

# MAKING A JOB:

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**Evaluation of the Kauffman Foundation's  
School-to-Entrepreneurship Program**

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**Youth Development Evaluation Alliance**

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## Youth Development Evaluation Alliance

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## ◆ Executive Summary

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The purposes of this evaluation were to determine if a school-based School-to-Entrepreneurship program impacts key knowledge and behavioral outcomes associated with entrepreneurial thinking and planning in middle-school aged youth participants, and to synthesize the findings across two years of evaluation to determine if Kauffman's investment in STE programming strengthens entrepreneurial thinking and action in youth. Year one participants were 1,208 middle-school youth and 57 teachers in 36 separate schools. Year two participants were 565 youth and 39 teachers in 19 separate schools.

The primary evaluation question was: To what extent does participation in the MAJ program lead to statistically significant gains in key outcome measures for participant youth as compared to non-participating youth? Several secondary evaluation questions were posed by Kauffman Foundation staff and included in the evaluation design: 1) how does **teacher training** impact the performance of youth participants? 2) how does **previous teacher experience** implementing a STE curriculum impact performance on measures of self-sufficiency and entrepreneurial thinking? 3) how does **variation in treatment exposure** to the entrepreneurship curricula influence the performance of youth? and 4) how does **completion of a business plan** by youth impact youth performance? These questions were examined across two years of data collection from non-equivalent cohorts of students. Data are presented cross-sectionally and synthesized across years.

The evaluation examined the implementation of one specific STE curriculum in middle schools and identified the extent of impact on youth outcome. Among the implementation features tested for their impact on key outcomes were:

- ◆ youth participation in developing business plans,
- ◆ variable treatment exposure (measured as instructional contact hours),
- ◆ variations in teacher training to implement the MAJ curriculum,
- ◆ variations in teacher experience implementing STE curricula, and
- ◆ variations in type of curriculum implementation (i.e., stand-alone course versus integrated curricula).

Key outcomes included student performance on measures of self-sufficiency and entrepreneurial thinking (SSETA), perceptions of marketable skills, and business-related attitudes. Two groups of middle school students were measured for their knowledge of entrepreneurship, economic concepts, self-sufficiency and entrepreneurial thinking. These constructs were assessed through a standardized

assessment (SSETA) created under a KF contract awarded to American College Testing (ACT). Participant Group students were exposed to a multi-session curricula; Comparison Group students received no STE instruction and were measured at the same points in time (pre and post implementation for the SSETA and post-implementation for all other measures.

The **key findings** of the evaluation are:

- ◆ Youth who experienced the MAJ program outperformed youth who did not on key outcome measures. The results of analyses of participant and comparison group performance indicate that those youth who participated in the MAJ program had statistically significant gains on the SSETA, superior to those who did not participate in the program. This finding was consistent across the two years of the evaluation.
- ◆ Youth participation in the applied activity of developing a business plan did not consistently outperform their peers who did not complete a business plan. The analysis of youth experience in completing a business plan during the implementation of the MAJ program provided inconsistent results. Year one analyses suggested that this experience contributes to significantly larger gains, when compared to non-participating youth, from pretest to post-test on the SSETA Assessment. The evaluation did not find evidence supporting this result in the second year of the evaluation.
- ◆ The more time youth spend with the curriculum the larger their gain from pretest on the key outcome measures. The analysis of change from pretest indicates that there is a positive relationship between the amount of time spent engaged in the MAJ program and youth performance. This result was found across two years of data collection.
- ◆ There is a clear advantage for youth whose teachers were trained in an entrepreneurship curriculum; and even more of an advantage for youth whose teachers were trained by Kauffman Foundation associates. The change from pretest on the key outcome measure indicates that youth whose teacher is trained by Kauffman Foundation associates have gains that are three times as large as those whose teachers were trained by colleagues and others. The advantage is 6 to 10 times as large when compared to youth whose teachers were not trained. This result was found across two years of data collection.
- ◆ Youth whose teachers have previously implemented a STE curriculum significantly outperform their peers who received MAJ instruction from teachers who have never before implemented a STE curriculum. The change from pretest on the key outcome measure indicates that the

performance benefit associated with teacher experience is almost twice that of youth with novice teachers.

- ◆ Youth performance on the key outcome measures does not appear to be related to the type of curriculum implementation used. Non-significant differences in performance were found for youth who experienced the MAJ curriculum in a stand-alone (course-based) implementation compared to youth who received the curriculum in an integrated approach (i.e., curriculum delivered in the context of another course).
- ◆ Results of analyses of youth perception of their market skills are inconclusive. In the first year of the evaluation the MAJ program appeared to have positively influenced youth perceptions of their marketable skills. Based on the perceptions of youth, teachers and parents, students reportedly demonstrated more behaviors and skills associated with successful business practice and the skills of entrepreneurs following participation in the program. Alternately, data obtained in the second year of the evaluation shows no meaningful difference between Participant and Comparison Group students on global or total scores measuring this perception.
- ◆ Measures of business attitudes of youth were not significantly different for Participants and Comparison youth. The expression of preferred attitudes associated with successful business practice and that of entrepreneurial thinking was not substantially different across Participant and Comparison Groups. This finding was observed in both the first year and the second year of the evaluation.

The evaluation has found evidence that the MAJ program has substantial positive impact on key entrepreneurial and self-sufficiency outcomes of middle school youth. The results indicate that when judged against the performance of a comparison group of youth, participants significantly outperform their peers in knowledge of entrepreneurial thinking, economic concepts, and marketable skills. In many findings of this evaluation youth who participated in the MAJ program were found to have significant and positive changes from pretest to post-test following implementation of the curriculum and those changes were significantly better than those found for comparison group youth. Positive results, as well as those results found to be consistent (whether positive or negative) from the first year to the second year of the evaluation are:

- ◆ Participation in MAJ curriculum leads to statistically significant gains from pre to post on key outcome measures. Those gains are significantly larger than the gains made by non-participating comparison group youth.

- ◆ In general, the longer the exposure to the MAJ curriculum the greater the gains made on the key outcome measure (SSETA).
- ◆ The source of training for teachers is associated with the performance of students on the key outcome measure. There is a clear advantage for youth whose teachers were trained by Kauffman Foundation associates.
- ◆ Previous experience implementing STE curriculum provides a significant advantage for youth. Results indicate that experienced or veteran STE implementers elicit significantly larger gains from pre to post when compared to students who receive instruction from novice or first-time implementers.
- ◆ The business-related attitudes of students do not appear to be influenced by their participation in the MAJ program. Non-significant differences between Participant and Comparison Group student attitudes were found in both years one and two of the evaluation.

Inconsistent findings from the first year to the second year of the evaluation were observed for the following outcomes:

- ◆ Influence of participation in developing a business plan on SSETA outcomes.
- ◆ Youth perceptions of their market skills.

Two years of consistent data collection across 55 schools indicates that the MAJ program successfully impacted middle school youth participants on the key outcome measures. One key learning most evident from the two years of evaluation is that the MAJ program is very effective at bringing about changes in cognitive learning outcomes associated with entrepreneurial thinking and self-sufficiency but less able to bring about consistent changes in the perceptions and attitudes of youth. Other learnings are presented at the conclusion of the report.



## ◆ The School to Entrepreneurship Program

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The Kauffman Foundation's School to Entrepreneurship program (STE) has been in implementation in middle school classrooms across the United States for many years. The program is designed to train classroom teachers to implement an entrepreneurship curriculum either as a component of a traditional subject area (i.e., mathematics, science, social studies, economics, history) or as an independent subject area. Teachers also implement STE in after-school programs, although those programs are not part of this evaluation. The STE program implemented by teachers is Making a Job (MAJ). Making a Job is an experience-based awareness and readiness curriculum designed to take students through the initial stages of recognizing an entrepreneurial opportunity in their own world to developing a business plan for a viable entrepreneurial business venture.

## ◆ The Kauffman Foundation

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Established in the mid-1960's by the late entrepreneur and philanthropist Ewing Marion Kauffman, the Kauffman Foundation works to advance entrepreneurship by reaching individuals of all ages through the delivery of entrepreneurship education and development, and the promotion of an entrepreneurial environment. The Kauffman Foundation and its partners look beyond need to identify and develop pivotal opportunities in Kansas City and nationwide to help create successful businesses and improve the education of children.

## ◆ About the Evaluator

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Youth Development Evaluation Alliance (YDEA) is a Virginia-based national consulting organization that provides research and evaluation support and technical assistance to youth serving organizations and community partnerships engaged in educational reform, program development and implementation, policy analysis, and organizational assessment and improvement. Dr. William Moore is the firm's President and the evaluation consultant for this project.

YDEA staff and consultants have expertise in the areas of research and evaluation design; advanced statistical analysis; design of assessment systems; testing and measurement; survey development; observation studies; program evaluation; early childhood, elementary, secondary and adult curriculum and instruction; and technology applications for information management and reporting.

Dr. Moore has led multi-million dollar, multi-site evaluations, and has participated in both national and regional evaluations of youth development initiatives, education reform, prevention, and intervention programs for higher-risk youth, as well as in the creation of assessments for state and local systems. He has more than 22 years of experience inside of school systems as a classroom teacher; research, evaluation and assessment director; and as a program evaluator. He has served on the faculty in two universities and as an independent consultant working with private and community foundations, research and evaluation firms, community organizations, youth-serving agencies, schools, and health care institutions.

## ◆ Purposes of Evaluation and Guiding Questions

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The purpose of this evaluation were two-fold:

- ◆ determine if the MAJ program positively impacted key knowledge and behavioral outcomes associated with entrepreneurial thinking and planning in youth for the 2002-2003 implementation.
- ◆ synthesize the findings from the current year and the 2001-2002 evaluation to present a comprehensive examination of the impact of the Kauffman Foundation's investment in STE programming on relevant youth outcomes.

The primary evaluation question was: To what extent does participation in the MAJ program lead to statistically significant gains in key outcome measures for participant youth as compared to non-participating youth? This evaluation relied upon data collected during two years of implementation and evaluation (2001-2002 and 2002-2003) and this report serves to present the findings for the 2002-2003 evaluation and to synthesize the findings across these two years.

Kauffman Foundation staff posed four additional evaluation questions:

1. To what extent does **source of teacher training** impact the performance of youth participants on the key outcome measures?
2. To what extent does **experience implementing an STE curriculum** impact on the performance of youth participants on the key outcome measures?
3. To what extent does **variation in exposure** (measured as contact hours) to the entrepreneurship curricula influence the performance of youth participants on the key outcome measures?

4. To what extent does **completion of a business plan** by youth participants impact youth performance on the key outcome measures?

YDEA staff was asked to answer these questions based on data already collected by Kauffman Foundation associates. Data files were prepared by KF associates and transmitted to YDEA staff for analysis.

## ◆ Measures

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Immediately prior to the implementation of the entrepreneurship curricula and at the conclusion of the implementation, youth in the Participant Group were measured using two parallel forms of the Self-Sufficiency and Entrepreneurial Thinking Assessment (SSETA). At the same points in time, but without exposure to one of the three entrepreneurship curricula, the Comparison Group was measured. Both groups were measured for their knowledge of entrepreneurship, economic concepts, self-sufficiency and entrepreneurial thinking. These constructs were assessed through a standardized assessment (SSETA) created under a KF contract awarded to American College Testing (ACT). According to information provided by the KF the technical qualities of this assessment, as indicated by ACT, suggests that the internal consistency reliability of the assessment on multiple forms ranged from .71 to .78. Information provided by the Kauffman Foundation staff indicates that multiple forms have items with approximately equivalent difficulties (i.e., p values).

Other information collected from **youth** included the:

- ◆ **Marketable Skills Survey** administered following the implementation of the curriculum to Participant Group youth and at the same point in time for the Comparison Group youth.
- ◆ **Business Attitude Survey** administered following the implementation of the curriculum to Participant Group youth and at the same point in time for the Comparison Group youth.

Information collected from **teachers** included the:

- ◆ **Instructor Form for Self-Sufficiency and Entrepreneurial Thinking Assessment** collected both prior to and following the implementation of the curriculum.

- ◆ **Marketable Skills Survey for the Middle School Instructor** collected at the conclusion of the implementation of the curriculum and at the same point in time for the Comparison Group teachers.

Parents of youth completed the **Marketable Skills Survey for the Middle School Parent/Guardian**. This survey asks parents/guardians to indicate the degree to which their child(ren) behaved differently following implementation of the curriculum. Comparison Group parents were not asked to complete this instrument.

## ◆ Evaluation Design

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In order to effectively answer the guiding evaluation questions the study design implemented was a pretest-post-test control group design. Youth who participated in the implementation of an entrepreneurship curriculum (Participant Group, or Treatment Group) were compared to youth who did not participate in an entrepreneurship program (Comparison Group, or Control Group). Youth were assigned to the Participant or Comparison Group based on their teacher's involvement in the program and their successful completion of training with the curricula. Comparison Group teachers were identified by Participant Group teachers and asked to serve as a comparison. Because this evaluation utilized a quasi-experimental design with participating youth non-randomly selected and assigned to a treatment or control condition, and because the comparison group teachers were not randomly selected or assigned but instead were identified by participating teachers as potential controls, the design required analytic procedures to equalize existing groups and remove the statistical influence of uncontrolled confounding variables. Consequently, the evaluation team made the following decisions:

1. Use the terms "Participant Group" and "Comparison Group" (not Treatment and Control) to accurately express the quasi-experimental nature of the evaluation design
2. Use an analysis of covariance procedure to assess group differences on the key outcome measures.
3. Use covariates to equalize the influence of confounding variables such as: pretest status on the outcome measure, gender of youth, grade in school, gifted and talented student status, and prior experience with Mini-Society®. Family indicators were also included as covariates: whether the mother of the youth's family worked outside the home, and whether either parent was an entrepreneur. Two additional covariates were included in the model: estimated socio-economic status of the school, and the years of teaching experience of the youth's teacher.

## ◆ Analysis Procedures

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Upon receipt of the data file YDEA staff engaged in the following procedures:

- ◆ Conducted preliminary analyses to establish the cleanliness of student, teacher and parent survey data sets. Where possible YDEA staff cleaned data or asked KF associates to clean data.
- ◆ Conducted analyses to confirm the total and valid numbers of cases in each data set as well as the valid numbers in each analysis. Described the samples using descriptive statistics and frequency distributions.
- ◆ Conducted descriptive statistics and frequency distributions of the teacher survey specifically associated with teacher training and program implementation.
- ◆ Conducted descriptive and inferential statistical analyses on the adjusted gain in knowledge of students on the Self-Sufficiency and Entrepreneurial Thinking Assessment (SSETA).
- ◆ Conducted descriptive and inferential statistical analyses of the impact of the MAJ Program on the marketable skills of students (using survey data from students, teachers, and parents).
- ◆ Conducted inferential statistical analyses examining changes from pretest to post-test, as well as any comparisons across control and participant groups disaggregated by such variables as gender, variable treatment exposure, teacher experience, and parent status.
- ◆ Summarized findings by evaluation question, by survey item, and by pretest and post-test administration.
- ◆ Summarized findings of 2002-2003 evaluation and inserted those findings into graphs and tables of 2001-2002 findings in order to examine two-year cross-sectional trends.

## ◆ Evaluation Participants

### ◆ Characteristics of Youth

In the 2001-2002 evaluation 1,208 youth had usable data in the data file received from the KF. Of these, 792 (65.6%) youth were coded as Participants and 416 (34.4%) were identified as Comparison youth. In the 2002-2003 evaluation 565 youth had usable data. Of these 387 (68.5%) were coded as Participants and 178 (31.5%) were identified as Comparison group members (see Table 1).

◆ Table 1. Sample Sizes for Evaluation

	Participant	Comparison	Total
<b>2001-2002</b>			
Youth	792	416	1,208
Teachers <sup>1</sup>	40	21	57
Schools <sup>2</sup>	31	21	36
<b>2002-2003</b>			
Youth	387	178	565
Teachers	28	11	39
Schools <sup>3</sup>	16	10	19

<sup>1</sup> Four teachers served as their own comparison by electing to involve an additional class of students to serve as a Comparison Group. Sixteen participant teachers were not able to recruit a comparison teacher.

<sup>2</sup> Most teachers elected to recruit a comparison teacher from their own school. As such, there are 36 unique schools.

<sup>3</sup> Most teachers elected to recruit a comparison teacher from their own school. As such, there are 19 unique schools

As can be seen in **Figure 1** the gender distribution of youth in both the Participant and the Comparison Groups were very similar in both years of the evaluation (non-significant group differences) with approximately 52% of youth in both groups identifying themselves as female and slightly less than 50% identified as male.

In **Table 2** and **Figure 2** the distribution of grade level within Participant and Comparison Groups is displayed. This figure displays the percentage of youth in each group and their respective grade levels. The results indicate that the majority of youth in both the Participant and Comparison Groups were seventh

and eighth graders and a smaller percentage were sixth graders. In both years of the evaluation the study did not include ninth graders in the Comparison group.

Using contingency table analysis the relative percentages of each grade level in each group was significantly different in the first year of evaluation (contingency coefficient = .212;  $p \leq .001$ ) and the second year (contingency coefficient = .324;  $p \leq .000$ ). In particular, the relative presence of seventh and eighth graders was almost opposite of each other across the two groups in the first and second years of the evaluation. Additionally, the Participant Group had ninth graders while the Comparison Group had no ninth graders.

◆ **Table 2. Grade Levels of Youth in the Evaluation**

	Participant	Comparison	Total
<b>2001-2002<sup>1</sup></b>			
Sixth	11%	13%	11%
Seventh	44%	29%	39%
Eighth	33%	46%	38%
Ninth	5%	0%	3%
<b>2002-2003<sup>2</sup></b>			
Sixth	10%	19%	13%
Seventh	61%	27%	50%
Eighth	26%	53%	35%
Ninth	3%	0%	2%

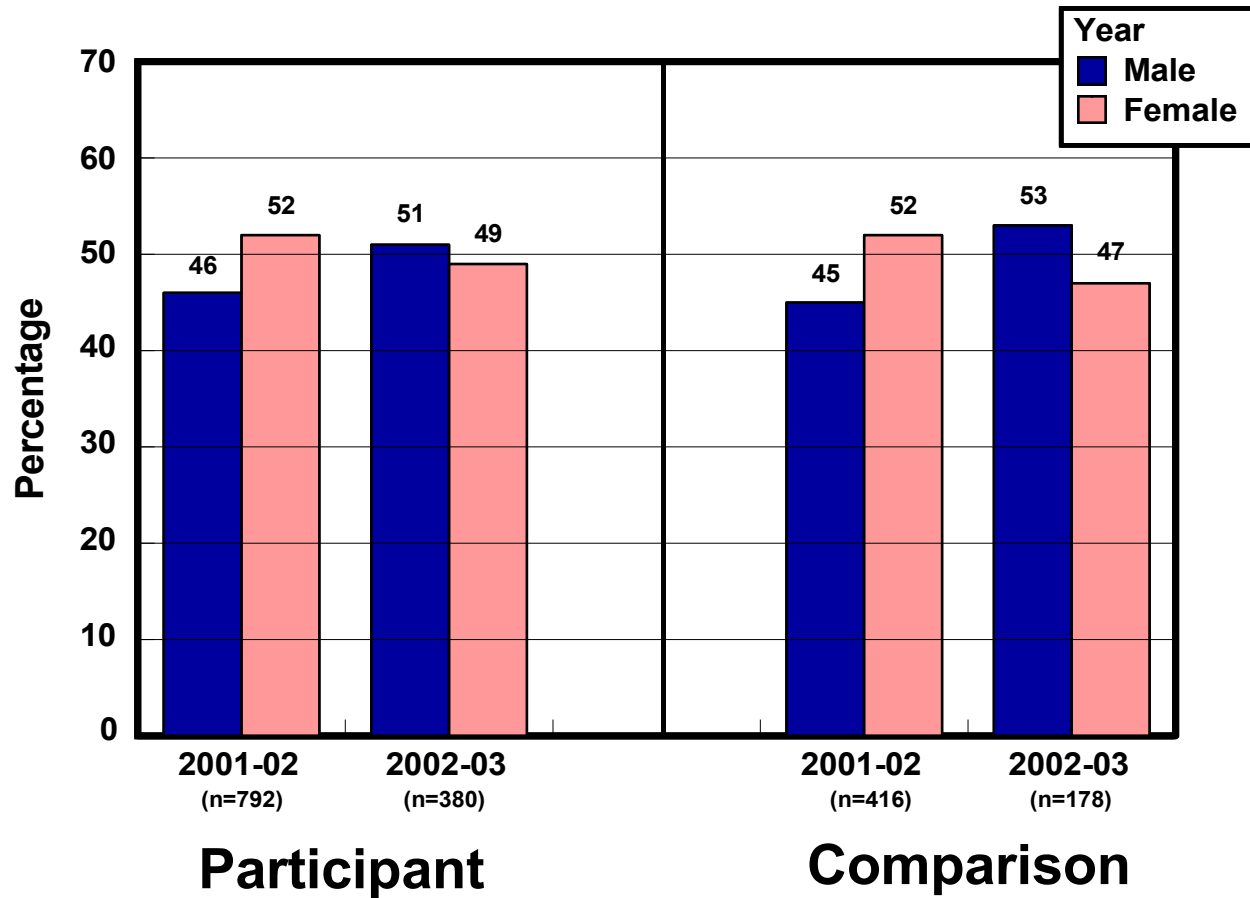
<sup>1</sup> N=1,208; Participant Group N=792; Comparison Group N=416.

<sup>2</sup> N=565; Participant Group N=387; Comparison Group N=178.

An important background variable that could influence the results of the evaluation was previous exposure to Mini-Society (an economics and entrepreneurship curriculum offered in many schools nationwide and sponsored by the KF). This variable was examined across groups to determine if significant exposure differences existed.

**Figure 3** displays the results of this analysis and indicates that non-significant differences existed across groups ( $p \geq .05$ ) in the first year of the evaluation. Approximately 20% of youth had experienced Mini-Society. However, in the second year of evaluation significant differences between participant and comparison groups were found. Almost 15% of the participant group youth had previously experienced Mini-Society but only 5% of the comparison group had ( $\chi^2 = 10.025$ ;  $p \leq .002$ ). Overall, in the second year of the evaluation 11.3% of youth

**Figure 1. Distribution of Gender in Participant and Comparison Groups, 2001-02 and 2002-03**





had previously participated in Mini-Society, a decline from the previous year of 8%. Another potentially relevant background variable with explanatory power for both academic achievement and achievement in the entrepreneurship curriculum is the employment status of the youth's mother. In this case youth were asked, "Does your mother work outside the home? The results of this analysis indicated that non-significant differences existed across groups (see **Table 3**; contingency coefficient = .016;  $p \leq .624$ ). Year two data indicate that a substantially lower percentage of youth in the participant group had mothers working outside the home, compared to data reported in Year One of the evaluation.

◆ **Table 3. Employment Status of Students' Mother**

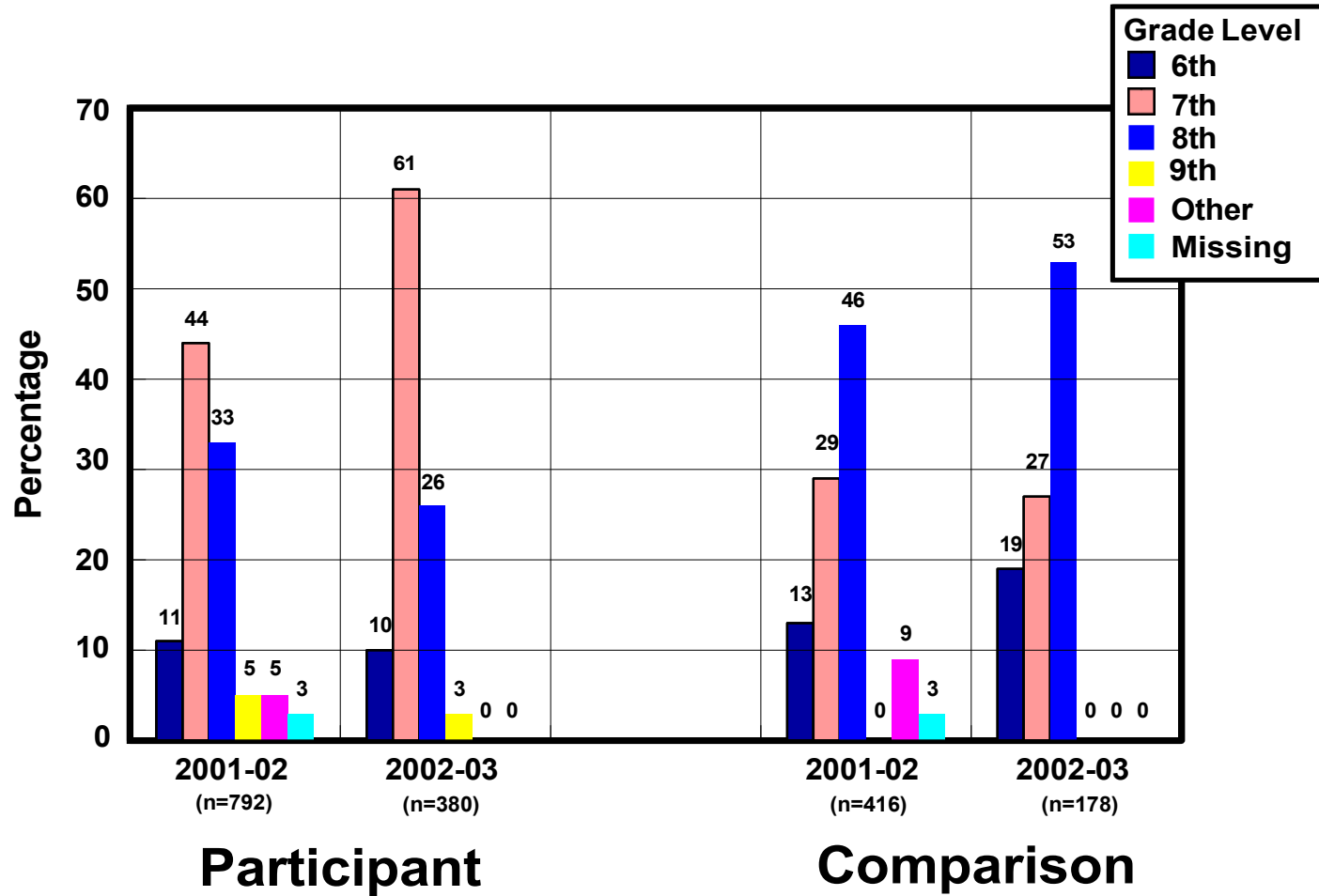
	Participant	Comparison	Total
<b>2001-2002<sup>1</sup></b>			
Outside the Home	81.2%	79.9%	80.8%
Inside the Home	18.8%	20.1%	19.2%
<b>2002-2003<sup>2</sup></b>			
Outside the Home	69.9%	75.4%	72.3%
Inside the Home	30.1%	24.6%	27.7%

<sup>1</sup> N=1,208; Participant Group N=792; Comparison Group N=416.

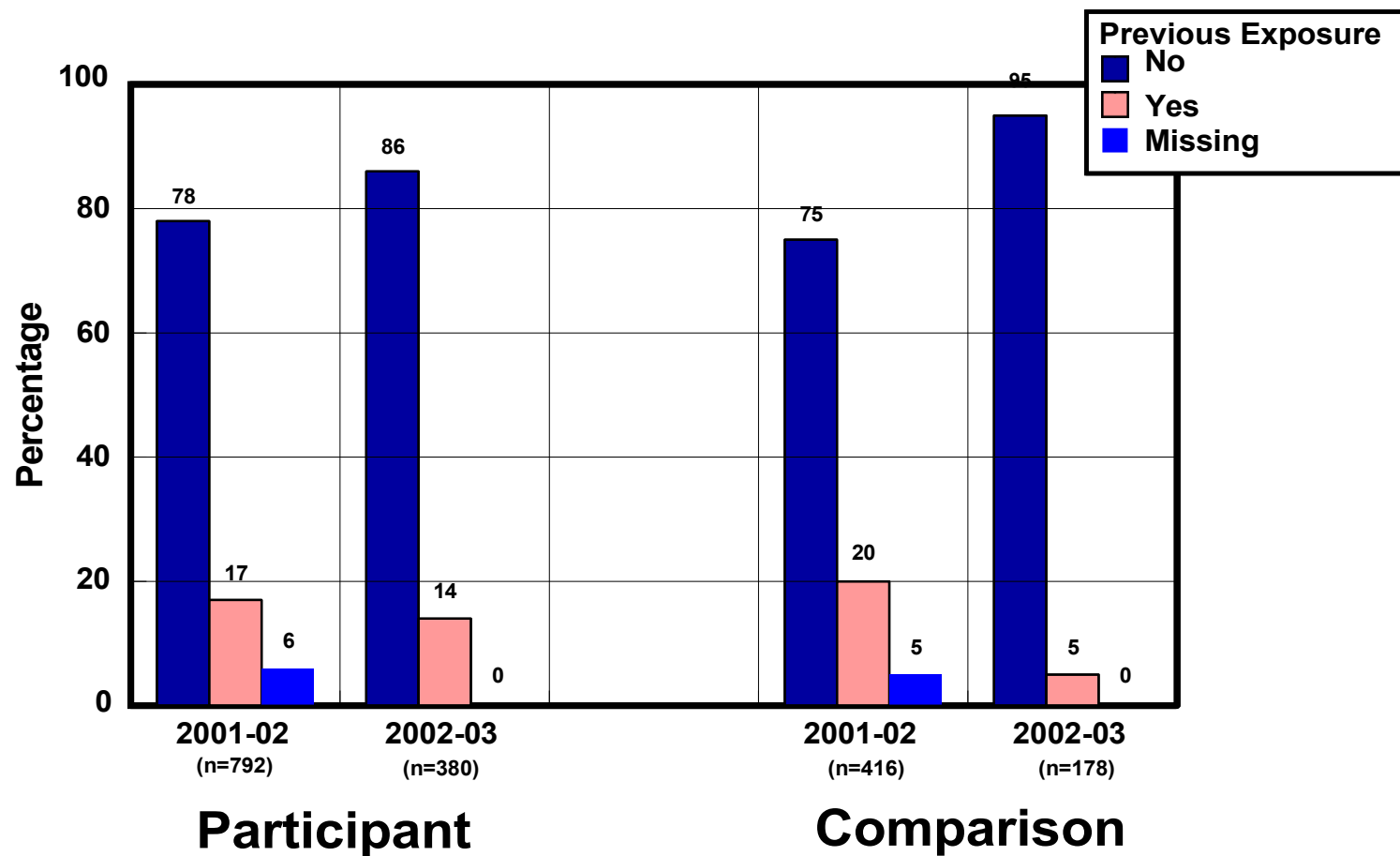
<sup>2</sup> N=565; Participant Group N=387; Comparison Group N=178.

Youth in both Participant and Comparison Groups were asked if either of their parents/guardians were entrepreneurs. The results indicated non-significant differences across groups and across evaluation years (contingency coefficient: Yr1= .091;  $p = .056$ ; Yr2=.15;  $p = .087$ ) between groups of youth. **Table 4** displays the percentage of youth responding to this question, "Is your mother or father an entrepreneur (owner of a business)?" The results indicate that approximately 20% of middle school youth had parents/guardians that own their own business.

**Figure 2. Distribution of Grade Level in Participant and Comparison Groups, 2001-02 and 2002-03**



**Figure 3. Previous Exposure to Mini-Society® in Participant and Comparison Groups, 2001-02 and 2002-03**



◆ **Table 4. Parents as Entrepreneurs**

	Participant	Comparison	Total
<b>2001-2002<sup>1</sup></b>			
Both own a business together	3.8%	3.0%	3.5%
Father owns his own business	14.3%	9.0%	12.6%
Mother owns her own business	6.1%	4.3%	5.5%
Not owners of a business	75.8%	83.7%	78.4%
<b>2002-2003<sup>1</sup></b>			
Both own a business together	3.7%	0.0%	2.0%
Father owns his own business	13.5%	13.8%	13.7%
Mother owns her own business	6.1%	3.1%	4.8%
Not owners of a business	76.7%	83.1%	79.5%

<sup>1</sup> N=1,208; Participant Group N=792; Comparison Group N=416.

<sup>2</sup> N=565; Participant Group N=387; Comparison Group N=178.

### ◆ **Characteristics of Teachers**

In the 2001-2002 evaluation 40 teachers participated in the STE program and were able to recruit 21 teachers to serve as comparisons. The 57 teachers were employed in 36 unique schools. In the 2002-2003 evaluation 28 teachers participated in the MAJ program and 11 teachers served as Comparison group members. The 39 teachers were employed in 19 unique buildings.

Some limited information is available about the characteristics of teachers in the evaluation study. It should be noted here that 2001-2002 estimates of characteristics for Participant and Comparison Group teachers could not be analyzed by group because some teachers served as their own comparison. Consequently, statistics were not generated for characteristics because the two groups were not independent (e.g., four teachers are in both the Participant and Comparison Groups). This problem of dependency did not exist in the second year of the evaluation and where appropriate statistical summaries are presented. **Figure 4** displays information about the years of teaching experience of teachers. An examination of the 2001-2002 data indicates that approximately 50% of both participant and comparison group teachers had greater than 10 years of teaching experience. The summary for 2002-2003 indicates that there are significant differences between participant and comparison teachers. While 52% of the participant group teachers reported having more than 10 years of teaching experience, almost 90% of the comparison group reported that many

years of experience. This difference was statistically significant ( $t=8.28$ ;  $p \leq .007$ ).

**Table 5** below provides information about the training teachers received in preparation for implementation of the entrepreneurship education curricula. In the first evaluation more than 85% received training from KF associates. In the second year that percentage had declined to less than three-quarters. Substantially higher percentages of teachers were trained by colleagues or received other training in 2002-2003 than in 2001-2002.

◆ **Table 5. Source of Teacher Training**

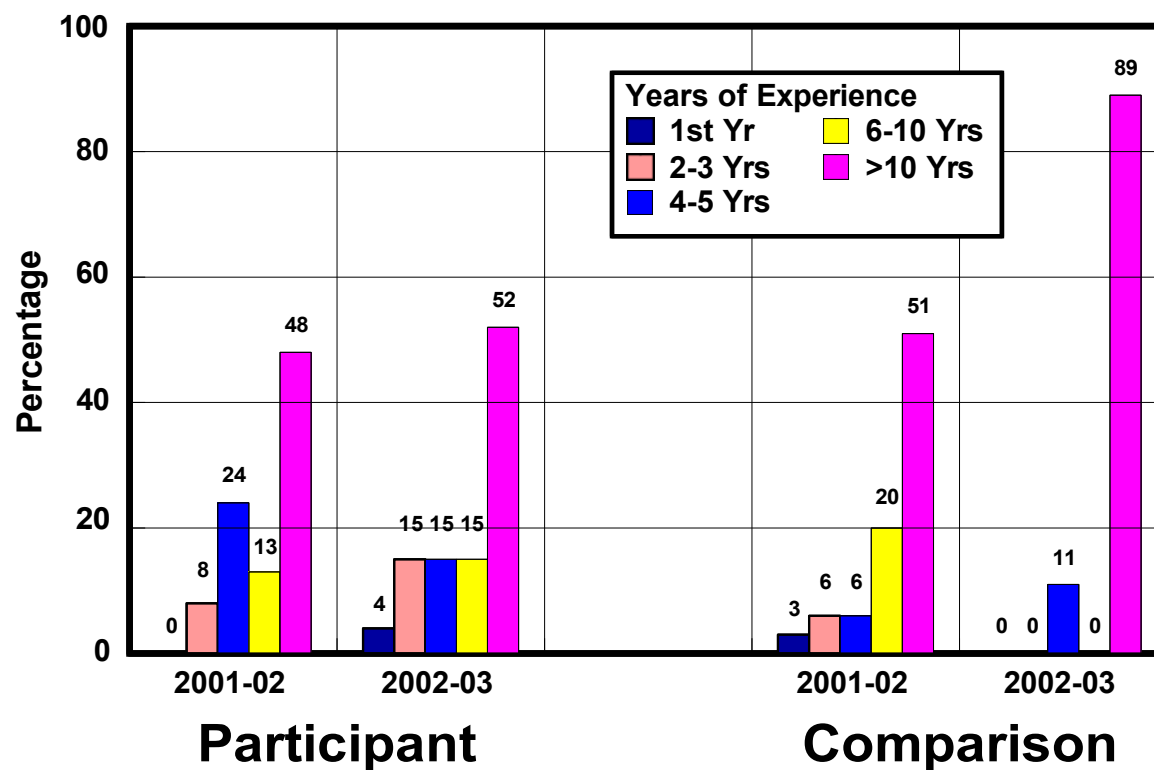
	2001-02	2002-03
Trained by EMKF associate	86.7%	71.8%
Trained by a colleague	4.6%	12.9%
Other training	3.3%	11.4%
No training	5.5%	3.9%

<sup>1</sup> Participant Group 2001-02: N=40 2002-03: N=28.

### ◆ Characteristics of Schools

The instruments used in this evaluation provided some limited information about the schools where teachers worked and youth attended. Because some schools have both Participant and Comparison Group youth and teachers; and some teachers served as their own comparison in the first year of the evaluation, statistics should be interpreted with caution because the two groups were not statistically independent (e.g., four teachers are in both the Participant and Comparison Groups; and most schools in the first year of the study had both Participant and Comparison teachers). Additionally, the data reported in the following figures, tables and text is based on estimates provided by responding teachers. No confirmed institutional data was requested. Among this information is the socio-economic status of the student population based on teacher estimates (see **Figure 5**). The data reported in **Figure 5** indicates that Participant Group schools had a slightly lower socio-economic status (as estimated by teachers) than did the Comparison Group schools in both the first and second evaluation years, although these differences were statistically non-significant using analysis of variance procedures.

**Figure 4. Distribution of Teaching Experience for Teachers in Participant and Comparison Groups, 2001-02 and 2002-03**



Note: Data are from participating teachers. Sixty-one teachers provided data in 2001-02 and 36 teachers provided data in 2002-03.

Other information provided by teachers was their estimate of the ethnic distribution of youth in their school. **Figure 6** displays teacher estimates of the ethnic distribution of youth in both Participant and Comparison Group schools. Analysis of group differences of teacher estimates of ethnicity in the first year of the evaluation indicated non-significant differences using analysis of variance procedures. The second year of the evaluation found that the participant schools and comparison schools differed only on the estimated percentage of Asian-American youth participating in the MAJ curriculum ( $t=20.58$ ;  $p \leq .000$ ; 2% in the Comparison Group and 0% in the Participant Group). The two groups did not differ in the estimated percentages of African-American, Latino/a, white, or other ethnic representation.

## ◆ Results

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In this section we will present information about how the MAJ program was implemented as well as the findings related to the key guiding questions. First, based on teacher responses to the Instructor Form for Self-Sufficiency and Entrepreneurial Thinking Assessment, we present information about program implementation in both the first and second year of the evaluation.

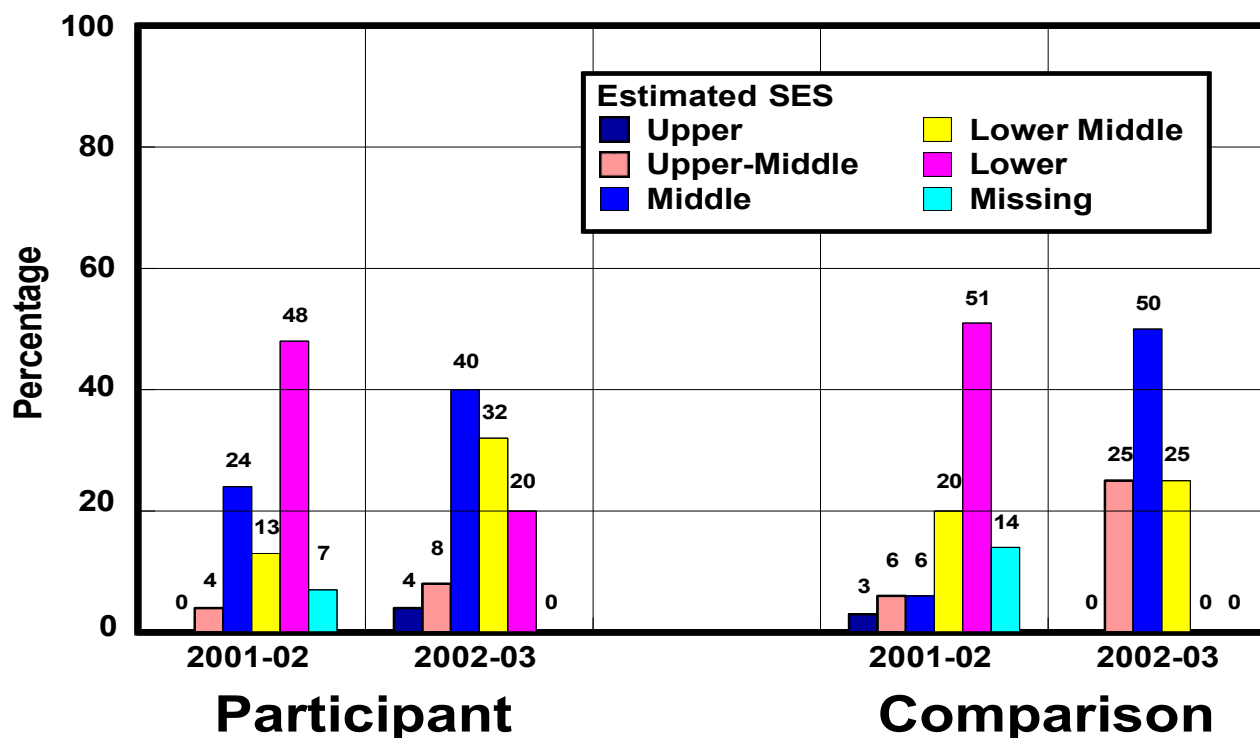
### ◆ Features of Program Implementation

**Curriculum.** Data reported for the first and second year of evaluation indicates that a large majority of Participant Group teachers taught the Make A Job curriculum (87% in Year One, 94% in Year Two). Seven percent implemented the New Youth Entrepreneur curriculum in Year One. Six percent said they used another curriculum in both years one and two.

**Contact Hours.** Data reported by Participant Group students indicates that 44% had more than 30 hours of contact with the MAJ curriculum in the first year and 33% had 30 or more hours in the second year of the evaluation (see **Table 6**). Interestingly, while a larger percentage of students reported receiving more hours of contact (69% in Year Two compared with 60% in Year One reported receiving 21 or more hours) the percentage that received less than 10 hours also increased from the first to the second year of the evaluation (1.2% to 5%).

**Type of Class.** A sizable majority of Participant Group teachers reported that they taught the entrepreneurship curriculum as part of another class (76.8% in the first year; 87.5% in the second year) while slightly less than a quarter taught it as a stand-alone class in year one and only 13% implemented it as a separate class in year two.

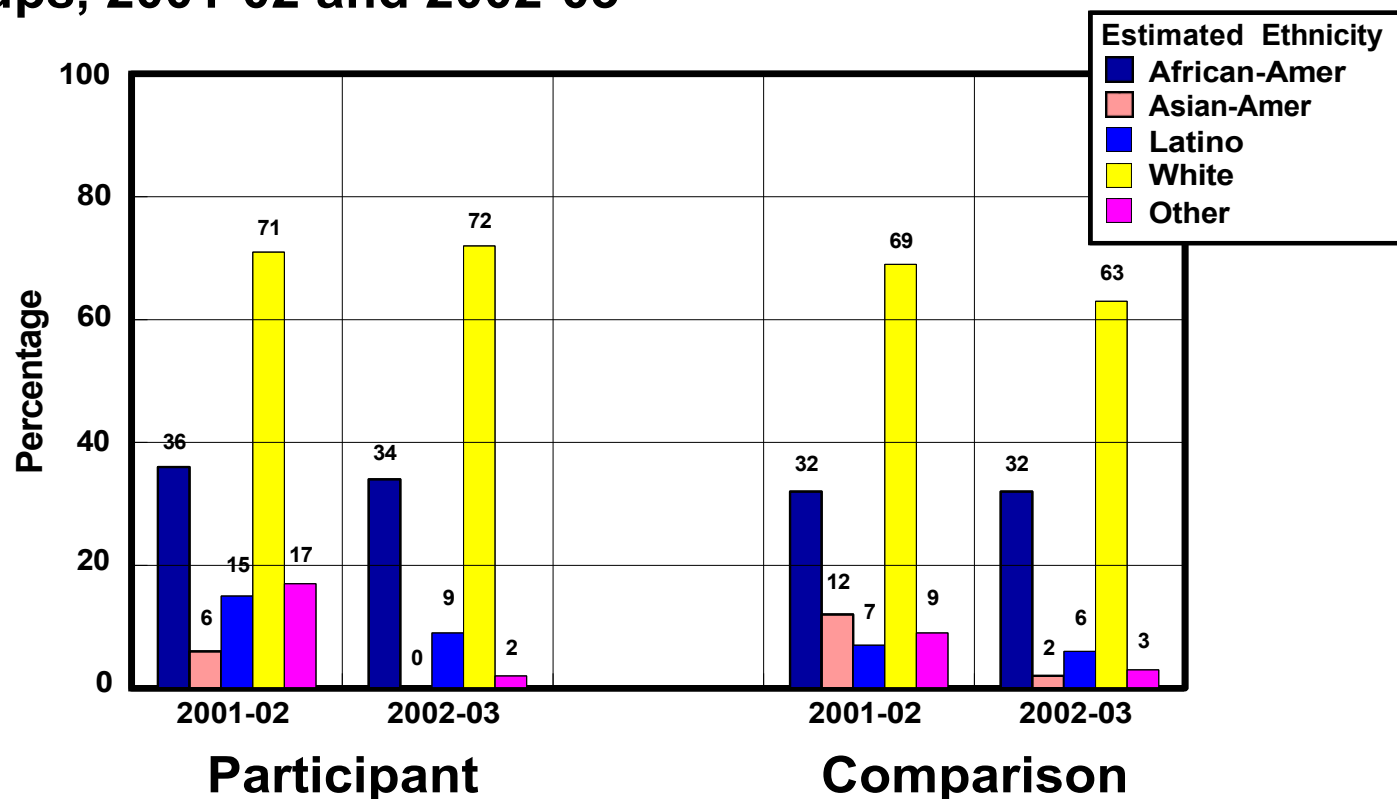
**Figure 5. Teacher Estimates of Distribution of Socio-Economic Status of Students in Schools in Participant and Comparison Groups, 2001-02 and 2002-03**



Note: Data are from participating teachers. Sixty-one teachers provided data in 2001-02 and 36 teachers provided data in 2002-03. Teachers responded to the following question "What is the primary socioeconomic status of the students in your school?" Percentages within groups may not sum to 100% due to rounding error and estimation error by teachers.



**Figure 6. Teacher Estimates of Distribution of Ethnicity of Students in Schools in Participant and Comparison Groups, 2001-02 and 2002-03**



Note: Data are from participating teachers. Sixty-one teachers provided data in 2001-02 and 36 teachers provided data in 2002-03. Teachers responded to the following question "Please estimate the number of test-takers from each of the following ethnic groups?" Percentages within groups may not sum to 100% due to rounding error and estimation error by teachers.

These results indicate that the typical student participated in the Make A Job curriculum and had approximately 20 hours or more of entrepreneurship instruction as part of another course.

◆ **Table 6. Curriculum Implementation in Student Contact Hours: Percentage of Students**

	2001-02	2002-03
More than 30 hours	44.1%	32.8%
21 to 30 hours	15.5%	36.4%
11 to 20 hours	39.2%	25.8%
Less than 10 hours	1.2%	5.0%

### ◆ **Impact on Key Youth Outcomes**

This section of the report will focus on the results of analyses examining the extent to which the MAJ program impacted key youth outcomes related to entrepreneurial thinking and self-sufficiency. The first analysis compares the change from pretest to post-test on the SSETA assessment for Participant and Comparison Group youth.

**Impact on Outcomes by Group.** As seen in **Figure 7** the results indicate that, for both evaluation years, at pretest both groups had statistically equivalent knowledge on the assessed constructs (mean percentage correct score for both groups was 52 in year one and in year two the groups only differed by 2 percentage points—50 and 52).

Using analysis of covariance procedures the change from pretest to post-test was adjusted and compared across groups. The results indicate that a significant difference in the change from pretest to post-test was found favoring the Participant Group youth in both years one and two (Year One:  $F_{1, 752} = 40.672$ ;  $p \leq .0001$ ;  $\eta^2 = .051$ ; Year Two:  $F_{1, 468} = 22.396$ ;  $p \leq .0001$ ;  $\eta^2 = .046$ ). The adjusted change from pretest to post-test for the Participant Group in year one was 5.2 percentage points; and 9.7 percentage points in year two. The adjusted change for the Comparison Group was -3.6 percentage points in year one, and 2 points in year two, indicating no meaningful change from pretest.

## CONCLUSION ONE

The results of analyses of participant and comparison group performance over two years of evaluation indicate that those youth who experienced the MAJ program had statistically significant gains, larger than those who did not experience the program, on a standardized assessment of entrepreneurial thinking and self-sufficiency.

**Impact on Outcomes Based on Completion of a Business Plan.** Figure 8 displays the results of the analysis of change from pretest to post-test for the Participant Group only. This analysis focused on whether youth actually completed a business plan to prepare for development and marketing of a new business. The completion of a plan indicates that youth began applying the concepts and skills learned in the STE program. Youth who did not complete a plan, or who did not attempt to develop a plan would be expected to have not advanced to the same level as a youth who had completed a business plan.

The results of the analysis found statistically significant differences in the gain from pretest across the three groups in the first year of the evaluation ( $F_{2, 645} = 5.342$ ;  $p \leq .005$ ;  $\eta^2 = .016$ ). The adjusted change scores indicate that those youth who completed a business plan outperformed other youth; and those who attempted, but did not complete a business plan outperformed those youth who did not attempt a business plan (see Figure 8). Post-hoc comparisons (Scheffe') found that those who completed the business plan had significantly higher scores than both the other groups. However, those who attempted the business plan did not have scores that were statistically higher than youth who did not attempt a business plan.

Results from the second year of the evaluation did not replicate those found in the first year. Non-significant differences were found across the three groups.

## CONCLUSION TWO

The evaluation found inconsistent results of the impact of participating in the development of a business plan on the key outcome measure. First year findings supported the belief that engaging in this learning activity would lead to larger gains from pretest on the assessment of self-sufficiency and entrepreneurial thinking. Year two evaluation results found no statistically significant difference between those students who completed a business plan and those who did not.

**Impact on Outcomes Based on Hours of Instruction Received.** Figure 9 provides strong evidence of the relationship between exposure to the curriculum via instruction and performance on the key outcome measure (SSETA). For youth who received 20 or fewer hours of contact with the curriculum their adjusted change from pretest to post-test was significantly lower than youth who received 21 or more hours of instruction. This is particularly evident for youth who received more than 30 hours of instruction in the MAJ curriculum.

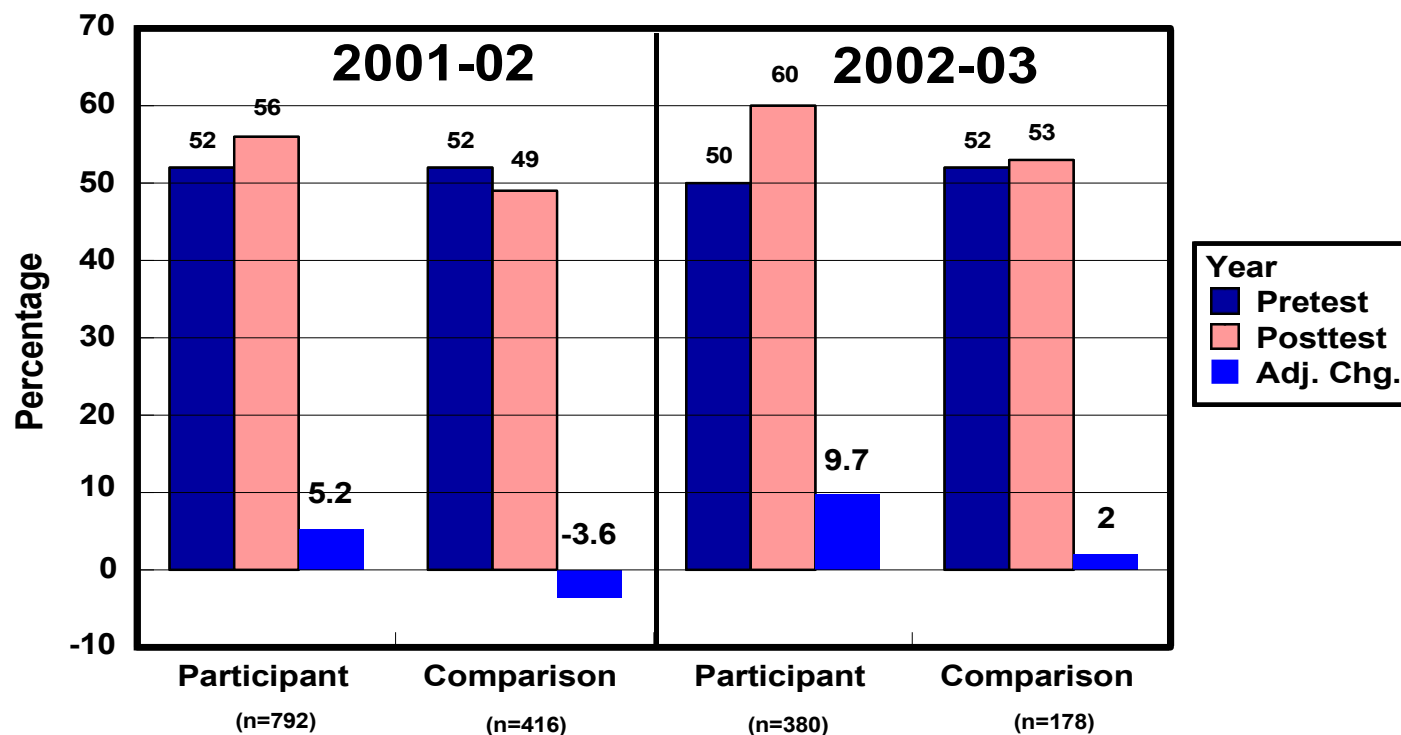
Using analysis of covariance procedures we tested the change from pretest to post-test with the independent variable being number of contact hours (a categorical variable that is at least ordinal level data). Using the same covariates as in prior analyses we found that there is a linear relationship between performance and time spent with the curriculum (Year One:  $F_{1, 257} = 13.72$ ;  $p \leq .0001$ ;  $r^2 = .25$ ; Year Two:  $F_{1, 306} = 6.519$ ;  $p \leq .05$ ;  $r^2 = .23$ ) and that significant group differences exist when comparing the performance across time categories using post-hoc procedures.

### CONCLUSION THREE

The analysis of youth performance based on extent of exposure to the curriculum via instruction indicates that there is a clear relationship between the amount of time spent engaged in the MAJ program and youth performance on the key outcome measure. In general, the more time youth spend with the curriculum the larger their gain from pretest to post-test on entrepreneurial thinking and self-sufficiency measures. This finding was supported in both years of evaluation.

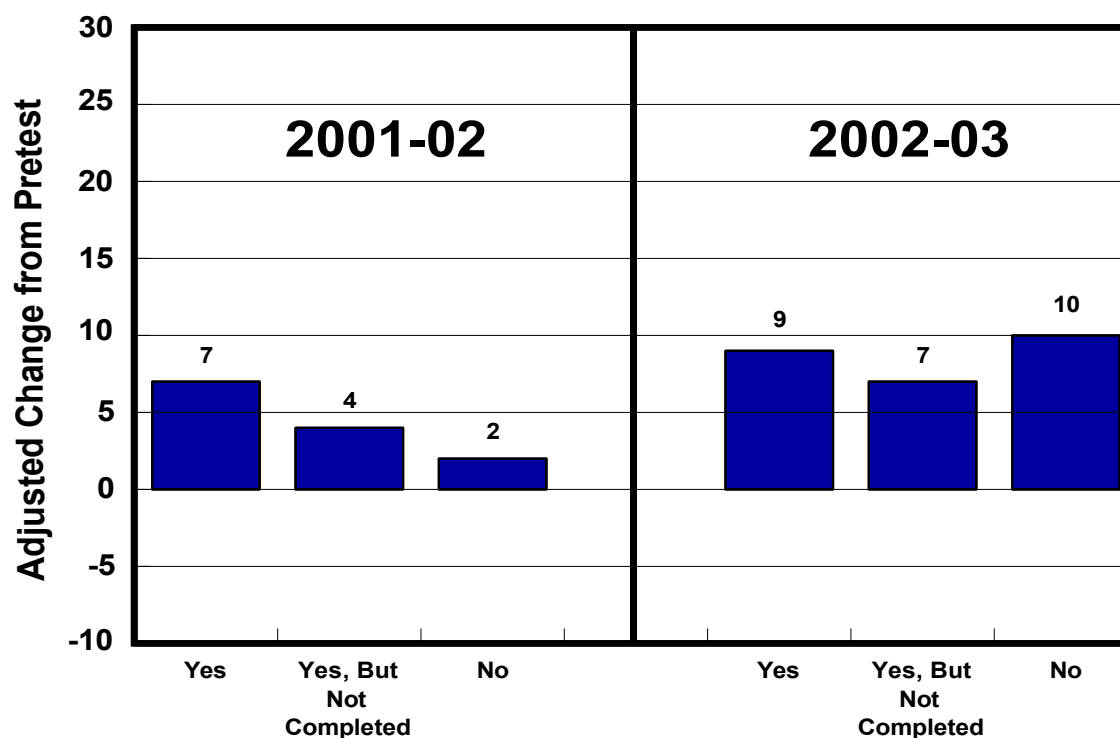
**Impact on Outcomes Based on Teacher Training.** Kauffman Foundation leadership asked the evaluation team to assess the extent to which the performance of youth is influenced by the training their teachers receive. In particular, do youth appear to benefit from training provided by Kauffman Foundation associates? The analysis approach was the same as described earlier. However, the original variable was a four category variable (Kauffman Foundation associate trained me, Colleague trained me, Other training was received, No training was received). Because of small numbers in the Colleague and the Other categories the evaluation team combined those two categories. The analysis then compared the change from pretest to post-test using the recoded training variable as the independent variable.

**Figure 7. Pretest and Post Test Scores and Change from Pretest of Participant and Comparison Groups on the SSETA, 2001-02 and 2002-03**



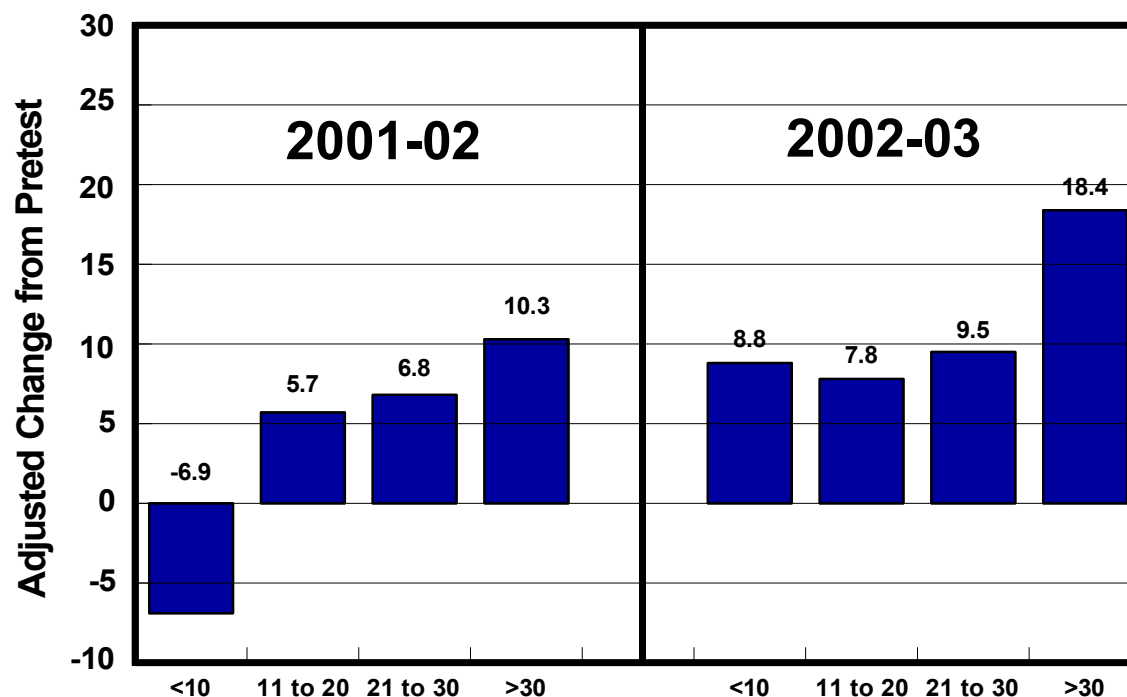
Note: Results from analysis of covariance statistical model. Model included the following covariates: pretest percentage correct score, years of teaching experience, grade level, previous exposure to Mini-Society®, gifted status, working status of mother, and if parents were entrepreneurs. Statistically significant differences between participant and comparison groups were found for each year ( $\alpha \leq .0055$ ) with an observed power of  $\beta-1 = .997$ .

**Figure 8. Change from Pretest on the SSETA Based on Based on Student Completion of a Business Plan, 2001-02 and 2002-03**



Note: Results from analysis of covariance statistical model. Model included the following covariates: pretest percentage correct score, years of teaching experience, source of teacher training, grade level, previous exposure to Mini-Society®, gifted status, working status of mother, and if parents were entrepreneurs. Statistically significant differences between groups based on student experience writing a business plan were found in 2001-02 but not 2002-03.

**Figure 9. Change from Pretest on the SSETA by Number of Instructional Contact Hours for Students, 2001-02 and 2002-03**



Note: Results from analysis of covariance statistical model. Model included the following covariates: pretest percentage correct score, years of teaching experience, grade level, previous exposure to Mini-Society®, gifted status, working status of mother, and if parents were entrepreneurs. Statistically significant differences between groups based on number of contact hours were found for both years of implementation ( $\alpha \leq .05$ ) with an observed power of  $\beta-1 = .998$

As seen in **Figure 10**, across two years of evaluation, there is a significant and positive advantage associated with 1) receiving training in the curriculum; and 2) receiving that training from a Kauffman Foundation associate (Year One:  $F_{2, 655} = 10.15$ ;  $p \leq .0001$ ;  $\eta^2 = .03$ ; Year Two:  $F_{2, 420} = 13.14$ ;  $p \leq .0001$ ;  $\eta^2 = .09$ ). For youth whose teachers received training from Kauffman Foundation associates their gain was 12 to 14 percentage points; for youth whose teachers received training from individuals other than Kauffman Foundation associates their gains were moderate (4 to 5 percentage points); and for youth whose teachers received no training in the curriculum their gains from pretest to post-test were small (1 to 3 percentage points).

### CONCLUSION FOUR

The analysis of youth performance based on the source of training teachers received indicates that there is a clear advantage for youth whose teachers were trained; and even more of an advantage for youth whose teachers were trained by Kauffman Foundation associates. The change from pretest to post-test on the SSETA indicates that youth whose teachers are trained by Kauffman Foundation associates have gains that are three times as large as those whose teachers were trained by colleagues and others. The advantage is 6 to 10 times as large when compared to youth whose teachers were not trained. This finding was consistent for both years of the evaluation.

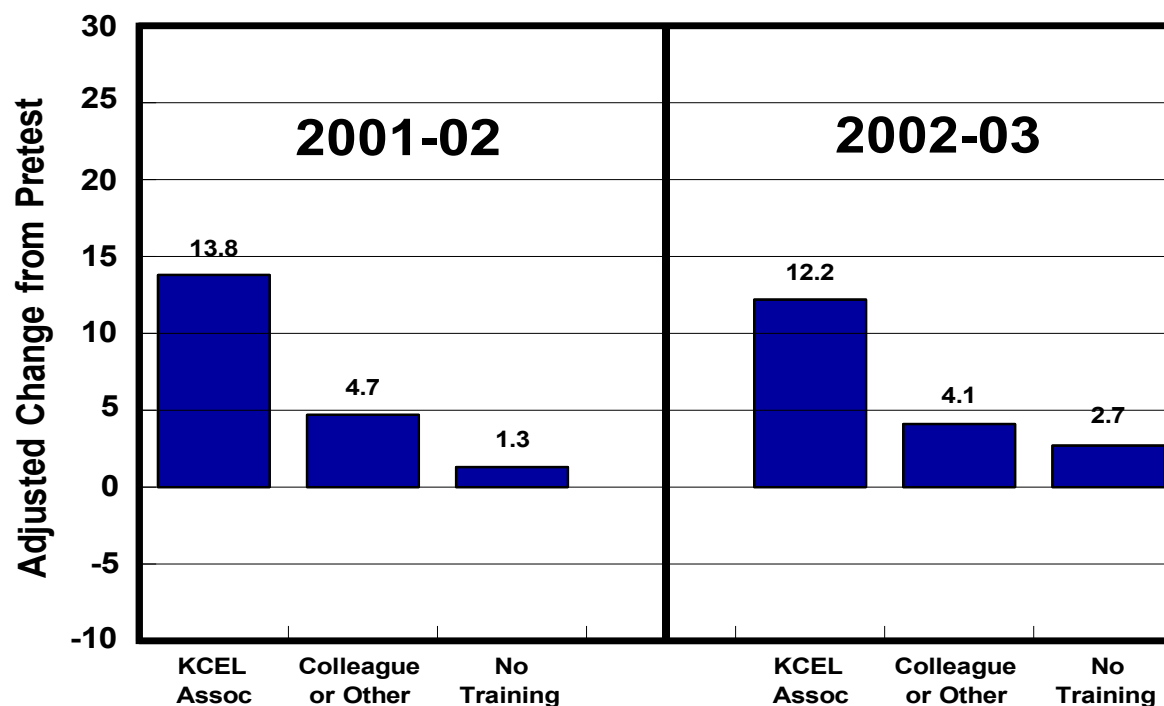
#### **Impact on Outcomes Based on Teacher Experience Implementing STE.**

Kauffman Foundation associates asked the evaluation team to explore the relationship between teacher experience implementing an STE curriculum and resultant youth outcomes. Data for this evaluation inquiry was not collected in the first year of the evaluation but was part of the protocol for year two. As such, the data reported is only from the second year of the evaluation.

As seen in **Figure 11**, youth whose teachers have implemented a STE curriculum at least once before (veterans) outperformed their counterparts whose teachers were implementing the curriculum for the first time ( $F_{1, 234} = 13.37$ ;  $p \leq .0001$ ;  $\eta^2 = .11$ ). For youth whose teachers were veterans their adjusted gain was 19 percentage points; for youth whose teachers were first time implementers their gains were almost half as much (10 percentage points). This analysis illustrates the value of examining gains in performance as opposed to a simple test of differences at post-test. Veteran implementer youth had lower pretest scores as well as post-test scores, when compared to first time implementers. But, after adjusting for pretest status and other correlated factors associated with performance on the outcome measure the results clearly

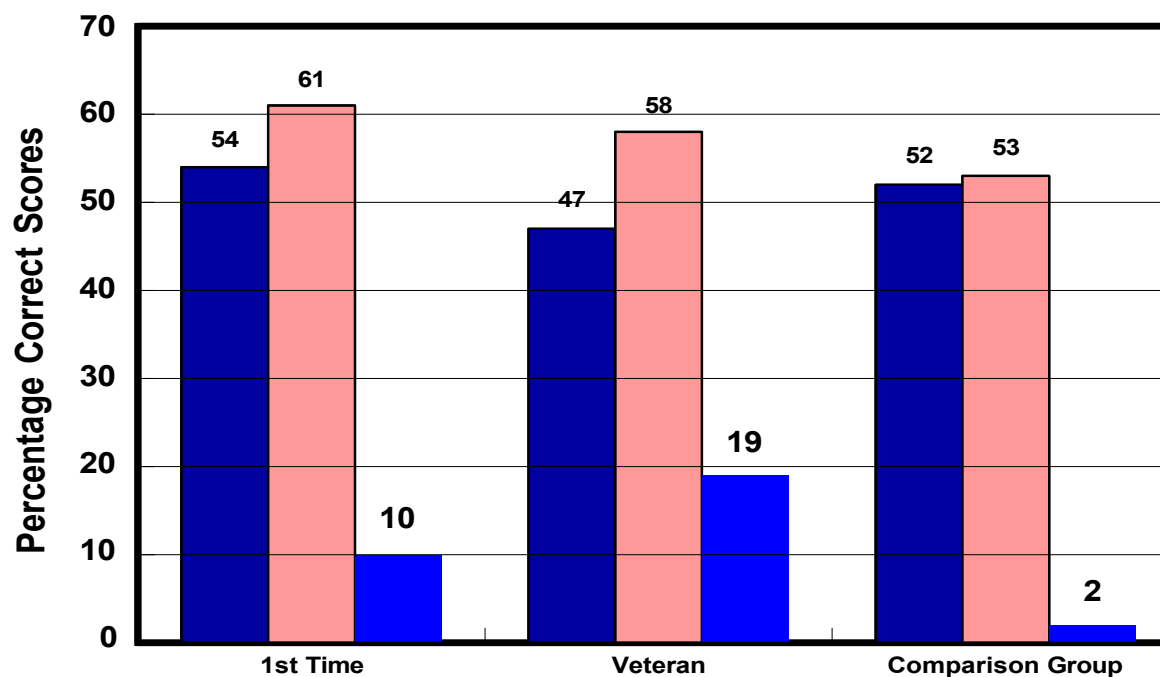


**Figure 10. Change from Pretest on the SSETA Based on Source of Training for Teachers, 2001-02 and 2002-03**



Note: Results from analysis of covariance statistical model. Model included the following covariates: pretest percentage correct score, years of teaching experience, grade level, previous exposure to Mini-Society®, gifted status, working status of mother, and if parents were entrepreneurs. Statistically significant differences between groups based on source of teacher entrepreneurship training ( $\alpha \leq .05$ ) with an observed power of  $\beta-1=1.0$  for both implementation years.

**Figure 11. Pretest and Post Test Scores and Adjusted Change from Pretest on the SSETA by Teacher Experience Implementing STE Curriculum, 2002-03**



Note: Results from analysis of covariance statistical model. Model included the following covariates: pretest percentage correct score, years of teaching experience, grade level, previous exposure to Mini-Society®, gifted status, working status of mother, and if parents were entrepreneurs. Statistically significant differences between groups based on teacher experience teaching an STE curriculum were found for the change from pre to post ( $\alpha \leq .05$ ) with an observed power of  $\beta-1 = .998$

indicate that the gain from pre to post was significantly larger for the veteran implementer's students.

**Impact on Outcomes Based on Type of Curriculum Implementation.** Teachers and their schools made decisions about how the curriculum would be implemented in each site. In some cases teachers taught the MAJ curriculum as a stand-alone class (n=37 in year one; n=32 in year two), in others the implementation occurred as part of another course (n=268 in year one; n=137 in year two). Analysis of covariance (utilizing the same covariates as described previously) tested the magnitude of change from pretest to post-test on the SSETA and found non-significant differences in the adjusted change scores across both years of the evaluation (see **Figure 12**). The results indicate that the type of curriculum implementation does not lead to better or worse learning outcomes for students.

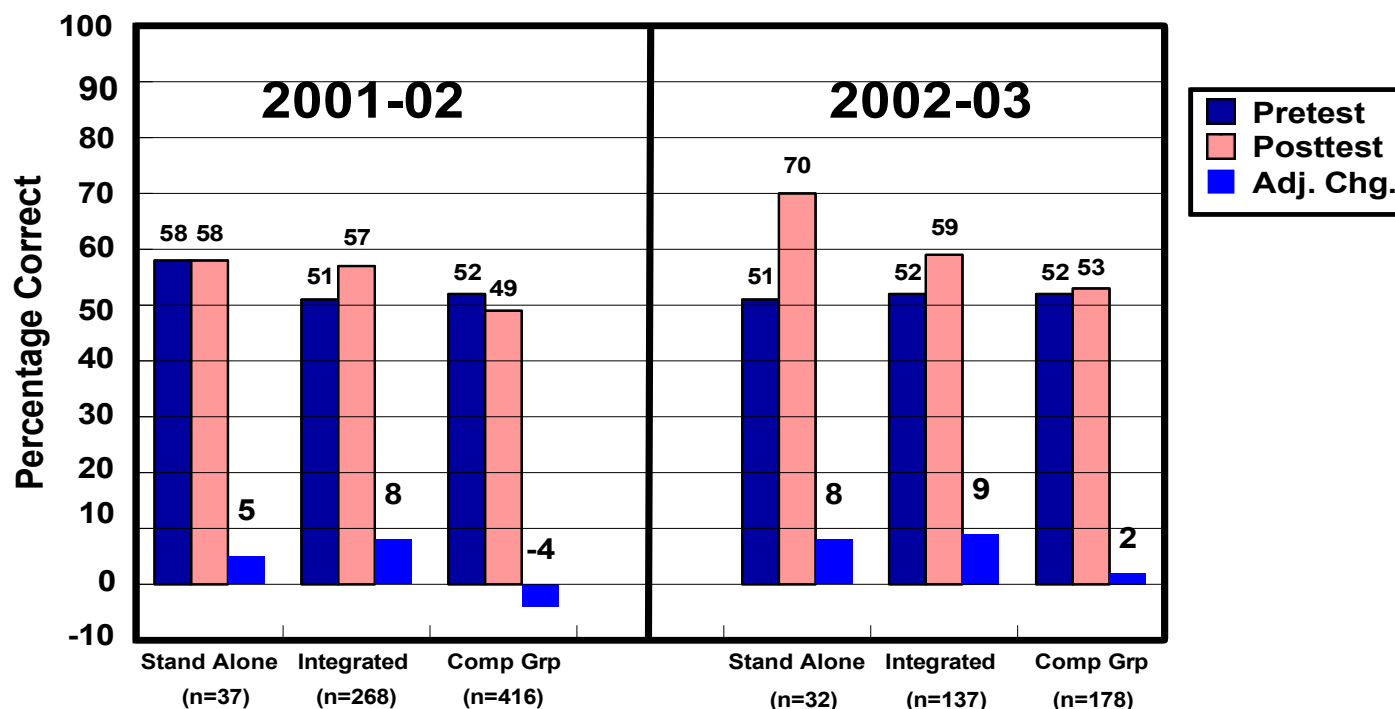
### ◆ **Impact on Other Youth Outcomes**

**Marketable Skills.** Youth in both the Participant and Comparison Groups completed the Marketable Skills Survey at approximately the same time (for Participant Group the survey was completed at the conclusion of the curriculum implementation; for Comparison Group members it was completed at approximately the same time). The survey asked participant group youth to indicate for 20 different behaviors the extent to which “you exhibit the following characteristics after YOUR participation in the entrepreneurship program.” The response options were scaled as follows: 1=much less than before, 2=a little less than before, 3=about the same as before, 4=a little more than before, and 5=much more than before. Items were analyzed in total as a sum scale (summing the item responses together to get a total score) and separately through a series of adjusted independent t-tests. Higher scores indicate that the youth perceived himself/herself as exhibiting more of the characteristics than he/she did before the program.

The results of the analysis of covariance procedure comparing Participant and Comparison Groups on their total sum scale score indicates that there are statistically significant group differences in the first year of the evaluation but not in the second year (Year One:  $F_{1,832} = 33.52$ ;  $p \leq .0001$ ;  $\eta^2 = .039$ ; Year Two:  $F_{1,220} = .276$ ;  $p \geq .600$ ;  $\eta^2 = .001$ ). The average response across the twenty items for Participant Group youth was 3.6 in year one and 3.44 in year two; for Comparison Group youth the average response across the twenty items was 3.3 in year one and 3.38 in year two.

When individual items were examined for differences across groups there were 12 items with differences large enough to be statistically significant in year one. In year two there were three items (see **Table 7**). To ease interpretation of the

**Figure 12. Pretest and Post Test Scores and Change from Pretest on the SSETA by Type of Curriculum Implementation, 2001-02 and 2002-03**



Note: Results from analysis of covariance statistical model. Model included the following covariates: pretest percentage correct score, years of teaching experience, grade level, previous exposure to Mini-Society®, gifted status, working status of mother, and if parents were entrepreneurs. Non-significant differences between groups based on type of curriculum implementation were found for both implementation years but significant differences between different types of implementation and the comparison group were found ( $\alpha \leq .05$ ) with an observed power of  $\beta-1 = .997$

findings in **Table 7** the evaluation team created three categories of response out of the original five (Less than Before, Same as Before, More than Before). The results in year one indicated that Participant Group youth perceived themselves to be more able to:

- ◆ Look at problems as opportunities
- ◆ Identify problems that need to be solved
- ◆ Volunteer to answer questions
- ◆ Participate in class discussions
- ◆ Understand what it takes to start a business
- ◆ Understand what it takes to operate a business
- ◆ Make decisions in terms of trade-offs
- ◆ Stand up for themselves (assertive without being aggressive)
- ◆ Recognize strengths and weaknesses

These youth also rate themselves as more like the following: talking about going into business for themselves, being comfortable with math, and being more aware of the role of the entrepreneur in the world today. In year two Participant Group youth perceived themselves to be more able to:

- ◆ Understand what it takes to start a business
- ◆ Understand what it takes to operate a business
- ◆ Be aware of the role of the entrepreneur in the world today

◆ **Table 7. Participant and Comparison Group Responses to the Marketable Skills Survey: 2001-2002, 2002-2003** <sup>a,b</sup>

Group	% Responding "Little More/Much More"			
	2001-2002		2002-2003	
	N	%	N	%
I look at problems as opportunities rather than obstacles.				
Comparison	79	8.2%	39	29.5%
Participant	294	30.6%*	72	40.0%
I pinpoint (identify) real world problems that need to be solved.				
Comparison	111	11.5%	55	42.0%
Participant	263	27.3%*	66	37.1%
I use the knowledge acquired in school to solve real world problems.				
Comparison	141	14.7%	67	51.9%
Participant	305	31.8%	93	52.5%
I offer multiple solutions for solving a problem.				
Comparison	128	13.3%	54	41.2%
Participant	285	29.7%	66	37.1%
I generate (come up with) new ideas.				
Comparison	172	18.2%	77	59.2%
Participant	392	41.5%	103	58.9%
I use writing effectively to communicate my ideas.				
Comparison	93	9.7%	54	41.9%
Participant	222	23.2%	59	33.3%
I use verbal communication (words) effectively to communicate my ideas and give presentations.				
Comparison	142	14.8%	69	52.7%*
Participant	295	30.8%	64	35.8%
I function well in cooperative groups.				
Comparison	153	16.0%	69	52.7%
Participant	329	34.4%	86	48.0%
I volunteer to answer questions.				
Comparison	101	10.5%	58	45.0%
Participant	280	29.2%*	66	37.3%
I participate in class discussions.				
Comparison	118	12.3%	66	51.6%
Participant	289	30.2%*	81	45.3%
I understand what it takes to start a business.				
Comparison	116	12.2%	48	37.2%
Participant	470	49.4%*	121	69.1%*
I understand what it takes to operate a business.				
Comparison	107	11.3%	45	35.7%
Participant	461	48.6%*	119	68.0%*

◆ **Table 7 (continued). Participant and Comparison Group Responses to the Marketable Skills Survey, 2001-2002, 2002-2003**

Group	% Responding "Little More/Much More"			
	2001-2002		2002-2003	
	N	%	N	%
I talk about going into business for myself.				
Comparison	75	7.9%	42	32.6%
Participant	246	25.8%*	58	32.8%
I am aware of the role of the entrepreneur in the world today.				
Comparison	107	11.2%	42	32.1%
Participant	420	44.1%*	110	62.1%*
I make decisions in terms of trade-offs (weigh the alternatives).				
Comparison	86	9.0%	53	41.1%
Participant	226	23.7%*	59	33.5%
I am comfortable with asking questions.				
Comparison	136	14.2%	66	50.8%
Participant	327	34.1%	84	46.9%
I am willing to stand up for myself.				
Comparison	149	15.6%	69	53.5%
Participant	356	37.2%*	95	54.0%
I am comfortable with math.				
Comparison	147	15.5%	55	42.3%
Participant	266	28.0%*	70	39.5%
I take responsibility for my own actions.				
Comparison	153	16.1%	66	50.8%
Participant	266	27.9%	70	39.5%
I recognize my strengths and weaknesses.				
Comparison	165	17.3%	81	61.4%
Participant	397	41.5%*	95	53.1%

<sup>a</sup> Comparison Group students responded to these items with the following context set: ". . . indicate the extent to which YOU EXHIBIT the following characteristics after taking a social studies course (example: history or civics) this year . . .". Participant Group students responded with the following context set: ". . . indicate the extent to which YOU EXHIBIT the following characteristics after YOUR participation in the entrepreneurship program . . .". Response categories were "much less, little less than before taking the class, about the same as before taking the class, a little more than before taking the class, much more than before taking the class." Categories were collapsed into three: much less/little less, about the same, little more/much more for analysis purposes.

<sup>b</sup> Significant differences between Comparison and Participant Groups tested using contingency tables and Likelihood ratios. In order to reduce the risk of false positives due to inflated error associated with multiple comparisons the nominal p value was modified using Bonferonni's adjustment ( $p / \#$  of comparisons). The actual p value used for determining significant group differences was  $p \leq .0025$ . Item results with an asterisk (\*) in table indicate significant group differences at  $p \leq .0025$ . All other differences were non-significant.

## CONCLUSION FIVE

The analysis of youth marketable skills responses is not conclusive. Year One data indicate that the Participant Group youth rate themselves as having obtained more of the characteristics of the entrepreneur than did the Comparison Group youth. Overall scores indicate that the two groups are significantly different in terms of marketable skills and when specific skills are examined the Participant Group has significantly higher self-ratings on 12 of the 20 skills. However, in the second year of the evaluation overall group differences were not found and only three of 20 perception items differed significantly across Participant and Comparison Groups.

Teacher ratings of the change in student marketable skills indicates that instructors saw significant changes in five specific skills in both years of the evaluation (see **Table 8**):

- ◆ Looks at problems as opportunities rather than obstacles
- ◆ Generates (comes up with) new ideas
- ◆ Understands what it takes to start a business
- ◆ Understands what it takes to operate a business
- ◆ Is aware of the role of the entrepreneur in the world today.

Each of these was identified in either year one, year two or both years, by Participant Group students as skills that have increased since the program began. These five skill areas are those where the instructor saw the largest change since the program began.

A final analysis of marketable skills was undertaken to determine if youth, instructor, and parent perceptions were related regarding the perceived change in youth skills (see **Table 9**). A correlational analysis was run using the total scores from each and determining if there were significant relationships between the perceptions of the three groups. The results indicate that there are similar perceptions among members of the three groups. The chart below provides the Pearson Product Moment Correlations. An asterisk indicates the correlation is statistically significant at the  $p \leq .01$  level.



◆ **Table 8. Teacher Ratings of Student Marketable Skills: Perceived Change Since Implementing the Entrepreneurship Program** <sup>a,b</sup>

Survey Item	% Responding Little More/Much More			
	2001-2002		2002-2003	
	N	%	N	%
Looks at problems as opportunities rather than obstacles.	312	59.3%*	109	65.7%*
Pinpoints (identifies) real world problems that need to be solved.	243	46.1%	93	56.0%
Uses the knowledge acquired in school to solve real world problems.	239	45.5%	103	62.0%
Offers multiple solutions for solving a problem.	226	43.3%	103	62.0%
Generates (comes up with) new ideas.	300	57.0%*	112	67.9%*
Uses writing effectively to communicate his/her ideas.	179	34.1%	77	46.4%
Uses verbal communication effectively to communicate his/her ideas and make presentations.	192	36.5%	67	40.4%
Functions well in cooperative groups.	202	38.6%	106	63.9%
Volunteers to answer questions	217	41.4%	89	53.9%
Participates in class discussions.	209	39.9%	92	55.4%
Understands what it takes to start a business.	452	86.1%*	125	75.8%*
Understands what it takes to operate a business.	421	80.2%*	123	74.1%*
Talks about going into business for himself/herself.	256	48.8%	74	44.6%
Is aware of the role of the entrepreneur in the world today.	445	84.6%*	141	84.9%*
Makes decisions in terms of trade-offs (weighs the alternatives).	210	39.9%	75	44.5%
Is comfortable with asking questions.	226	42.9%	98	59.0%

◆ **Table 8 (continued). Teacher Ratings of Student Marketable Skills: Perceived Change Since Implementing the Entrepreneurship Program** <sup>a,b</sup>

Survey Item	% Responding Little More/Much More			
	2001-2002		2002-2003	
	N	%	N	%
Is willing to stand up for himself/herself (is assertive without being aggressive).	200	38.0%	77	46.4%
Acknowledges when s(he) is wrong.	161	30.7%	66	39.8%
Takes responsibility for his/her own actions.	174	33.1%	73	44.0%
Recognizes his/her strengths and weaknesses.	258	49.0%	85	51.2%

<sup>a</sup> Teachers were asked to indicate "to what degree this student may have behaved differently after participation in the entrepreneurship program sponsored by the Kauffman Foundation." Teachers completed a survey for each student in their class that participated. Counts reflect the number of students who received the rating.

<sup>b</sup> Asterisk (\*) items are those items with the highest frequency indicating "a little or much" change in students as perceived by teachers.

◆ **Table 9. Correlations Among Respondent's Perceptions of Student Market Skills**

	Youth	Instructor	Parent
<b>2001-2002</b>			
Youth	1.0	.28*	.34*
Instructor		1.0	.20*
Parent			1.0
<b>2001-2002</b>			
Youth	1.0	.45*	.46*
Instructor		1.0	.35*
Parent			1.0

Note: \* = correlation significant at the 0.01 level (2-tailed).

## CONCLUSION SIX

The analysis of youth marketable skills responses and that of instructors and parents indicates that there is considerable consistency about the changes in youth as a result of their participation in the MAJ program. Instructors report seeing substantial changes in several skill areas, and these areas appear to occur consistently across evaluation years. Parents hold similar perceptions to that of youth and instructors about the changes that occur in youth while participating in the MAJ program.

**Business Attitude.** A series of items were asked of youth in both the Participant and the Comparison Group. These items measured the extent to which youth expressed attitudes consistent with those of an entrepreneur and those consistent with good business sense. Consequently, there are preferred attitudes and these were scored as 1=preferred attitude expressed and 0=preferred attitude not expressed. The results of comparisons across groups indicates that youth in the Participant Group expressed slightly more preferred attitudes across the 10 survey items in year one of the evaluation (mean = 26% versus 24% in the Comparison Group) but not in year two (mean =27% versus 29% in the Comparison Group). These differences were not statistically significant. An examination of the item-level responses indicates that only three attitudes were markedly different across groups, and in each case the Comparison Group held the more favorable attitude (see Table 10).

## CONCLUSION SEVEN

The analysis of business attitudes of youth, measured with ten survey items, indicates no marked differences between students participating in the MAJ curriculum and those in the Comparison Group. The expression of preferred attitudes associated with successful business practice and that of entrepreneurial thinking was not significantly different across Participant and Comparison Groups.

In the following section the evaluation team will review the key findings from the evaluation, identify limitations of the findings, and draw a judgment of the effectiveness of the MAJ program implementation and impact on relevant student outcomes.

◆ Table 10. Participant and Comparison Group Responses to the Business Attitude Survey (mean percent expressing preferred attitude) <sup>a,b</sup>

Item	Year	Group	N	Mean	SD	SE Mean
Q1. Method of payment preferred	2001-02	Comparison	313	.19	.394	.022
		Participant	636	.15	.355	.014
	2002-03	Comparison	77	.43	.498	.057
		Participant	156	.44	.497	.040
Q2. Method of payment providing higher potential income	2001-02	Comparison	313	.11	.316	.018
		Participant	633	.12	.331	.013
	2002-03	Comparison	77	.17	.377	.043
		Participant	156	.15	.356	.029
Q3. Offered part-time job--how want to be paid	2001-02	Comparison	313	.20	.404	.023
		Participant	637	.21	.409	.016
	2002-03	Comparison	76	.18*	.390	.045
		Participant	155	.08	.278	.022
Q4. Earnings at new business versus salary at new job	2001-02	Comparison	313	.15	.358	.020
		Participant	633	.15	.354	.014
	2002-03	Comparison	75	.27*	.445	.051
		Participant	154	.16	.364	.029
Q5. If received 20,000 gift what use would you make of that gift	2001-02	Comparison	314	.13	.337	.019
		Participant	634	.15	.356	.014
	2002-03	Comparison	76	.17	.379	.044
		Participant	156	.13	.335	.027
Q6. Choice in investment opportunities for half of savings	2001-02	Comparison	312	.23	.424	.024
		Participant	632	.28	.450	.018
	2002-03	Comparison	76	.20	.401	.046
		Participant	155	.12	.321	.026
Q7. Reasons for not turning good idea into new business	2001-02	Comparison	314	.51	.501	.028
		Participant	633	.56	.496	.020
	2002-03	Comparison	76	.36	.482	.055
		Participant	155	.27	.446	.036
Q8. Friend offers business to you what would you do?	2001-02	Comparison	314	.41	.493	.028
		Participant	637	.38	.486	.019
	2002-03	Comparison	76	.58	.497	.057
		Participant	156	.57	.497	.040
Q9. In starting a new business which is most difficult to achieve	2001-02	Comparison	314	.30*	.459	.026
		Participant	636	.24	.427	.017
	2002-03	Comparison	76	.30	.462	.053
		Participant	156	.35	.479	.038

◆ **Table 10 (continued). Participant and Comparison Group Responses to the Business Attitude Survey (mean percent expressing preferred attitude) <sup>a,b</sup>**

Item	Year	Group	N	Mean	SD	SE Mean
Q10. Created new business and later closed because sales lower than expected	2001-02	Comparison	312	.29	.452	.026
		Participant	634	.39*	.488	.019
	2002-03	Comparison	76	.38	.489	.056
		Participant	156	.33	.471	.038

<sup>a</sup> Each of the 10 items were multiple-choice format with 4 or 5 response options. The context for this assessment was set as follows: "We want to know what you think about business. Your answers on this survey will help us understand business attitudes among students. Simply fill in the circle next to the answer that expresses what you think!"

<sup>b</sup> Asterisk (\*) items indicate those items with significant group differences tested through independent samples t-tests and using a p value adjusted for multiple comparisons (p/# comparisons) to control for inflated error rates and false positives--Bonferonni's adjustment.

## ◆ Summary

The purposes of this evaluation were to determine if a school-based School-to-Entrepreneurship program impacts key knowledge and behavioral outcomes associated with entrepreneurial thinking and planning in middle-school aged youth participants, and to synthesize the findings across two years of evaluation to determine if Kauffman's investment in STE programming strengthens entrepreneurial thinking and action in youth. Year one participants were 1,208 middle-school youth and 57 teachers in 36 separate schools. Year two participants were 565 youth and 39 teachers in 19 separate schools.

The primary evaluation question was: To what extent does participation in the MAJ program lead to statistically significant gains in key outcome measures for participant youth as compared to non-participating youth? Several secondary evaluation questions were posed by Kauffman Foundation staff and included in the evaluation design: 1) how does **teacher training** impact the performance of youth participants? 2) how does **previous teacher experience** implementing a STE curriculum impact performance on measures of self-sufficiency and entrepreneurial thinking? 3) how does **variation in treatment exposure** to the entrepreneurship curricula influence the performance of youth? and 4) how does **completion of a business plan** by youth impact youth performance? These

questions were examined across two years of data collection from non-equivalent cohorts of students. Data are presented cross-sectionally and synthesized across years.

The evaluation examined the implementation of one specific STE curricula (Making a Job) in middle schools and identified the extent of impact on youth outcomes. Among the implementation features tested for their impact on key outcomes were:

- ◆ youth participation in developing business plans,
- ◆ variable treatment exposure (measured as instructional contact hours),
- ◆ variations in teacher training to implement the MAJ curriculum,
- ◆ variations in teacher experience implementing STE curricula, and
- ◆ variations in type of curriculum implementation (i.e., stand-alone course versus integrated curricula).

Key outcomes included student performance on measures of self-sufficiency and entrepreneurial thinking (SSETA), perceptions of marketable skills, and business-related attitudes. Two groups of middle school students were measured for their knowledge of entrepreneurship, economic concepts, self-sufficiency and entrepreneurial thinking. These constructs were assessed through a standardized assessment (SSETA) created under a KF contract awarded to American College Testing (ACT). Participant Group students were exposed to a multi-session curricula; Comparison Group students received no STE instruction and were measured at the same points in time (pre and post implementation for the SSETA and post-implementation for all other measures).

**The key findings of the evaluation are:**

- ◆ Youth who experienced the MAJ program outperformed youth who did not on key outcome measures. The results of analyses of participant and comparison group performance indicate that those youth who participated in the MAJ program had statistically significant gains on the SSETA, superior to those who did not participate in the program. This finding was consistent across the two years of the evaluation.
- ◆ Youth participation in the applied activity of developing a business plan did not consistently outperform their peers who did not complete a business plan. The analysis of youth experience in completing a business plan during the implementation of the MAJ program provided inconsistent results. Year one analyses suggested that this experience contributes to significantly larger gains, when compared to non-participating youth,

from pretest to post-test on the SSETA Assessment. The evaluation did not find evidence supporting this result in the second year of the evaluation.

- ◆ The more time youth spend with the curriculum the larger their gain from pretest on the key outcome measures. The analysis of change from pretest indicates that there is a positive relationship between the amount of time spent engaged in the MAJ program and youth performance. This result was found across two years of data collection.
- ◆ There is a clear advantage for youth whose teachers were trained in an entrepreneurship curriculum; and even more of an advantage for youth whose teachers were trained by Kauffman Foundation associates. The change from pretest on the key outcome measure indicates that youth whose teacher is trained by Kauffman Foundation associates have gains that are three times as large as those whose teachers were trained by colleagues and others. The advantage is 6 to 10 times as large when compared to youth whose teachers were not trained. This result was found across two years of data collection.
- ◆ Youth whose teachers have previously implemented a STE curriculum significantly outperform their peers who received STE instruction from teachers who have never before implemented a STE curriculum. The change from pretest on the key outcome measure indicates that the performance benefit associated with teacher experience is almost twice that of youth with novice teachers.
- ◆ Youth performance on the key outcome measures does not appear to be related to the type of curriculum implementation used. Non-significant differences in performance were found for youth who experienced the MAJ curriculum in a stand-alone (course-based) implementation compared to youth who received the curriculum in an integrated approach (i.e., curriculum delivered in the context of another course).
- ◆ Results of analyses of youth perception of their market skills are inconclusive. In the first year of the evaluation the MAJ program appears to have positively influenced youth perceptions of their marketable skills. Based on the perceptions of youth, teachers and parents, participants reportedly demonstrated more behaviors and skills associated with successful business practice and the skills of entrepreneurs following participation in the program. Alternately, data obtained in the second year of the evaluation shows no meaningful difference between Participant and Comparison Group students on global or total scores measuring this perception. Item by item analyses revealed that a significantly larger percentage of Participant Group students (compared

to the Comparison Group) believed that they “understood what it takes to start a business,” “understood what it takes to operate a business,” and “were aware of the role of the entrepreneur in the world today.” These differences in specific perceptions were found in both years one and two of the evaluation.

- ◆ Measures of business attitudes of youth were not significantly different for Participants and Comparison youth. The expression of preferred attitudes associated with successful business practice and that of entrepreneurial thinking was not substantially different across Participant and Comparison Groups. This finding was observed in both the first year and the second year of the evaluation.

The evaluation has found evidence that the MAJ program has substantial positive impact on key entrepreneurial and self-sufficiency outcomes of middle school youth. The results indicate that when judged against the performance of a comparison group of youth, participants significantly outperform their peers in knowledge of entrepreneurial thinking, economic concepts, and marketable skills. In many areas of this inquiry youth who participated in the MAJ program were found to have significant and positive changes from pretest to post-test following implementation of the curriculum and those changes were significantly larger than those found for comparison group youth. Positive results, as well as those results found to be consistent (whether positive or negative) from the first year to the second year of the evaluation are:

- ◆ Participation in the MAJ curriculum leads to statistically significant gains from pre to post on key outcome measures. Those gains are significantly larger than the gains made by non-participating comparison group youth.
- ◆ In general, the longer the exposure to the curriculum the greater the gains made on the key outcome measure (SSETA).
- ◆ The source of training for teachers is associated with the performance of students on the key outcome measure. There is a clear advantage for youth whose teachers were trained by Kauffman Foundation associates.
- ◆ Previous experience implementing a STE curriculum provides a significant advantage for youth. Results indicate that experienced or veteran STE implementers elicit significantly larger gains from pre to post when compared to students who receive instruction from novice or first-time implementers.
- ◆ The business-related attitudes of students do not appear to be influenced by their participation in the MAJ program. Non-significant differences



between Participant and Comparison Group student attitudes were found in both years one and two of the evaluation.

Inconsistent findings from the first year to the second year of the evaluation were observed for the following outcomes:

- ◆ Influence of participation in developing a business plan on SSETA outcomes.
- ◆ Youth perceptions of their market skills

## ◆ Key Learnings

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Two years of consistent data collection across 55 schools indicates that the MAJ program successfully impacted middle school youth participants on the key outcome measures. One key learning that is most evident from the two years of evaluation is that the MAJ program is very effective at bringing about changes in cognitive learning outcomes associated with entrepreneurial thinking and self-sufficiency but less able to bring about consistent changes in the perceptions and attitudes of youth.

A second key learning that may influence decisions about the parameters of effective implementation of STE programming is that integrated approaches (STE curriculum inserted into another course) and stand-alone approaches do not appear to lead to differential performance on the key learning outcomes measured by the SSETA. This is important as schools consider adopting STE programming that can be efficiently inserted into existing master schedules and curriculum.

A third key learning is that teacher training matters. Not only the actual experience of receiving training but also the expertise of the trainer. Two years of evaluation data indicate that trained teachers elicit better outcomes from students and the advantage grows for students whose teachers were trained by Kauffman Foundation associates. Consequently, having highly skilled trainers is essential to better outcomes for youth. This is a critical sustainability issue for the Foundation.

A fourth learning is that more exposure to the curriculum leads to better cognitive outcomes for youth. Two years of data show that this relationship is relatively consistent and linear. Of course, educators and psychologists have consistently demonstrated the relationship between opportunity to learn and

performance and it is also demonstrated here within the context of entrepreneurial thinking and self-sufficiency outcomes.

A final observation based on the key learnings: a relevant and well-planned curriculum, combined with effective and engaging instruction on a regular basis will lead to deeper and more sustained student learning. Business, vocational, and entrepreneur-focused instruction, whether delivered in schools, community centers, adult-education settings, or corporate trainings, all have important learning outcomes that are dependent on a good curriculum and effective instruction. This fundamental awareness transcends learner populations and instructional delivery personnel. The Kauffman Foundation's School-to-Entrepreneurship program successfully integrates the features of high quality curricula and instruction to positively influence the learning outcomes of youth. It remains a challenge within the MAJ program to determine how also to bring about meaningful attitudinal and perceptual changes in students participants.