

FINDINGS  
of the  
COMPREHENSIVE SUMMATIVE  
EVALUATION OF THE  
JA ELEMENTARY SCHOOL PROGRAM

Submitted to:  
*JUNIOR ACHIEVEMENT OF MICHIGAN*

by:

Worldwide Institute for Research and Evaluation



June 2005

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Written by:

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# 1.0 INTRODUCTION

In education, considerably more resources are devoted to developing and launching new programs than evaluating the success of those efforts.<sup>1</sup> Without evaluation, however, it is impossible to know if a program is having the desired effects.

Summative evaluation, conducted by skilled external evaluators, provides the key to determining the worth or merit of a program. Educational organizations that possess the results of a scientifically designed, external<sup>2</sup> summative evaluation are in a much better position to market their programs to potential consumers (students, teachers, and other professionals), as well as funding agencies.<sup>3</sup> In this regard, Junior Achievement of Michigan (JA) is to be commended for recognizing the importance of conducting a comprehensive external summative evaluation of its JA Elementary School Program.

During the 2004-2005 school year, the Worldwide Institute for Research and Evaluation (WIRE) conducted an extensive, scientifically designed, summative evaluation of the JA Elementary School Program across the state of Michigan. The purpose of the summative evaluation was to determine the impact of this program on student learning. Specifically, this study was designed to answer the following evaluation questions:

- Do students who have participated in the JA Elementary School Program have a better understanding of economics, business, and community functions and their relation to students' lives than students who have not participated in JA?

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<sup>1</sup> Alberg, M., & Ross, S.M. (1999). *Orientation to Evaluation Studies in Schools*. Memphis, TN: Center for Research in Educational Policy.

<sup>2</sup> External evaluations are conducted by individuals who are external to the organization and have no stake in program outcomes.

<sup>3</sup> Worthen, B.R., Sanders, J.R., & Fitzpatrick, J.L. (1997). *Program Evaluation: Alternative Approaches and Practical Guidelines*. New York: Longman.

- To what extent can students use knowledge and skills obtained in the JA Elementary School Program to think critically and solve problems?
- What do teachers perceive as the benefits of participating in the JA Elementary School Program?
- What do consultants (business volunteers from the community) perceive as the benefits of participating in the JA Elementary School Program?

This report contains information that answers these questions, as well as a detailed description of the procedures used to gather this information. This Introduction section provides a brief description of the external evaluators conducting this study and a description of the JA Elementary School Program. This section concludes with an outline of the remaining sections of the report.

## **1.1 BRIEF DESCRIPTION OF THE EXTERNAL EVALUATORS**

WIRE is an independent contracting agency that was established in 1978 to provide consultative services to organizations that are seeking to enhance or assess human performance. WIRE specializes in the evaluation of educational programs and products targeting improved learning performance.

Project success hinges on the qualification of staff responsible for conducting project activities. WIRE offered JA a team of professionals very well qualified to conduct the work associated with this evaluation. The evaluation team members have conducted evaluations ranging from classroom and district-wide studies to award-winning statewide, national, and international studies. They have evaluated various facets of the educational enterprise, including curriculum materials,

educational systems, teacher performance, organizational efficiency, and program effectiveness. (Additional information about the WIRE evaluators can be found on the WIRE Website at [www.wireinternet.com](http://www.wireinternet.com).)

In conducting studies, WIRE strives to provide clients with useful information in a format that is easy to understand while also providing the level of detail that will help key stakeholders make informed decisions about the merit or worth of a program and the necessary steps for improving implementation to increase outcome achievement. In conducting all study activities, WIRE evaluators strictly adhered to the *Program Evaluation Standards* developed by the Joint Committee on Standards for Educational Evaluation<sup>4</sup>, which assure ethical treatment of all respondents and truthful interpretation of all data obtained.

## **1.2 BRIEF DESCRIPTION OF THE JA ELEMENTARY SCHOOL PROGRAM**

The JA Elementary School Program focuses on helping students recognize the relevance of education to the workplace through sequential economics and business curricula designed to supplement the elementary school social studies curriculum. The Elementary School Program teaches concepts related to the individual, the worker, and the consumer through concrete, hands-on activities presented by a consultant (volunteer from the community). At each curricular level, corresponding to grade level, students are introduced to new concepts that build upon the learning from the previous level. Descriptions of the objectives within each curricular level follow.

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<sup>4</sup> The Joint Committee on Standards for Educational Evaluation. (1994). *The Program Evaluation Standards: How to Assess Evaluations of Educational Programs*. Thousand Oaks: Sage Publications.

### **1.2.1 Ourselves Program**

The first level of the JA Elementary School Program is designed to be presented to students in kindergarten. The purpose of this program, called Ourselves, is to introduce kindergartners to the economic role of individuals. Specific program objectives include:

- To recognize the role of self and appreciate individual differences
- To develop awareness of business and money
- To increase understanding of personal economics and saving
- To discover the roles individuals play in our economy as workers and consumers and the importance of working together

### **1.2.2 Our Families Program**

The JA Elementary School Program designed for first graders is called Our Families. The purpose of this program is to open a dialog on the role of families in the economy. Specific program objectives include:

- To increase understanding of what constitutes a family
- To understand the difference between a need and a want
- To increase knowledge of places that provide for a family's needs and wants
- To develop awareness of the types of jobs family members hold
- To heighten awareness of how each person contributes to the well-being of the family

### **1.2.3 Our Community Program**

The JA Elementary School Program designed for second graders is called Our Community. The purpose of this program is to explore the responsibilities and opportunities available to community members. Specific program objectives include:

- To discover a variety of occupations
- To discover what elements are typically found in a community
- To develop awareness of which businesses operate within the community
- To increase understanding of how government works to support services for the well-being of its citizens
- To heighten awareness of how citizens must take responsibility for the well-being of their community

### **1.2.4 Our City Program**

The JA Elementary School Program designed for third graders is called Our City. The purpose of this program is to provide practical information about businesses and the main occupations found in those businesses within a typical city. Specific program objectives include:

- To learn about the different zones used in city planning and identify the job of a city planner
- To understand what a construction business is and how it is important to a city's economy
- To understand what it takes to run a restaurant business and make decisions in accordance with this understanding

- To recognize the skills of a reporter and the importance of the newspaper as a communication tool
- To understand the purpose of a bank and how citizens use its services

### **1.2.5 Our Region Program**

The JA Elementary School Program designed for fourth graders is called Our Region. The purpose of this program is to provide practical information about natural, human, and capital resources found in regions of the United States and used by businesses to produce goods and services. Specific program objectives include:

- To discuss the use and importance of resources within the context of business operations
- To increase awareness of the production and distribution of goods and services in states and regions
- To develop awareness of business specialization and interdependence
- To make practical decisions, demonstrating wise uses of resources
- To understand the flow of money in and out of a business and the role of profit and loss to the success of a business

### **1.2.6 Our Nation Program**

The JA Elementary School Program designed for fifth graders is called Our Nation. The purpose of this program is to provide practical information about the formation and operation of businesses in the United States. Specific program objectives include:

- To increase awareness of the role of business in the U.S. free enterprise system
- To demonstrate the steps involved in starting a business
- To increase awareness of a variety of career opportunities
- To increase understanding of the complexities of producing, marketing, and selling a product
- To heighten awareness of the importance of education for future career development

### **1.3 DESIGN OF THIS REPORT**

Following this Introduction, the report contains four major sections:

- Section 2: Executive Summary
- Section 3: Evaluation Procedures
- Section 4: Student Performance Findings
- Section 5: Perceived Impact Findings

Section 2 provides a high-level overview of the remainder of the report. It summarizes the evaluation procedures utilized in this study and the important findings of the data analyses.

Section 3 details the design of the study, the instruments employed, and the data analyses conducted.

Section 4 presents findings based on student learning performance. It provides comparisons between the performances of students who have participated in the JA Elementary School Program with the performances of students who have not yet had an opportunity to participate in JA.

Section 5 provides information on teacher and consultant perceptions of the JA Elementary School Program. This section includes perceived impact on students' knowledge, skills, and lives, as well as impact on teachers' and consultants' lives. The section concludes with teacher and consultant perceptions of overall program effectiveness and suggestions for program improvements.

## 2.0 EXECUTIVE SUMMARY

WIRE conducted this summative evaluation to assess the learning impact of the JA Elementary School Program on the economics and social studies knowledge of kindergarten through fifth grade students attending schools from across the state of Michigan. In this section of the report, a brief summary of the procedures used to conduct this evaluation is provided. In addition, the most important findings related to student learning and perceived impact according to teachers and consultants are included. More details concerning each of these areas can be found in later sections of this report.

### 2.1 OVERVIEW OF EVALUATION PROCEDURES

The summative evaluation was comprised of two research studies. The first employed a quasi-experimental, project-control design in which student learning performance was assessed for two groups:

- **project group** – students who participated in JA
- **control group** – students who did not participate in JA

Both groups were administered tests and alternative assessment exercises that had been developed to specifically target the objectives within each curricular level of the JA Elementary School Program. Student learning performance was measured as percent correct on the tests and percent of possible points obtained on the alternative assessment. Average scores for the project group were compared with average scores for the control group to determine the impact of the JA Elementary School Program.

The second study employed survey research. Questionnaires were administered to teachers and consultants participating in the program. Respondents were asked to indicate their perceptions of the impact of the program through a series of checklist and open-ended items.

WIRE evaluators conducted several site visits to various school districts from across Michigan.<sup>5</sup> While on site, the evaluators administered tests and alternative assessments to control and project classes at all grade levels. The evaluators also distributed teacher questionnaires to the teachers of project classes while on site. JA staff distributed the consultant questionnaires. Postage-paid return envelopes were provided with the questionnaires so that they could be returned via direct mail to the WIRE offices.

Once all response data were collected and returned to the WIRE offices, appropriate analyses were conducted to determine if there were significant differences in the learning performance of the project and control groups at each grade level. Tests of statistical significance were conducted and effect sizes were computed to determine the probability and magnitude of differences found. In addition, frequency distributions and qualitative analyses were performed on all questionnaire data to determine general themes and perceived impacts of the programs.

Additional details about the design of the evaluation, participants, instruments, data collection techniques, and analyses employed in this study can be found in Section 3.0 of this report.

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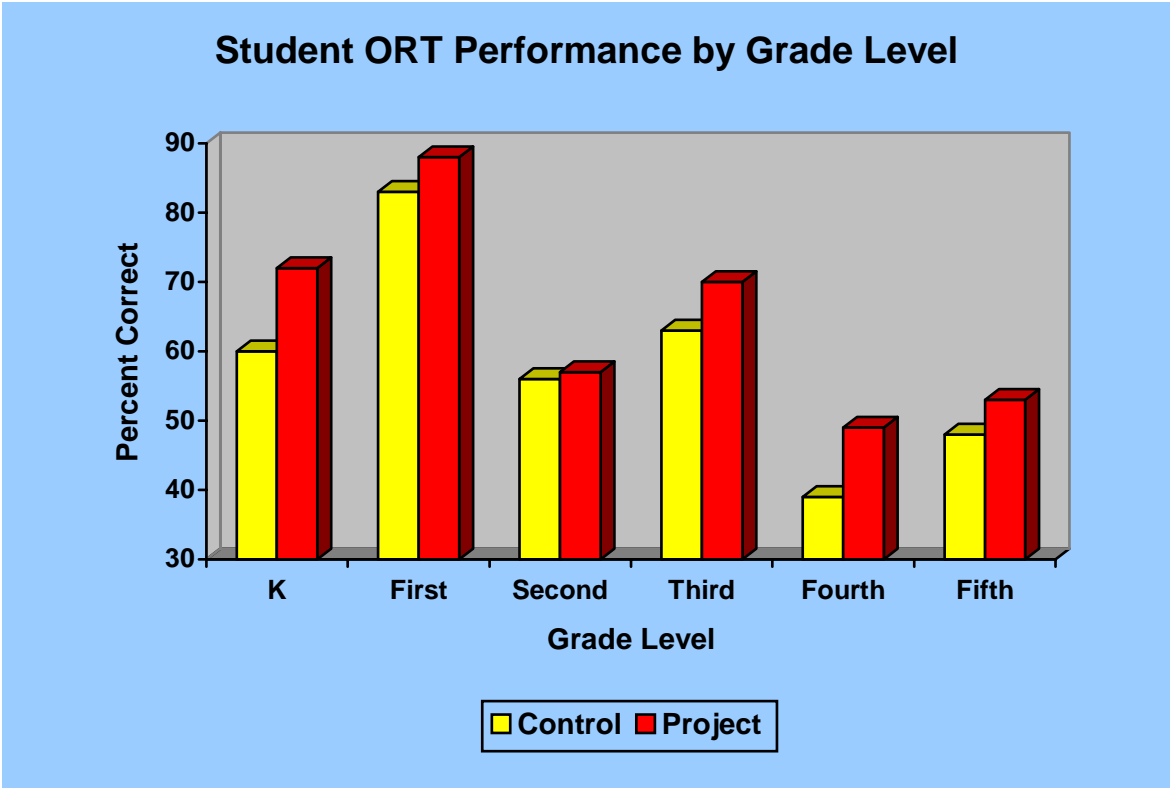
<sup>5</sup> Details about the sample used in this study can be found in Section 3.2.

## **2.2 SUMMARY OF PROGRAM IMPACT ON STUDENT LEARNING PERFORMANCE**

WIRE assessed the learning performance of students in this study using both traditional objective-referenced tests (ORTs) as well as alternative assessment measures. The ORTs provided an indication of students' basic knowledge and understanding, whereas the alternative assessments provided an indication of deeper learning or critical thinking.

### **2.2.1 Student ORT Performance**

The performance on tests of students' knowledge of economics and business-related concepts is depicted in the following figure. The impact of the JA Elementary School Program can be determined by noting the size of the difference between the control and project group scores. As can be seen in the figure, at every grade level, with the exception of Grade 2, students who participated in JA exhibited significantly greater levels of knowledge than students who did not participate in JA.

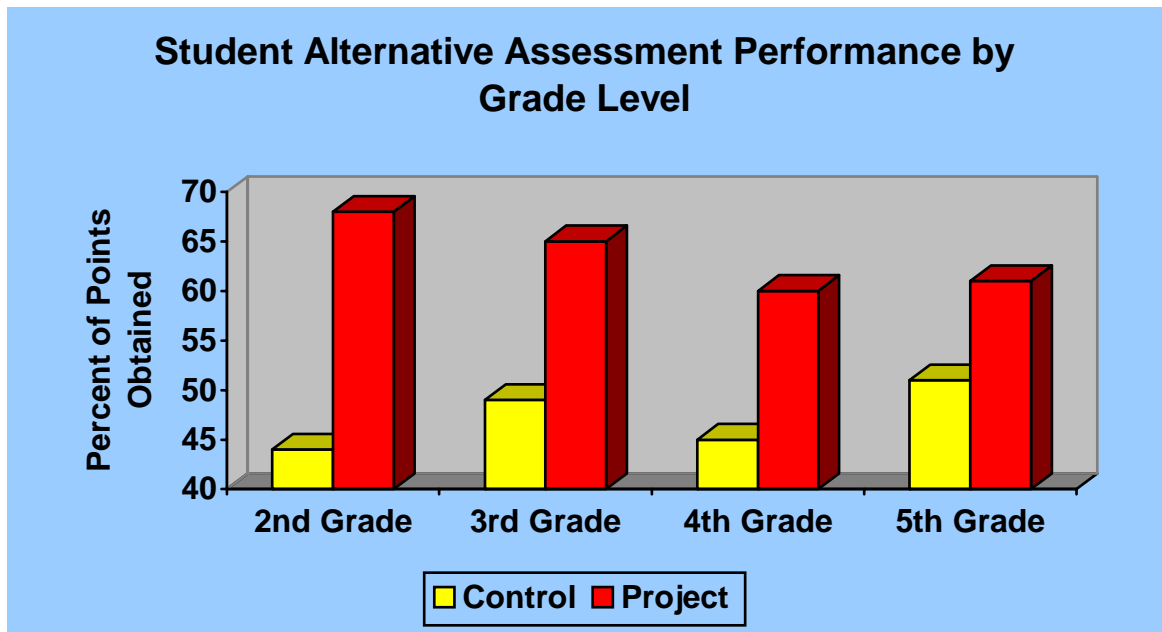


The impact of the JA Elementary School Program varied according to curricular level. These differences in end-level performance reflect the difficulty of the curriculum and the uniqueness of the concepts presented at that specific grade level. For example, the concepts presented at the fourth grade level are fairly unique. It is unlikely that students learn about regional resources from other sources than JA. However, it should be noted that this is also the level at which students gained the most from participating in the program. Thus, end-level performance is less important than gains in knowledge. The magnitude of these gains at every grade level (with exception of second grade) was consistent with, or surpassed, what is traditionally found with successful educational programs.

Additional details about the ORT findings, including specific concepts students have mastered as a result of participating in the JA Elementary School Program, can be found in Section 4.1 of this report.

## 2.2.2 Student Alternative Assessment Performance

The ORT findings revealed that the JA Elementary School Program has a positive impact on student understanding of economic, business, and social studies concepts. In this section, findings are presented concerning whether students can use this understanding to synthesize their knowledge and make fiscally responsible decisions. The results of the alternative assessments at each grade level are provided in the next figure.



At all grade levels, the JA Elementary School Program has a strong to phenomenal impact. Even at the second grade level, where there was no basic knowledge impact, students who participated in JA were significantly better at critically thinking and using the knowledge they possessed.

Specifically, after participating in the JA Elementary School Program, students in all grades can use higher-level processing to solve business-related problems and to make informed decisions. Students who participated in JA more effectively

synthesized information, making sound judgments and responsible group decisions, than students who did not participate in the program.

Additional details about the alternative assessment findings can be found in Section 4.2 of this report.

## **2.3 SUMMARY OF PERCEIVED IMPACT ACCORDING TO TEACHERS AND CONSULTANTS**

The impact of JA on student learning, critical thinking, and quality of life were also measured based on the perspectives of teachers and consultants. Teachers and consultants reported that the JA Elementary School Program had a significant impact on students' business and economics knowledge. They indicated that students gained insights into business and added to their conceptual understanding of economics and its role in students' lives through participation in JA. The majority of the teachers and consultants also agreed that the program had an important impact on students' understanding of concepts such as financial responsibility, work skills, and an understanding of the world. In addition, they suggested that JA encouraged students to think critically and to work together to solve problems.

Not only did the program have an impact on students, but teachers and consultants suggested that it had an impact on their lives as well. Teachers reported that they learned from the program, and consultants reported that it fulfilled personal needs and allowed them to give back to the community.

Overall, teachers and consultants were quite satisfied with the program. They rated it highly for its effectiveness and reported that they looked forward to participating in the program again. Indeed, the only frequent suggestion for enhancing the program

was the recommendation to extend the meeting times to allow even more interaction with students and the curriculum activities.

Additional details about these findings on perceived impacts and their interpretations can be found in Section 5.0 of this report.

## **2.4 CONCLUSION**

The findings from this evaluation suggest that the JA Elementary School Program is a quality program that is effective in fulfilling its objectives. Students in this study who participated in the program possessed more basic economic and social studies knowledge and were able to apply this knowledge, using critical thinking, better than similar students who did not participate in the program.

Not only is the program impact positive, but the significance and magnitude of the findings for the representative sample also suggest that program impact would likely be realized for any elementary school student in Michigan participating in JA. Further, the success of this program surpasses that observed in many of today's successful educational interventions.

Finally, program impact is supported by the perceptions of teachers and volunteer consultants participating in the program. These individuals report positive impact not only in students' lives but in their own as well.

## 3.0 EVALUATION PROCEDURES

The summative evaluation began in September 2004 and concluded with this report in June 2005. During the ten-month time span, several evaluation activities were conducted to provide information about the impact of the Elementary School Program. The remainder of this section provides details about the design, sample, instruments, data collection techniques, and analyses used with this study.

### 3.1 EVALUATION DESIGN

To assess the learning impact of the JA Elementary School Program, a quasi-experimental<sup>6</sup> project-control research design was used. This design provides for a comparison of the performance scores of students who have participated in the JA Elementary School Program with those of students who have not participated in the program.

The performance scores obtained from students who have participated in the JA Elementary School Program are referred to as “**Project Group Scores**,” and the scores obtained by students who did not participate in the program are referred to as “**Control Group Scores**.” This design allows evaluators to compare the project and control group scores using inferential statistical techniques.<sup>7</sup> To the extent that

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<sup>6</sup> A design is considered fully experimental if all participants are randomly selected to participate in various groups in the study. However, in the Elementary School Program students, participate as part of a class function that was selected by a teacher or JA staff member. The use of intact classes that have already been selected to participate in the program precludes the use of a full experimental design. However, some experimental control can be exerted in this situation by randomly selecting the intact groups of students to be included in the study. This level of randomization was achieved by JA selecting the various classes and postponing implementation of the Elementary School Program in those classes selected to be in the control group.

<sup>7</sup> Further description of these techniques is provided in Section 3.3.

the two groups are similar, significant differences in scores between the groups reflect differences in learning that can be attributed to the impact of the program.

The similarity between project and control groups was ensured by “matching” the classes in both groups on several student and school characteristics, including standardized test performance, socio-economic status level, ethnic composition, size of school, and type of school (inner-city, suburban, rural, etc.). The JA staff worked with the schools to create matched groups that did not differ from each other by more than 15% on any characteristic. This “matching” eliminated the chance that differences between groups is a function of other factors besides the impact of the program.

Perceived impact of the JA Elementary School Program was assessed using a traditional survey research design. Teachers and consultants completed questionnaires, which asked respondents to rate the impact of the program. Descriptive statistics<sup>8</sup> were calculated for all responses on the questionnaires to determine perceived impact.

### **3.2 DESCRIPTION OF THE STUDY PARTICIPANTS**

The findings from this study provide results for those participating in the study (the sample). However, to the extent that study participants and program implementation are representative, the findings from this evaluation may be generalized to other students from across the state of Michigan. WIRE employed several techniques to maximize the extent to which the sample selected was representative of the general population of all Michigan classrooms.

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<sup>8</sup> Descriptive statistics include frequencies, ranges, and measures of central tendency, but do not provide inferences from samples to be made at specified probability levels, as is the case with inferential statistics.

WIRE contacted all JA Local Area Offices at the beginning of the 2004-2005 school year to explain the study and the requirements for selecting and matching project and control classes. Local Area staff members were requested to select schools and classes that were representative of their area. JA staff then recruited schools to participate in the study from several regions across the state of Michigan. Twenty schools in all were included in the final sample. The areas<sup>9</sup> from which these schools came include:

- Battle Creek
- Jackson
- St. Joseph
- Grand Haven
- Midland
- Traverse City
- Grand Rapids
- Saginaw

Because of varying implementation patterns, different grades participated at different schools. In total 1,737 students participated in the study. The specific number of classes and students at each grade level are depicted in the following table.

Approximately half of these classes were located in lower income regions. One-half of the classes were suburban school classes, one-third were inner-city,

<b>Grade Level</b>	<b># of Classes</b>	<b># of Students</b>
Kindergarten	6	92
1 <sup>st</sup> Grade	12	254
2 <sup>nd</sup> Grade	12	229
3 <sup>rd</sup> Grade	15	306
4 <sup>th</sup> Grade	16	386
5 <sup>th</sup> Grade	22	470

and one-third were rural school classes. In addition, one-third of the classes were composed of predominately Caucasian students, one-third were composed of predominately African-American students, and one-third were composed of mixed ethnicities.

This selection of participants allowed for a good representative sample of classes in the state of Michigan and provided a sufficient sample size to be sensitive to group differences. Thus, the findings of this study can be generalized to the greater Michigan population.

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<sup>9</sup> Schools were located within 25 miles of the cities listed.

### 3.3 DATA COLLECTION INSTRUMENTS

Data from several sources were collected to increase the sensitivity of the evaluation. The use of multiple methods from multiple sources provided in-depth information and ensured that no one source of data biased the results in a way that was inconsistent with actual impact. The following is a brief description of each of the instruments used to collect the various forms of data.

#### 3.3.1 Objective-Referenced Test (ORT)

To assess students' basic understanding of economics and the concepts covered in the JA Elementary School Program, WIRE evaluators administered a series of objective-referenced tests (ORTs). These ORTs are multiple-choice, paper-and-pencil tests that include items developed for the purpose of determining whether students are meeting the objectives of the JA Elementary School Program. The ORTs had been previously developed and validated for a national study of JA programs conducted by WIRE.

Items on the ORTs were designed to assess the lower three levels of student learning, as defined by Bloom's Taxonomy of Learning. Some items assessed student **knowledge** – recognition of facts and concepts from the lessons. Other items assessed student **comprehension** – understanding the meaning of concepts. Finally, a few items within each test also assessed students' abilities to **apply** their learning – using information to calculate answers. Examples of each type of item from the third grade test<sup>10</sup> are provided in the next figure.

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<sup>10</sup> Items on the fourth and fifth grade tests followed a similar structure but also include a fourth distractor.

## Examples of Items from the Our City ORT

### Knowledge Item

A blueprint is a

- a. blue fingerprint.
- b. construction plan showing how tall and wide to make a building.
- c. list of the materials to be used in a new building.

### Comprehension Item

Newspapers are important because

- a. by reading them, we can find out what is going on in our city.
- b. they can be used to make paper hats.
- c. they can be recycled.

### Application Item

Isaac wants to open a restaurant that serves meals in the evening. It will make the most money if it is near

- a. office buildings.
- b. a school.
- c. a mall.

Separate ORTs were created for each curricular level to reflect the content and objectives within that specific domain. Because the different curricula were of different lengths, the tests reflected the number of objectives within each. The Our Families ORT is composed of 18 items, the Our Community ORT is composed of 25 items, the Our City ORT has 32 items, the Our Region ORT has 30 items, and the Our Nation ORT has 44 items.

Because first and second graders possess varied and limited reading abilities, the ORTs at these grade levels required response to a combination of visual and auditory materials. The evaluator read each question to the students and then read a brief description of three pictures illustrated on the student answer booklet. Students were asked to respond to each question by placing an “X” on the picture they considered to be the correct response. Sample items from these ORTs are provided in the figure below.

### Sample Items from First and Second Grade ORTs

***Put an X on the one that is a need.***

- a. baseball bat
- b. puppy
- c. shirt



***Put an X on the one that shows how money is used in a community.***

- a. Businesses spend money buying things from other businesses.
- b. Businesses keep all the money they get.
- c. Businesses send all the money to the bank.



### 3.3.2 Kindergarten Criterion-Referenced Test (CRT)

Because kindergartners have not had much testing experience and thus are less likely to be able to answer questions on their own, WIRE administered a criterion-

referenced group test (CRT) to the kindergarten classes. The items on this CRT consist of open-ended test items that allow students to respond in an oral fashion and as a group. Like all CRTs, responses to items are compared to pre-established criteria to determine whether students are meeting the objectives of a curriculum.

Several of the items utilized pictures as prompts, asking students to match a concept to a picture. Sample questions, with the scoring guidelines from the kindergarten CRT, are provided in the box that follows.

### Sample Items from CRT

#### ***Who knows what it means to trade?***

**-correct answer:**

Give something to someone AND get something in return

**-incorrect answers:**

Give something (by itself without corresponding phrase get something)

Get something (by itself without corresponding phrase give something)

Sell something

Take someone else's place

Switch things

Play a game

**Note:** Some students could give a practical example of someone giving something and getting something in return and that would count as correct.

#### ***Tell me all the things you can do with money.***

**-correct answer:**

Buy things/spend it AND save it

**-incorrect answers:**

Buy things (by itself without corresponding phrase save it)

Spend it (by itself without corresponding phrase save it)

Save it (by itself without corresponding phrase buy or spend it)

Give it away (as the only phrase)

Put it in a bank

Use it

**Note:** If students say "put it in a bank" or "use it," query for additional details.

### 3.3.3 Alternative Assessment Exercises

While ORTs and CRTs provide a good indication of student *conceptual learning* (the lower three levels of Bloom's taxonomy), they are typically not a very sensitive measure of students' abilities to think critically and solve problems in which multiple skills and facts must be brought to bear (as is true of the upper three levels of Bloom's taxonomy). That is, ORTs generally test students on memory tasks that indicate how well the students can recall their various types of understanding. More sensitive measures of whether students can perform more complex, real-world activities based on integrated knowledge from several concepts have been emphasized in educational assessment in the past few years. These measures are variously referred to as performance assessment, direct assessment, authentic assessment, or alternative assessment; they will be referred to by the latter term hereafter in this report.

Alternative assessment presents students with real-world challenges that require them to synthesize their knowledge across concepts and apply that knowledge to solve problems and think critically in response to new situations. These measures are fairly complex and require students to work individually or in small groups on a task provided by the tester. Examples of alternative assessments include portfolios, oral examinations, multimedia projects, journal entries, role play, and simulation. The least expensive to administer while providing the closest approximation to real-world tasks are role play and simulation.

However, alternative assessment has its limits. Only one or two objectives can be incorporated into any one exercise. Thus, although alternative assessment may provide more in-depth understanding of student performance, it does not provide the breadth of coverage of more traditional ORTs. To fully assess student learning, both types of testing are required.

Once again, WIRE instrument development specialists had already created assessments for the second through fifth grade programs,<sup>11</sup> as part of a national JA evaluation. Each of these assessments included a series of simulation exercises that required students to synthesize their knowledge, apply that knowledge to solve business problems, and to make economic decisions. Multiple exercises were developed to assess a variety of concepts within each curriculum. The assessments were constructed so that students could complete the exercises within 45 minutes. Descriptions of the alternative assessments for each program are provided below.

**Our Community Assessment.** At the second grade level, the alternative assessment consisted of two exercises. The first exercise required students to demonstrate their understanding of unit and assembly line production by using both forms of production to create kites. Students worked in groups of five to complete the task and received a group score based on their performance.

The second exercise focused on students' decision-making skills. Students were presented with a problem, and they had to generate multiple solutions, listing the advantages and disadvantages of each solution. Students were also required to select the alternative that was the "best choice" based on weighing the relative advantages and disadvantages. Once again, students worked in small groups on this activity and thus received a group score.

**Our City Assessment.** At the third grade level, three exercises were used in the alternative assessment. The first exercise required students to demonstrate their understanding of zoning by constructing a city in which various buildings and locations were assigned to particular zones. Students worked in groups of five to complete the task, with each student placing one or two buildings onto a grid map of

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<sup>11</sup> Assessments were not created for kindergarten or first grade because of their limited developmental ability to use higher order thinking skills.

a city. Each student received an individual score based on the overall group performance.

The second exercise focused on students' ability to apply carpentry skills by using a blueprint to answer questions about a fictional school and by creating their own blueprint for a classroom in the school. Students worked individually on their own blueprints and thus received individual scores on this exercise.

In the last exercise, students were required to critically think about the principles related to starting and running a business. Students were provided with information cards about a fictional dog-walking business, and they had to make decisions about the feasibility of starting such a business, the jobs that would be required for the business, and the skills necessary to successfully accomplish those jobs. Once again, students worked as a group with each individual responsible for thinking and responding to one aspect of the business. Each student received an individual score for this exercise.

**Our Region Assessment.** At the fourth grade level, the alternative assessment consisted of two exercises. The first exercise required students to demonstrate their understanding of resources and their importance to the economic growth of a region. A fictitious state (Columbialand) was proposed, and a resource chart identifying key information about Columbialand was presented to students. They individually worked on deciding whether certain businesses should move to Columbialand based on information about the business and using the resource chart. Students received an individual score for their performance on this activity.

The second exercise focused on students' critical thinking in making decisions based on skills taught in the JA curriculum. Students worked as a group to decide what should be done about a business that was losing customers. Students were required to generate multiple solutions with the corresponding advantages and disadvantages of each solution. Students were also required to select the

alternative that was the best choice based on weighing the relative advantages and disadvantages of each alternative. Each student received a score based on the group decision.

**Our Nation Assessment.** At the fifth grade level, the alternative assessment also consisted of two exercises. The first exercise required students to conduct a job interview and make decisions about who they would hire based on résumé information and the interview itself. (The testers played the role of job applicants while students played the role of interviewer during the mock interview.) Students recorded the strengths and weaknesses of each applicant and their final decision individually on response sheets. Thus students received individual scores for this activity.

The second exercise focused on students' knowledge of how to operate a business. Students were provided key information about their business (a helicopter transportation company) and then required to critically think and answer questions about the day-to-day operation of their company. Once again, students responded individually on response sheets and received individual scores.

### **3.3.4 Questionnaires**

To assess perceived impact, questionnaires were developed for teachers and consultants participating in the JA Elementary School Program. The questionnaires specifically targeted four areas:

- How students' lives changed after participation in the program
- Skills and attitudes students learned from the program
- Impact of the program on them personally
- Rating of program effectiveness and need for improvement

To increase the response rate, only nine items were included on the consultant and teacher questionnaires. One item included a rating scale of 16 student behaviors.

Another question focused on a 24-item checklist of possible areas of impact on student lives. The remaining questions required open-ended responses.

Both questionnaires were similar in content, except that teachers were asked to make comparisons between JA students and other students with whom they had experience, while consultants were asked to compare JA students with other children they knew. The similarity of content between the two questionnaires allowed direct comparisons of the two groups of responses.

Examples of each type of item are presented in the box below.

### Sample Items from Questionnaires

#### **Scaled Item**

After participating in Junior Achievement, I believe students are:

more capable/more likely to  less capable/less likely to  does not have an impact on understand how the world operates.

#### **Checklist Item**

What skills and attitudes do JA participants have that are not evident in other students who haven't had the program? (Check all that apply)

tolerance for differences  understanding of the world  
 work ethic  adaptability

#### **Open-ended Response Item**

What one most important thing do you think students learn from this program?

## **3.4 DATA COLLECTION ACTIVITIES**

WIRE evaluators collected the student and teacher data during extensive on-site visits made to each of the classes included in the sample. Multiple site visits were conducted to the various regions in Michigan, with two to five evaluators present on site at a time. JA Staff assisted in the collection of the consultant data. Further descriptions of the various data collection activities are provided in the remainder of this section.

### **3.4.1 CRT Administration**

The Ourselves CRTs were administered in kindergarten classrooms by WIRE evaluators while conducting the on-site visits. All students present on the day of testing participated in the CRT.

The CRT was administered orally to the class, as a single unit. The evaluator utilized an administration script and asked questions of the class as a whole. The script was used to ensure that the testing experience was the same for all students and that the results were a function of learning and not administration.

For each item, the evaluator read a question and selected one student to answer the question. The evaluator compared the student's response to the correct response provided in a scoring guide. If the response matched or was a paraphrase of the correct answer, the class moved on to the next item. If the response did not match, the evaluator called on another student. This process continued until a correct response had been achieved or no other students were offering suggestions. Attempts were made to include every student in the assessment.

### 3.4.2 ORT Administration

WIRE evaluators administered the ORTs to first through fifth grade classes, also while on site. ORTs were administered in the classroom to all students present on the day of testing. Teachers completed an information sheet for each class, which provided the name of the teacher and grade of the class. The information sheet given to project teachers also included information about the number of consultant visits to the classroom<sup>12</sup> and the number and names of students who had missed more than one JA program lesson.<sup>13</sup>

The evaluator followed, verbatim, an administration script that informed students about the purpose of the test and provided information on how to complete items. The script was used to ensure that the testing experience was the same for all students and that the results were a function of learning and not administration. Students completed a form with their name and the name of their teacher that was part of their ORT response booklet. Students answered items on the ORTs directly within the testing booklet.

Because of the varying levels of reading ability, the third grade test was read aloud to students as they read silently and marked their answers in their testing booklet. Students worked independently and at their own pace on the fourth and fifth grade tests.

During the testing, the evaluator walked around, monitoring student behavior. The evaluator did not answer student questions during the test, except to repeat prompts that already had been provided or to clarify the item being read at the time. Students were given 45 minutes to complete the ORT. Less than 1% of students failed to complete the ORTs in the time allotted.

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<sup>12</sup> This information provided a check to ensure that the entire program had been presented to the class.

<sup>13</sup> Students missing more than one lesson were dropped from the study.

### **3.4.3 Alternative Assessment Administration**

WIRE evaluators conducted alternative assessment activities with groups of three to five students. The evaluators randomly selected students from the same classes that completed the ORTs. One or two evaluators led students through the assessment exercises following a standardized script that provided directions and timing for all activities. During the assessment, students worked individually and together to make decisions and provide answers<sup>14</sup> to the assessment scenarios. Students recorded their individual decision on response forms. Evaluators documented group decisions and responses on record forms. Most of the assessments were completed in less than 40 minutes.

### **3.4.4 Teacher Questionnaire Distribution**

Questionnaires were distributed to teachers while the evaluation teams were conducting project group testing in classes. The surveys were then collected at the end of the testing period. In cases where the teacher was unable to complete the questionnaire, postage-paid envelopes for returning their responses to WIRE were provided. A total of 101 completed teacher questionnaires were returned to WIRE.

### **3.4.5 Consultant Questionnaire Distribution**

WIRE provided each JA Local Area site 25 consultant questionnaires with accompanying postage-paid envelopes to distribute to consultants who had participated in the JA Elementary School Program. The cover letter, included on the questionnaire, informed consultants about the purpose of the study and

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<sup>14</sup> "I don't know" responses were recoded when students could not generate answers. This happened more frequently when conducting the assessment with the control group.

provided instructions for completing the questionnaire and returning it to the WIRE offices. One hundred and fifty-two consultants returned their questionnaires for an impressive return rate of 76%.

## **3.5 DATA ANALYSIS AND REPORTING**

Over 2,000 instruments were returned to the WIRE offices from site visits and mailings. Each was tracked, logged, and encoded into a database. Data analyses were conducted to condense the information into this report, which presents the most significant findings. A brief description of each of these activities follows.

### **3.5.1 Data Encoding**

As data came into the WIRE offices, a senior project assistant logged the school, grade level, and teacher name into a file. A group code (project versus control) was then assigned to each instrument and used in subsequent analysis for determining specific group differences. Once codes had been placed on all answer sheets and surveys, instruments were turned over to the data manager.

A team of data entry clerks keyed responses from the CRTs, ORTs, and checklist items on the teacher and consultant questionnaires into a data spreadsheet. The spreadsheet was then converted into a data file that could be analyzed by a statistical program (SPSS).

WIRE data analysts hand-scored responses from all forms (student response forms and evaluator record forms) completed during the alternative assessment. Using a

scoring rubric that detailed possible answers and corresponding point values,<sup>15</sup> the data analysts computed sum scores for each assessment exercise as well as overall assessment total scores. Group scores were then generated for each assessment conducted that represented a percentage of the total points the group had obtained from all points possible on each exercise as well as on the overall total for the grade level. Group scores for both project and control classes were then entered into an SPSS file.

Finally, open-ended responses from the questionnaires were entered into a document file. Separate files were maintained for teacher and consultant responses.

### **3.5.2 Analysis of the ORT/CRT Data**

The SPSS data files containing the ORT and CRT responses were scored for accuracy of responses. All questions were recoded as “1” for correct or “0” for incorrect.<sup>16</sup> The total number of correct responses for a test was summed and the percent correct calculated for each student.<sup>17</sup> The percent correct scores were used as the dependent variable in all statistical analyses. The code for group (project or control) was used as the independent variable.

An analysis of variance (ANOVA) was conducted to determine differences in performance (percent correct scores) between the project and control groups. Separate ANOVAs were conducted for each level of the curriculum.

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<sup>15</sup> Responses that demonstrated more sophisticated economic thinking were given more points.

<sup>16</sup> Separate correction analyses were conducted for each grade level's ORT.

<sup>17</sup> In the case of the CRT, class percents were used because of the group response to this test. This meant that the actual sample size at the kindergarten level was quite small, although the sample was sufficient to detect performance differences.

The outcome of ANOVA is an “F” statistic that is interpreted by probability (p-value) statements. The lower the probability, the more statistically significant the difference between groups and the more likely the impact of the program. Additional information about the interpretation of p-values can be found in Section 3.5.5.

One caution in using ANOVA (or any analysis of statistical significance) concerns the fact that results are affected by sample size: the larger the sample, the more likely that even small differences between independent variables will result in significant results. Thus, relying only on these nonparametric measures runs the risk of over-representing the impact of a program. To gain a more accurate interpretation of the magnitude and direction of program impact, WIRE data analysts also conducted effect size analyses<sup>18</sup> in conjunction with the ANOVAs.

The findings from these analyses are presented in Section 4.1 of this report.

### **3.5.3 Alternative Assessment Analyses**

To determine whether participating in the JA Elementary School Program impacted student critical thinking, WIRE data analysts conducted ANOVAs comparing the project and control group scores from the alternative assessments. Once again, separate analyses were conducted for each grade level. Subsequent breakdown analyses were conducted on the specific exercise scores to determine precisely where learning had been impacted. Effect size analyses were also conducted to determine the magnitude of the differences observed.

Results of these analyses are presented in Section 4.2 of this report.

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<sup>18</sup> Effect size analyses are computed based on standard deviations and are not impacted by sample size. Additional information on interpreting effect size analyses results is provided in Section 3.5.5.

### 3.5.4 Questionnaire Analyses

To determine perceived impact of the program, frequencies and other descriptive statistics were calculated for all checklist items on the teacher and consultant questionnaires. Open-ended responses from all surveys were analyzed using a modified form of qualitative data analysis known as matrix analysis. General themes emerged from these analyses and were interpreted according to perceived impact and satisfaction with the program.

Results from these analyses are presented in Section 5.0 of this report.

### 3.5.5 Reporting

Only those findings that are statistically significant, educationally meaningful, or highly relevant to the Elementary School Program are provided in Sections 4.0 and 5.0 of this report. A brief description of what is meant by “statistically significant” and “educationally meaningful” is provided in this section and should be used in interpreting all findings in the following sections of this report.

**Statistical Significance.** A statistically significant finding (from an ANOVA) refers to a comparative finding in which the difference between two groups can be considered real. With any study, it is possible that the findings concerning differences between groups are due to random fluctuations in the data rather than real differences. The lower the  $p$ -value is, the higher the probability that the difference between groups is real. For example, consider the  $p$ -values and their interpretation in the next box.

### **P-Value Standards**

$p < .10$	Means that there is less than a one in 10 chance that the finding is not real.
$p < .05$	Means that there is less than a one in 20 chance that the finding is not real.
$p < .01$	Means that there is less than a one in 100 chance that the finding is not real.

Most evaluators consider a  $p$ -value of .05 ( $p < .05$ ) to represent a satisfactory probability that their findings are real because the likelihood that the finding has occurred by chance is less than 5 out of 100. Only findings at a level of  $p < .05$  or lower are reported in this document as being statistically significant.

**Educational Meaningfulness.** Another way of interpreting differences in scores is not based on chance or statistical significance, but rather on how educationally meaningful the magnitude of the difference is in practical terms. One might ask, even if the probability is high that the differences are real (i.e., statistically significant), is the difference of any practical significance? Is the difference big enough to be educationally important? Does it justify the cost of the program that created the difference? Are the differences what one would expect of an effective program?

To answer these questions, another statistical analysis can be performed that yields a measure of educational impact called an “effect size.” An effect size (E.S.) is a comparative statistic that determines the magnitude of difference between two groups of scores. This magnitude is then compared to standards for findings to determine how important the finding is for that area of study. Given that the JA Elementary School Program targets improving learning – an educational area of study – scores from this study were compared against normal effect sizes that reflect learning success. The box on the next page provides the typical standards used in educational research.

### Effect Size Standards

- E.S. less than .30 means there is little educational meaningfulness.
- E.S. between .30 and .50 means there are meaningful differences. This result can be considered **solid** evidence of educational impact.
- E.S. between .50 and .75 means that there is an educationally meaningful finding that has **strong** practical implications.
- E.S. between .75 and 1.00 means that there is both an educationally meaningful finding and one that will most likely have a **major** impact on education within the area.
- E.S. of more than 1.00 is highly meaningful and indicates **phenomenal** educational learning.

Educational programs that are touted as being successful usually achieve effect sizes between .35 and .70. Effect sizes are reported for all comparisons of groups in the next section of this report. The reader should pay special attention to any effect size that is greater than .50 (sometimes connoted as E.S.=.50) as indicating strong educational impact and one that is consistent with other successful educational programs. However, the reader will often encounter much larger effect size results, suggesting that the impact of the JA Elementary School Program in this study surpasses typical learning gains.

## 4.0 STUDENT PERFORMANCE FINDINGS

To determine if students who participate in the JA Elementary School Program add significantly to their knowledge of economics and social studies concepts and increase their ability to use that knowledge, the performances of project and control group students were compared. Since all students have at least some economics and social studies knowledge from life experiences, it can be assumed (to the extent that the matches between project and control classes are adequate) that all the students in this study possess the level of knowledge indicated by the control group's mean performance. In essence, the control group serves as a surrogate for a pre-test score for the project students.

The extent to which JA makes a difference in learning is calculated by comparing the performance of the project group (post-test score) with the control group. The differences in scores are therefore an indicator of the change in student understanding as a result of participating in the program.

Before interpreting the findings, the reader should bear in mind that while scores are reported in terms of percentage correct or percentage of points obtained, the percentage should NOT be interpreted as a class grade, but rather as the percent of information mastered. As an example, on a typical standardized test, someone scoring at the average percentile may get as few as 20% of the items correct.

Therefore, the accurate interpretation of these results comes from analyzing the **differences** between project and control scores as compared to end-score performance. Across different grade levels and measures, one should look at the increase in the scores from the control to the project group to determine how significant the program's impact was for each grade and each type of performance.

Finally, all results are provided according to overall project and control group differences, with scores aggregated across specific school districts. Using aggregated results increases the sensitivity of the analyses to observed differences<sup>19</sup> and allows the results to be generalized to the entire state of Michigan.

## **4.1 IMPACT OF PROGRAM ON STUDENTS' BASIC KNOWLEDGE**

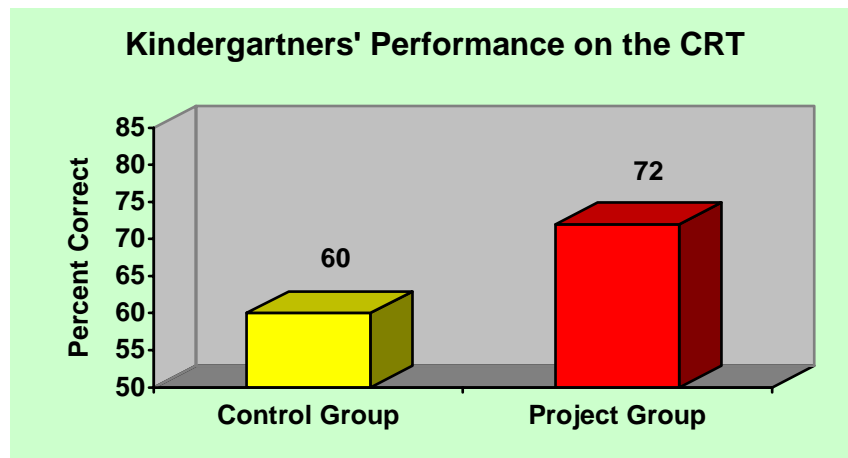
To determine if the JA Elementary School Program has an impact on students' basic knowledge and understanding of economic concepts and their relation to students' lives, ORTs and CRTs were administered to students who had and had not participated in JA. The results of the performance of these two groups at each grade level are presented below.

### **4.1.1 Results for Ourselves Curriculum**

The results of the CRT at the kindergarten level suggest that JA is helping students to master economics and social studies concepts. The next figure illustrates the performance of both the project and control groups on the kindergarten CRT. As can be seen, the project group significantly outperformed the control group.

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<sup>19</sup> This is especially true for the alternative assessment results where only one data point or score might be entered per school.

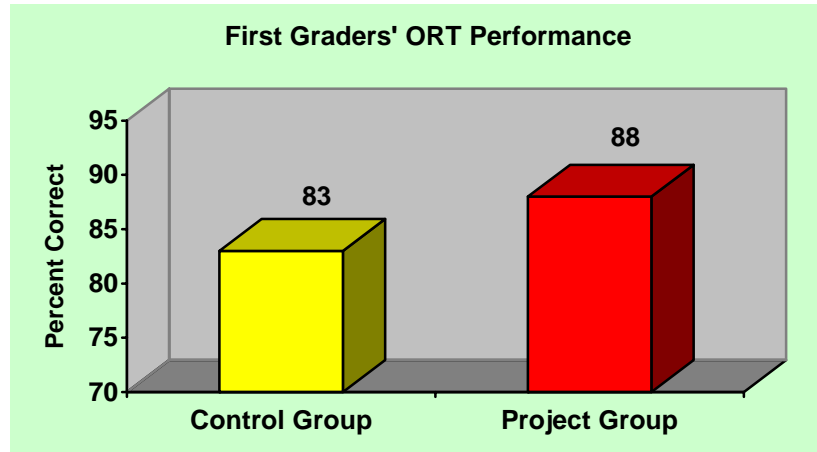


Kindergartners who have participated in the Ourselves Program add about 20% to their knowledge base. This level of impact represents the type of educational growth seen with successful educational interventions, as evidenced by the strong effect size of .60.

Not only is the impact on knowledge and skills educationally meaningful, it is also statistically significant ( $p < .05$ ). This finding suggests that this impact is a real outcome of the program and would be obtained again if repeated with other classes.

#### 4.1.2 Results for the Our Families Curriculum

Findings at the first grade level were also quite positive, although less dramatic than at the kindergarten level. The CRT performance of both project and control groups are provided in the next figure. As can be seen, the difference between groups was considerably smaller, albeit still statistically significant ( $p < .003$ ).



Students participating in the Our Families Program increased their economics knowledge by 6%. The effect size of this difference was relatively small at .34.

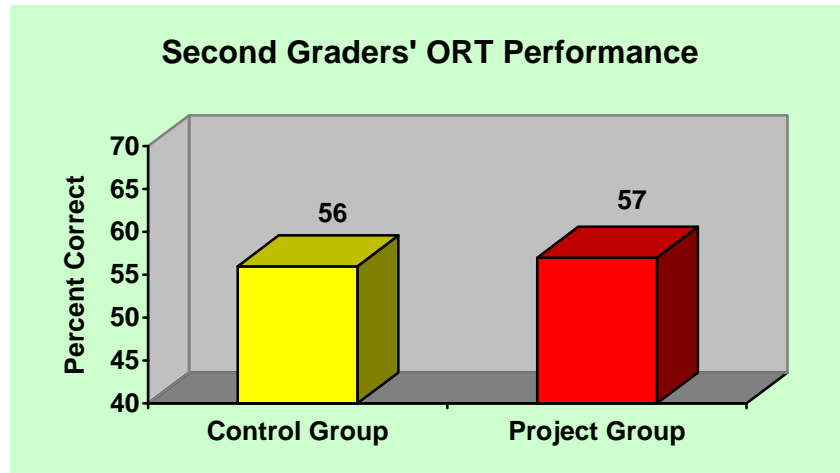
The smaller level of impact obtained at the third grade level is most likely the result of a “ceiling effect.” The reader will notice that the performance of the control group (who have never participated in JA) is quite high, surpassing the traditional mastery level. This finding suggests that students have learned many of the concepts contained within the first grade curriculum from other sources than JA. This is not surprising when analyzing the first grade curriculum. Most of the concepts focus on the family. It is likely that students understand much of this information before beginning JA and thus there is little room for growth.

However, even with such high levels of beginning knowledge, students at the first grade still add, although modestly, to this knowledge as a result of participating in JA. And this growth is not likely to have occurred by chance. The breakdown analysis of the first grade results reveals that students make significant gains in the following conceptual areas:

- Differentiating needs from wants
- Understanding different types of occupations and their locations
- Identifying how to make the home a better place to live

### 4.1.3 Results for the Our Community Curriculum

At the second grade level, there were no significant differences in performance between those who had participated in JA and those who had not. The performance of both groups is illustrated in the figure below.

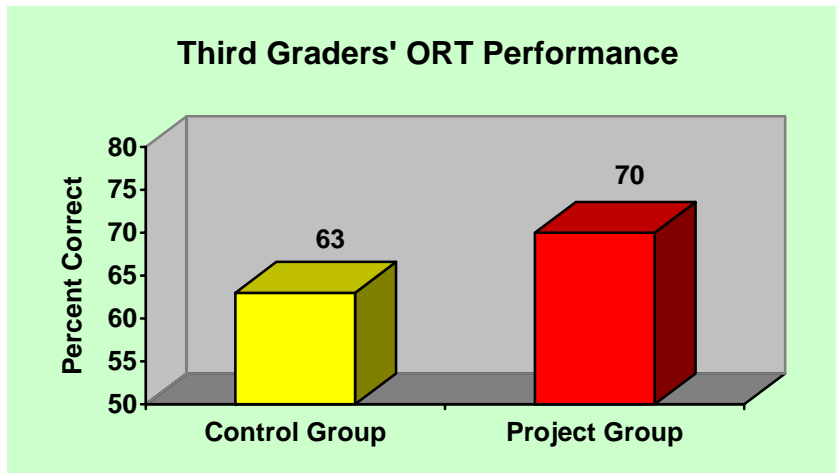


This finding suggests that the concepts students understand from this curriculum have been obtained prior to participating in JA. It is possible that these students have learned the same concepts presented in the Our Community curriculum through other experiences or programs.

This does not mean, however, that participating in the JA Elementary School Program at the second grade level does not provide additional benefits. It is possible that the reinforcement of already learned skills could assist better learning at higher grades as students progress through the various levels of the JA Elementary School Program. This possibility is further supported by the findings from the second grade alternative assessment (see Section 4.2.1).

#### 4.1.4 Results of the Our City Curriculum

The results at the third grade level reveal a stronger impact of the JA Elementary School Program. As the following figure illustrates, students who participate in the Our City Program add significantly to their knowledge of the city and how businesses contribute to a city's welfare.



After participating in JA, students add about 11% to their knowledge base. This finding is educationally meaningful, as indicated by the solid effect size of .48. Not only is the impact on knowledge and skills educationally meaningful, it is also statistically significant ( $p < .001$ ). This finding suggests that this impact is a real outcome of the program and would be obtained again if repeated with other classes.

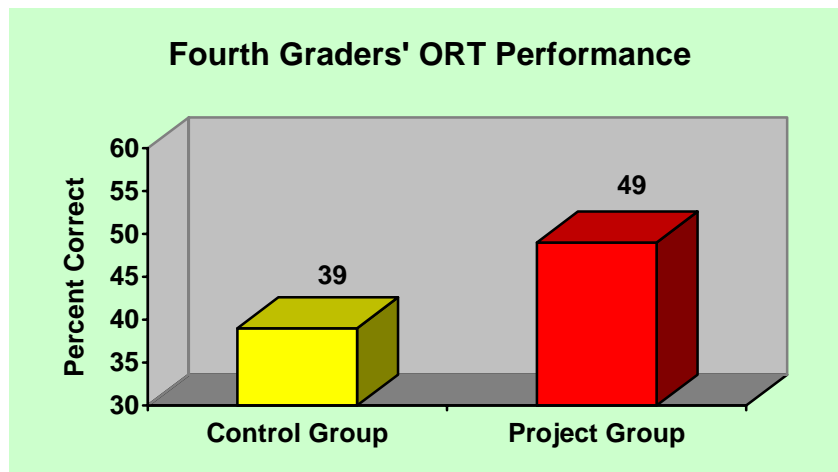
The results suggest that the third grade curriculum is effective in stimulating student learning and retention of economic and business concepts. A breakdown analysis of the third grade ORT results further suggests that there is significant growth in students' knowledge of the following concepts after participating in the Our City Program.

- Role and skills of a carpenter
- Use of a blueprint
- Zones in a city
- Role and skills of a city planner

- Purpose of a deposit slip
- Design and function of a newspaper
- Role of producers
- Function of a bank
- Role and skills of a newspaper reporter
- Role of consumers

#### 4.1.5 Results of the Our Region Curriculum

The results at the fourth grade level reveal the strongest impact of the JA Elementary School Program. As the following figure illustrates, students who participate in the Our Region Program add significantly to their knowledge of regional resources and how they contribute to economic growth. Further, without JA, students have very little knowledge of these concepts (as indicated by the very low performance of the control group).



After participating in JA, students add 26% to their knowledge base. This finding surpasses what is typically observed with successful educational programs, as indicated by the large effect size of .65.

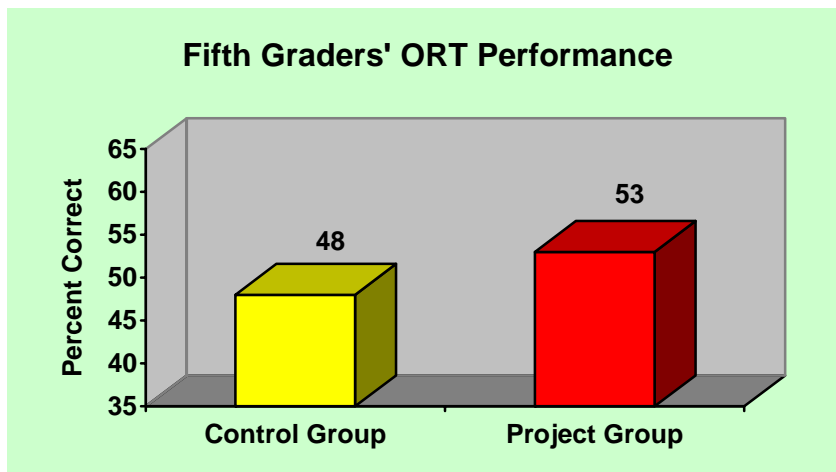
Not only is the impact on knowledge and skills educationally meaningful, it is also statistically significant ( $p < .001$ ). This finding suggests that this impact is a real outcome of the program and would be obtained again if repeated with other classes.

The results suggest that the fourth grade curriculum is effective in stimulating student learning and retention of economic and business concepts. A breakdown analysis of the fourth grade ORT results further suggests that there is significant growth in students' knowledge of the following concepts after participating in the Our Region Program.

- Natural resources
- Capital resources
- Economy
- Decisions in running a company
- Scarcity
- Human resources
- Goods and services
- Regional resources
- Income, expenses, and profit
- Taxes

#### 4.1.6 Results of the Our Nation Curriculum

The results at the fifth grade level are similar, although not quite as strong, as those at the fourth grade level, as indicated in the following figure.



After participating in JA, students add about 10% to their knowledge base. This finding is educationally meaningful, as indicated by the solid effect size of .40. Not

only is the impact on knowledge and skills educationally meaningful, it is also statistically significant ( $p < .001$ ), suggesting that the impact did not occur by chance.

The breakdown analysis of the fifth grade ORT results suggests that there is significant growth in students' knowledge of the following concepts after participating in the Our Nation Program.

- Types of advertising
- Modes of production
- Natural, human, and capital resources
- Getting a job
- Entrepreneurism
- Income, expenses, and profit
- Types of businesses: franchise, sole proprietor, corporations
- Job interviewing

## **4.2 IMPACT OF PROGRAM ON CRITICAL THINKING**

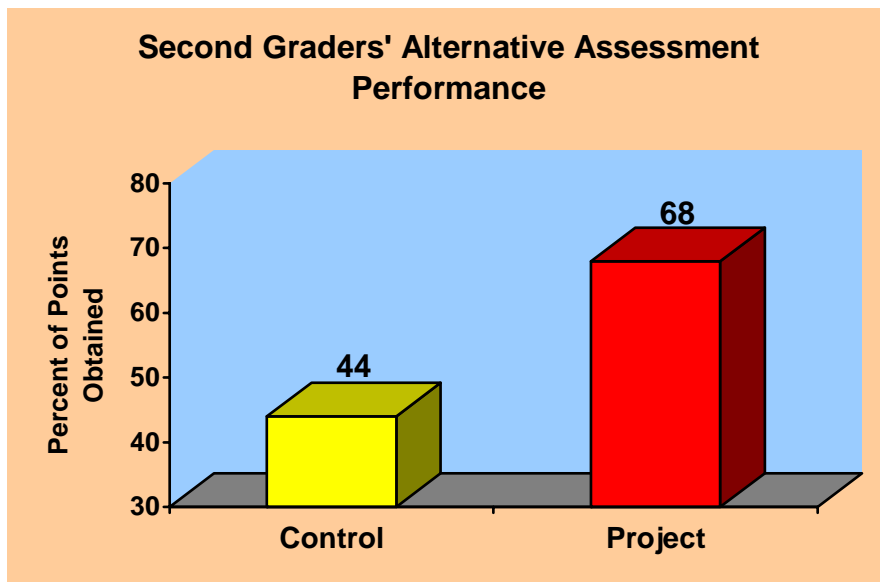
Perhaps of more importance than simple learning, which many effective educational programs can obtain, is the possibility that the JA Elementary School Program impacts deeper learning. Few educational programs can claim to affect students' critical thinking and problem solving abilities. To determine if JA has this level of impact, the alternative assessment scores (reflected as percentage of points obtained during the assessment) of the project and control groups were compared. The results of these analyses, by grade level,<sup>20</sup> are presented below.

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<sup>20</sup> The reader is reminded that no alternative assessment was conducted at the kindergarten or first grade levels.

## 4.2.1 Results of the Our Community Curriculum

Although student performance on the ORT at the second grade level suggested that students were not adding significantly to their overall basic understanding of economic and social studies concepts, the results from the alternative assessment suggest that they did increase their ability to use the knowledge they possessed as a result of participating in JA. As the next figure illustrates, after participating in the Our Community Program, students were much more effective at using their knowledge to make decisions and apply what they had learned to real-life situations.



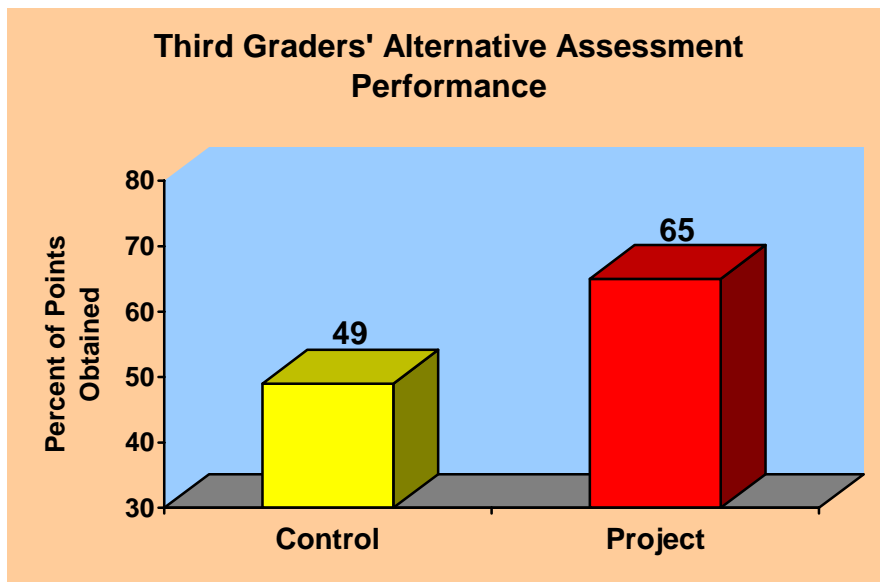
The effect size, measuring the magnitude of the difference between the scores, was a phenomenal 3.53. This level of change surpasses what is observed with most highly effective educational programs and suggests that the JA Elementary School Program is having a significant impact on improving second graders' critical thinking. The impact may be particularly large at the second grade because it is often the age just before critical thinking begins to emerge naturally in the

classroom. Thus, JA may be accelerating this growth for students who are beginning to discover higher levels of thought.

An analysis of the individual exercises of the second grade assessment shed further light on the particular skills and thought processes students are excelling in after participating in the Our Community Program. Students exhibit large improvements in their ability to analyze a situation and their ability to adjust their stance, when provided further data, to improve performance.

### 4.2.2 Results of the Our City Curriculum

The results at the third grade level were equally impressive. Students who participated in JA scored statistically significantly higher ( $p < .028$ ) on the alternative assessment exercises than students who did not participate in JA. The following figure depicts these differences.

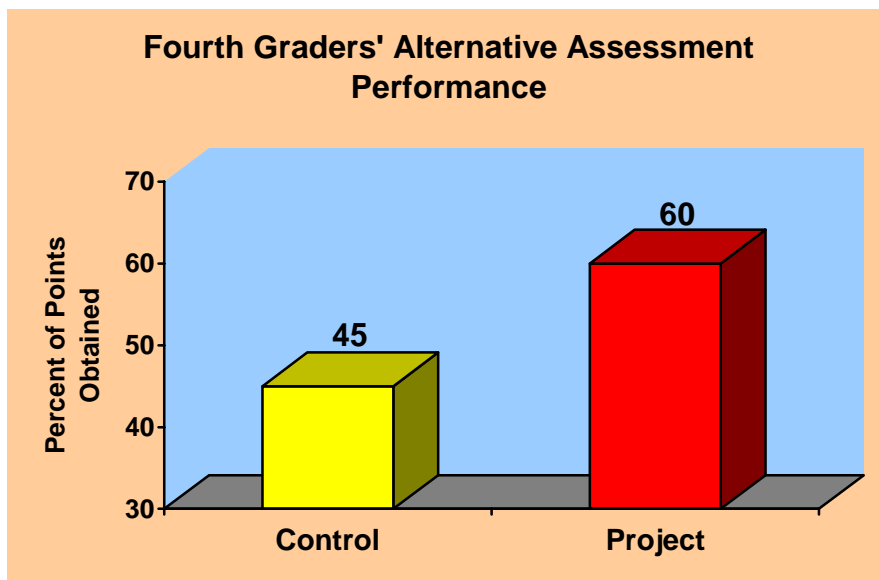


Students' critical thinking improved by 33% as a result of participating in the Our City Program. Once again, this level of change surpasses what is observed with most highly effective educational programs (E.S. = 2.02).

The analysis of the individual exercises of the third grade assessment shed further light on the particular skills and thought processes students are excelling in after participating in the Our City Program. Students' abilities to apply their knowledge of blueprints to real-world scenarios increased significantly. Further, students were also better at reasoning through business situations, including determining if there was a customer base for opening a business and identifying skills (educational and otherwise) needed to make the business successful after participating in JA.

### 4.2.3 Results of the Our Region Curriculum

The results at the fourth grade level were no less impressive, as indicated in the next figure.

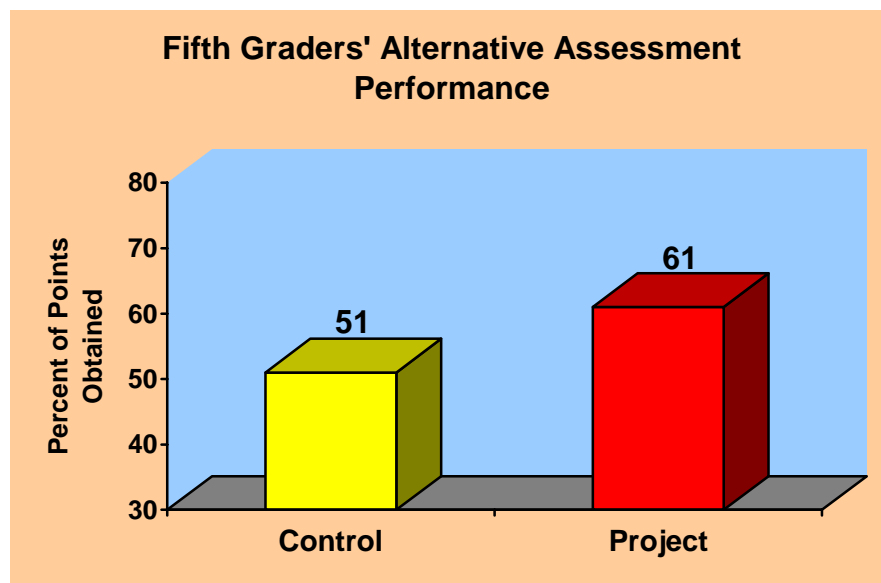


Once again, the findings were statistically significant ( $p < .004$ ) and educationally meaningful (E.S. = 2.54). The Our Region Program had a significant impact on fourth grade students' critical thinking. After participating in JA, students could more easily identify the advantages and disadvantages of various business decisions and were able to use this information to make informed choices.

Further, students who participated in JA were better at analyzing the resources of a region and synthesizing that information into making judgments about the success of specific types of companies in that region. These findings indicate that JA is stimulating students to engage in deeper levels of learning as they participate in the Our Region Program.

#### 4.2.4 Results of the Our Nation Curriculum

The impact of JA was a little less dramatic at the fifth grade level, as can be seen in the following figure. However, the difference between the performance of the JA students and the other students was statistically significant ( $p < .002$ ) and the effect size was strong (E.S. = .59).



This finding indicates that students are learning to use the knowledge they are obtaining in the Our Nation Program to make valid business decisions and problem-solve various business scenarios. On both of the exercises included with this assessment, the students who participated in JA demonstrated much more sophisticated thinking than students who did not participate in the program.

## 5.0 PERCEIVED IMPACT FINDINGS

Impact of the JA Elementary School Program was also measured from the perspectives of teachers and consultants. Results of questionnaires distributed to both groups are presented in this section. The specific areas of impact emerging from these data can be summarized into three categories:

- Perceived impact of program on student learning and behaviors
- Perceived impact of program on teacher and consultant learning and behaviors
- Satisfaction with the program

Findings within each of these areas are presented below.

### 5.1 PERCEIVED IMPACT ON STUDENTS

Teachers and consultants were asked, *“What skills and attitudes do Junior Achievement participants have that are not evident in other students who haven’t had the program?”* The most frequent responses are shown in the next table. Corresponding with each response are the percents of teachers and consultants that endorsed each skill or attitude. Only those skills and attitudes endorsed by at least one-third of the respondents are reported.

Both teachers and consultants participating in the JA Elementary School Program reported that business and economics knowledge were leading areas of JA impact. They reported that students were gaining insights into business and adding to their

conceptual understanding of economics and its role in students' lives through participation in JA. Most also reported that students who participate in the JA Elementary School Program had a better understanding of the world and of resource utilization.

Skill or Attitude	Teachers	Consultants
Work ethic	40%	43%
Problem solving	35%	45%
Economics knowledge	90%	71%
Understanding of the world	70%	59%
Critical thinking	33%	36%
Work skills	48%	42%
Understanding of resource utilization	68%	60%
Financial responsibility	45%	47%
Business knowledge	83%	69%

Many teachers and consultants agreed that financial responsibility, work skills, and development of a work ethic were also important areas of JA impact. There was also some agreement that critical thinking was impacted, supporting the findings of the alternative assessment.

Teachers and consultants were also asked, “*What one most important thing do you think students learn from this program?*” The most frequent responses of teachers and consultants are provided in the next table. Again, there was similarity between the observations of teachers and consultants, adding validity to the findings of JA Elementary School Program impact.

**Most Frequent Teacher Responses**

- How community members work together
- Basic economic principles
- The organization of the business world
- How the world works
- The interdependency of resources and people's jobs

**Most Frequent Consultant Responses**

- How different types of businesses are needed in the community
- Economic concepts
- How the business world works and how to be successful in it
- Importance of money
- Teamwork

Teachers and consultants were asked to indicate what differences, if any, they had observed in the critical thinking and problem solving skills of the JA participants as compared to other students who had not participated in JA. Both teachers and consultants reported that JA students work together better as a team and are more capable of making group responses. Teachers also reported that JA students take more time to think before responding. Consultants reported that JA students seemed to better understand that there is a process to problem solving.

Both teachers and consultants reported that students who participated in JA were more likely to possess each of the quality of life characteristics shown in the following table than students who had not participated. Corresponding with each item are the percents of teachers and consultants who endorsed the characteristic.

<b>Quality of Life Characteristic</b>	<b>Teachers</b>	<b>Consultants</b>
Understanding how the world operates	95%	92%
Understanding how resources are used	93%	91%
Solving problems	70%	71%
Communicating ideas to others	79%	78%
Getting along with different people	61%	63%
Taking on leadership positions	50%	64%
Staying in school	37%	79%
Making decisions, using critical thinking	80%	79%
Appreciating the importance of work	98%	92%
Understanding the free enterprise system	85%	89%
Paying attention during class	34%	59%
Managing their money	73%	76%
Feeling better about their abilities	76%	76%
Saving their money	60%	63%
Resolving conflicts in a positive manner	49%	56%
Respecting authority	64%	69%

Once again, there was more similarity than disparity between teacher and consultant responses. Both reported that after participating in JA, students were more likely to possess most quality of life characteristics. Given that these characteristics often lead to future success in life, teachers and consultants agree that JA is having a powerful impact on students' lives.

## **5.2 PERCEIVED IMPACT OF THE PROGRAM ON TEACHERS AND CONSULTANTS**

Both teachers and consultants suggested that not only did the JA Elementary School Program have an impact on students' lives but that it also impacted them personally. Most of the teachers (85%) reported that their knowledge or understanding of businesses and economics had improved as a result of participating in the program. Other teachers (11%) reported that the program helped them to better communicate economic and business concepts. Almost all (92%) suggested that the JA Elementary School Program added significantly to the quality of their classes.

Nearly half of the consultants (42%) reported that participating in the JA Elementary School Program helped them appreciate teachers more. Forty percent of the consultants also mentioned that they now realized how interested students were in learning and what an important role they could play in meeting that need. Twenty-three percent reported that participating in the program allowed them to give back to the community. Eleven percent even suggested that participating in the program had wakened in them a desire to teach. Nearly all (89%) mentioned that they enjoyed working with the students and found that facilitating presentations fulfilled personal needs.

## **5.3 PROGRAM SATISFACTION**

Teachers and consultants were asked to rate how effective the JA Elementary School Program is on a 10-point scale, with 10 being extremely effective. Their responses are shown in the table on the next page. The average rating given by

teachers was 8.1 and by consultants was 8.4. These high ratings indicate that stakeholders perceive the JA Elementary School Program to be a solidly successful program.

Rating of Program Effectiveness	Teachers	Consultants
10	15%	24%
9	15%	19%
8	50%	36%
7	10%	15%
6	3%	2%
5	5%	4%
4	0%	0%
3	2%	0%
2	0%	0%
1	0%	0%

Perhaps the greatest indication of satisfaction with a program is an individual's willingness to continue to participate in the program. All of the teachers indicated that they would participate in the JA Elementary School Program again. When asked why, teachers suggested that it was because the program benefited their students, exposed them to someone else's ideas and expertise, and the students enjoyed it.

Ninety-nine percent of the consultants also reported that they would like to continue to participate in the program. The few consultants who did not want to continue participation suggested that work commitments and lack of skills in the classroom made it difficult to participate.

Both teachers and consultants reported several strengths of the JA Elementary School Program. The most frequent responses from both groups are provided in the next table.

Most Frequent Teacher Responses	Most Frequent Consultant Responses
<ul style="list-style-type: none"> <li>• The program keeps students attention</li> </ul>	<ul style="list-style-type: none"> <li>• The program does a good job of teaching economic concepts</li> </ul>
<ul style="list-style-type: none"> <li>• The hands-on activities and materials are excellent</li> </ul>	<ul style="list-style-type: none"> <li>• It brings the business community and school classroom together</li> </ul>
<ul style="list-style-type: none"> <li>• Having volunteers in the classroom enhances student learning and enthusiasm</li> </ul>	<ul style="list-style-type: none"> <li>• It provides the students with something “new” and something “real-world”</li> </ul>
<ul style="list-style-type: none"> <li>• Students enjoy the program</li> </ul>	<ul style="list-style-type: none"> <li>• Students enjoy the program</li> </ul>
<ul style="list-style-type: none"> <li>• It teaches students about economics and the real world</li> </ul>	<ul style="list-style-type: none"> <li>• The materials are excellent</li> </ul>
<ul style="list-style-type: none"> <li>• It prepares students for MEAP testing</li> </ul>	
<ul style="list-style-type: none"> <li>• It fills the gaps in our social studies curriculum</li> </ul>	

Although teachers and consultants were uniformly positive about the JA Elementary School Program, a few made suggestions for how the program could be improved to further enhance its effectiveness. Both teachers and consultants were asked, *“What one thing would you change about the program?”* Most of the comments received in response to this question were not suggestions for improvement, but rather were expressions of satisfaction with the program. For example, one teacher said, *“It’s a great program as it is.”*

The most common suggestion for a true enhancement of the program, made by both teachers and consultants, was the recommendation that the program be

offered for a longer period of time, allowing better coverage of activities and related concepts. Several teachers also mentioned the importance of ensuring quality consultants. Some volunteers do not build an easy rapport with students, and the impact of the program in these classes is less influential than those where the volunteer is dynamic and connected to students.

Consultants also suggested that the program materials, or program training, could provide more direction on using materials and adapting them for the various learning levels of students. Many activities included in the program require a significant amount of time to organize and assemble. Training in classroom management skills would also be helpful, according to consultants.