increasing international economic activity.

As economists, it is important to subject our teaching methods to our cost-benefit criterion, in the attempt to increase pedagogical effectiveness. This paper calls for a specific and progressive order of approach in teaching the principle of comparative advantage, which is designed to increase student comprehension. It incorporates previously developed principles and tools, opportunity costs and the production possibilities curve, as anchors for student learning. It is also designed to allow for the subsequent relaxation of restrictive assumptions while making clear that specialization and trade lead to gains from the societal perspective.

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INTEGRATING FINANCIAL ECONOMICS INTO THE HIGH SCHOOL CURRICULUM

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ABSTRACT

Money, credit, interest rates, and inflation are concepts basic to any financial decision. While high school teachers recognize the importance of financial economics, actual instruction in the area is lacking. The subject matter is considered uninteresting and the teachers may be ill prepared to teach it. The ideas can be presented in a non-threatening manner by incorporating financial economic concepts into a historical and political framework.

This paper presents ideas for integrating these financial concepts into a time period typically short-changed in the high school curriculum, 1890-1915, but which is a fertile time for financial markets. Using Hugh Rockoff's 1990 article "The 'Wizard of Oz' as a Monetary Allegory," the debate over the free coinage of silver, and the creation of the Federal Reserve System, the concepts can be engagingly presented to the students. The lesson stresses critical thinking in an outcome-based format. Materials incorporated are from the National Council on Economic Education, the Federal Reserve System, and the Internet.

INTRODUCTION

The increasing complexity of today's working environment warrants a renewed look at integrating financial economics into the high school curriculum. Introducing students to basic economic ideas and providing the tools to comprehend and analyze the policies and problems of our society are basic to economic sensibility. The interest rate is an important price that confronts every individual who invests or borrows. Activities in financial markets directly affect personal wealth, the behavior of businesses and consumers, and the overall economy. When teachers do incorporate economics into history or government classes, they tend to stay away from topics in financial economics. Likewise, many teachers who teach economics in the high schools are more accurately described as history or government teachers. They do not have the background or inclination to rigorously expose their students to economic concepts. By introducing teachers to how

economic factors and situations affected political and historical decisions, economics can then be introduced to students.

ECONOMIC EDUCATION REQUIREMENTS

While thirty-eight states have guidelines for teaching economics in high school, only sixteen states require that schools offer an economics class and only thirteen states require students take an economics class for graduation (NCEE, 1999). Texas has guidelines for economics and requires students to complete a course for graduation. While this is applaudable, two problems exist. The first is that most schools offer a one-semester economics class where both micro and macro topics are covered. The time limitation hints that the course only provides cursory overviews of ideas (Buckles & Watts, 1998). The second and more important concern is that the teachers may not be adequately trained to teach economics (Walstad, 1992).

In Texas, all new teachers who receive certification in the social studies composite must have at least six hours of economics credit, the two principles courses. However, teachers who entered the profession before the regulation may not have had an economics class. The social studies certification program is being redesigned with two tracks, history and social studies composite. The new history track requires no economics. A concern is that teachers may receive an emergency certification, which allows them to teach economics while completing the course requirements. However, if a teacher instructs just one class outside of her certification fields, the teacher is not required to have had a class in that area. For many teachers, the field is economics.

The National Council on Economic Education (NCEE) constructed voluntary content standards for teaching economics in the primary and secondary schools. The goal of the standards is to guide the teaching of economics and the concepts to which students should be exposed. In 1998, Texas replaced its guidelines for instruction, called the Essential Elements, with revised standards, called the Texas Essential Knowledge and Skills (TEKS). The TEKS are similar to the essential elements but stress outcomes instead of facts for defining successful instruction. The revisions come at a time when Americans are apparently not competent in basic economics. The National Council on Economic Education's *The Standards in Economics Survey* results show that both adults and students fail miserably at the most basic concepts (NCEE, 1999). A section of the survey examining financial economic concepts show that a majority of adults and students have inadequate knowledge on money, interest rates, and inflation. The respondents did not know the basic relationships among interest rates, banks, and household behavior and among inflation and borrowing/lending decisions. The American Savings Education Council's 1999 survey of young people support the result that

students do not know as much as they should on financial matters (ASED, 1999).

FINANCIAL PANICS AND THE GOLD STANDARD: PEDAGOGY

The authors looked for a way to introduce basic financial economic topics to the high school teachers from our region in order to address this shortcoming in knowledge. The teachers admitted spending little time on the subject for two reasons. First, the demands to cover all of the material for the TEKS forced them to reduce coverage of other areas. The time period and subject matter of financial markets and the gold standard was omitted or reduced in coverage by the teachers because they felt uncomfortable teaching it. The authors believed that if the material could be presented to the teachers in an informative and engaging manner with materials already prepared for the teachers' use in the classroom, they would include the material in their curricula.

The time period at the turn of the last century is an exciting time for financial markets. The debate over the gold standard and the free coinage of silver, bank panics, and the establishment of the Federal Reserve are basic to much of economic and political history. U.S. government courses frequently ignore or give only a passing reference to the Federal Reserve System. However, the Fed is an important and active member of our political and economic system. When dealing with subjects that are more difficult, a hook needs to be provided. Hugh Rockoff's 1990 article "The 'Wizard of Oz' as a Monetary Allegory" is a fascinating discussion of this time period. Teachers and students are already familiar with the storyline. Their exposure to the underlying symbolism brings the conflict between farmers and bankers, inflation and deflation, and a gold standard and a bimetallic standard alive. The yellow brick road becomes not only the path to Oz but also the path to basic financial economic concepts. In essence, the application teaches the theory.

The unit can be divided into two parts with a follow-up part on Federal Reserve actions during the Great Depression. The National Council on Economic Education's 1995 publication *United States History: Eyes on the Economy, Volume Two* (EOTE), has a unit on this time period. The unit, which provides the basis for our extensions, includes sections on inflation and deflation, the gold standard, and the Federal Reserve.

Why Is The Yellow Brick Road Yellow?

The first part of the unit centers on the debate over the free coinage of silver. The unit chronology starts with a discussion of what is money and ends with the "Wizard of Oz." The goal of this lesson is for the students to understand the

relationship among inflation, interest rates, debt and prices. First, present the main conflict; farmers wanted to add silver to the money supply to produce inflation, but the bankers did not want this to happen. By starting with the conflict, the audience is aware of and looking for the conflict in the background material.

The background begins with a discussion of what is money and that it is part of every transaction. The circular flow provides a visual illustration of the role of money. The Federal Reserve Bank of Dallas' publication "The Economy Circle" provides overheads and other materials the teachers may find useful. Why we use money naturally extends to a discussion on fiat versus commodity money. Commodity money can be explained via an example of the gold standard. If the teacher has the time, an active lesson with a buyer in the U.S. and a seller in Japan can demonstrate that a rise or a fall in exchange rates sets in motion forces to return the exchange rate to par. More advanced classes can do a mathematical example while divided into groups. Otherwise, the class can follow along with the teacher as she presents an example. The teachers in our region did not feel comfortable teaching the gold standard. We presented a worksheet that provided the methodology for understanding the gold standard (Exhibit 1). The teachers could use the worksheet themselves or expand upon it. The example demonstrates the role money plays in determining the price level.

A historical perspective is the next subject as the teacher presents the economic, historical, and political conditions of the U.S. from the 1870s through the 1890s. The main idea presented is that the increase in the world food supply coupled with a rate of growth of money that was less than the growth rate of output caused deflation. Farmers were especially hard hit for their product prices were falling while their debt payments remained the same in nominal terms. The effects of inflation and deflation on borrowers and lenders are the next ideas. An example demonstrating how inflation helps the borrower and hurts the lender while deflation helps the lender and hurts the borrower presents a basic but valuable lesson in personal finance. The example in the EOTE is too long for some teachers. Instead, we provided a shorter version showing the effects of inflation and deflation on farmers with a fixed amount of debt (Exhibit 2). The main idea is presented faster. We discussed with the teachers how the conflict between borrowers and lenders has always existed. The lesson in the EOTE does not draw out the negatives of persistent inflation. We added this idea at the end of the worksheet to prevent some students from gaining the false impression that inflation is always useful.

The division between creditors and borrowers is tied to the struggle between farmers and bankers in the late nineteenth century. The Populist and Democrat parties, led by William Jennings Bryan, fight the Republican Party and McKinley for the Presidency. To bring the fight alive we presented the gold standard conflict via Hugh Rockoff's article, "The 'Wizard of Oz' as a Monetary Allegory" with its

metaphors (Exhibit 3). In our presentation, we asked questions and then let the story answer them. For instance, some questions were as follows:

- Who or what do the main characters – Dorothy, Toto, Scarecrow, Tin Man and the Cowardly Lion – represent?
- Why is William Jennings Bryan cowardly?
- Why are the witches of the East and West "wickedly" but the witches of the North and South are "good"?
- What would increasing the money supply do to the farmers' ability to pay off their debts?
- Why would the bankers be against this?
- What are some of the symbols for gold? For silver?
- Why is the year 1873 significant?

In our approach we wanted to explicitly use economics as a problem-solving tool. We asked what should be done – add silver to the money supply or not? This led to a lively debate on the pros and cons of inflation. While most wanted to help the farmers, they were hesitant to actively encourage inflation. For an added dimension we included information on how other countries would react to the use of silver in the money supply. We then had the group vote on what should be done. Our suggestion is to have the students, either alone or in groups, write a paragraph explaining what should be done and why.

After the vote taking, what actually happened is next presented. Surprisingly, very few of the teachers actually knew what occurred. In essence, the situation in the U.S. is resolved with an influx of gold causing inflation coupled with a crop failure in Europe that increases demand for U.S. crops. We recommend ending the discussion with the quote from Bryan's autobiography (quoted in Rockoff's article) that demonstrates that the influx of gold and the desire for a bimetallic standard are similar solutions to the farmers' problems.

In order to encourage the teachers to present the lesson to their classes, we provided our own synopsis of the situation and story to the teachers. An *Economics Minute* example is an additional resource on the topic (MacDonald, 1999).

How Can A Bank Panic?

Lesson three of the unit in EOTE presents the establishment of the Federal Reserve. The discussion can be tailored to either the historical or political aspects. Government classes may find this section particularly useful because the Federal Reserve System is created out of the desire to end financial panics. The decentralized nature of the system refers back to a basic tenet of American government. Because fiscal policy is usually discussed more than monetary policy,

this lesson provides an introduction to the institution that conducts monetary policy. The teachers admitted to spending only a little time on the Federal Reserve. Partly, the methodology behind bank panics worried some teachers. This concern is what we wanted to address.

The goal of this lesson is for students to understand why bank panics are detrimental to the economy and why the Federal Reserve System was created. Bank panics may have already been mentioned from the gold standard lesson. Now they are explicitly defined. We presented a simple flow diagram to show how a panic spreads through an economy. The teachers welcomed the explicit nature of the diagram.

As the panic begins $ savings decline $ deposits decline $ loans decline $ investment declines $ production declines $ jobs decline $ income declines $ further decline in consumption and savings $ some banks start to have trouble $ call in loans $ confidence in the economy and banks begin to decrease $ people pull money out of some banks, even good banks $ further decline in savings $ smaller banks pull their money out of larger banks $ cash flow problems widen for businesses and banks $ banks call in more loans or sell stocks $ not all loans can be repaid immediately $ stock prices decline for no one is buying $ further decline in confidence $ bank panic deepens and widens.

To further show why bank panics are so important, we prepared a table (Exhibit 4) showing the number of bank suspensions from that time period (U.S. Census Bureau, 1975). The numbers clearly show that the number of banks having difficulty increases around the panic years of 1893 and 1907.

Lesson three in the EOTE covers the Panic of 1907. We presented the background and the methodology of the panic by giving each person an occupation with the goal to survive the panic. As the panic spread from one group to the next group, it became clear to them how a panic is contagious. Next, we asked the question, "What should be done to stop the panic?" The audience understood that people must stop withdrawing their money from the banks and start spending again or that there must be additional money available to the banks to compensate for the panic. In our mock town of business people we created, not one person was willing to not withdraw his/her money.

The actions of J.P. Morgan and his group of bankers in providing liquidity into the marketplace are presented as the solution to the panic. This naturally leads into a discussion on the role of government in preventing bank panics. The creation

of the Federal Reserve System in 1913 as an institution to stop bank panics and provide confidence and liquidity to the marketplace is the next topic. The main aspects of the Federal Reserve including its structure and decentralized nature are introduced. If it hasn't already been discussed, the role of banks in financial intermediation in the economy, specifically, how it aids growth and adds efficiency should be included. The Federal Reserves' role of lender of last resort is also presented. An addition to the discussion should be the importance of confidence in the central bank and the banking system as it relates to a smooth functioning market. This presents the Federal Reserve as a political entity to the students. For those classes with more advanced students, an example of the fractionally backed reserve system demonstrates how banks create money. An examination of the Quantity Theory of Money cements the relationship between money and prices. An additional resource is "The Key to the Gold Vault," which discusses the gold storage at the New York Federal Reserve (New York Bank, 1998).

The Federal Reserve system has wonderful Internet sites, which allow for active participation as the students surf the sites. We recommend a scavenger hunt over the Federal Reserve sites where answers to certain questions can be found at the sites. The students are divided into teams and surf to find the answers. The exercise can also be constructed as a race or as a competition to find the most right answers. We provided an introductory list of questions and where the answers can be found to assist the teachers in getting started (Exhibit 5). In order to facilitate the hunt, we recommend using the map of the Federal Reserve districts as the starting point (http//www.bogfrb.fed.us/otherfrb.htm).

Why Is The Depression Great?

Unit seven in EOTE is about the Great Depression. It is very light on the Federal Reserve. The hook for this section is the question: "If the Federal Reserve's job is to act as lender of last resort, why didn't it?" Our material was culled from Frederic Miskin's *The Economics of Money, Banking, and Financial Markets*, 5th edition. The goal of this unit is to recognize that the Federal Reserve is imperfect and a political not just an economic institution. The EOTE has a list of the number of banks closing during the Great Depression. The three main reasons for the poor job done by the Federal Reserve are presented. First, small and rural banks went bankrupt first. This was initially viewed positively by the larger banks for their competition was decreasing. Also, the first set of bank failures was concentrated among banks with bad banking practices. The Federal Reserve considered these failures to be warranted. Finally, there was infighting among the members of the Federal Reserve Board. Other members resented the power of the New York Federal Reserve Bank. While the New York Bank wanted to provide money to the

smaller banks, it was outvoted. This political component of the Fed is missing from the EOTE lesson.

Additional topics include the Federal Deposit Insurance Corporation, which was established in 1933 to provide federal insurance on bank deposits and provide confidence in the banking system. A movie tie-in is Jimmy Stewart's *It's a Wonderful Life*, which shows the human side of a bank panic. Two other publications that can be used in the discussion of the bank panics are "Panic of 1907" and "Closed for the Holiday: The Bank Holiday of 1933" both published by the Federal Reserve Bank of Boston.

After the discussion on the Federal Reserves' actions during the Great Depression, we presented its actions after the stock market crash in 1987. The different response by the Fed and the following stock market rally cemented the importance of the Federal Reserve's job as lender of last resort. The inclusion of the Federal Reserve in the discussion of the Great Depression reinforces the information on the Federal Reserve. The criticisms of the Fed during this time demonstrate to the students that institutions are not always able or willing to solve the problems of the economy. The political dimensions of the Fed's actions illuminate how politics can affect the behavior of institutions.

CONCLUSION

By taking a little discussed time period of American history and introducing the conflicts over the gold standard, inflation and deflation, bank panics and the Federal Reserve, the basics of financial economics can be examined. Students are exposed to the role of money and banks in the economy, prices and inflation/deflation, and lenders versus borrowers. The insertion of lenders and borrowers exposes students to a basic idea of personal finance. Adding economics into history and politics allows the teachers to incorporate ideas in a manner that is non-threatening both to themselves and to the students. The goal of outcome-based education is addressed because the students first are introduced to a historical situation and the players, then given the economic background to analyze the situation and try to reach a solution, and finally, the actual policies or occurrences are presented. The students are able to evaluate the historical and political choices based on economic conditions in the appropriate time period. We have tried to include active learning ideas whenever possible. To assist the teachers, we developed worksheets and provided tables to facilitate the lessons.

If students are introduced to ideas of financial economics in high school, they may be better equipped to make financial decisions after they graduate. By formulating the discussions on inflation, interest rates, the gold standard and the Federal Reserve in the context of the Wizard of Oz and the presidential elections of 1896 and 1900, the ideas are not only grounded in their historical place but also

appear logical and are more easily understood. The unit integrates economics, history, politics, mathematics, and literature. The role of inflation with debtors and creditors is shown to be a classic battle that existed then and now. By presenting the free silver discussion and the formation of the Federal Reserve as potential solutions to then current economic situations, the students are introduced to economics as a means to solve problems. This is a crucial step to critical thinking and economic sensibility.

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Exhibit 1: The Gold Standard and Prices

1. The current exchange rate between Japan and the United States is: one dollar is worth one hundred and twenty yen. Each dollar can also be exchanged for one ounce of gold. One hundred and twenty yen can also be exchanged for one ounce of gold. This is called a _____.

2. If you wanted to buy a new CD player from Sony, a Japanese company, that costs 11,400 yen, how much would it cost you in dollars? _____.

3. Suppose that the yen appreciates (increases in value) so that one dollar is now only worth 110 yen. The CD player is still the same price in yen. How much will it cost you to buy the CD player in dollars? _____.

4. If you exchange dollars for yen at the new exchange rate and buy the CD player, you pay $_____ or Yen _____ for the CD player. Does Sony receive more Yen for the CD player?_____.

5. Instead of exchanging dollars directly for yen, what could you do? _____ _____.

6. If you exchanged $95 for gold in the United States, how many ounces of gold would you have? _____. If you exchanged the gold in Japan for yen, how many yen would you receive?_____. Can you buy the CD player?_____.

7. If many people exchange dollars for gold, send the gold to Japan, exchange the gold for yen, what happens to the supply of gold in the Unites States? _____ And in Japan? _____.

8. An increase in gold reserves _____ the money supply. A decrease in gold reserves _____ the money supply.

9. An increase in the money supply _____ the price level in the country. A decrease in the money supply _____ the price level in the country.

10. For the example above, the price level in the United States _____, while the price level in Japan _____. A yen _____ in value versus a dollar. This forces the exchange rate to revert back to 120 yen for $1.

Exhibit 2: The Effects of Deflation and Inflation on the Value of Debt

1. A farmer produces 100 bushels of grain per acre on his farm. The price per bushel is $0.50. What is his income per acre? _____

2. The farmer has debt on the land of $10 per acre. His cost of living is $40 per acre. Can he cover is bills?_____ His bank account shows a change of $_____ .

3. Deflation occurs and prices fall by 20%. The price per bushel of grain is now $ _____. The farmer's income is $_____. The farmer's cost of living is now $_____ per acre. The cost of debt for the farmer is $_____ per acre. The farmer's total expenses are $_____ per acre.

4. Can the farmer cover his bills?_____. His bank account shows a change of $_____.

5. If instead of deflation, inflation occurs and prices rise by 15%. The price per bushel of grain is now $_____. The farmer's income is $_____ per acre. The farmer's cost of living is now $_____ per acre. The cost of debt for the farmer is $_____ per acre. The farmer's total expenses are $_____ per acre.

6. Can the farmer cover his bills?_____. His bank account shows a change of $_____.

7. Did inflation or deflation help the farmer the short-run?_____.

8. How much did the banker receive as a debt payment under each scenario? _____. Under which scenario was the money that the banker received worth the most?_____.

9. Why does an economy not want inflation to be too high or last too long? _____ _____.

10. Why does an economy not want deflation to be too great or last too long? _____ _____.

Exhibit 3: Main Symbolism of "The Wizard of Oz"	
Symbol	Meaning
Dorothy	America
Toto	Prohibition Party
Kansas	Western State and site of 1900 Democratic convention
Cyclone	Free silver movement
Oz	Gold, symbol for an ounce
Scarecrow	Western Farmer
Tin Woodsman	Unemployed Working Man
Cowardly Lion	William Jennings Bryan
Yellow Brick Road	Gold
Emerald City	Washington, D.C.
Silver Shoes	Silver
Wicked Witch of the East	Bankers of the East and Grover Cleveland
Good Witch of the North	Region where Bryan's running mate hailed
Emerald Palace	The White House
Green-Colored Glasses	View the world through money interests
Seven Passages and Three Flights of Stairs	The Crime of 1873, the legislation that eliminated the coinage of silver
Wizard	Marcus Alonzo Hanna, chairman of the Republican Party
Wicked Witch of the West	William McKinley
Water/Rain	Inflation
Good Witch of the South	Region of the country sympathetic to the free silver movement
Dorothy's shoes are gone when she awakens back in Kansas	Influx of gold in the late 1890s and crop failures in Europe ended the free silver movement
Source: Rockoff, 1990	

Exhibit 4: Year and Number of Bank Suspensions					
Year	# of Banks	Year	# of Banks	Year	# of Banks
1909	79	1901	69	1893	496
1908	155	1900	36	1892	83
1907	91	1899	36	1891	62
1906	53	1898	67	1890	37
1905	80	1897	145	1889	18
1904	128	1896	155	1888	33
1903	52	1895	124	1887	25
1902	54	1894	89	1886	20
Source: U.S. Bureau of the Census, 1975					

Exhibit 5: Scavenger Hunt on the Internet	
Question	Internet site
Which Federal Reserve District has the largest geographic area?	Main map page
In which Federal Reserve District are we located?	Main map page
In which state are two Federal Reserve Banks located?	Main map page
How many members are on the Board of Governors?	Board of Governors
Who is Chairman of the Federal Reserve System? What year did he start this job?	Board of Governors
Which district Federal Reserve Bank president always sits on the Federal Open Market Committee?	Board of Governors
How far underground is the gold stored?	New York – general publications
If you bought an item in 1952 that cost $1.00. How much would the item cost in 1999?	Minneapolis
What has trading done to our money over time?	Atlanta – monetary museum
What are the three C's of credit?	Chicago – educator page
Who benefits and who is hurt from a strong dollar?	Chicago – educator page
Which colony issued the first paper money in the U.S.?	San Francisco – American currency exhibit
How can one detect counterfeit money?	Secret Service – know your money
Why does Abraham Lincoln face right on the penny while all other portraits of U.S. Presidents on coins face left?	U.S. Mint – fun facts about the U.S. Mint

ACTIVE LEARNING AND THE ADVANCED PLACEMENT ECONOMICS PROGRAM

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ABSTRACT

Active learning is a new concept to many academic economists. The significant accomplishments in this area by the National Council on Economic Education and the College Board will be documented, and the Advanced Placement Economics Program of the College Board will be described.

INTRODUCTION

The most unique aspects of the high school economics classroom are the common sense acceptability of basic economics principles and the lack of economics training of most high school teachers. These aspects have led to the development of "Active Learning"; exciting hands-on teaching strategies that are almost self-teaching and fit well into all social studies subject areas.

These techniques are being increasingly used and accepted in the college classroom (Johnson, 1998a; Johnson, 1998b). Recent research advances in economics education using active learning will be reviewed, and areas for further research will be explored.

CLASSROOM STRATEGIES USING ACTIVE LEARNING

Active or Cooperative Learning is a set of teaching techniques that has been shown to improve classroom instruction. Measures of its effectiveness include increased retention of facts, increased ability to process information, greater student enthusiasm and participation, and overall increased excitement about learning. The literature of the past decade includes numerous examples of success achieved through Active Learning and few contraexamples (Bergstrom & Miller, 1997; Johnson, Johnson & Smith, 1998a; Silberman, 1996).

This paper will review the key elements of informal active learning. Examples of these techniques that can be used in the typical economics class will be discussed and demonstrated. The Advanced Placement Economics program of

the College Board will be discussed to show how active learning techniques can be integrated into the principles of economics course at the college or high school levels.

The key to active or cooperative learning is that the students take an active role in their learning. The basis of active learning is research showing that students learn more and better if they not only hear facts but apply them. They need to take new knowledge and use it to solve a problem or gather new facts. This important step reinforces learning and verifies that the knowledge has been effectively transferred. These techniques help keep the students' attention and reduce the chance that failure to understand one concept will interfere with the learning of the next point. These techniques also deputize all students in the class to reinforce the learning of their fellow students. The traditional lecture is interrupted briefly every 10-15 minutes to perform an informal active learning exercise (Johnson et el., 1998a).

Learning Objectives

A key feature of successful active learning is that the learning objectives are clearly stated and understood by the students. The objectives are stated in terms of what the student should be able to do at the completion of the lesson. The student always will know exactly what he or she will be expected to do at the end of the class to demonstrate competence.

Buy In

Students must accept or "buy in" to the learning objectives. They must agree that everyone needs to meet the learning objectives.

Clear Directions

The teacher must give very clear directions and the task must be understood and usually demonstrated. The teacher will observe progress and make corrections or suggestions to keep students progressing toward a successful conclusion.

Heterogeneous Groups

Students work in small groups to provide feedback to each other and to assist each other. It is best to avoid including in a group close friends who might exclude others. It is best to avoid concentrations by race, gender, major or other easily identifiable characteristic. Random numbering often is used to form groups. This strategy increases the chance that groups will keep to the assigned subject and

include all members in their activity. A group size of three or four often works best, depending on the situation.

Equal Opportunity

Each student must feel an equal chance for successful learning of the assigned objectives. In general the lesson continues until all members of the group have demonstrated successful completion of the learning objectives.

Positive Interdependence

Tasks are structured so that the success of each student is dependent upon the success of each other student in the group. A lagging student must be coached by the others. Each student becomes a teacher.

Face-to-face Interaction

In an ideal situation, students sit facing each other to facilitate brief, quiet discussions. The teacher will often stop and ask groups to discuss an issue or form a group answer to a question. Face-to-face interaction breaks up the monotony of a lecture and requires students to demonstrate understanding before moving on to the next issue.

Social Interaction

Effective groups will cause students to go beyond the skill of collecting facts and processing information. They also will learn and practice the social skills of leadership, trust-building, conflict management, constructive criticism, compromise, negotiation, and clarifying.

Individual Accountability

The advantage of effective active learning is that students will learn more than they would in a traditional lecture setting. To achieve this result, each student must be tested and evaluated individually to avoid a free rider problem (attendance without learning). Students must know that they will be tested and graded individually, and each group member is expected to vouch for the competency of the others.

Recognition of Success

Groups are recognized as successful only when they fully demonstrate competency in the stated learning objectives. Groups are never afforded recognition as successful unless the standard is met.

Debriefing

After completion of the learning objectives, groups should discuss the process. They would typically discuss what they learned, how well they worked together, how well they helped each other, and what they might do differently in the future to enhance success.

AN ACTIVE LEARNING EXERCISE

The best way to initiate students or faulty into the active learning world is to perform a brief exercise. A figure of a rectangle provides an opportunity. To perform this and most other informal active learning techniques, students are placed in small groups of three or four.

The figure, as shown to the students, reveals a rectangle subdivided by two vertical lines and two horizontal lines, forming nine boxes. The instructor presents the figure and gives instructions. The instructions are for each group to determine how many rectangles are in the figure. First, each member should determine the answer, and then each member should present his or her solution to the group. The group must agree on the correct answer. More importantly each member must verify that the other members can explain the correct solution. This requirement means that each of the members must successfully present the correct solution to the others.

In the process of completing this task, each student not only learns the material but processes the information and formulates an acceptable explanation of it. This learning is more effective and longer lasting than could be achieved by a simple lecture on the subject. When these techniques are applied to an economics concept, such as elasticity of demand, students must thoroughly understand the concept to be able to complete the exercise to the satisfaction of their group members. The instructor monitors the group work in process and then verifies the learning by individual oral or written testing.

THE PRINCIPLES OF ECONOMICS COURSE

Principles of economics is a course offered at virtually every university and now in many high schools. It has traditionally been taught as a lecture course,

sometimes in large classes. This fact may explain the low or declining popularity of the economics major and the rarity with which the course is taken as an elective. Active learning techniques can enliven the course and restore economics to the level of excitement that we economists know it deserves (Walstad, 1998).

THE ADVANCED PLACEMENT (AP) PROGRAM

The AP program of the College Board and the National Council on Economic Education offers an excellent example of what can be on accomplished using active learning techniques in the economics course. The College Board introduced the AP tests in Microeconomics and Macroeconomics in 1985. High schools could offer their students a more rigorous (sometimes honors) course in economics to prepare them for the two 120 minute exams offered by the College Board. The tests are graded on a scale of 5 (highest) to 1, and many universities give academic credit for a grade of three or higher. The tests include multiple choice questions, two short essays and one long essay. The National Council on Economic Education (Morton, 1996a; Morton, 1996b) has published excellent teaching materials to provide instructors active learning exercises and teaching suggestions at every step of the course.

In 1995, the AP test was revised, and the National Council materials were amended to add more activities and sample questions. These revisions were planned in response to the areas of weakness revealed in previous AP test results, such as graphing and long essay composition. The National Council materials are designed to complement a text rather than substitute for a text. They are keyed to three of the major economics texts: McConnell and Brue (1999), Bergstrom and Miller (1997) , and Baumol and Blinder. In addition to providing excellent activities to reinforce virtually each economics concept, Morton suggests a detailed teaching outline for the microeconomics and macroeconomics course and additional suggestions.

TEACHING ECONOMICS USING ACTIVE LEARNING

One of the more basic ideas taught in economics is how an economy is organized to solve its basic economic problems; a traditional, command or market system. Morton (1996a) in his Unit 1, Lesson 3, provides an excellent example of the active learning technique. In this lesson, the instructor spends two and a half class periods covering 17 specific steps that include short lectures and four well designed activities to be completed by small groups. The Student Activity Workbooks contain the student instructions and the activities (Morton, 1996a), the Teacher Resource Manual (Morton, 1996b) contains the teacher instructions and the solutions to the activities.

Campus Parking

Activity 7 is this lesson provides a good exercise for students who have just learned about traditional, command and market systems, and who know some basic economics concepts, such as scarcity and efficiency. In this activity, small groups agree on answers to five questions. They respond to a situation provided concerning a shortage of campus parking, and they devise a method to solve the problem using the principles of a traditional, command and market system to verify their understanding. They evaluate each solution in terms of efficiency and equity. Most important they decide on which solution to recommend (and why). Successful completion of these tasks promotes learning because the students not only hear the concepts, but they must be able to explain them to others and to use the concepts to reach conclusions and compare alternatives. These activities keep the students engaged, provide continuous feedback and reinforcement, and show the students that economic concepts are central to real world situations. For many students the traditional lecture has failed to do those things, and active learning offers the solution.

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"WHERE'S THE BEEF?" ECONOMICS, THE MAIN COURSE, IS MISSING FROM THE NEW TEXAS CORE CURRICULUM

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ABSTRACT

In 1998, the Texas Higher Education Coordinating Board mandated a 42 semester hour Core Curriculum for all institutions of higher learning. An economics course was not mentioned as either a specific course or as an optional course. Yet, Macroeconomics Principles meets all the criteria the Board established for core course selection: (a) that the course develop intellectual skills, and (b) that it be taught in a manner so as to develop students' perspectives and interest in learning. For the past five years, Macroeconomics Principles has been taught as a Core course at Texas A&M University-Corpus Christi. Data reveal that the Macroeconomics Principles course is as important as any other course in the Core curriculum. It is uniquely significant in enhancing the mathematical and critical thinking skill areas, and students perceive that the course contributes to their knowledge and perspectives of the world.

INTRODUCTION

In 1998, the Texas Higher Education Coordinating Board (THECB) mandated that each general academic institution and community/technical college in Texas design and implement a core curriculum with the "Texas Common Course Numbering System," with no fewer than 42 lower division semester credit hours. Beginning in Fall 1998, THECB Rule 5,402 also provided that core curriculum would be transferable among institutions:

> If a student successfully completes the 42 semester hour credit core, curriculum at an institution of higher education, that block of courses may be transferred to any other institution of higher education and must be substituted for the receiving institution's core curriculum. (THECB Rules, 1999, 5402(d), http)

Early in 1998, THECB Advisory Committee on Core Curriculum set out several guidelines for the development of a state core curriculum. Among them were:

1. To mandate no fewer than 42 semester credit hours.

2. To include intellectual skill development across the core curriculum.

   Basic intellectual competencies would include:

   Reading - ability to analyze and interpret a variety of printed material.

   Writing - produce clear, correct, and coherent prose adapted to purpose, occasion and audience.

   Speaking - communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion and audience.

   Listening - be able to analyze and interpret various forms of spoken communication.

   Critical thinking and problem sloving - ability to organize and analyze ideas and information - including written texts, visual representations, artifacts, and experimental and statistical materials - using logical methods. Applying both qualitative and quantitative skills analytically and creatively to appropriate subject matter in order to evaluate arguments and to construct alternative strategies. Problem solving is application of critical thinking to address an identified task.

   Computer Literacy - ability to use computer-based technology in communication, solving problems, and acquiring information.

3. To provide perspectives on human experiences derived from specific courses. The core should contain courses that establish multiple perspectives on the individual and the world in which he or she lives and

> that stimulate a capacity to discuss and reflect upon individual, political and social aspects of life to understand ways in which to exercise responsible citizenship; recognize the importance of maintaining health and wellness; develop a capacity to use the knowledge of how technology and science affect their lives; develop personal values and the ability to make aesthetic judgements; use logical reasoning in problem solving; and integrate knowledge and understand the interrelationships of the discipline.

4. To modify teaching methods:

> Since the objective of disciplinary studies within a core curriculum is to foster perspectives as well as to inform and deliver content, the way subject is taught is an important as the subject matter itself. Disciplinary courses with a core curriculum should include outcomes focused on the intellectual core competencies as well as outcomes related to establishing perspectives - basic concepts in the discipline methods of analysis and interpretation specific to the discipline (Working Document, THECB Advisory Committee, 1998, 2-5, http).

Based on these guidelines the State Core Committee chose five component areas of 36 hours, with six additional hours to be added at the discretion of the individual institution. In four of the component areas, specific course were either mandated (e.g.), Communication included English/rhetoric/composition, and Social and Behavior Sciences included U.S. History and political science, or options were given as in the areas of Mathematics where logic, college level algebra equivalent, or above, and Humanities and Visual and Performing Arts where literature,

philosophy, modern or classical language/literature and cultural studies were specified (THECB Rules, 1999, Chart 1, http).

The Texas Core Curriculum did not emphasize or suggest in any way that a course in economic principles be included. This omission is regrettable. If other states look to the Texas Core as a model they, too, may ignore economics principles as a core-specific course. Yet, experience after five years of teaching Macroeconomics Principles as a core-specific course at TAMU-CC suggested that such a course had addressed well all six intellectual skills that were important for the state core curriculum. In addition, students at TAMU-CC perceived that Macroeconomics Principles had helped them develop perspectives on urbanization, societal changes, political changes, economic changes and interconnection of urbanization, society, economics and the natural environment. They also indicated that the Macroeconomics Principles course had helped them to develop learning communities that would be helpful in the remainder of their university experience.

ECONOMICS AS A CORE COURSE

Macroeconomics Principles became a course in the University Core of Texas A&M University-Corpus Christi (TAMU-CC) when the University changed from a two-year, upper-level institution to a four year comprehensive university in Fall 1994. Expansion of the University provided a feasible opportunity to make distinctive curriculum changes that would set the University apart from those with traditional programs. One of the most convincing arguments to the Faculty Core Curriculum Committee for inclusion of Macroeconomics Principles as a core-specific course was that it could enhance all fundamental intellectual skills such as reading, writing, mathematics, speaking, listening, and critical thinking, a goal they had set for the core curriculum as a whole. The second convincing argument to the committee was that Macroeconomics Principles could depart successfully from traditional pedagogy of lecturing and instead create a classroom environment for active learners (TAMU-CC Core Course Selection, 1993).

Macroeconomics Principles, as a core-specific course, was changed dramatically. First of all, it was taught by experienced professors who were interested in serving student needs rather than by less experienced faculty or graduate students, as is often the case for teaching a general education course in larger universities. Second, the number of students per class was limited to no more than 60 so that classroom environment could be conducive to interactive learning. Third, in an attempt to motivate young students, the teaching style emphasized linking course content to the students' world. Finally, intellectual skills development was stressed early in the course and applied to learning economic principles. As a result of these changes the classroom was much more interactive.

The following is a sample list of activities and strategies used in teaching the Core economics course, with skills that each emphasized in parenthesis. Each activity broadened students' perspectives:

1. Connecting students to economics by first looking at the local economy and then linking to the national and world economy (reading, writing, listening, mathematical).
2. Increasing economic knowledge as well as written and oral skills by selecting for group discussion and reports controversial topics such as welfare reform, increasing minimum wage, farm subsidies, trade policies with Japan and China, and so forth (reading, writing, speaking, listening, critical thinking).
3. Developing interactive skills by assigning students to teams to research controversial topics and local business decisions (e.g.), competing teams in class analyzed possible cost-benefits of a decision made by a large South Texas food chain to develop a convenience store with fuel pumps on a corner of its parking lot (speaking, listening, mathematical, critical thinking).
4. Having students locate the census tract of their residence and interview a business in the same census track to familiarize students with their immediate neighborhood (writing, speaking, listening, mathematical critical thinking).
5. Using the Internet to locate government sources of information from which to write a brief report on current economic conditions (computer literacy, reading, writing, mathematical critical thinking).
6. Using marginal analysis to show the importance of time in determining future value as a way to encourage students to plan for financial independence (mathematical, critical thinking).
7. Communicating continually with students through various forms of fast-feedback methods (reading, speaking, writing, critical thinking)
8. Providing opportunity for extra credit through various activities such as optional credit class quizzes, writing essays on economics topics of student choosing, interviewing business owners and making oral reports to class, registering with the Placement Center, and filing resume electronically (reading, writing, speaking, computer literacy (McMinn, DSI Proceedings, 1998, 15).

EVALUATION RESULTS

Students in each section of core curriculum courses during the fall and spring semesters complete a standard course evaluation. Data from Fall 1994 through Fall 1997 has been analyzed and are shown in the following three tables. Overall mean data of each evaluation item for Overall Core courses was compared to mean data for sections of Macroeconomics Principles. The mean ranged from 5 for "strongly agree" to 1 for "strongly disagree." Table 1 shows evaluation results of intellectual skills.

Table 1
Texas A&M University-Corpus Christi
Core Curriculum Courses
Evaluation of Intellectual Skills
Fall 1994-Fall 1997

Evaluation Skill	Overall Core	Macroeconomics	Percent Difference
Reading	3.46	3.55	2.7%
Writing	3.63	3.44	-5.3%
Listening	3.73	3.92	4.9%
Speaking	3.30	3.21	-2.8%
Mathematical	2.38	3.56	49.4%
Critical Thinking	3.71	3.94	6.2%

For Overall Core courses students agreed that core courses they had taken so far had, with the exception of mathematics, significantly enhanced the six intellectual skills. Unlike the data for the Overall Core, the data representing the mean for Macroeconomics Principles sections reflected significant enhancement of all six of the intellectual skills. The weakest skill in Overall Core courses, mathematics, was one of the highest averages in the macroeconomics course.

A goal of the Faculty Core Curriculum Committee was to make core courses a relevant learning experience for students that would be related to some major concerns of modern society. It was decided that a university theme of "Toward the Urban Environment" would be appropriate for meeting this objective. In Table 2 five evaluation items addressed these core curriculum perspective.

Table 2
Texas A&M University-Corpus Christi
Core Curriculum Courses
Connecting Urbanization, Society, Economics, and the Environment
Fall 1994-Fall 1997

CONNECTORS	Overall Core	Macroeconomics	Percent Difference
On the environment, helped me to understand the effect of:			
Changes in society	3.51	3.75	6.8%
Political changes	3.41	3.87	13.4%
Economic changes	3.38	4.41	30.5%
Helped me connect urbanization, society, economics, and the environment	3.39	4.00	18.1%
Helped me understand the process of urbanization	3.30	3.46	4.80%

Overall students agreed that Core courses helped them to understand the process of urbanization and the effect changes in society had on the environment. In the evaluation of Macroeconomics Principles, each mean for Macroeconomics was higher than for the Overall Core courses and highest in evaluation items relating to economic impact.

Core course evaluations included four relevant questions relating to the way students perceived the development of learning communities. Evaluation results are summarized in Table 3.

Data showed that students perceived Overall Core courses would help them in other courses they expected to take in the Core and throughout their university experience. They perceived as well, that macroeconomics would provide a valuable learning experience. It was hoped that these positive experiences would connect the student closer to the university. This goal seems to have been confirmed by the fact that TAMU-CC has a high retention rate of its freshmen. The latest retention data available from THECB reports that TAMU-CC ranks 13th of 35 Texas universities. However, when only the Master Degree granting institutions are considered, TAMU-CC ranks fifth and second among the border institutions, located in South Texas (THECB Retention, 1998).

Table 3
Texas A&M University-Corpus Christi
Core Curriculum Courses
Development of Learning Communities
Fall 1994-Fall 1997

Connection to:	Overall Core	Macroeconomics	Percent Difference
Understand other courses	3.49	3.60	3.1%
Experience helpful in rest of Core	3.65	3.85	5.6%
Experience useful in rest of college	3.72	3.99	7.3%
Enhanced my ability to work in groups	3.55	3.47	-2.4%

To summarize, data in Tables 1-3 suggested that Macroeconomic Principles had made a positive contribution to the University Core Curriculum. Without the macroeconomics course, evaluation results of the Overall Core curriculum would not have been nearly as positive.

Other semester surveys were taken to determine how students regarded economics. Both Macroeconomics and Microeconomics Principles students were asked two question in these semester surveys that were first asked by Saunders (Saunders, 1980, 1-13). "How important do you think a general understanding of economics is in today's world?" and "Do you feel that all students should be required to take an economics course in college?" Responses to these two questions for 1997 and 1998 are presented in Table 4. Responses for earlier years are similar (McMinn, SAM Special Reports, 1998, No 1, 2).

It is obvious from the responses reported in Table 4 that university students who have taken at least one course in economics considered the course important and that all university students should be required to take it. The same response came from Microeconomics Principles students who were taking at least their second course in economics. They still continued to consider economics an important course should be required of all students.

Table 4
Texas A&M University-Corpus Christi
Importance of Economics as a Required Course for all Students
Fall 1994-Fall 1997

	1997		1998	
	Macro	Micro	Macro	Micro
"How important do you think a general understanding of economics is in today's world?"				
Very important or important	76%	87%	78%	85%
Fairly important	21%	11%	18%	14%
Unimportant or very unimportant	4%	2%	5%	1%
"Do you feel that all students should be required to take an economics course in college?"				
Strongly agree or agree	81%	85%	74%	89%
Undecided	12%	11%	13%	6%
Disagree or strongly disagree	6%	3%	13%	4%

CONCLUSIONS

Several conclusions can be drawn from having experienced Macroeconomics Principles as a Core course at Texas A&M University-Corpus Christi:

- Macroeconomics Principles can be taught in a way that develops and enhances all intellectual skills and strengthens students' perceptions of self and world.
- Students at TAMU-CC perceived macroeconomics to be valuable as a Core course.
- TAMU-CC students perceived macroeconomics to be an important course that should be required of all university students.

- Macroeconomics Principles meets all the objectives and guidelines set by the Texas Higher Education Coordinating Board.
- The Texas Higher Education Coordinating Board Core Curriculum would have been strengthened if a course in economics principles had been required.

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THE EFFECTIVENESS OF VIRTUAL LEARNING IN ECONOMICS

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ABSTRACT

This paper presents empirical results concerning the effectiveness of Internet instruction in economics. The sample consists of MBA students enrolled in either a campus or Internet-based macroeconomic theory courses at a regional university. Holding constant ability, effort, and demographic considerations, students enrolled in the Internet course scored over nine percent lower on the final exam. The results provide evidence supporting the inferior quality criticism of Internet-based learning. The results are tempered by the observation that Internet education is still in its infancy stage.

INTRODUCTION

The Internet and the World Wide Web (WWW) have become pervasive in the academic realm, particularly in the coursework required to achieve success in higher education. The Internet has been extended far beyond its original scope as a highly specialized scientific communications network for the defense establishment and major research universities possessing high capacity computers (Strong & Harmon, 1997). Distance and independent education available on the Internet are the current buzz-words of higher education, and the hottest topic on many campuses is the "Virtual University." Colleges all over the country are targeting the geographically, professionally, and personally constrained for the time flexibility of online courses. Despite the growth of online courses, skeptics question whether the Internet instruction mode can offer the same quality of education that students receive in traditional classroom courses. Supporters of online instruction counter with evidence that distance learners retain information better than students in the traditional classroom setting. The purpose of this paper is to assess the effectiveness of online instruction in economics by comparing student performance in the virtual versus traditional classroom. The results are based on an MBA course in macroeconomic theory at a regional college, West Texas A&M University.

BACKGROUND

In many ways West Texas A&M University (WT) is typical of most regional colleges. It is the primary source of university education, research, and service for the Texas Panhandle and adjacent regions of neighboring states. Annual student enrollment is approximately 6,500. The low population density of the Texas Panhandle region makes WT an ideal school for Internet instruction. For this reason, WT has been encouraged to act as a pioneer school in Internet instruction for the Texas A&M System. The College of Business at WT is a member of and accredited by the Association of Collegiate Business Schools and Programs. In 1997 the College of Business initiated an Internet-based option in the MBA program. All essential courses related to the 36-60 (depending on individual leveling requirements) credit hour MBA degree are offered at least once on the Internet and twice on campus within a three-year period. To date, fourteen different graduate business courses have been offered on the Internet.

The specific focus of this study is the MBA course in macroeconomic theory. The macroeconomic theory course was offered twice on campus and once on the Internet during the 1998-1999 academic year. Each course had an enrollment of over twenty students. The author was the instructor in all three courses and every effort was made to provide consistent methods, procedures, and material in both the traditional and Internet instruction formats. Learning materials including textbook information, detailed lecture notes, and supporting articles were distributed in class or posted on the course Internet site, depending on instruction mode. The traditional lecture and professor interaction is countered in the Internet course by e-mail, bulletin boards, and chat forums (Manning, 1996; Porter, 1997). Half the student grade is determined by homework assignments and the other half of the grade is determined by a final exam. Both campus and Internet students are required to take the final exam on campus, the only campus visit required of Internet students.

MODEL AND DATA

Davisson and Bonello (1976) propose an empirical research taxonomy in which they specify the categories of inputs for the production function of learning economics. These categories are human capital (admission exam score, GPA), utilization rate (study time), and technology (lectures, classroom demonstrations). Using this taxonomy, Becker (1983) demonstrates that a simple production function can be generated which may be reduced to an estimable equation. While his model is somewhat simplistic, it has the advantage of being both parsimonious and testable. A number of problems that may arise in this type of work (Chizmar & Spencer, 1980; Becker, 1983). Among these are errors in measurement and multicollinearity associated with demographic data.

Despite these potential problems, there must be some starting point for empirical research into the process by which economics is learned if we are to access various proposals as to how economics knowledge may best be imparted to our students. Assume that the production function of learning for economics at the college level can be represented by a production function of the form:

$$(1)\ Y_i = f(A_i, E_i, D_i, X_i),$$

where Y measures the degree to which a student learns economics, A is information about the student's native ability, E is information about the student's effort, D is a [0, 1] dummy variable indicating demonstration method or mode, and X is a vector of demographic information.

As noted above, this can be reduced to an estimable equation. The specific model used in this study is presented as follows:

$$(2)\ SCORE_i = B_0 + B_1 ABILITY_i + B_2 HW_i + B_3 NET_i + B_4 AGE_i + B_5 FOREIGN_i + u_i.$$

The dependent variable used in measuring effectiveness of student performance is final exam score (SCORE). The variable associated with the final exam score is measured in percentage terms. The proxy for student's native ability (ABILITY) is based on the composite score of the GMAT exam plus the product of twice the upper-level (last 60 hours) undergraduate grade point average (GPA). For example, a student with a GMAT score of 600 and 3.5 GPA would have a composite score of 1300. Many business colleges use the composite score as part of the admission process. The percentage score on the homework assignments (HW) measures student effort. The homework grade is used to measure effort since students are not constrained by time, research material, or ability to ask the course instructor questions when completing the ten course assignments. Enrollment in the Internet or campus course is noted by the categorical variable NET. Internet students are assigned a one, while campus students are assigned a zero.

The choice as to what demographic variables to include in the model presents several difficulties. A parsimonious model is specified in order to avoid potential multicollinearity problems. The demographic variables in the model relate to student age (AGE) and nationality (Foreign). The age variable is included in the model based on anecdotal evidence that distance learners are more mature and self-

motivated (Kearsley, 1998; Okula, 1999). The model corrects for international students because the majority of international students in the MBA program elected to enroll in the campus course instead of the Internet class. Specifically, only two international students completed the Internet course while ten completed a campus course. While other authors have found a significant relationship between race and gender and learning economics (Siegfried & Fels, 1979; Hirschfeld, Moore, & Brown, 1995), the terms were not significant in this study. A number of specifications were considered using race, gender, MBA emphasis, hours completed, and concurrent hours in various combinations. Inclusion of these variables into the model affected the standard errors of the coefficients but not the value of the remaining coefficients. For this reason they are not included in the model.

University academic records are the source of admission and demographic information because of the potential biases identified in self-reported data (Maxwell & Lopus, 1994). There are a total of seventy-four students in the initial sample, nine students being eliminated from the study for dropping the course (Douglas & Joseph, 1995). The two campus courses had a total of forty-two students complete the course with five drops, while twenty-three students completed the Internet course and four dropped the course.

RESULTS

Results from the ordinary least squares estimation of equation (2) are presented in Table 1. None of the dependent variables in the model have a correlation higher than .28, providing evidence that the model specification does not suffer from excessive multicollinearity. The equation (2) model explains 58 percent of the variance in final exam performance. Three of the five variables in the model are statistically significant at the one-percent level. Of primary interest is the negative and significant coefficient associated with Internet instruction. Holding constant ability, effort, and demographic considerations, students enrolled in the Internet course scored over nine percent lower on the final exam. The empirical results provide evidence supporting the inferior quality criticism of Internet-based learning (Lezberg, 1998; Conlin, 1999). On the other hand, the nine-percent quality differential might be acceptable considering Internet-based instruction is still in its infancy stage. Admittedly, the author has a vast amount of experience teaching in the traditional classroom versus limited experience with Internet instruction. As Internet instruction continues to develop and professors gain experience within the mode, it seems reasonable to assume performance differentials by instruction mode could be minimal at some point in the near future. Organizational options and presentation quality via the Internet are certain to improve as time goes by.

Table 1
Estimation of Equation (2)

Variable	Coefficient	t-statistic
Intercept	-44.2539	-2.0457
NET	-9.1551	-5.2934*
ABILITY	0.0282	3.9764*
HW	0.9646	4.0160*
AGE	0.1140	0.9701
FOREIGN	1.2216	0.4585
Notes: R-square = .58, F = 16.35, *p<.01, and n = 65.		

The stability of the model's other coefficients suggest that the model is somewhat robust. Ability as measured by the admission GMAT and GPA composite score has a positive and significant impact on final exam performance. Student effort as measured by percentage score on homework assignments yields a positive and significant coefficient. The effort variable does not accurately measure the amount of time that a student applied to the course since productivity is different across students. The effort variable is more of a proxy for willingness to work until complete and adequate homework answers are obtained, organized, and presented to the course instructor. Certainly, ability and effort should be positively related to final exam performance in a random sample of college courses. The two demographic variables in the model have positive coefficients but are not statistically significant. Hence, age and nationality does not have a significant impact on final exam performance in this study.

CONCLUSIONS

Distance learning is not a new concept. Correspondence, cable television, interactive television, traveling instructors, and a myriad of other modes have played a part in distance education. The new educational and training technologies available via the Internet have the potential to revolutionize distance education. Electronic mail, chat sessions, bulletin boards, links, attachments, sound, video, and a variety of presentation options combined with easy access and convenience has made Internet delivery the future of distance education. Most would agree that distance delivery has been inferior to traditional classroom instruction. The question

for the future is will distance education continue to provide an inferior education with the advent of virtual instruction?

The results of this study imply that Internet-based instruction is not as effective as the traditional classroom mode. The specific results indicate that MBA students enrolled in a macroeconomic theory course at a regional college do not perform as well on the final exam when instruction is delivered on the Internet versus the traditional classroom approach. The model used corrects for performance factors such as ability and effort. The results of this study are of a preliminary nature and represent a first step in an attempt to assess the effectiveness of Internet-based instruction. The fluidity of the environment and the rapid pace of change characterizing the WWW require further research on the topic. Specific future extensions of this paper include collaboration with other economic and business faculty at WT and other regional colleges in order to determine the consistency of the results and implications derived in this study.

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PROGRAM EVALUATION AND DELIVERY IN ECONOMICS EDUCATION

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ABSTRACT

The purpose of this descriptive study was to determine (1) preferred types of teacher training; and (2) classroom instructional methods utilized in economic education programs within Idaho's K-12 schools, as a baseline for program evaluation and delivery. The individual teacher who is well-trained, and uses instructional strategies involving students, can ultimately have a positive effect on the economic literacy of students in our nations' schools.

Teaching economic educational introduces students to a highly useful way of thinking about basic issues in an economic world. An understanding and applications of fundamental economic concepts and principles can help students in the decision-making process. The goal of economic education is to develop in students the thinking skills and economic knowledge necessary to become effective, participating citizens.

It is widely recognized that the teacher is the key to what is taught in the classroom. Without well-trained teachers, the best written curriculum may not be taught in the classroom. Instructional methods which concentrate on the achievement of a fundamental understanding of economic concepts, and their application in daily life, will assist students in achieving economic literacy. Therefore, enhanced teacher training and interactive methods of instruction are essential to effective economic education across the curriculum.

INTRODUCTION

The economic illiteracy of students is a major concern in our society. According to data from a nationally normed test of economic understanding:

, only 34% of high school students could identify profits as revenues minus costs;

- only 45% realized that government deficits result when spending exceeds revenues; and
- only 17% knew who was hurt most by inflation (Brenneke, 1992).

Society is at risk when today's high school students, the next generation of consumers, workers and citizens, display these kinds of misunderstandings and ignorance about our economic system. These results immediately raise questions not only about the economic literacy of our nations' students, but about the quality of the economic education they receive. Ultimately, these concerns activate more economic instruction at both elementary and secondary levels; integrating economics across the K-12 curriculum, integrating economics into subjects like consumer education, general business and U.S. History, and using separate economic courses.

> The goal of economic education is more responsible and effective citizenship through helping students acquire the ability to use economics as independent decision makers confronting problems, personal and social, rather than merely helping them gain knowledge of the facts, concepts and assumptions that comprise part of the discipline. It empowers students to understand their world, make reasoned decisions, and act appropriately on personal and social issues of significance (miller, 1991, 37).

Fundamentally, economics is a way of thinking. At the most basic level, the economic way of thinking is best characterized by the saying, "there is no such thing as a free lunch". Due to unlimited human needs and wants, and the universal inability to satisfy those needs and wants with limited resources, all people are forced to make choices. Economic decision-making, then, is a necessary skill for individuals to develop in every society. If economic literacy is the goal, economic education is the process, the delivery system through which economic literacy is achieved, and the students in today's K-12 classroom are the target audience for attaining this goal. Therefore, the purpose of this study was to collect data on current economic education programs, as a baseline for evaluating and delivering economic education in the future.

BACKGROUND

"Requiring formal instruction in economics in our schools by teachers well prepared in the discipline would be a major step to correct...problems" (Hermanowicz, 1991, 77) with economic illiteracy. A change in the primary way we prepare teachers is needed. Economic concepts should be infused throughout undergraduate teacher preparation programs. In addition, it is imperative that "practicing teachers...be given assistance with economic concepts, knowledge, instructional procedures, and materials as part of their in-service education" (Hermanowicz, 1991, 78). In a study of Missouri's teachers, over 60% indicated a desire to receive in-service training on how to teach economics (Hallows & Solomon, 1991). The individual teacher who is well-trained will more likely take an active role in providing economic education across the curriculum.

In conjunction with enhanced teacher training in economic education, instructional methods which concentrate on the achievement of a fundamental understanding of economic concepts and their applications in daily life, should be developed. Traditional methods of instruction include lectures, written resources and classroom discussion. Teachers should consider the integration of technology, games and simulations, business and community resources and audio-visuals as alternative teaching methods. Ultimately, the success of any economic education program "lies with a firm understanding of when and how to use specific education methodologies" (Sisco, 1991, 301).

Schug (1985) recognized that:

> "...to be effective, economic education in the K-12 curriculum demands hard work from professionals in many fields. Administrators and university educators must continue to support and press for the increased training of teachers, the production of innovative instructional projects, and the building of a comprehensive economic curriculum. More attention also should be devoted to finding incentives that will lead teachers to seek more education, and to developing instructional materials that are easier for classroom use. Teachers must master basic economic concepts and give more emphasis to classroom instruction in economics. Researchers must collect more reliable data on the status of economic education on a regular basis" (18).

Minimal research has been conducted within the state of Idaho in regard to the status of economic education in the K-12 classroom. However, a "one-semester course in consumer education is required for graduation. The course requires an

understanding of theories and principles of economics that make the free enterprise system work in our society. Consumer education is required in grades K-12 " (Highsmith, 1989, 5). Therefore, the purpose of this study was to determine (1) preferred types of teacher training; and (2) classroom instructional methods utilized in economic education programs, with Idaho's K-12 schools, as a baseline for program evaluation and delivery. The individual teacher who is well-trained, and uses instructional strategies which directly involve students, can ultimately improve economic literacy.

METHOD

Population

Information was obtained through a descriptive study of K-12 teachers in southeast Idaho. This population was selected for the following reasons: 1) the literature indicated that there has been minimal research completed regarding the instruction of economic education among K-12 teachers; and 2) the literature supported the integration of economic education throughout the K-12 curriculum. A survey questionnaire was utilized to collect data concerning teacher training and methods of instruction in economic education.

Sampling Techniques

Permission to collect data was obtained from 16 of the 33 school district superintendents included in the service area of the Center for Economic Education in southeast Idaho. There were approximately 1400 teachers in this population.

Procedure

The structure of the instrument included three sections: demographics, types of teacher training and classroom instructional methods. Demographics were comprised of open-ended questions regarding teaching background and experience. The other two sections each included a list of concepts developed as a result of the review of literature. Respondents were asked to rate types of teacher training and classroom instructional methods on a Likert scale from 1 "not useful" to 5 "very useful". The survey was field tested and reviewed by a panel of consultants.

Each of the participating teachers received a letter notifying them of the upcoming mailed questionnaire. Approximately one week later, the questionnaire was mailed. The teachers' names were not required on the questionnaire, therefore, assuring them of anonymity and confidentiality. Due to the possibility of low responses, a reminder postcard was mailed 10 days after the initial mailing.

There were 374 teachers who completed the questionnaire; of these, 368 were useable data. Response rate was 27%. The researcher completed computer tabulation of the instrument responses. Data analysis was performed using SPSS 6.1 Guide to Data Analysis (Norusis, 1995).

RESULTS

Demographics

Grade level data were grouped and summarized as illustrated in Table 1. Interestingly, however, seventeen percent (63) of the teachers in this study taught grade 9; 13.9% (51) kindergarten and first grade; 12% (44) grade 7; 10.3% (38) grade 6; 9% (33) grade 8; 8.7% (32) grade 3; 7.1% (26) grade 2; 6.5% (24) grade 5; 4.65% (17) grade 10 and grade 4; 3% (11) grade 12; and 2.2% (8) grade 11. Four teachers (1.1%) did not report a grade level.

Table 1: Grouped Grade Levels (n=368)

Responses	Frequency	Valid Percent
K-4	126	34.3
5-8	139	37.8
9-12	99	26.9
No Response	4	1.1
Total	368	100.0

Teachers were also asked to indicate the "total number of years taught". The 368 respondents taught an average of 12 years.

Table 2 illustrated the frequency and valid percent by subject area(s) of the survey respondents. All subjects (elementary) were 38.6% (142) of the 368 responses. Those teaching Language Arts (Reading, Writing, English) were 17.4% (64), while 9.8% (36) taught Mathematics. Teachers in Vocational Education classes (i.e. Business, Home Economics, Computer Drafting, Cabinet making, etc) were 8.7% (32) with Social Studies (including U.S. History, Geography, Government) at 8.2% (30). "Science" teachers were 6.8% (25) and "Physical

Education" teachers were 4.6% (17). "Other" (including Fine Arts such as Music and Art) were 4.3% (16) and 1.1% (4) of the respondents gave "No Response".

Table 2: Subject Area(s)
(n=368)

Responses	Frequency	Valid Percent
All Subject Areas	142	38.6
Language Arts	64	17.4
Mathematics	36	9.8
Vocational Education	32	8.7
Social Studies	30	8.2
Science	25	6.8
Physical Education	17	4.6
Other	16	4.3
No Response	6	1.6
Total	368	100.0

Teacher Training

College/graduate credit courses and in-service seminars/workshops on "how to teach" economics were rated as the "most useful" (mean scores between 3.7 and 3.8) types of training for the integration of economics into the K-12 curriculum. Mailed correspondence courses on "how to teach" or " the subject of" economics were rated as the "least useful" with mean scores between 2.75 and 2.85. Table 3 summarizes these data in detail.

Table 3: What Training Will Assist Teachers in Integrating Economics into the K-12 Curriculum (n=368)

Training	Total Points	Mean	Rank
College/graduate credit courses on "how to teach" economics	1398	3.80	1
In-service seminars/workshops on "how to teach" economics	1374	3.73	2
College/graduate credit courses on the subject of economics	1343	3.65	3
More clearly defined guidelines and state requirements on the subject of economics	1316	3.58	4
In-service seminars/workshops on the subject of economics	1397	3.52	5
Summer courses on "how to teach" economics	1278	3.47	6
More clearly defined guidelines and state requirements on "how to teach" economics	1251	3.40	7
Summer courses on the subject of economics	1207	3.28	8
Mailed correspondence course on "how to teach" economics	1033	2.81	9
Mailed correspondence course on the subject of economics	1028	2.79	10

The data in Table 4 are presented in ranked order as responses to the research question, "What instructional methods are utilized by K-12 teachers to teach economic concepts?" Games/simulation techniques and guest speakers were rated as "most useful" in teaching economics with the mean scores between 4.0 and 4.5. Workbooks, self-paced materials, textbooks, and written resources (articles, pamphlets, curriculum guides) were rated "least useful" with mean scores between 3.0 and 3.25.

Table 4: What Instructional Methods are Utilized by K-12 Teachers to Teach Economic Concepts (n=368)

Instructional Methods	Total Points	Mean	Rank
Games/simulation techniques	1484	4.03	1
Guest speakers	1477	4.01	2
Audio-visual resources	1437	3.90	3
Computer-assisted instruction	1415	3.85	4
Business/community-related resources	1414	3.84	5
Educational television	1396	3.79	6
Written resources	1193	3.24	7
Textbooks	1177	3.20	8
Self-paced materials	1158	3.15	9
Workbooks	1134	3.08	10

DISCUSSION

Teacher Training

It was evident that teachers prefer college/graduate credit courses and in-service seminars/workshops on "how to teach" economics. Teachers are also interested in college/graduate credit courses on "the subject of " economics. Mailed correspondence courses are considered the least useful for teachers. These data provide insights into the preferred methods of teacher training by survey respondents and will assist the ISU Center for Economic Education in the design and delivery of future economic education programs.

Instructional Methods

The following is a listing of instructional methods in ranked order from "most to least useful": games/simulations, guest speakers, audio-visual aids, computer-assisted instruction, business or community-related resources, educational television, written resources, textbooks, self-paced materials, and workbooks. These data provide insights into preferred instructional methods of respondents and will

assist the ISU Center for Economics Education with not only: (1) understanding the current perceptions of their target audience; but (2) modification of existing curriculum; and (3) selection and development of new curriculum.

RECOMMENDATIONS

Although this was only an initial study to ascertain the current status of two basic components of K-12 economic education programs in southeast Idaho, two major goals have resulted: (1) an attempt must be made to provide increased opportunities for economic education in-service, pre-service and credit coursework; and (2) a continuing effort must take place to design and develop classroom instructional techniques which actively engage the student and therefore, increase the possibility of comprehension and application in daily life. It is interesting to note that survey respondents were somewhat evenly distributed across grade levels and subject areas. This may indicate the presence of a core group of interested educators across the curriculum.

Replication of this Study

Further data collection utilizing the survey questionnaire throughout the remainder of the state should be completed. This research could offer beneficial insights on the status of economic education statewide. The survey could also be replicated in other states and ultimately, as a method of describing the status of economic education nationwide.

Related Research

To provide further insights, it is suggested that an investigation among school administrators within the state of Idaho be conducted. The principal, superintendent, or curriculum director would respond to the questionnaire from an administrative viewpoint. These data would provide insights into the perceptions of those in leadership positions including their support for economic education.

Other audiences which could be surveyed in order to provide insights into the whole question of economic literacy, and quality economic education, would be representatives from business and industry, government, and even students themselves. Actual survey questions could be modified as necessary.

In summary, these data generated conclusions which can ultimately lead to a teacher's increased understanding and delivery of improved economic education. Utilization of these data may initiate the development of solutions, skills, and encouragement for teachers toward integration of economics into the K-12 curriculum. Further analysis of this study, as well as future research, will provide

additional answers, as well as further questions, concerning economic education. Bottomline...this survey has begun to generate baseline data (preferred teacher training methods and classroom instructional methods utilized) by K-12 teachers. This is the initial step in the plan to evaluate, deliver and ultimately, improve economic literacy in Idaho.

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THE THRILL OF SIMPLICITY, THE AGONY OF REALISM: AN ASSESSMENT OF THE SPORT OF UTILITY THEORY

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ABSTRACT

This paper develops a pedagogical exposition of utility theory from its roots in classical theory to its newer forms. The theme of the exposition is that, in its simplest form, utility theory provides precise solutions to standardized behavioral traits of self-interest, but in its more realistic forms, real world complication can oppose the conclusions of the simple model. A possible framework for organization of the various utility theory extensions is presented. The world of utility theory is assessed in terms of Stigler's acceptance criteria, and conclusions are drawn about the usefulness and direction of utility theory.

INTRODUCTION

A framework for analysis of the choices made by individuals is a necessity for theorists who wish to understand a population of individuals and their behavior. The way to form an effective framework is to specify a model of reality based on a set of axioms that govern the population's behavior. The postulates that form the foundation for utility theory precisely characterize a simple form of 'rational' behavior. This set of conditions forms the analytical framework with which general statements can be formulated explaining choices ultimately made in the marketplace.

In an ongoing effort to better describe the choices made in various areas of economic activity, new assertions regarding, specifically, the over-simplicity of the basic theory of utility, and generally, of maximizing behavior, have appeared in much the same way that Keynes' revolutionary macroeconomic challenge occurred in the 1930's. In essence, Keynes observed that many real-world choices were made which were logical in their construction or apparent from observation, yet did not adhere to the axioms of classical microfoundational theory. As Keynes indicated, this can occur for a variety of reasons, some of which he identified and explored in developing his own macroeconomic General Theory (Keynes, 1964). In

microeconomic theory, similar observations have been made for explaining behavior that appears rational, but seems unable to adhere to the axioms and properties of classical utility theory.

Often, an economist will assert that if a theory consistently explains or predicts well, there must be some kind of axiomatic foundation which governs the consistent behavior. The purpose for economists, therefore, should be to *discover* these governing axioms. Economists pursuing this purpose are counting on the premise that the factors affecting behavior have not yet been discovered. Those still pursuing that purpose after an initial theory is in place are counting on the premise that that the axioms have been analyzed incorrectly, that they are misstated, or that they are just plain wrong.

More recent work in microeconomics has revealed the position of classical utility theory as a rather extreme special case of a phenomenon found by many arguments to have much more complexity than the simple classical version. The purpose of this paper is to describe the current classroom presentation of the theory, present some of the efforts attempted to enhance the model, and to evaluate this effort in terms of generality, manageability, and congruence with reality.

THE BASIC UTILITY MODEL: THE THRILL OF SIMPLICITY

In its most basic form, utility theory serves as a means of ranking an individual's preferences by the level of appeal of available alternatives at a point in time. It also determines, among other things, the solution of variables endogenous to the model, such as the quantities of alternative products an individual will consume while maximizing utility under the restriction of a budget constraint. The rankings are based on axioms that describe 'economic rationality':

1. Completeness:	If A and B are any two situations, then only one of the following can be true: 1) A is preferable to B 2) B is preferable to A 3) An individual is indifferent between A and B (Indecision is not an option)
2. Transitivity:	If A is preferred to B, and B is preferred to C, then A must be preferred to C. An individual is assumed to fully understand the consequences of the choices to be made, and thus makes decisions that are internally consistent.

3. Continuity:	If A is preferable to B, then outcomes "suitably close" to A are preferable to B also. This axiom is necessary in order to analyze differential changes in income and prices which affect outcomes to a small degree but are not sufficiently large to affect the ordinal ranking of situations (compiled from: Copeland, Weston 1988, Kreps, 1990, Nicholson, 1989, Chiang 1984).

In the further development of utility theory, several other properties should be included. First, any utility function will be *order preserving*. We can even assign values to utility in order to provide a way of enumerating and ordering preferences. This is simply a matter of convenience and is only useful to the extent that it preserves preference ordering; in no way can one individual's utility be compared to any other individual's utility. Second, conditions affecting utility other than those under consideration are assumed to be constant; this is called *the ceteris paribus* assumption. Third, individuals are assumed to be able to make *rational* choices among a wide array of situations; to be able to compare any given situation on the basis of relative appeal at any specific point in time. Fourth, the very nature of one's utility is based on a wide variety of *factors that provide satisfaction both directly and indirectly*. For example, although income yields no direct utility, the security of having a sufficient amount of income could in itself provide satisfaction. Usually, economists prefer to limit the analysis to direct utility, which comes only from the spending of that income. This is understandable; often the information an analyst wishes to derive from utility theory is to find out what items on which individuals will spend income. Economists, however, have often extended the use of utility theory to include indirect versions, including utility of income, utility of current income relative to future income (time valuation), utility of consumption relative to leisure, and utility of certain benefits versus uncertain benefits.

Other complicating factors include complementary products, substitute products, economic 'bads',or consideration of attributes of goods rather than the good itself as the direct provider of utility. Other characteristics present in the academic literature but specific to instructional and/or academic special cases are omitted here. In some applications, the additional assumption of perfect knowledge of all alternative choices is assumed.

The usual representation of consumer demand begins with a description of a 'good' as a bundle of economic products which together provide a positive level of satisfaction or utility (as opposed to an economic 'bad', which provides negative utility). As a result of this bundle being good, more of the bundle is preferable to less of the bundle. The next step is to introduce more than one good, usually presenting quantities of two goods graphed as good x and good y in a two dimensional diagram. This representation allows a mapping of points of

combinations of the two goods from which the individual would derive the same level of utility, and defines an indifference curve. The negative of the slope of the indifference curve at a given point is called the marginal rate of substitution, which is assumed to be diminishing (or alternatively, well balanced bundles of goods are preferable to bundles which contain large portions of one good and little of the other good. This identifies strict convexity, which is equivalent to an assumption of diminishing marginal rate of substitution). The concept of diminishing MRS can also be approached from the standpoint of marginal utilities, without explicitly referring to the utility function.

The general shape of this indifference curve lends itself to further restriction to form ideal analytical models that have appealing characteristics, such as the Cobb-Douglas form. This particular utility function has a familiar mapping, is homothetic (each curve looks similar to the others because the slope at any point depends only on the ratio of one good to the other), and exhibits a simple proportional relationship between income and the quantities of good x and good y desired (Douglas, 1934).

In cases where indifference curves do not exhibit the characteristics of diminishing MRS, the solutions, when a budget constraint is employed, often do not present difficult analytical problems. For example, the case of perfect substitute goods implies that an individual will simply buy from the lowest price producer. Perfect complements imply a particular proportional relationship between two goods, and the solution will be in fixed quantities of both goods. For cases of more than two goods, a relatively simple mathematical adjustment for utility maximization (subject to a budget constraint) is required. Changes in income or in prices of the goods in question are not problematic for the familiar forms of utility theory; they involve shifts in the budget or isocost functions, and after such adjustments, solutions may be recalculated. The theory of utility as developed above serves as a very neat analytical tool that forms a sturdy base for much of microeconomics.

DEVELOPMENT OF LESS CONSTRAINED MODELS: THE AGONY OF REALISM

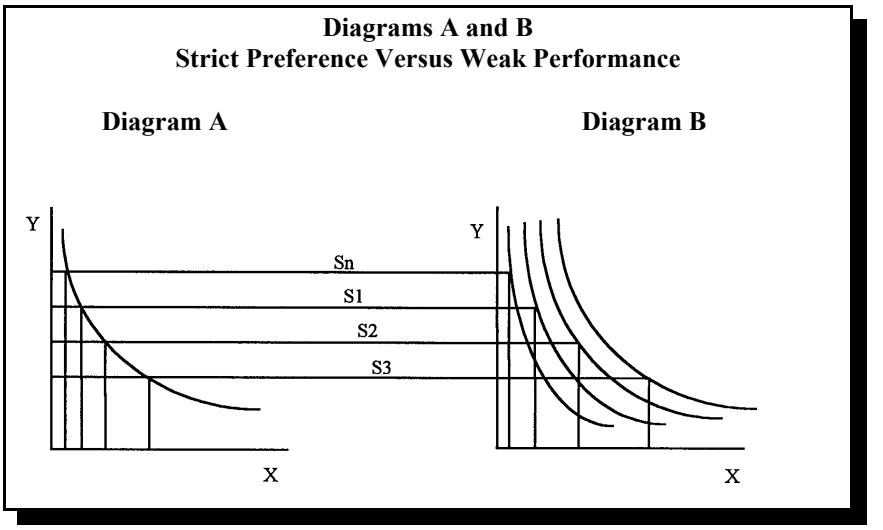
As we try to encompass more and more of reality into our model, we complicate the analytical framework of utility theory. This, in a way, defeats the purpose of developing a simple model; the original objective of drawing precise conclusions about a population of individuals must be balanced against the desire of the analyst to be accurate in describing the behavior on which those conclusions are drawn. At the root of the behavioral description are the axioms of utility theory. Are they reasonable? Are they necessary? And is there a better alternative to describing the general behavior of a population? To explore these possibilities it

may be helpful to look at the manner in which analytical methods change when a variety of situations arise.

Generalization of Preferences

Suppose we accept a more general definition of individual preference. Instead of limiting situations to being "preferable to" other situations, we relax preference to a weaker version: "is preferred or is equally preferable to". Any two situations can now have a common extreme element. This defines the difference between "strict preference" and "weak preference" (Kreps, 1990, pp. 22-26). Indifference, then, would appear to be defined as the 'equally preferable' situation, although this implies a strange indifference map. For the definition of weak preference to hold, an indifference curve could be represented by a group of situations (S1, S2, S3,...Sn) whereby each situation can be ranked in terms of weak preference, and yet it is possible for S1, the highest-ranked situation, to be equally preferable to Sn, the lowest ranked situation (diagram A). On the other hand, the same set of situations could simultaneously be represented by differing levels of utility (diagram B). The mere existence of this strange indifference result would imply an infinite number of solutions, unless factors explaining the weakness of preference could be identified and included in the model.

Diagrams A and B
Strict Preference Versus Weak Performance



Cyclical Preferences

Imagine another situation in which an individual is unable to rank preferences in an ordinal ranking (such that A is preferred to B and B is preferred to C but, strangely, C is preferred to A). If you doubt the possibility of such a scenario, just ask a child their preferences for Christmas presents every day for a month prior to Christmas. With no visible change in information, often in the same breath, the child's preference will cycle around choices that are all appealing but, through some unknown process, are not ordinally ranked. This indecisive behavior could be the result of a wide variety of manifestations. This baffling scenario can be mirrored in other situations as well. Although from a modeling point of view it may appear impractical to assume an axiomatic basis for behavior other than rationality, a theorist might seek explanations other than those implied by the model in cases of inconsistency such as this.

Modeling Uncertainty

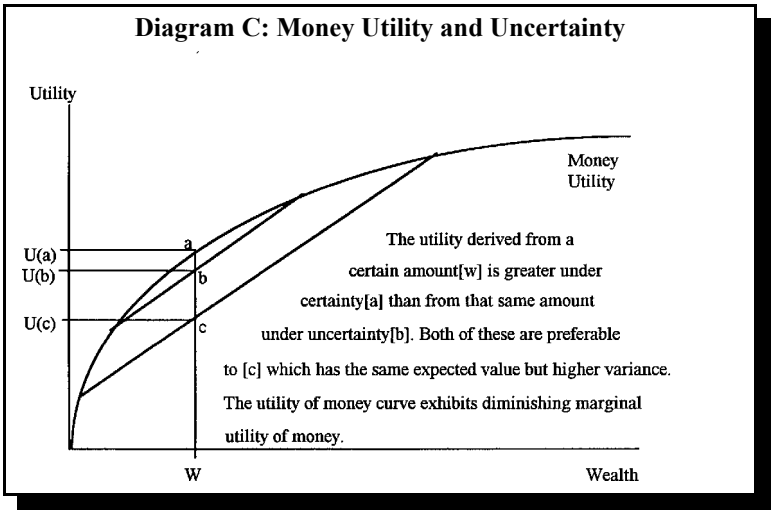
In reality, individuals make decisions based on uncertain future situations, without formal thought about probabilities of outcomes. Often there is no choice but to go ahead and make decisions, even if complete information does not exist (where it is assumed that one makes a decision subject to bounded rationality) or the decision doesn't result in an optimal utility outcome, ex-post. Uncertainty can take several different forms within the realm of utility theory. One of the most basic effects is the ambiguity in preference due to the possibility of deviations from expectations. Preferences become dependent on a variety of factors which, while still describing a single time period, are no longer known with certainty.

Because of this, preference may not be abundantly clear. A modeler would have to make allowances for indecision (if no information is valid on which to base a decision) or introduce a soluble element based on probability distributions (if useful information is expected to surface before a decision is made) or, if possible, based on contingencies .

Uncertainty can also take the form of a simple choice between a certain outcome and an uncertain, but statistically predictable, outcome when that choice is available to an individual. The well-known development of this concept is the utility for money. It begins with the premise that more money is preferred to less money, or the assumption of a strictly increasing utility function. The second premise is that a unit of money at a lower level of income will increase utility to a greater degree than the same unit of money at a higher level of income (or that the marginal utility of money is decreasing). This assertion has some profound results, characterized by 'risk averse' behavior.

This simply means that a certain outcome (with no variation) of a particular value V (point a) is preferred to a fair gamble (with variation) with an expected value V. For example, would an individual prefer receiving $10 with certainty or would he or she prefer a *gamble* with a .5 probability of receiving $5 and a .5 probability of receiving $15? The expected value of both outcomes is $10 (point W) and the only difference is that with the gamble, there is risk (variation about the mean) involved. An individual who is risk averse (has a decreasing marginal utility of money), would prefer the certain $10 payoff (point a) than the gamble with the same expected value (points b and c), because the $10 payoff would yield a higher level of utility than the gamble (diagram C). This result has been helpful in pricing insurance and in estimating demand for financial assets (Von Neumann, Morgenstern, 1944).

Diagram C: Money Utility and Uncertainty



Perhaps a slightly different approach to modeling uncertainty is called for in situations where preferences are contingent upon certain events or circumstances. It seems that two possibilities could arise: one, that a decision could be postponed until after the event occurred or two, that a decision must be made in the present time period for one reason or another. In the latter case, an example might be the availability of an investment whose outcome is contingent on an event, such as an investment in a company whose rate of return depends on the acceptance or rejection of a large contract. If the contract is accepted, the return on the investment would be larger and if rejected, the return would be small or negative. Usually such an investment would not be offered at the same price to an individual before and

after the event. As such, the decision could not be postponed and the individual, if the investment is to be undertaken, must invest quickly.

In reaction to just this type of situation, the market makers for securities have invented hedging tools in order to reduce the risk of low or negative return, such as the issuance of options or warrants. Here again, it appears that a decision can be made based on a less questionable future by the application for the utility of money. Because investors have different risk preferences, another investor might be willing to pay the first party to agree to sell his investment in the future at a specified price. This is the essence of a stock option. The owner of the investment would have a hedge against downside risk and the owner of the option would have the possibility of a huge profit should the stock price increase above the exercise price of the option.

Still another uncertainty model may be built upon strategic concerns. Suppose two options are available for choice, one maximizing individual one's utility, the other maximizing individual two's utility, each choice being suboptimal for the other. The consequences of failure to agree on one choice or another is that no option will be chosen and, therefore, no utility will be gained by either party. For whatever reason, as illogical as it may be, sometimes the parties may fail to agree, neither one gaining anything. This is one of many examples of noncooperative games, which often reflect the more complex circumstances of economic interest in the real world. A variety of solutions may exist for noncooperative games, such as strict dominance, successive strict dominance, weak dominance, maximizing solutions, hedging solutions, backwards inductive solutions, or Nash equilibria (Kreps, 1990).

A solution to a noncooperative game can even take the form of utility maximization for both (or all) parties involved, both forms of analysis producing the same result. The deviations from the basic forms of these situations can be infinite, as an infinite number of combinations of circumstances may be stated as conditions for the game. Some questions about the usefulness of these uncertainty models remain, however. Although very complex situations can be modeled, it is unknown at present how this can be used to obtain useful information about populations. The most useful role of specific games is their ability to explain or predict behavior (or, as the case may be, explain or predict indecision and suboptimality) in situations too complex or too specific to be modeled well by simpler models.

Utility Interdependencies

Like it or not, isolation tank results often don't predict environmental behavior. As we are social animals, very rarely are our utility preferences totally independent of others' utility preferences. For some reason, the fact that the next door neighbor just upgraded from a carport to a three-car automatic door heated and

air-conditioned garage and workshop complex, seems to affect our own satisfaction with our own 'carport.'

This and other effects, although not directly developed by comparing utilities, is typical of bandwagon, snob, and Veblen effects summarized by Liebenstein. The bandwagon effect describes the tendency for people to desire and item because, presumably, everyone else desires it. The snob effect is the tendency for people to desire an item for its exclusivity, and the Veblen effect is the tendency for people to desire an item for its high price tag. The changes in utility implied by this behavior are assumed to be reflected directly in the demand functions faced by firms (Liebenstein, 1948, pp. 165-201).

Interrelated Utilities

Often, the decisions made by microeconomic agents are the result of the related utility assessments of more than one individual. Some examples of this kind of situation are committee decisions, societal choices, partnership decisions, choices made by married couples, or choices resulting from agency relationships. The complications introduced by these possibilities can be tremendous; in each case, the mere fact that differing values, beliefs, and morals are present is enough to build a specific model of extreme magnitude. Consider, for example, the view of the utility of a choice made by a politician. The candidate who presented an image, a set of morals, and campaign promises, who supposedly represents the consensus view of his district or representative group, who has selfish tendencies, and who is tempted by choices which break the rules of the game, must summarize all of these preference scenarios into specific political decisions.

Consider the committee (or partnership, or marriage) decision, which is a result of a "game" which may involve radically different preference rankings, dominant individual preferences, different outcome evaluations, and/or different thought processes. Consider the agency relationship, where an individual or group of individuals represent another individual or group of individuals in making decisions that are supposedly in the best interest of the group represented. Although any and all of these constructions of convenience, of necessity, of consequences, or of codependence are present in society, few can be summarized using well behaved utility models (designed to draw generalities about populations). Most are specific and unique in nature, and often the observed results are far from what one might expect from rational, utility maximizing populations.

K. J. Arrow has even developed separate axioms for the formulation of social preferences from the point of view that an infinite number of utility solutions can develop depending on the way in which decisions are arrived at in a particular situation. For a solution to be feasible, it must meet the characteristics of: 1.complete ordering (completeness) 2.responsiveness to individual preferences (reflects the

preferences of the individuals whose utilities are interrelated) 3.nonimposition (social preferences are not imposed independently of individual preferences) 4.nondictatorship (social preferences are not determined by only one individual) 5.independence of irrelevant alternatives. Arrow then asserts that in general, it is impossible to meet all of these criteria in constructing social preferences. This is known as the 'Arrow Impossibility Theorem' (K.J. Arrow, 1951 [Henderson, Quandt, 1980, p 312]).

Less constrained models represent some of the anomalies of the current state of utility theory. As we encompass more of reality into our models, we complicate the analytical framework; we also strive for a more applicable model to accurately describe observed behavior.

THE ESSENCE OF AN EMERGING CONSENSUS

Stigler (1965) presents "A Theory of Economic Theories" with three criteria for wide acceptance of an economic development. They are:(pp. 148-53)

1. Generality
2. Manageability
3. Congruence with Reality

Stigler (1965) asserts that a successful theory is almost always more general than the preceding theory. Although there have been exceptions to this argument, particularly in macroeconomic theoretical development, it is reasonable to expect that if a conclusion can be reached in a less restrictive manner, it would probably have more appeal to theorists who desire to accurately describe.

The ability to bring a theory to use in analyzing specific problems is a desirable quality for a successful theory. This is especially important in a field such as economics, which often involves mathematical complications or extensions to less obvious applications in making models generally applicable. A popular argument within economics is on the one hand, the more closely a model reflects reality, generally the greater the likelihood of wide acceptance by theorists. Intuitive assertions are accepted only to the point of belief and agreement, in an academic discipline where empirical evidence is often required as proof. On the other hand, the more closely reality is reflected, the less likely a simple (restricted to simplicity for the sake of precise conclusions) axiomatic foundation is readily applicable.

With these criteria in mind, we can assess the likelihood that development of any of the aforementioned complications to the analytical framework of utility

theory will become an integral part of mainstream economic thought. All three of these criteria are generally applicable to economic theories. The third criterion, congruence with reality, may convince us to look at the possibility that the rational basis for utility theory could be inadequate for general application in the real world. The following section examines each of the relaxed constraints previously discussed, evaluating them according to these criteria

UTILITY APPLICATIONS

The strange indifference curves resulting from weak preference rankings (diagrams A and B) represent a direct inconsistency with the axiom of transitivity. While this axiom could still hold true for rankings involving no question of equality of ranking, the possibility exists for an individual to rank situations in a way that is internally inconsistent. Changing from strict to weak preference would therefore appear to support the analytical framework of utility theory, but in specific cases where we allow simultaneous existence of preferable or equally preferable choices, the analytical framework collapses because of its inability to explain this anomaly. While meeting the criterion of congruence with reality and greater generality, the inclusion of weak preferences as part of a utility theory does not appear to be a very manageable development.

Cyclical preferences are another source of inconsistency which precludes the existence of not only transitivity but also the axiom of completeness. Utility theory simply does not allow for the possibility of an individual being unable to ordinally rank cyclical outcomes. Again, while meeting the criteria for generality and congruence with reality, the inclusion of the possibility of cyclical preferences undermines the integrity of the axiomatic foundation of utility theory.

Considerable strides have been made in the modeling of (statistically predictable) risk within the realm of utility theory. One of the most common approaches is to form probability distributions about expected (mean) outcomes and use these as a numerical proxy for utility. Although there are numerous measurement and statistical problems under certain circumstances, probability distributions do not appear to undermine the basic axioms of utility theory. Also, if used in a static model and considered the only basis for ordinal rankings (ignoring variance), expected values are order preserving, the property of choice among a wide variety of situations is still intact, and expected values would appear to embrace both direct and indirect versions of utility functions. One property, the ceteris paribus property, is not binding in a static model strictly using expected values, because factors affecting the variation from expectations are not required to be constant; they account for the variation about the mean, which does not affect ordinal rankings.

The utility for money has been explored extensively by theorists and there appear to be few problems in applying the concept of risk aversion to utility theory. in fact, this concept has become the basis for financial asset pricing models, demand models for insurance products, and for explaining risk averse behavior observed in financial markets. The indirectness of the utility function for money as a provider of satisfaction has not resulted in prohibitive complications. Not only is utility theory enhanced as a more general model, it also better explains real world markets while still retaining manageability. The market participants themselves have invented tools to manage uncertainty, including options, warrants, and futures. Currently, utility theory and other theories are being used to analyze and evaluate these instruments. Although the mathematical process is growing more complicated, it appears that utility theory is still intact as a foundation for many of these models that pool individual uncertainties or provide for forward contracts, or are hospitable to hedging properties.

Strategic concerns, another way that uncertainty can surface in the real world, appear to be beyond the general applicability of the simple framework of utility theory, simply because so many factors and circumstances may be introduced into the model. Although useful in analyzing specific cases, strategic analysis (or noncooperative game theory) does not comply with the simple calculus of utility theory. On the basis of generality, strategic analysis incorporates many more real world situations than utility theory can, but conclusions usually are imprecise and not applicable to other situations. The degree of manageability, it seems, would be a subjective assessment; the economist might argue that strategic analysis results in an infinite number of possible solutions and ambiguity in its conclusions, whereby the strategic analyst might assert that flexibility and accuracy, whether intuitive or not, are needed more than a decision based on a precise but inaccurate model. Although there are some key differences in strategic analysis and game theory, the application is quite similar; both are used for specific cases that may be quite complicated and totally unfit for simpler models of behavior.

Utility interdependencies have been intuitively explained in relation to demand. The curious results in demand analysis should be reflected in the utility curves that support demand theory. For example, the utility function for a 'bandwagon product' would be a function not only of the attributes inherent in the product itself but also would be positively related to the size of the market for such a good. The 'snob' effect is a reversal of the bandwagon relationship between demand and market size, where utility is a function of the attributes of the product and a negative function of market size. The 'Veblen' effect encompasses utility as a function of product attributes and as a positive function of price, which defines conspicuous consumption. The adjustments of utility functions to accommodate these effects are not complicated ones, and they add to the applicability of the utility model to a greater number of situations. It would appear from the three criteria for

wide acceptance of a model that these effects are easily accepted. Liebenstein does not present the manifestations in utility theory exhibited here, but is keyed to demand and observable results. These applications to utility theory follow traditional lines of thought from utility to demand analysis.

Interrelated utilities form a special kind of problem for the axioms of utility. One of the basic postulates of utility is that one individual's utility cannot be compared or measured relative to another individual's utility. According to the 'rationality' of behavior, an individual would only enter a condition of cooperative decision making if it were possible to achieve a greater level of utility. If this rationality is generally applicable, the only relationships attainable would be ones of greater utility for both (all) parties involved. One could even argue that convenience, necessity, consequences, or codependence all provide inherent utility and that a situation of interrelated utilities complements the axioms of utility; that utility is simply difficult to comprehend and measure. We should have difficulty, however, in defining just which type of utility is to be maximized. When and how does an individual decide to sacrifice his own utility to maximize the utility of the group as a whole (Davidson, Davidson 1988)? What happens if conflict occurs? These questions are unlikely to be answered in the limited scope of utility theory. Most utility interrelationships are specific in nature and would not easily be explained by a general model. If a model were to be constructed to reflect these conditions, it may well be so analytically complicated that it is impractical to construct for all but the most rewarding uses.

CONCLUSION

What type of consensus may eventually emerge concerning the usefulness of the axiomatic version of utility theory? It is obvious that as we encompass more and more of reality into our model, we complicate its analytical framework. Many of the changes discussed are manageable adaptations and they extend the explanatory or predictive ability of the model. Others, such as introducing weak preference or cyclical preference, appear to undermine its axiomatic foundation.

It seems likely that successful analysts depend not only on a restrictive theory of behavior but also realize the importance of a wider range of conditions and anomalies of the real world which affect economic events. One thing is certain: as long as observed behavior is seemingly unexplained by current economic models, economists will strive to explain them in terms of a new set of axioms and postulates which describe the general behavior characteristics underlying these observable results.

It also seems reasonable to expect that the strict assumptions associated with simple constructs might be relaxed to form a more general model encompassing a

greater range of cases, enhancing, if not the predictive ability of utility theory, the explanatory ability of microeconomic analysis.

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RETAIL INDUSTRY STRUCTURE: 1977 - 1992

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ABSTRACT

This paper offers descriptive evidence regarding the trend toward increasing concentration in U.S. retailing industries. The data cover prominent retail industries including general merchandise stores, grocery stores, and drug stores for the years 1977 to 1992. Concentration is measured by conventional four-firm concentration ratios and by the percentage of total industry receipts and total assets contributed by firms from the largest asset size class contained in the Internal Revenue Service: Corporate Statistics of Income data. The descriptive findings presented in this paper are relevant for the teaching of economics and potentially for antitrust policy. From a teaching perspective, a trend toward increasing concentration in retailing suggests that retail examples should be included with examples drawn from manufacturing when presenting oligopoly models. The findings are relevant from an antitrust perspective because increasing retail concentration suggests the need for antitrust enforcement agencies to more carefully scrutinize proposed mergers between large retail firms.

INTRODUCTION

Coverage of imperfectly competitive output markets in principles of economics texts has traditionally treated retail markets as monopolistically competitive, while confining the discussion of structure measures and oligopoly models to manufacturing. Colander (1995) and Parkin (1998) exemplify authors who offer only manufacturing examples to illustrate structure measures. Both provide Hirschman-Herfindahl index measures for selected manufacturing industries; Colander also includes four-firm concentration ratios. Authors of leading texts such as McConnell and Brue (1999), Boyes and Melvin (1999), and Hall and Lieberman (1998) present retail industries that contain large national firms as examples of monopolistically competitive industries. Specifically, McConnell and Brue cite dining out, Boyes and Melvin consider retail clothing stores including The Gap, The Limited and Limited Express, while Hall and Lieberman identify food

markets among the industries that fit the structural conditions of monopolistic competition. The implicit assumption of these and most other economics texts is that retailing industries are too atomistic for coordinated pricing to occur and that relevant pricing models for retailing should posit independent behavior.

While a dichotomy that describes retailing as monopolistic competition and manufacturing as oligopoly was appropriate for most of the last forty years, recent changes have made it more difficult to sell students on the notion that retail markets are the province of small independent firms. Students who routinely shop in the Gap and the Limited for clothing, eat regularly at McDonalds, Burger King and Pizza Hut, and accompany their parents on weekend excursions to Home Depot find it difficult to square their perception of the retail landscape with the theoretical models being taught in economics classes. Moreover, by ignoring retail industries in our discussions of market concentration and large firm dominance, we deny students the opportunity to relate structure measures to the very markets that they find most familiar.

The purpose of this paper is to provide descriptive evidence regarding recent trends in retailing industries. By incorporating these descriptive data into textbooks and the discussion of market structure, faculty teaching economic principles can build a foundation for structure measures and the extent of large firm market domination using industries that are relevant for college students. Moreover, by demonstrating that many retail markets are highly concentrated, the data can be used as a foundation for analyzing portions of the retail sector using models of oligopoly rivalry instead of the more traditional analysis of retailing as monopolistically competitive.

DISCUSSION

Considerable empirical evidence supports the notion that retail markets are becoming more concentrated and that retailing, once dominated by local and regional players, has witnessed a gradual evolution toward national firms. Successful retail firms tend to evolve from players in local and regional markets to national chains (Miller, 1981). Research by Cotterill and Mueller (1980) provides empirical evidence of the trend for the grocery business. Cotterill and Mueller find that the market share of the twenty leading grocery chains increased from 26.9 percent in 1958 to 37 percent in 1975. Finally, Thomas Rauh, director of retail consulting for Ernst and Young, argues in a 1989 *Fortune* article that in the future each retail category will have no more than half a dozen and perhaps as few as two merchants accounting for as much as 60 percent of retail sales.

An examination of basic descriptive structure measures also provides support for a trend toward increasing concentration in at least some retail industries. Furthermore, several industries have reached concentration levels that would suggest

a market structure that is beginning to resemble oligopoly rather than monopolistic competition. Table 1 contains four-firm concentration ratios for thirteen Enterprise Statistic industries for the period 1977 to 1992. The industries include retail industries whose industry definitions remained constant over the sample period.

Table 1
Four-Firm Concentration Ratios
Selected Retail Industries

Industry	*1977*	*1982*	*1987*	*1992*
General Merchandise (Department) Stores	37.7	35.6	37.4	47.3
Grocery Stores	17.4	16.4	17.4	16.1
Eating and Drinking Establishments	3.9	5.0	7.6	7.9
Motor Vehicle Dealers	1.4	0.9	1.0	1.5
Other Automotive Dealers	0.9	1.3	2.0	2.4
Apparel and Accessory Stores	9.1	13.0	20.7	17.9
Furniture and Home Furnishing Stores	4.5	5.7	7.4	9.7
Drug Stores and Proprietary Stores	9.8	18.7	23.4	24.7
Hardware Stores	6.7	7.9	8.3	9.7
Building Materials Stores	5.1	6.4	7.1	21.3
Other Food Stores	11.4	12.9	9.7	12.0
Gasoline and Service Stations	5.1	6.4	7.1	7.2
Liquor Stores	9.8	8.6	8.5	8.2
Data Source: Census of Retail Trade, 1992				

Seven of the thirteen industries saw concentration increase for all three time periods: 1977-1982, 1982-1987 and 1987-1992. Four industries, Apparel and Accessory Stores, Drug Store and Proprietary Stores, Building Materials Stores, and General Merchandise Stores experienced significant increases in concentration over the 1977 to 1992 time period. For apparel, the concentration ratio increased from 9.1 percent to 20.7 percent over the 1977 to 1987 time period, before declining to 17.9 for 1992. For the Drug Store and Proprietary Stores industry, concentration

increased from 9.8 percent to 23.4 percent over the 1977 to 1987 period, eventually rising to 24.7 percent for 1992. Concentration in the Building Materials Stores industry increased rather modestly from 5.1 percent to 7.1 percent over the period from 1977 to 1987, but rose sharply to 21.3 percent in 1992. Concentration in the General Merchandise Stores industry experienced a modest decline from 1977 to 1982 (37.7 percent in 1977 to 35.6 percent in 1982) before rising sharply to 47.3 percent in 1992.

Five industries had concentration levels that exceeded 15 percent in 1992: General Merchandise Stores (47.3 percent), Drug and Proprietary Stores (24.7 percent), Building and Materials Stores (21.3 percent), Apparel and Accessory Stores (17.9 percent), and Grocery Stores (16.1 percent). It is important to note that these concentration levels are the percentage of national sales for the four largest firms; concentration was undoubtedly much higher in some regional markets. Concentration in the General Merchandise Stores industry is of particular interest; a four-firm concentration ratio of 47.3 percent is indicative of a moderately concentrated oligopoly industry. Moreover, a four-firm concentration of 47 percent would place the General Merchandise retailing industry substantially above the median concentration ratio for the 505 manufacturing industries listed by the Census of Manufacturers for 1987 (Martin, 1994).

While concentration data provide insight into recent trends, limiting the analysis to the four largest firms makes it impossible to assess the full impact of large firm dominance in retail industries. Table 2 shows the percentage of total industry sales and assets contributed by firms in the largest IRS size class, a grouping consisting of firms with $250 million or more in total assets. Examination of Table 2 for the 1987 sample year reveals that of the eight industries containing firms with $250 million or more in total assets, the largest size class in five of those industries contained at least 35 percent of total industry assets for their industry. The 1992 decline in total assets reflects the omission of Drug and Proprietary Store sales as required by government data disclosure regulations that protect the privacy of individual firms. For the 1992 data, the largest size class accounts for at least 25 percent of total industry assets in five industries including values of 92.3 percent of total industry assets in General Merchandise Stores, 74.4 percent of total industry assets in Grocery Stores, and 69.4 percent of total industry assets in Apparel and Accessory Stores.

Examination of the data for the percentage of total industry receipts contributed by firms from the largest size class reveals similar patterns. The percentage of industry receipts attributed by the largest General Merchandise Stores increased from 19 percent in 1982 to 30.5 percent in 1987, with a very sharp increase to 89.2 percent in 1992. For the Grocery Stores industry, the percentage of total industry receipts from the largest size class increased from 40 percent in 1982 to 62.9 percent in 1992. Comparable percentages in the Apparel and

Accessory Stores industry were 24.4 percent in 1982 rising to 61 percent in 1992. From the IRS data, it is clear that the extent of large firm dominance in retailing is much greater than the picture painted by concentration ratios alone.

Table 2
Percentage of Total Industry Assets and Receipts
Contributed by Largest Firms in the Industry, Selected Years

Industry	*% of Total Industry Assets*				*% of Total Industry Receipts*			
	1977	*1982*	*1987*	*1992*	*1977*	*1982*	*1987*	*1992*
General Merchandise (Department) Stores	NA	15.7	45.3	92.3	NA	19	30.5	89.2
Grocery Stores	47.5	49.4	65.7	74.4	41.8	40	50	62.9
Eating and Drinking Establishments	7.9	32.6	53.7	52.4	5.3	16.2	26.2	24.8
Motor Vehicle Dealers	NA	NA	1.8	NA	NA	NA	.6	NA
Other Automotive Dealers	NA	NA	9.7	NA	NA	NA	6.7	NA
Apparel and Accessory Stores	NA	30.3	38.8	69.4	NA	24.4	34.2	61.0
Furniture and Home Furnishing Stores	NA	NA	21.8	29.9	NA	NA	15.9	18.7
Drug Stores and Proprietary	17	52	66.7	NA	16.6	55	60.1	NA

Percentages are the percentage of total industry values contributed by firms from the largest asset firm size class, firms with $250 million or more in total assets.

Data Source: Internal Revenue Service: Sourcebook of the Corporate Statistics of Income years, 1977, 1982, 1987 and 1992.

NA = Not Available

It is important to emphasize that all of the data presented here are aggregated at the national level. While these data cannot directly measure concentration or large firm dominance for individual metropolitan areas, it is

inconceivable that data such as these could occur without substantial corporate level dominance of retailing industries in a number of metropolitan areas. While it is undoubtedly true that individual establishments continue to control a small percentage of industry sales in metropolitan markets, it is difficult to make a case that the numerous retail outlets of the same retail chain exhibit the independent pricing required by models of monopolistic competition.

Examining retail concentration data also demonstrates the importance of market definition. Table 3 contains four-firm concentration ratios for two broad retail groupings, General Merchandise Stores and Apparel and Accessory Stores, at alternative levels of aggregation. The concentration ratios reported at lower levels of aggregation provide clear evidence regarding the importance of market definition in determining whether we judge industries as either tight or loose knit oligopoly. The implications of these alternative market definitions for antitrust should also be clear.

Table 3
Four-Firm Concentration Ratios for Selected Industry Groupings
Alternative Levels of Aggregation

Industry	CR4	Industry	CR4
General Merchandise Stores	47.3	Apparel and Accessory Stores	17.9
Department Stores	53.1	Men's and Boy's Clothing/Accessories	20
Conventional Department Stores	55.9	Women's Accessory and Specialty Stores	27.4
Discount or Mass Merchandising	78.7	Women's Clothing Stores	7.6
National Chain	100	Women's Accessory and Specialty Stores	37.7
		Family Clothing Stores	35.3
		Shoe Stores	38.6
		Men's Shoe Stores	35.6
		Women's Shoe Stores	45.2
		Family Shoe Stores	43.9
		Athletic Shoe Stores	68.8

Data Source: Census of Retail Trade, 1992

The General Merchandise Stores industry offers the most striking example regarding the importance of market definition. The four-firm concentration for the broadly defined industry is 47.3 percent. A somewhat narrower definition, Department Stores, results in a concentration ratio of 53.1 percent, while the concentration ratio for Discount or Mass Merchandizing Stores is 78.7 percent. The narrowest industry definition from the general merchandise category, National Chain, has a four-firm concentration ratio of 100 percent. Concentration in the general merchandise store category thus ranges from 47.3 percent, a level that would generally be regarded as moderately concentrated to 100 percent, clearly a highly concentrated level, depending upon how one defines the relevant market. These data provide students with a clear example of the importance of market definition in judging the level of concentration necessary to warrant antitrust scrutiny.

A similar, although less dramatic, pattern is observed for the Apparel and Accessory Stores industry. The broadest market definition, Apparel and Accessory Stores, has a four-firm concentration level of 17.9 percent as compared to 20 percent for Men's and Boy's Clothing and Accessories; 27.6 percent for Women's Accessory and Specialty Stores; 35.3 percent for Family Clothing Stores and 37.7 percent for Women's Accessory And Specialty Stores. For the shoe store categories within Apparel and Accessories, Shoe Stores have a four-firm concentration of 38.6 percent; Women's Shoe Stores a CR4 of 45.2 percent, and Athletic Shoe Stores a CR4 of 68.8 percent. Once again, we see evidence of the importance of market definition in determining how concentrated and thus how tightly oligopolized we view an industry.

It is important to note that comparisons such as these are generally not possible with publicly available manufacturing data, since the Census Bureau generally publishes four-firm concentration ratios in manufacturing exclusively at the four digit SIC level. The retailing data, by providing four-firm concentration ratios for alternative levels of aggregation, thus offer the opportunity to demonstrate to students using real world data, the consequences of market definition for determining measured concentration as well as for making antitrust policy decisions.

Table 3 also provides a foundation for a discussion of the strategic group concept presented by Michael Porter (1979) and others. Porter defines strategic groups as consisting of clusters of firms that confront similar operating conditions. While Porter does not consider that strategic groups are necessarily the relevant unit of observation for policy decisions, he argues that firms within the same strategic group undoubtedly pursue strategies that are more similar than firms that are from the same industry but different strategic groups.

The concentration ratios and industry definitions presented in Table 3 provide a useful framework for discussing the strategic group concept. Although the appropriate industry in the general merchandise category may be either General Merchandise Stores or Department Stores, it could be argued that Discount Mass

Merchandizing provides a useful description of a strategic group within the industry. The Discount Mass Merchandizing grouping containing firms such as Wal-Mart, Sam's Club, and the Price Club compete with other General Merchandise Stores, nevertheless they confront operating environments that are somewhat different from non-mass merchandisers. Similarly, although athletic shoe stores compete with all firms within the broader category of shoe stores and with other non-shoe store retailers that sell athletic shoes, there are conditions specific to athletic shoe stores that make it reasonable to consider the separate athletic shoe sub-grouping to be a viable strategic group. Similarities and differences between firms from alternative industry definitions presented in the retail data (e.g. shoe stores vs. athletic shoe stores) can be related to how broadly we define the retail grouping. Students should easily see from these real world examples that the more narrowly defined market contains more similar firms and ceteris paribus, the greater the degree of rivalry among firms.

CONCLUSION

This paper provides empirical evidence that documents the emergence of large firms in selected retailing industries. Although textbook authors have generally recognized that retail firms may behave as oligopolists in small towns (e.g. McEachern, 1997), retail markets in large metropolitan areas have been treated as monopolistically competitive. The four-firm concentration ratios along with the data measuring proportions of assets and receipts contributed by firms in the largest IRS size class suggest that retail industries increasingly resemble oligopoly even in metropolitan areas. In light of these data, textbook authors may wish to update their presentations of imperfect competition to recognize the changing landscape of retail industries. It is obvious that large national firms are playing an increasingly important role in a number of retailing industries; the time has come to incorporate this reality in our principles of economics texts and courses.

The data presented in this paper are also useful for teaching the strategic group concept presented by Michael Porter and others. When retail data are grouped into several related industries, the differences in levels of concentration depend upon the level of aggregation for each industry definition. Discussions built around these data could focus on the importance of industry definition in determining the level of concentration as well as the importance of industry definition for antitrust policy. Moreover, alternative industry definitions for sellers of related products can provide useful descriptive examples for framing discussions regarding industries and the strategic groups within each industry.

Including these data provides a useful vehicle for matching classroom discussions of topics related to industry structure and strategic groups with students' experience. Students who are familiar with retail giants such as Wal-Mart, the Gap,

and the Limited and category killers such as Circuit City will question whether these retail players are representative of monopolistic competition or oligopoly. The descriptive analysis in this paper provides a vehicle for structuring this discussion.

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PERCEIVED BARRIERS OF HUD HEADS OF HOUSEHOLD TO HOME OWNERSHIP, WITH IMPLICATIONS FOR FEDERAL HOUSING AND EMPLOYMENT POLICY

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ABSTRACT

Survey data were gathered from a sample of 102 public housing residents who resided in the Pine Chapel section of the City of Hampton, Virginia and attended a community meeting conducted by the Hampton City Redevelopment and Housing Authority. The topic of the meeting concerned the proposal to gradually move the residents out of public housing and disperse them into sites throughout the City of Hampton throughout the next five years due to a planned highway construction project that would requires the use of the land. Fifty-four percent of the residents who were presented with a survey actually responded. The survey respondents were predominately African-American, single female heads of households. According to survey results, the respondents felt that lack of savings for a down payment was the strongest barrier to being able to purchase a home, followed by lack of income for a house payment, lack of credit, being a single parent, and lack of knowledge of the home buying process. Statistical significance testing was conducted on perceived barriers to home ownership. The perception factors were analyzed by examining results for the entire sample, followed by a breakdown by age and number of dependents. Additional analyses were conducted to determine if the respondents' employment status (employed verses unemployed) had an association with perceived barriers to home ownership. The study concludes with recommendations for housing policy, employment policy and for future research.

INTRODUCTION

Home ownership can be considered an American dream. In addition to serving as shelter, owner-occupied housing is a representation of the amount of wealth and success that the household has accumulated, provides a measure of the household's status in the community, exemplifies middle class values, and can lead to greater opportunities (Koebel & Zappettini, 1993, p. 36). According to the U.S. Department of Housing and Urban Development's (HUD's) *Urban Policy Brief No. 2: Home ownership and its Benefits* (1995), a preponderance of evidence confirms that many of the benefits commonly associated with Home ownership are valid, including assertions that it 1) increases personal wealth; 2) enhances personal well-being; 3) creates stronger neighborhoods; and 4) promotes economic growth.

Unfortunately, the possibility of owning a home is slipping away from many Americans. This can be at least partially attributed to higher housing costs. Using data from several sources, including the Current Population Survey and the American Housing Survey, Koebel et al. (1993) determined that with the exception of those aged 65 or above, the Home ownership rate had decreased between 1974 and 1989.

This study focused on perceived barriers to home ownership among public housing residents, most of whom were female heads of household. Information gleaned from the study will be used to recommend ways to help alleviate barriers to, and facilitate home ownership among the study population.

The purpose of the study was to determine perceived barriers to home ownership and strength of these barriers among public housing residents of the Pine Chapel section of the City of Hampton. Pine Chapel operates under the Hampton Redevelopment and Housing Authority, which is partially funded by the U.S. Department of Housing and Urban Development (HUD). The target population for the study consisted of Pine Chapel public housing residents who attended monthly meetings in their neighborhood community center. The residents were requested to complete survey questionnaires.

One of the major objectives of the study was to develop a list of perceived barriers to home ownership among the target population under study. A second objective was to develop a list of rankings on perceived barriers to purchasing a home and secondly, to determine whether age and number of dependents of the heads of household influenced the perception of barriers to home ownership. A third objective was to determine if the time horizon for plans to purchase a home varied according to age of the heads of household. A final objective was to perform additional analyses upon the data, contingent upon the results of the study.

LITERATURE REVIEW

This section of the report will focus on literature pertaining to characteristics of HUD assisted renters, particularly those in public housing projects. It will also cover research on their aspirations and reasons for purchasing a home.

Throughout this paper, the focus will be on the "householder," or more specifically, the person or people in whose name the public housing is held (Casey, 1992). According to research conducted by Casey (1992) on characteristics of HUD Assisted Renters, African Americans are served at a higher rate in HUD assisted housing than their share of eligible applicants, whereas white householders are served at a lower rate. The researcher reported that the greatest proportion of public housing householders are in the 35 to 64 years age group, with age 56 being the median. In addition, 56 percent of these householders did not complete high school. Marriage appears to have an influence on entry into public housing under HUD in that those who are married are less likely to be served. In 1989, only 13 percent of assistant assisted households under HUD consisted of married couples. There is a tendency for these households to be headed by women (72 percent), in comparison to their proportion in the income eligible population (61 percent). Forty-two percent of these households had at least three or more children. Their median household income was $6,571.00, and their primary source of income or welfare was Food Stamps (49%), followed by Social Security Income or Pensions (47%) and Welfare/Social Security Income (45%).

According to results presented by Rohe and Stegman (1990) of a three year program evaluation effort using household survey data from the Public Housing Homeownership Demonstration Project under HUD, "home buyers were much more likely to have higher incomes ($16,673 vs. $6,539), to be two-parent households (47 vs. 24 percent) and to have at least one full-time wage earner in the household (91 verses 24 percent) than the average public housing resident."

The desire to purchase a home had been associated with the American Dream (Koebel & Zapettini, 1993). Koebel et al. asserts that not only does homeownership serve as a symbol of a families' wealth, it represents success and status in the community. They note that as the age of a householder increases, so does their demand for owning a home. Heskin (1983) determined from a survey of tenants from Los Angeles County that two thirds of them planned to purchase a home in the future.

A portion of a three year endeavor to evaluate a Public Housing Demonstration Program under HUD yielded the following three most commonly cited reasons for wanting to purchase a home (Rohe & Stegman, 1990): 1) to have a strong investment; 2) to be able to pass something down to the children; and 3) to be able to own something.

METHODOLOGY

A survey instrument was developed for collection of data on barriers to home ownership among the study population, and on their socio-demographic and socio-economic characteristics. The survey was constructed by asking least sensitive questions up front, followed by more sensitive questions to enhance the response rate. The survey was pre-tested on several former residents of public housing and on several undergraduate students who were assisting with the study to identify any problems with the survey items. A sample of the survey can be viewed in the Appendix.

The target population for this study consisted of all Pine Chapel Public Housing Residents who were primary heads of household and attended a community meeting at the neighborhood community center presided over by the Hampton Redevelopment and Housing Authority. The study population consisted of all 53 residents who actually completed the survey and returned in to one of the two survey administrators.

Survey data were collected using a sample of 102 low-income public housing residents of the Pine Chapel section of Hampton, Virginia. The survey was administered by a faculty research fellow and a student assistant in the Pine Chapel Community Center. The Hampton Redevelopment and Housing Authority was working on plans and disseminating relevant information to the residents as this project was being carried out to inform them of the plans for gradually relocating each of the families in Pine Chapel over the next five years due to the construction of a highway through the neighborhood. There were 53 heads of household who completed the survey, which was a 54 percent rate of response.

DATA ANALYSIS

This section of the report provides a description of variables and their coding and describes the statistical analysis procedure used to analyze the survey data. Variables were chosen for the study based upon an extensive exploration of the literature on both public housing and the hard-to-serve population under the Job Training Partnership Act (Barnow & Constantine, 1988; Castle, 1990; Friedlander & Long, 1987; Levitan & Gallo, 1988; Orfield & Slessarev, 1986; and Sandell & Rupp, 1988).

All of the socio-demographic data, socio-economic data, and data on perceived barriers to purchasing a home were dichotomous, so dummy variable coding was used. This data were on a nominal scale. The section below provides a description of the socio-demographic and socio-economic variables and the variables on perceived barriers to purchasing a home, and how they were coded. Please note that a few variables in the survey itself were dropped from analysis

because of lack of response. The variables used in the study and their respective coding can be viewed the Appendix.

The socio-demographic and socio-economic data were analyzed through the use of descriptive statistics. Frequencies and percentages are reported for these variables. Perceived barriers to home ownership were analyzed through a test of means, which enabled items to be rank ordered. Number of responses, rank, mean and standard deviation are reported for each of these items. In addition, statistical significance testing was conducted on these items and percentage responding affirmatively to each item is reported. Furthermore those items that were responded to affirmatively by more than 10 percent of the study population are identified and are noted as being statistically significant at the 0.05 level. Further analyses were conducted through use of the Chi-Square Test of Significance to determine if the difference in perception factors varied by age, and number of dependents. In addition, Chi-Square Analyses were conducted to determine if age and lack of credit made a difference in plans to purchase a home within a designated time frame.

RESULTS

This section of the report provides results for statistical analysis of the survey data. The section is divided into a number of segments, including the following: A breakdown of the study population by selected characteristics, which include 1) socio-demographic and socio-economic data; 2) planned actions to purchase a home in the future; 3) sources of household income received by survey respondents; 4) perceived barriers to home ownership; and 5) additional analyses performed on perception factors by age and number of dependents; and 6) analyses on plans to buy home within a designated time frame, by age and lack of credit.

The study- population was broken down by selected characteristics pertaining to socio-demographic and socio-economic variables. Frequencies and percentages were obtained for each of the variables. The study- population consisted of a greater proportion of single African-American female heads of household than any other designated group. Most of the respondents had between zero and three dependents residing in their household. A greater proportion of the survey respondents were unemployed in comparison to other employment categories, but when employment did exist, it was more likely to be part time than full time. Furthermore, 26.4 percent of the respondents who did answer the question pertaining to length of unemployment had been out of work for more than 24 months. Interestingly enough, over half of the survey respondents failed to answer this particular question.

The greatest proportion of the Pine Chapel residents had a high school diploma or GED in comparison to other categories for level of education. A very small proportion of them reported plans to graduate from an educational or training

program. In fact, 84.8 percent of the survey respondents did not respond to the question. When surveyed concerning status as head of household, 88.7 percent of the respondents answered affirmatively, 7.5 percent said they were not the head of household, and 3.8 percent failed to answer the question.

Part of the survey administered to Pine Chapel residents addressed planned actions to purchase a home in the future. Results revealed that the greatest proportion of residents do not plan to complete an educational or training program in the future, nor do they plan to enroll in such a program. When asked about strategies that will be used to obtain a job, 15.1 percent reported plans to visit the Virginia Employment Commission and only 7.5 percent of them reported intentions of reading the classified ads. In addition, just 15.1 percent of them indicated that they planned to use other means for job search in addition to the specific actions mentioned above.

The Pine Chapel residents were questioned concerning their sources of household income. In comparison to all of the income variables, the major sources of household income were from employment and welfare grants, with 28.3 percent of the respondents receiving income from these respective areas. The next highest percentage was for receipt of Social Security Income, with 22.6 percent of the respondents acknowledging income from this source. Only 1.9 percent of the respondents received alimony and just 15.1 percent of them receive child support. Employment of one or more children was a source of income for only 3.8 percent of the respondents, and employment of spouse provided a source of income for 7.5 percent of them. None of the survey respondents acknowledged receiving income from unemployment compensation benefits. Only 11.3 percent of them reported having other sources of income such as baby-sitting for other parents.

Pine Chapel residents were surveyed on their perceptions of what prevents people from purchasing a home, based on the 24 barriers to home ownership that were obtained from the literature and from banking staff who have responsibility for qualifying individuals for purchasing a home. The initial plan for this segment of the study was for the survey respondents to place a check beside each barrier and then indicate if it that barrier had ever applied to them. However, the respondents did not attribute some of the more sensitive barriers to themselves, such as substance abuse, being a battered woman or man, or bad attitude. The researchers determined that the study would focus on the perceived barriers rather than those the residents attributed to themselves.

Table 1 illustrates the results for perceived barriers to home ownership. A test of the means was conducted for the barriers that enabled the researchers to rank order the data in decreasing order of strength. For each barrier, 1 represented an affirmative response for the barrier and 2 represented a negative response. Results revealed that the strongest perceived barrier to home ownership was lack of savings for a down payment, followed by lack of income for a house payment. The next

strongest barrier was lack of good credit, followed by being a single parent and little or no work experience. Lack of knowledge on the home buying process was ranked in sixth place, followed by lack of job skills. Lack of life insurance was ranked last in terms of being a barrier to employment, even though life insurance is one of the areas emphasized by the banks.

Table 1
PERCEIVED BARRIERS TO HOME OWNERSHIP

FACTOR	N	Rank	Mean	Std. Dev.	%	Sign
Lack of savings for a down payment	53	1	0.484		64%	*
Lack of income for a house payment	53	2	1.377	0.489	62%	*
Lack of good credit	53	3	1.415	0.497	59%	*
Single parent	53	4	1.491	0.505	51%	*
Little or no work experience	53	5	1.528	0.504	47%	*
Lack of knowledge on how to buy a home	53	6	1.679	0.471	32%	*
Not enough time in same line of work	53	7	1.717	0.455	28%	*
Lack of job skills	53	8	1.736	0.445	26%	*
Substance abuse	53	9	1.755	0.434	25%	*
Lack of transportation	53	10	1.792	0.409	21%	*
Poor educational training	53	11	1.811	0.395	19%	*
Ex-offender status	53	11	1.811	0.395	19%	*
Handicap	53	12	1.868	0.342		
Long-term welfare recipient	53	12	1.868	0.342		
Poor vocational training	53	12	1.868	0.342		
Dishonorable discharge	53	13	1.887	0.32		
Poor appearance	53	13	1.887	0.32		
Bad attitude	53	13	1.887	0.32		
Having more than 3 children	53	13	1.887	0.32		
Lack of day care	53	14	1.906	0.295		
Lack of medical insurance	53	15	1.925	0.267		
Lack of a telephone	53	16	1.962	0.192		
Being a battered woman or man	53	16	1.962	0.192		
Lack of life insurance	53	17	2	0		

Note 1: Statistically significant at the .05 level by more than 10% of the respondents

Further analysis of the perceived barriers to home ownership based on age groups were conducted through use of the Chi-Square Test of Significance. Only those barriers that were statistically significant are reported here (See Table 2). Those residents who perceived lack of credit to be a barrier were more likely to be 48 years of age and above. Similarly, older individuals, age 34 and above, were more likely to feel that lack of knowledge of the home buying process and lack of savings were barriers to purchasing a home.

Table 2
Perceived Barriers to Home Ownership by Age of Respondent

Barrier	Sign
Perception of lack of credit	0.01
Perception of lack of knowledge of the home buying process	0.05
Perception of lack of savings	0.05

A Chi-Square Test of Significance was conducted to determine if number of dependents would have an influence on perceived barriers to home ownership (See Table3). Findings indicated that those who had dependents between the ages of 1 and 3 were more likely to feel that being a single parent was a barrier to home ownership than those with no dependents or more than four dependents.

A Chi-Square Test of Significance was conducted to determine if age was associated with the time span for perceived time in which one would be able to purchase a home. Findings revealed that younger residents had a perception of a longer time horizon to become home owners in comparison to older residents. This finding was statistically significant at the .05 level.

A Chi-Square Test of Significance was conducted to determine if plans to purchase a home would vary when contrasted with perception of lack of credit. Results revealed that those Pine Chapel residents who want to purchase a home were statistically more likely to see lack of credit as a barrier in comparison to those who do not plan to purchase a home. This finding was statistically significant at the .01 level.

Table 3
Perception of Being a Single Parent as A Barrier by Number of Dependents

	Sign
Single parenthood	0.01

DISCUSSION OF RESULTS AND THEIR IMPLICATIONS

This section of the report provides a discussion of the results of the statistical analysis of the data, and associated implications of these results. It addresses the breakdown of the study population, actions they planned to take to purchase a home in the future, their sources of household income, and their perceived barriers to home ownership. Further discussion is provided based on additional analyses of the barriers to home ownership.

Many of the socio-demographic and socio-economic characteristics of the study population were similar to those identified by the Department of Labor (DOL) Task Force as being Hard-to-Serve under JTPA (Barnow and Constantine, 1988). The DOL Task Force divided the characteristics into three categories: deficiencies, such as lack of work skills; barriers, such as lack of transportation and no telephone; and target groups, such as ex-offenders, minorities and having more than 3 children. The socio-demographic and socio-economic characteristics of the Pine Chapel residents who responded to the survey suggest that these individuals may have a harder time being able to purchase a home than other individuals and special assistance may be needed, such as skills training, educational assistance, goal setting skills, job seeking skills and job placement. Many of these survey respondents have been out of work for quite some time, and according to the literature, the longer one is unemployed the less likely they are to obtain employment.

Most of the survey respondents indicated that they did not plan to complete an educational or training program in the future and they did not plan to enroll in one. However, lack of skills was ranked eighth in terms of perceived barriers to home ownership., There is a positive correlation between level of education and income, as well as job skills and income. Assuming that theindividuals attributed the barriers that they selected to themselves, such as lack of job skills, prospects for these individuals to be able to purchase their own home one day appear bleak unless an intensive effort is provided to assist them throughout the process of gaining additional education or job skills and becoming employed. Furthermore, most of them said that they did not plan to read the classified ads to search for a job. This may be due to lack of money for a daily newspaper.

The major sources of income for the Pine Chapel residents were their own employment and welfare grants, followed by Social Security Income. Over one-half of these individuals are unemployed and only 15.1 percent of them are employed full time. Results suggest that major changes in income and employment status are needed if these individuals are to be able to purchase a home one day and become self-sufficient. Some of the residents may have physical and mental challenges that limit their ability to obtain education or training and enter employment. However,

having a handicap was not statistically significant in terms of perceived barriers to home ownership.

Not surprising was the fact that lack of savings for a down payment was ranked as first for barriers to home ownership, followed by lack of income for a house payment and lack of good credit. Single parent was ranked as fourth, which complicates the income problem when child support is not provided. These findings correspond to those of Rohe and Stegman (1990), who determined that "home buyers were much more likely to have higher incomes ($16,673 p.xi vs. $6,539), to be two-parent households (47 vs. 24 percent) and to have at least one full-time wage earner in the household (91 vs. 24 percent) than the average public housing resident."

These researchers have reason to believe that in many cases, the Pine Chapel residents attributed the barriers to home ownership that they selected to themselves. Even though respondents were not inclined to identify barriers such as substance abuse and ex-offender status as barriers for themselves, it is very possible that these barriers may have applied to some of the residents. These particular barriers were found to be statistically significant, yet they are things that would prevent the residents from being able to reside in the Pine Chapel Public Housing Project. The researchers overheard some of the residents discussing the perceived barrier section of the survey and debating whether or not they should be honest with their responses. Additional research is needed on perceived barriers to home ownership but trust and confidentiality of the residents is paramount to getting accurate data.

The perception of lack of credit, lack of knowledge of the home buying process and lack of savings were statistically significant barriers to home ownership, based on age. The finding that older individuals were more likely to perceive these items as barriers may be due to the fact that they are facing reality concerning ability to purchase a home. In contrast, younger individuals may have hopes and perceived prospects of a better future.

Results indicated that those who had dependents below the ages of 1 and 3 were more likely to feel that being a single parent was a barrier to home ownership. The individuals who have small children are less likely to be employed than those with older children, or those with older children who can serve as baby-sitters for smaller children.

Younger residents had a perception of a longer time frame for purchasing a home. Further research is needed to determine the reason for this finding. It could be attributed to having small children, lack of savings, or additional barriers such as lack of credit.

Results indicated that lack of credit was much more likely to be perceived as a barrier to purchasing a home for those who planned to buy a home than those who did not. It is possible that those individuals who wanted to purchase a home and who perceived lack of credit as a barrier have made one or more attempts in the past

to purchase a home. This finding also seems to lend support to the notion that the residents were likely to attribute perceived barriers to purchasing a home to themselves.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations for this study indicate:

1. Socio-demographic and socio-economic characteristics of the Pine Chapel residents who were surveyed are similar to similar to those of the hard-to-serve population under JTPA.

2. An intensive effort must be made to provide these individuals with assistance that includes skills training, educational assistance, goal setting skills, job seeking skills and job placement if they are to have an opportunity to purchase their own home in the future.

3. It is suggested that a federal program be designed for public housing residents to assist them in saving money for a down-payment to purchase a home.

4. Further research is needed to explore perceived barriers to home ownership for public housing residents. Many of the individuals were reluctant to attribute any of the barriers to themselves, particularly for substance abuse and domestic violence.

5. Suggest that local organizations contribute assistance to public housing residents because they appear to need involvement with the community for networking purposes which is an important means to employment. The residents reside in a sheltered environment and need exposure to modes that can be used to seek employment. Most of the residents had no plans for seeking employment, even though over half of them were not employed.

6. It is strongly recommended that a goal-setting plan for home ownership (or self-sufficiency rentals) be established with each of the heads of household who indicated an aspiration to purchasing a home one day.

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APPENDIX
Coding of Variables

Socio-demographic variables			
1.	Gender	0 = Female	1 = Male
2.	Primary Language-	1= English	2 = Spanish
3.	Racial Background-	1 = African-American	2 = Caucasian
		3 = Hispanic	4 = Asian
		5 = Other	
4.	Head of Household-	1 = Yes	2=No
5.	Marital Status-	1 = Single	2 = Separated
		3 = Married	
6.	Number of Dependents		
	Residing in Household-	1 = None	5 = Four
		2 = One	6 = Five
		3 = Two	7 = Six
		4 = Three	8 = More than 6
7.	Age Category-	1 = Less than 17	4 = 35-47
		2 = 18-21	5 = 48-60
		3 = 22-34	6 = 61-65
Socio-economic variables			
1.	Employment Status-	1 = Full time	2 = Part time
		3 = Unemployed	
2.	Length of Time Unemployed		
	(for those who are unemployed)-	1 = 6 months	4 = 19-24
		2 = 7-12 months	5 = > 24 months
		3 = 13-18 months	
3.	Length of Time to Complete		
	Educational or Training		
	program (if a student)	1 = 1-6 months	4 = 19-2 months
		2 = 7-12 months	5 = 19-24 months
		3 = 13-18 months	6 = > 24 months
4.	Highest Level of Education Completed		
		1 = Elementary School	4 = 2 Year college
		2 = Junior high/middle	5 = 4 Year College
		3 = High school/GED	6 =>a 4 year college
5.	Plans to Purchase Own Home	1 = Yes	2 = No
6.	Perception of ability to purchase		
	a home within the following		
	span of time:	1 = 0-2 years	4 = 9-10 years
		2 = 3-5 years	5 = > 10 years

3 = 6-8 years

7. Actions planned to be able to purchase home in future (1= yes and 2 = no):

_____ Complete an educational or training program
_____ Read the job section of the classified ads
_____ Other (please identify)
_____ Enroll in an educational or training program
_____ Go to the Virginia Employment Commission for job search

8. Sources of household income (1 = yes and 2 = no)

_____	Alimony	_____	Social security income
_____	Child support	_____	Unemployment comp.
_____	Own employment	_____	Welfare grant
_____	Employment of one or more children	_____	Other (please identify)
_____	Employment of spouse		
_____	Employment of other individual residing in household other than spouse or child		

Variables on perceived barriers

Variables on perceived barriers were coded with 1 representing yes, the variable is a barrier; and 2 representing no (1=yes, 2=no), the variable is not a barrier. The following barriers to being able to purchase a home were analyzed:

Single Parent	Lack of a telephone
Handicap (physical/mental/emotional)	Lack of day care
Ex-offender status	Lack of good credit
Dishonorable discharge from the military	Poor educational training
Substance abuse (drugs or alcohol)	Poor vocational training
Long-term welfare recipient	Bad attitude
Having more than 3 children	Lack of transportation
Being a battered woman or man	Lack of medical insurance
Little or no work experience	Poor appearance
Lack of income for a house payment	Lack of life insurance
Lack of knowledge on the home buying process	Lack of savings for a down payment
Not enough time in same line of employment	

- *The National Council on Economic education and its affiliated network of state councils and 275 university centers is a non-profit partnership of education, business and labor dedicated to improving economic literacy.*

- *Founded in 1949 as the Joint Council, today the National Council is the leading and largest source of teacher training, educational materials and curriculum reform in economics.*

- *Each year the network trains about 120,000 teachers serving over 7 million students. Approximately 70,000 schools nationwide conduct comprehensive programs in economic education with assistance from the network.*

- *For more information contact Dr. Robert Duvall at [212] 730-1063 or write:*

  The National Council on Economic Education

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