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Development of Core Indicators of the Impact of Career Preparation in the South Central Michigan Works! Region

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of the Impact of Career Preparation
in the South Central Michigan Works! Region***

Final Draft

Upjohn Institute Technical Report No. 99-014

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I appreciate the usual professionalism that I received from Ms. Claire Black in preparing this report. Of course, the usual disclaimer applies. All errors are the sole responsibility of the author. Furthermore, all opinions expressed are solely the author's and do not necessarily represent the South Central Michigan Works! agency or the W. E. Upjohn Institute for Employment Research.

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I. Introduction

The Workforce Development Board for South Central Michigan Works! administers funds from the State's Career Preparation System to subgrantees in Hillsdale, Jackson, and Lenawee counties. The overall purpose of the Career Preparation System is to facilitate the career development of youth. Career development is the process of becoming aware of jobs and careers; learning about and exploring careers; preparing for specific careers through formal education, training, and work experience; and finally, entering and pursuing careers. Formal schooling can play a role in career development all the way from pre-Kindergarten to college. As young people progress through their pre-adolescent and adolescent years, they may engage in activities that facilitate career development. The Career Preparation System is hinged on the propositions that (1) the State of Michigan should fund these activities so that young people will make more well-informed career decisions, possibly at an earlier age, than if there were no state program, and (2) many youth who participate in career development activities will gain academic achievement benefits as well.

The Workforce Development Board for South Central Michigan Works! is interested in assessing the effectiveness of the career development activities that it is funding. This, of course, is an appropriate oversight function for the Board. One of the following statements is true about each activity that the Board is funding through the Career Preparation System: (1) funds are being expended on an activity that has no value or that has negative value; (2) funds are being expended on an activity that has value, but the value is less than the funds that are invested; or (3) funds are being expended on an activity that has value greater than or equal to the funds that are invested. The Board would obviously like to minimize the number of activities that would fit into either of the first two categories and to maximize the number of activities in the latter category. In any case, a

continuous improvement philosophy would require the Board to monitor the value and cost of each activity and to work with program administrators to increase the cost effectiveness of **all** activities.

The previous paragraph demonstrates the importance of valuing the benefits from Career Prep funded activities, but that is an unusually difficult undertaking. At least four factors make it difficult. First, the outcomes may occur well into the future. Indeed, the core objective is career development, which is a process that occurs over many years for each individual. Even if it were the case that Career Prep funded activities resulted in every single participant ending up in their optimal career at any earlier age than they would without these activities, we would not observe that outcome for several years. For example, activities that are targeted on children in elementary school may not have a payoff for 10-15 years.

Second, we cannot easily place a dollar value on the outcomes. Note that the outcomes may include career decision making, but also they may include academic achievement. Just focusing on career decision making, it is not clear how to assign an economic value to finding a career that is more closely matched to a person's skills and interests relative to one that is less well-matched. Not only might that result affect the person's earnings and happiness, but also it might increase the person's productivity on the job, and therefore the profitability of the organization that the person works for. Thus valuing the career development outcomes of activities seems almost intractable, let alone trying to value any improvements in student achievement that may result from the career development system.

The third major complication is how to attribute specific outcomes to the Career Prep funded activities. These activities are only one part of the career development system. They supplement local district funded activities and other state- or nationally-funded activities. In other words, the career development curriculum and instruction that students encounter is a "bundle" of activities, and

it is not clear that we could parcel out which outcomes belong to which part of the system. Furthermore, we do not have a counterfactual situation to evaluate against students' actual career decision making. That is, we don't know what the key outcomes for students would be (career progression, for example) absent the Career Prep funded activities. Pharmaceutical companies test potential drugs by using placebos that are administered to a random sample and comparing results to a test population, members of whom receive the drugs being tested. By randomly assigning the placebo/drug, the companies can attribute any difference in health outcomes to the drug. However, with career development activities funded by the Career Preparation System, the "treatment" is intermingled with a lot of other activities; there is no randomly assigned control group; and a long period of time occurs until we measure the outcomes, so that many intervening factors may affect the results.

A fourth major complication is that some of the activities being funded will only have indirect impacts on students. For example, funds are being invested in the development of career pathways documents that students can use to map out their high school course selection. This is a resource that students may use that may have an impact on their career development. The value of the career pathways documents to students depend on the likelihood that they will use them *and* the results from using them.

In short, the Workforce Development Board is faced with the situation of being able to easily measure the costs of the activities that are being funded, but being virtually unable to measure the benefits.

The situation is not hopeless, however. Job training provided by employers has similar problems, but a large literature on evaluation of training activities has arisen. Note that for many types of job training, the payoff may be well into the future. The training may result in outcomes that

are not easy to measure. It may be offered as part of many other activities, like the installation of new equipment, a new management style, or a new process or product mix, so that it is extremely difficult to attribute outcomes to specific training regimens. Nevertheless, an evaluation model that has been widely accepted in the field of job training is called the Kirkpatrick model.¹ The basic strategy that is being recommended in this report is for the Workforce Development Board to apply a slightly-modified version of the Kirkpatrick model to Career Prep funded activities.

The next section of this report provides a brief summary of the types of activities that comprise the Career Preparation System. That section is followed by a section that describes the Kirkpatrick model, and the modifications that are being suggested to make it appropriate for Career Preparation System activities. The final section of the paper provides a description of how the modified Kirkpatrick model may be applied in the South Central Michigan Works! region.

II. The Career Preparation System

The mission of the Career Preparation System is clear:

All students completing the Michigan educational system will have the necessary academic, technical, and work behavior skills for success in a career of their choice and lifelong learning.

Activities are funded in five major categories. The first category is **Academic Preparation/Curriculum Integration**. Activities that are funded in this category are aimed at integrating career-oriented materials into core academic curriculum. The idea is that students will learn about careers, but more importantly, they will be more engaged in learning their academic subjects if they see practical applications with relevance to the real world.

¹See Donald L. Kirkpatrick, Evaluating Training Programs: The Four Levels, San Francisco: Berrett-Koehler Publishers, 1994.

The second category is called **Career Development**. Formal subcomponents of this category include career awareness, career exploration, career assessment, comprehensive guidance counseling, career pathways, and EDPs. Career awareness activities would include tours of businesses or speakers who would come into educational settings and give students general information about careers or jobs. Generally, career awareness activities are aimed at younger students, who may be just learning about the economy and the roles of jobs in it. Career exploration activities are for slightly older students who are beginning to self-actualize themselves into jobs and careers. They include job shadowing, researching careers through computer software, or speakers who would supply more specific information about career opportunities. Career assessment activities would be formal instruments that evaluate students' aptitudes and interests in types of careers. Comprehensive guidance counseling refers to a "curriculum" that has been developed to provide counselors with a scope and sequence for delivering vocational or career guidance. Career pathways is a name for a method of organizing secondary school curriculum and helping students select courses. The pathways refer to a handful of broad occupational clusters such as business or health or engineering. Students select a pathway early in their high school career based on their career interests at the time. They complete an educational development plan (EDP) which outlines the courses that they intend to take in high school as well as a broad plan for postsecondary education. Pathways are intended to be broad and flexible, so that students can readily change pathways as their interests change.

The third category of activities is called **Workplace Readiness**. This category has three subcomponents. The first, called career & employability skills, refers to activities that are targeted on the development of basic academic skills and "soft" skills, which include a multitude of skills or behaviors such as attitude, attendance, enthusiasm, or teamwork. The second subcomponent, called technology education, refers to formal classes to understand the fundamental principles of technology

and to gain an appreciation of the role of technology in the economy. Note that technology in this context is not synonymous with computers, but rather is broader than that. The third subcomponent of workplace readiness is core pathways exploratory classes. Career pathways may be developed in a particular high school to include introductory and advanced courses in the pathway. That is, the school may offer a general course about the health field to students who sign up for that particular pathway. These courses could be funded within this subcomponent of workplace readiness.

The fourth category is called **Professional and Technical Education**. Within this category, the state is allowing school districts to include the development of curriculum and instruction of career and technical education (CTE) courses. The final category is called **Work-Based Learning**. Work-based learning, career placement, and student leadership organizations are subcomponents within this category. Work-based learning comprises a number of different types of paid or unpaid experiences in a workplace that students may engage in to supplement their programs of study. For example, co-op placements or internships may be funded in order to supplement the instruction that students receive in a particular class in school. Career placement and student leadership organizations are self-explanatory.

To gain a better understanding of the entire career development system in the three-county South Central Michigan Works! region and to determine what data that might be used for evaluation are common throughout the region, a telephone interview was conducted with principals and guidance counselors from three districts in each of the three counties. The districts were chosen randomly, although the probability of selecting a district was proportional to its total student enrollment.²

²This technique results in a higher probability of choosing larger districts with more students. It is equivalent to choosing a random sample of students in each county.

The types of investments that are being made with Career Preparation System funds include Junior Achievement (JA) curriculum for elementary students (academic preparation/curriculum integration), computer hardware and software for career exploration (career exploration or career assessment), development of career pathways documents (career pathways), and job shadowing activities (career exploration).

For purposes of evaluation, the activities that are fundable should be categorized in a slightly different way from the State's system of components and subcomponents. Funded activities serve one of two purposes: they are either (1) delivery of instruction (including staff development, guidance counseling, and assessment), or (2) infrastructural investments. Within instructional delivery, we include the following types of activities:

- staff development (teachers, guidance staff, administrators, employers)
- instructional delivery (JA, technology education, career and technical education, Freshman Focus, career seminars)
- career counseling—working with students to complete EDPs
- career awareness/exploration activities (job shadowing, visitations to employers or JCC, job fairs, seminars)
- work-based learning activities (On location. co-ops, internships)
- assessment activities (MOIS, DAT, WorkKeys)

Note that each of these activities have a deliverable outcome: training, classroom instruction, counseling, career awareness, work-based learning activities, or formal assessments. There is a transaction between customer and Career Preparation System activity provider. Customer satisfaction is relevant.

Infrastructural investments include the following:

- purchases of materials or services such as curricular material, equipment, facilities, consultants/trainers, tours, or travel
- curriculum development

These investments and expenditures result in materials or services that are inputs into the processes of providing career development.

The distinction between instructional delivery and infrastructure is important for evaluation because the former are intended to have an impact on students or staff members: imparting skills or knowledge. Whether that impact occurs can be determined. Infrastructural investments, on the other hand, only indirectly impact customers. Their impact comes from the effectiveness with which instruction can be provided.

III. The Kirkpatrick Framework for Training Program Evaluation and a Modified Framework for Career Prep

The Kirkpatrick model is based on four levels of evaluation. These four levels (listed in ascending order of complexity) are as follows:

1. Reaction
2. Learning
3. Behavior (transfer)
4. Results

The first level—**Reaction**—refers to how participants’ perceive the value of the training regimen in which they have been engaged. It can be thought of as a measure of participant satisfaction. It is important because if the participants reacted negatively to (i.e., were dissatisfied with) any component of the training activity, then the training was likely to have been less effective. That is, the maintained hypothesis is that the training effectiveness is related to how well satisfied participants were with the instruction, materials, equipment, curriculum, pace, environmental conditions, and so forth. Reaction is measured by satisfaction surveys.

The second level—**Learning**—refers to how much participants learned from the training. Learning depends on many things including the quality of the training, but also on the appropriateness of the training, the baseline knowledge and skills of the participants, how engaged the participants were in the training, and other factors. Here, the hypothesis is that training effectiveness is directly related to how much participants learned. Learning should be measured by using a pre-test and a post-test of the material that was covered in the training session(s).

The third level—**Behavior**—refers to how well participants in the training transfer what they have learned to their actual job performance. Individuals who participate in job training could be quite satisfied with the training that they received and could have learned a considerable amount of knowledge, but if the training were not relevant to their job or if they do not see the relevance, the value of the job training is greatly diminished. Kirkpatrick's hypothesis is straightforward. The more that the training is applied to participants' actual job behaviors, the more valuable the training. Behavior is not always easy to measure, however. In the job training arena, it can be measured by supervisor, training participant, or co-worker assessments or, in some instances, it can be measured by productivity indicators such as individual workers' production levels, quality rates, and so forth. At any rate, behavior is measured at the individual level.

The final level—**Results**—refers to how much the training influences the “bottom-line” of the entire system. This level represents the organizational benefit that is received from the training. That is, employers invest in training in order to improve productivity or reduce costs. Profit maximizing firms invest in training in order to increase profits. Firms expect their sales or revenues to increase or their costs to decrease enough to more than offset the cost of training. Results are measured at the system level with such variables as profit levels, quality measures, or organizational output.

Not all four levels of the Kirkpatrick framework are actually applied in evaluating all training incidents. In fact, the levels are applied with descending frequency. Reaction is measured most frequently; learning should also be measured frequently, although there may be some instances where a pre- and post-test are simply not warranted. For example, the training may be of very short duration, or the training may be in a subject matter or skill that is not easily measured. Behavior would be measured less frequently than either reaction or learning because it may be expensive to measure, or because it may be difficult to measure with accuracy. Finally, results would be measured even less frequently than behavior. Again, expense and difficulty are the major barriers to measuring results. In this case, the outcomes of interest refer to the entire organization, and so they may be more difficult to measure.

Modifying and Applying the Kirkpatrick Framework to CPS-Funded Activities

The modifications to the Kirkpatrick framework that are being suggested here are to use the following four levels (in ascending order of complexity):

1. Enrollment/attendance/satisfaction
2. Learning
3. Transfer
4. Systemic Impact

The first level of this evaluation framework calls for tracking the number of students or staff persons who participate in each activity and to measure their reaction to (or satisfaction with) the activity. Participation statistics are required by state reporting forms, so there should be little administrative cost or resistance to the establishment of a systematic process for capturing them. A later section of this report gives a prototype format for surveying participants about their reaction to the activity.

Participation should be tracked for all activities; satisfaction should be measured for virtually all activities as well (exceptions might be for activities directed to very young students, or for activities aimed at developing materials).

The second level—learning—is precisely the same as in the Kirkpatrick model. The purpose is to measure whether activities are, in fact, imparting knowledge or skills. Section 4 provides an example of a test that can be administered in both a pre-activity and post-activity time frame. Learning should be tracked whenever the activity is delivering instruction to students or staff persons.

The third level of the revised framework—transfer—is similar to the third level in the Kirkpatrick model. The desired objective of evaluating transfer is to determine whether the students or staff members who learn skills or knowledge through an activity will actually employ their learning in real situations. For example, students in middle school grades may be exposed to career exploration software through a Career Prep funded activity. Transfer of that knowledge or skill can be displayed if these same students resort to the software or the results from their middle school career exploration when they choose a career pathway in the 9th or 10th grade. Transfer will be difficult to measure, so we recommend that the Workforce Development Board train activity leaders to watch for instances of transfer, and to report those instances in a qualitative end of year report.

The final level of the revised framework—systemic impact—will be estimated once a year through a statistical model. The Career Preparation System is intended to have an impact on a number of outcomes, such as academic achievement, employer satisfaction, postsecondary attendance, or number of students dropping out of high school. For each of these outcomes, it is hypothesized that the more active a school district is with Career Prep, the better will be the outcomes for the district. By using a statistical model estimated through regression, the workforce development board will be able to control for differences among school districts that partially explain

the outcomes. In other words, we will use regression to get to an apples-to-apples comparison of districts.

IV. Evaluation Design for the South Central Michigan Region

Interviews of key staff in each of the counties provided the following description of how activities are selected for funding by the Career Preparation System. The Educational Advisory Group is allocated a level of funding for Career Prep. Staff at the Michigan Works! agency prepare a regional plan, which is derived from plans submitted by staff at the Intermediate School Districts from each county (who are the subgrantees to the EAG). The regional plan reflects the priorities set by the EAG. It further provides for an allocation of funds to each of the three ISDs. Each ISD, in turn, administers the funds to local districts, which offer activities for students, staff, or employers.

For purposes of description, we will call the individual at the Michigan Works! agency who prepares the regional plan and oversees the activities of the county subgrantees the Career Prep Administrator. The individuals at each of the ISDs who are responsible for submitting each county's plan and for monitoring the individual districts will be called the Subgrantee Career Prep Coordinators. Finally, the individuals responsible for offering the activities that get funded at the local level will be called Activity Directors.

The Activity Directors will be responsible for completing accurate enrollment and attendance data for each activity as required by the State (see "Career Preparation Guide for End-of-Year Report," February 1999, especially pp. 11-12). In addition, the Activity Directors will be responsible for conducting the satisfaction surveys, pre- and post-activity tests, and evidence of transfer, as proposed in this document. The Subgrantee Career Prep Coordinators will train the Activity

Directors on the proposed evaluation requirements, will monitor the completion of the data collection, and will receive the data for each activity from the Director.

The Career Prep Administrator will be responsible for completing the systemic impact analysis that is described below.

Level 1–Enrollment/Participant Attendance/Satisfaction. All activities, whether they are infrastructural investments or direct provision of instruction/guidance, will involve recruitment of participants and the participants’ subsequent involvement in the activity. The first level of evaluation would track enrollment and participation as well as participant satisfaction. Enrollment and number of participants may be ambiguous and hard to define rigorously for certain activities. Approximations would be adequate since the cost and hassle of determining exact data would probably not be worth the benefit. Enrollment represents the number of participants who have expressed an interest in participating. It is the number of individuals for whom the Activity Director makes plans. For example, if all of the districts in a county express an interest in development of career pathways documents, then the enrollment would be the number of counselors or other staff persons from local districts who would be likely to participate. If Career Prep funds the adoption of Junior Achievement in certain grade levels in a district, then enrollment would be the expected number of students in those grades.

Participation refers to the actual number of individuals who attend the activity(ies). If the activity is more than just a single event, then multiple measures of participation can be derived. For example, an activity (say a professional development opportunity) may require three sessions. Participation may be defined and measured as (1) the number of attendees at each session, (2) the unduplicated number of attendees at any of the sessions, (3) the total attendance at all three sessions, (4) the average attendance at the sessions, or (5) the number of individuals who attended all three

sessions. (There may be other participation measures as well.) The evaluation approach suggested here recommends that participation be measured as the number of individuals who attend the initial session and the number of individuals who attend the final session (call these *initial* and *final* participation).

Participation is more important than enrollment because only participants in an activity will be impacted by the activity. Nevertheless, it makes sense to measure both concepts. We would expect enrollment to exceed participation, although that is not necessary. A significant difference between enrollment and initial participation can imply relatively low levels of support from school districts or individuals and/or implementation problems of which the Activity Directors should be aware. A significant difference between initial and final participation would be indicative of poor implementation.

The level one evaluation activities would be completed with a brief questionnaire that measures the satisfaction of participants. This survey should be conducted at the final meeting or after an activity has been completed. The main topics of the satisfaction survey would include opinions about pre-activity information, details about the implementation of the activity, and (self-reported) information about the potential impact of the activity. Exhibit 1 gives an example of a satisfaction survey. This exhibit is a prototype only; the Workforce Development Board may want to invest time and effort into a more refined survey.

Level 2–Learning. The purpose of the second level of the proposed program evaluation is to document the amount of learning that takes place. This measurement would only be reasonable for activities that directly involve the delivery of instruction. As described in an earlier section of the paper, we propose to measure learning by using a pre-test and post-test methodology. The pre-test

Exhibit 1
Satisfaction Survey

Directions: Use the following five-point scale to indicate how satisfied you were with each of the following aspects of **the activity** (fill in). Circle your answer. If you have no opinion or if the item is not applicable to this activity, then circle the 0, Not Applicable.

	Very Satisfied 5	Satisfied 4	Sometimes Satisfied; Sometimes Not 3	Dissatisfied 2	Very Dissatisfied 1	Not Applicable; Don't Know 0
Usefulness of prior information	5	4	3	2	1	0
Accuracy of prior information	5	4	3	2	1	0
Appropriateness of materials/equipment	5	4	3	2	1	0
Understood objectives	5	4	3	2	1	0
Pace of instruction	5	4	3	2	1	0
Physical environment	5	4	3	2	1	0
Answer questions/get help	5	4	3	2	1	0
Amount of learning	5	4	3	2	1	0
Met expectations	5	4	3	2	1	0
Expected usefulness of information	5	4	3	2	1	0

would be administered on the first day of the activity before instruction had begun; the post-test would be administered during the final session. For each participant, the difference in “score” is a measure of the amount of learning. The pre-test is appropriate because different participants bring different knowledge and background experience to the activities. An individual who has very little background in the area that is being taught may score 50 percent on a formal post-test assessment, whereas another individual who is much more familiar with the concepts and skills may score a 75 percent. However, the first individual may, in fact, have learned more.

Exhibit 2 gives a prototype for a test that could be used as a pre-test and post-test for an activity that teaches job search and interviewing skills. Again, the exhibit is a prototype only.

Activity Directors that are going to offer instructional activities (professional development or formal education) will often have assessments made available to them along with curriculum materials.

The statistics that would be calculated from scores on this type of exam are the pre-test mean and standard deviation, and the post-test mean and standard deviation. Typically a statistical test

Exhibit 2		
Prototype Test to Measure Pre- and Post-Activity Competency		
Directions: Mark T/F for each of the following statements that pertain to job searching and interviewing.		
1. Most jobs are found through classified ads in the newspaper.	T	F
2. It is okay to ask individuals who you regard as acquaintances rather than friends whether they know about any jobs that might be available that you would be suited to.	T	F
3. Portfolios that have examples of similar work are a more valid indication of an individual's potential productivity in a job than are interviews.	T	F
4. Because it is run by the government, all employers must list all job openings with the Employment Service.	T	F
5. Employers prefer to hire individuals who have job experience over individuals who don't.	T	F
6. Employers prefer to hire young job seekers who have had many different jobs over individuals who have stayed in a single job for many months.	T	F
7. It is impolite, and therefore not a good practice, to ask a receptionist for more than one job application.	T	F
8. When being interviewed for a job, it is better to speak softly and to avoid looking at the interviewer directly so that they don't think that you have a bad attitude.	T	F
9. It is advisable to do research about a company before an interview, so that you can show that you are familiar with the company.	T	F
10. If, during an interview, you are asked about what salary you expect, you should always respond that any salary would be fine.	T	F

called a t-test is undertaken to determine whether the difference in means is statistically significant.

For example, suppose that 20 students participated in an activity that instructed students on appropriate job search. Further suppose that on the first day of the activity, students were given the above test, and the average score was 4.0, and the standard deviation, which is a measure of the variability of the scores, was 2.5. Finally, suppose that on the last day of instruction, the students were again given this test, and this time the mean was 7.8 and the standard deviation was 2.1.

The difference in means—3.8—seems large and seems to suggest that learning occurred. To determine whether it is statistically significant, we perform the t-test to see whether there is a high probability that this number is different from 0.³ In particular, we want a 95 percent confidence level that the difference in means is not 0, or, in other words, the probability that this number is different from 0 is at least 0.95. To perform this test, the difference in means is first divided by the standard deviation (of the pre-test distribution). This ratio is called the *effect size*. In this case, the effect size would be approximately equal to 1.5. To perform a t-test on its statistical significance, the effect size is multiplied by the square root of the sample size. The result, $6.71 = 1.5 * \text{sq. root}(20)$, which is statistically significant, indicating that the difference in means was quite unlikely to have occurred by chance.

Level 3—Transfer. The extent to which participants in Career Prep activities transfer what they learn to other contexts will vary widely with the type of activity. Participants in professional development activities are quite likely to use the knowledge or skills that they acquire in their own job performance, i.e., their classes or counseling. Students who are engaged in career development activities may not have the opportunity to utilize the skills and knowledge that they gain in their own life situations for many years, however.

In short, transfer will be difficult to measure and document. The proposed evaluation system suggests an anecdotal approach to this level. Activity Directors should document instances when they observe or learn about the transfer of skills or knowledge when they turn in their end of activity report. An item like the following should be added to this report:

³If absolutely no learning occurred, then an individual's post-test score would be expected to be exactly the same as his or her pre-test score. The only difference between the two would be caused by random errors. Sometimes, because of luck, the post-test score would be higher than the pre-test, and sometimes it would be lower. On average, the difference between the two would be 0 if no learning occurred.

Exhibit 3

1. Please list briefly any examples or anecdotes that you have observed or heard about that demonstrate that participants have applied knowledge or skills that they learned through this activity to their own job performance or career development experiences.

Level 4–Systemic Impact. The most complex level of evaluation is the fourth and final one. The purpose of this level is to determine whether the Career Prep activities that have been funded have had an impact on the “system.” The “system” in this instance is rather amorphous. It may be described as the actions and behaviors in which young individuals engage in order to enter and traverse successfully meaningful careers. Part of the system is the elementary and secondary schools that are responsible for imparting to these young individuals academic skills as well as basic employability and sociability skills. Part of the system is the postsecondary institutions in the area that are responsible for further development of academic knowledge and for development of technical skills that are necessary for some occupations. Part of the system is the local economy. Business and industry represent the demand side of the labor market, as well as can play a significant role in assisting the career development of students.

The “system” is broad and general, and thus it is difficult to specify precisely what the impacts of Career Prep would be on the “system.” Some might argue that because one of the benefits of applied work-based learning is hypothesized to be improved academic achievement, the appropriate outcomes to examine are test scores and postsecondary attendance rates. Others might argue that the benefits of Career Prep are student engagement, and so the appropriate outcomes to examine are high school graduation rates (or conversely dropout rates). Still others might argue that the benefits of Career Prep are an improved entry-level work force, and so the appropriate outcomes to examine

for impact are employer satisfaction with entry-level workers, job turnover, and employment or unemployment rates of youth.

All of these perspectives are valid. What is proposed is a statistical analysis of several different outcomes. This analysis will essentially calculate the correlation between outcomes across districts in the region and Career Prep activities. For example, focus on high school graduation rates as an outcome. Graduation rates vary across the districts in the three-county South Central Michigan Works! region. The extent to which the districts have embraced and participated in Career Prep also varies. The statistical analysis will test to see whether the variation in the two phenomena is related. Do school districts with higher graduation rates than average also have higher than average engagement in Career Prep, and vice versa? Of course, many things other than the level at which a district embraces Career Prep influence a school district's graduation rate. The proposed statistical test will include these other variables to the extent they are available, so that the analyses will test for a correlation between the outcome variable—i.e., graduation rate—and the Career Prep variable *holding other things equal*.

Formally, the statistical model is as follows:

$$(1) \quad \text{Outcomes}_i = a + b * \text{Career Prep Index}_i + c * \text{Controls}_i + e_i, \quad \text{where}$$

Outcomes_i = outcome variable of interest for district i, such as graduation rate

$\text{Career Prep Index}_i$ = self-assessment of district i's engagement in Career Prep

Controls_i = vector of other variables for district i that may be related to the outcomes

e_i = error term that captures the effects of unmeasured variables and random chance

a, b, c = parameters to be estimated

The model presented in equation (1) will be estimated with ordinary least squares regression, a statistical technique that is widely available.⁴ The underlying hypothesis is that $b > 0$, that is, there is a positive correlation between Career Prep engagement and outcomes (assuming that outcomes are measured in positive terms such as high school graduation rates, MEAP test results, or employer satisfaction).

The b parameters that are estimated from the regressions (remember there will be multiple outcomes) measure the impact of funded Career Prep activities on the outcomes. They will be numbers like 3.2 or -0.8. Typically, the b coefficients are standardized into standard deviation units, so that the interpretation of the numbers is as follows: if a district would increase its commitment to Career Prep by one standard deviation, it will get a return of b° standard deviations increase in the outcome, where b° is the standardized coefficient. The example below will explain this in more detail.

A key assumption in this approach to level 4 is that we can get reasonable estimates of Career Prep Index_{*i*}. The proposal suggests that the Subgrantee Career Prep Coordinator will use the approach given in the State's document, "Career Preparation System Initiative Factors for Self-Assessment 1999," to derive these estimates. This document provides 12 factors and criteria for assessing an area's commitment to Career Prep. A rubric should be developed for each factor that would allow the Subgrantee to rate each district on a scale from 1 to 4.⁵ The total score for the district, which would range from 12 to 48, would be used as the Career Prep Index_{*i*} variable. An alternative approach would be to use Career Prep expenditures as the measure. That is, instead of having a Career Prep Index that has somewhat arbitrarily been assessed by Coordinators, the analytical model would substitute Career Prep activity expenditures for the Career Prep Index. Since

⁴All statistical software packages such as SPSS or SAS have OLS capability, but it is also available on many spreadsheet programs such as Excel or Lotus 1-2-3.

⁵The appendix has a suggested rubric.

it is likely that larger districts have larger expenditures, the activity expenditures should be divided by total student enrollment to get it on a per student basis.

The following example uses data from the Michigan Department of Education's web site and *fictitious data on Career Prep Index_i*, to demonstrate how the statistical analysis would be done and how the results should be interpreted. Table 1 provides data about each district in the three counties that come from MDE, except that the data in the column titled, "Career Prep Index" are fictitious.

Three outcome variables in this data can be analyzed—dropout rates, graduation rates, and 11th Grade MEAP Reading proficiency rates. These data are given in columns (6)-(8) of the table. Tables 2-4 provide ordinary least squares regression estimates from these analyses. Each table has four columns. The first column provides estimates of the model without the fictitious Career Prep Index data. The second column also omits the fictitious data, but it uses a technique called fixed effects, which controls for differences among the three ISD's that are not captured in the data. The third and fourth column repeat the estimates of the first two columns, but they add in the fictitious Career Prep Index data.

Table 2 shows that the percentage of students in the district that are eligible for free or reduced-price lunch and the pupil-teacher ratio are positively related to the one-year dropout rate in the district. The former is statistically significant in the models without fixed effects, but it loses its statistical significance in the fixed effects models. That implies that it is a strong explanatory variable, but there is something unique about each county that is correlated with free or reduced-price lunch percentages but is even more successful at "explaining" the dropout rates. Total revenue per pupil and average teacher salary are not strongly related to the dropout rate. Columns (3) and (4) show that the Career Prep Index data (fictitious) is not at all correlated with the dropout rate. It is -0.05 and -0.00 in the two columns, respectively.

Table 1. District Level Data

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
District	Free; Reduced Lunch	Pupil- Teacher Ratio	Total Revenue per Pupil	Average Teacher Salary	Drop-Out Rate	Graduatio n Rate	MEAP Reading (Gr. 11)	Fictitious Career Prep Index
<u>Hillsdale ISD</u>								
Camden-Frontier	29.8	20.2	6027	36080	11.8	58.3	35.6	24
Hillsdale	29.8	22.4	6202	47201	13.8	54.6	35.3	20
Jonesville	25.9	21.9	6035	51453	7.3	74.9	50.0	19
Litchfield	31.0	19.5	5881	38946	2.6	89.4	40.5	17
North Adams-Jerome	20.1	22.1	5609	35149	5.1	80.6	53.8	27
Pittsford	24.6	19.1	6034	42085	3.2	88.5	62.0	26
Reading	30.9	21.4	5915	38768	9.6	67.7	33.9	22
Waldron	41.3	18.4	6398	34870	6.6	78.1	42.3	31
ISD Average	29.78	20.63	6013	40569	7.5	74.01	44.2	23.25
<u>Jackson</u>								
Columbia	15.8	23.1	5931	46899	7.4	73.3	28.0	20
Concord	14.1	21.1	6057	40205	5.6	78.9	50.8	27
East Jackson	30.3	20.6	5950	40638	10.6	66.0	31.3	21
Grass Lake	9.7	21.7	5813	46386	0.8	96.6	54.3	24
Hanover-Horton	19.5	21.3	5702	41958	6.2	77.7	37.8	28
Jackson	58.6	19.5	7462	42751	6.3	74.4	38.9	18
Michigan Center	28.5	22.1	6083	40278	3.9	83.8	11.7	15
Napoleon	14.0	21.5	5982	43179	5.0	83.5	37.5	24
Northwest	20.3	24.0	5717	44919	2.8	90.3	36.9	31
Springport	32.0	20.9	6021	38905	5.7	80.1	34.2	31
Vandercook Lake	24.6	23.9	5755	46431	2.8	87.2	30.0	30
Western	16.4	22.6	6339	42756	6.8	78.8	44.0	38
ISD Average	23.65	21.84	6067	42942	5.33	80.88	36.3	25.6
<u>Lenawee ISD</u>								
Addison	18.0	20.8	5938	42030	3.2	87.7	38.7	26
Adrian	30.1	23.7	6696	51459	6.2	78.1	37.9	22
Blissfield	21.5	22.0	5856	44931	3.9	83.9	39.8	38
Britton-Macon	12.8	19.6	6005	41526	1.4	95.2	34.2	30
Clinton	3.9	25.3	5349	45184	1.6	94.1	32.3	24
Deerfield	12.2	18.4	6261	37187	0.7	96.6	46.2	24
Hudson	22.5	22.4	5906	40478	2.8	89.2	24.2	28
Madison	45.1	20.3	7171	43327	6.8	74.4	25.6	30
Morenci	27.6	21.9	6115	41370	5.1	80.2	38.2	30
Onsted	10.3	21.5	5706	42816	1.7	92.7	36.0	20
Sand Creek	21.1	20.2	6227	43649	2.1	91.0	31.7	22
Tecumseh	11.4	25.6	6165	50782	0.9	96.5	48.4	28
ISD Average	19.71	21.8	6116	43706	3.03	88.3	36.1	26.8
Total	23.55	21.53	6072	42635	5.01	81.95	38.2	25.5

Table 2. Drop-Out Rate

	(1)	(2)	(3)	(4)
Free-reduced price lunch	0.205***	0.086	0.197***	0.086
Pupil-teacher ratio	0.232	0.463	0.285	0.464
Total revenue per pupil (\$000)	-1.75	1.36	-1.55	1.36
Average teacher salary (\$000)	-0.01	-0.05	-0.04	-0.05
Career-Prep Index	--	--	-0.05	-0.00
Fixed Effect	No	Yes**	No	Yes**
\bar{R}^2	0.184	0.318	0.291	0.289

* Significant at the .10 level; ** Significant at the .05 level; *** Significant at the .01 level.

The (four-year) graduation rate in a district is closely related to the dropout rate, so it is not too surprising that results in table 3 are similar to those in table 2 (with the signs on the coefficients reversed). Free and reduced-price lunch eligibility and pupil-teacher ratios are strongly negatively related to the graduation rate, with the former being statistically significant in the models without fixed effects. The fixed effects models show again that there are unique characteristics in each county that “explain” the graduation rates. Again, total revenue per pupil and average teacher salaries are not strongly related to the graduation rate. The Career Prep Index is also not a strong explainer, but interestingly, the coefficients (i.e., 0.199 and 0.052) are positive and their magnitude is larger than in the dropout model. The fact that they are positive implies that a higher level of Career Prep activity leads to higher graduation rates.

Table 3. Graduation Rate

	(1)	(2)	(3)	(4)
Free-reduced price lunch	-0.722***	-0.367	-0.692***	-0.364
Pupil-teacher ratio	-0.893	-1.575	-1.102	-1.619
Total revenue per pupil (\$000)	5.5	-3.7	4.7	-3.8
Average teacher salary (\$000)	0.08	0.18	0.18	0.21
Career Prep Index	--	--	0.199	0.052
Fixed Effect	No	Yes**	No	Yes**
\bar{R}^2	0.249	0.354	0.232	0.328

* Significant at the .10 level; ** Significant at the .05 level; *** Significant at the .01 level.

Table 4 presents estimates when MEAP results are used as the outcome variable. In particular, the dependent variable is the percent of the 11th graders who were rated as proficient on the MEAP Reading test. All of the variables in this model are or nearly are significantly related to the outcomes. The percent of students eligible for free or reduced-price lunch and the pupil-teacher ratios are negatively related to the proficiency rate. The latter is statistically significant in three of the four models and the free and reduced-price lunch percentage is significant in the fixed effects models. Also significant in the fixed effects models is per pupil total revenue. The higher the total revenue per pupil, the higher is the proficiency rates holding the other variables constant. The average teacher salary in the district is also positively related to the MEAP Reading proficiency rate, although that relationship is not statistically significant. Interestingly, the coefficient on the (fictitious) Career Prep Index is positive and statistically significant in the fixed effects model. This result would be interpreted as saying that the more the district was engaged in Career Prep, the higher the MEAP results.

Table 4
MEAP Scores

	(1)	(2)	(3)	(4)
Free-reduced price lunch	-0.317	-0.767***	-0.253	-0.733***
Pupil-teacher ratio	-2.675*	-1.571	-3.127**	-2.119*
Total revenue per pupil (\$000)	0.07	12.17*	-1.62	11.28*
Average teacher salary (\$000)	0.62	0.45	0.84	0.76
Career Prep Index	--	--	0.429	0.646**
Fixed Effects	No	Yes***	No	Yes***
\bar{R}^2	0.041	0.291	0.066	0.408

* Significant at the .10 level; ** Significant at the .05 level; *** Significant at the .01 level.

The quantitative interpretation on the Career Prep Index coefficient is as follows. If a district increased its engagement in Career Prep by enough to raise the index by one point (not a very large

change), then it could expect to raise the percentage of students proficient on the MEAP by 0.65 points. Equivalently, the results could be interpreted as saying that if a district was at the average in terms of Career Prep Index, and it could put enough emphasis into Career Prep that it increased its Index value by a standard deviation (about 5.5 points), then it could expect to increase its MEAP proficiency rate by about a third of a standard deviation (about 3.3 percentage points).

Implementation Plan for Level 4. Over the next year, it should be possible to implement the level 4 impact analysis in the region with relatively little effort or expense. The next few paragraphs suggests a plan consisting of five tasks to accomplish that analysis.

Task 1. Have Subgrantee Career Prep Coordinators estimate Career Prep Initiative Indicators for each of the districts in their ISD using the rubric contained in the appendix to this paper.

Task 2. Over the next few months (during Fall 1999), staff for the EAG should replicate the analyses that are presented in tables 2-4 with actual Career Prep activity data rather than fictitious data. I have assumed that the Career Prep Administrator has access to Microsoft Excel spreadsheet software.⁶ A spreadsheet should be set up with districts as the rows. Rows should also be set up for each ISD total and for the region total.⁷ Given that the EAG will be monitoring its Career Prep activities for several years, it makes sense to continually update the spreadsheet, so it is suggested that each year's data be a separate page in the spreadsheet. The data that should be entered in the spreadsheet for each year consists of three blocks (of columns). The first block of data would be referred to as control variables. These are data about each district that are used in the regression to "control" for differences between them. For example in tables 2-4, the control variables are (1) the free and reduced price lunch percentage, (2) pupil-teacher ratio, (3) total revenue per pupil, and (4)

⁶Lotus 1-2-3 can also be used. It has a Regression option under Data.

⁷In Lotus, it is necessary, and in Excel, it is easier, to have the variables for the regression contiguous to each other, so the ISD and Region total rows should be placed at the bottom of the spreadsheet.

average teacher salary. These are excellent control variables, but there are many others that are available from the Michigan Department of Education web site. Each of the data items would be entered in a column of the spreadsheet. The MDE web site documents the years to which the data pertain.

The second block of data would be the indicators of Career Prep activity. Each column would be a year-specific indicator. It is suggested that two indicators that should definitely be entered into the spreadsheet are (1) dollars spent on Career Prep activities divided by district enrollment and (2) self-assessment of the district's Career Preparation System Initiative. The latter would be the assessments done by the Subgrantee Career Prep Coordinators in task 1. The EAG may wish to use other indicators, such as percentage of district's enrollment who engage in Career Prep activities.

The third block of data would be the outcome variables for the "system." Readily available data from the MDE web site are MEAP scores for all grades that take the MEAP, graduation rates, and annual dropout rates. As described below, additional outcome variables would include employer satisfaction indicators and postsecondary attendance rates.

In order to perform the fixed effects estimation, one of the pages of the spreadsheet needs to have three columns of data that consists of 0's and 1's. These columns have a 1 in each row for the districts in an ISD. That is, the first column would have a 1 in all of the Hillsdale ISD districts and a 0 in all the other rows. The second column would have a 1 in all of the Jackson ISD districts and a 0 in all the other rows. The third column would have a 1 in all of the Lenawee ISD districts and a 0 in all the other rows.

Once the spreadsheet is set up, a regression can be done using the Excel regression function. A separate regression has to be run for each outcome variable, and it is probably makes sense to experiment with several different combinations of control variables and Career Prep indicator

variables. So several regressions will be run for each outcome variable. There are several important details. First, 0 regressions must have fewer independent variables than observations. Typically, there should also be a lot fewer. Since there are a total of 32 districts in the region, a rule of thumb is to have at most 10 independent variables. Second, when the fixed effects models are estimated for the ISDs, then use two of the three ISD columns. Third, it may be the case that models will be set up so that this year's outcomes depend on some variables from this year and some variables from last year, so the regression will draw on variables from across pages of the spreadsheet. Fourth, to determine statistical significance, calculate the ratio of the coefficient estimate to its standard error (both of these will be calculated by Excel). If that ratio exceeds 1.62, the coefficient is significant at the .10 level; and if it exceeds 2.0, the coefficient is significant at the .05 level.

Task 3. During the 1999/2000 school year, the EAG should conduct a survey of employers in the three county area. The main purpose of the survey would be to measure employer satisfaction with entry level workers, assumed to have been educated in the region. Additional goals could be accomplished with the survey, however. For example, the EAG could ask employers about their awareness of Career Prep activities, about their interest in getting involved with activities, and about their knowledge of and interest in assessments such as WorkKeys.

Since the regression analyses in the impact evaluation are conducted using districts as the units of observation, it will be necessary to map the results from the employer survey to the district level. One way to do that is to ask employers for the cities that they tend to hire from. Then assign to each district the average of the satisfaction ratings from all of the employers that hire from that district.

Task 4. During the 1999/2000 school year, the EAG should attempt to get valid postsecondary attendance rates from each district. This task will require cooperation from each district, which will be asked to do a follow-up study on all of its graduates to determine whether they

are pursuing postsecondary schooling. When this is accomplished, then outcome variables that can be entered into the spreadsheet and used for impact analyses will include percentage of graduates who attend a postsecondary institution, percentage at a four-year institution, and percentage at a two-year institution.

Task 5. In late Summer 2000, the Career Prep Administrator should conduct an impact analysis for the 1999/2000 year by running regressions on the data that are collected during the year and updated data from the Michigan Department of Education web site.

The purpose of this report is to provide an approach that administrators may use to assess the impact of Career Prep activities. The approach that is suggested is to document regularly enrollment, participation, and customer/client satisfaction. For activities that are funded that involve direct instruction, staff should measure learning by using a pre- and post-activity assessment (which can be constructed by the Activity Director). Qualitative evidence on the transfer of learning should be collected. Finally, a statistical model of the impacts of Career Prep on the “system” should be estimated.

Appendix

Rubric for Career Preparation System Initiative Self-Assessment

This rubric is based on the document, “Career Preparation System Initiative Factors for Self Assessment 1999,” prepared by the Michigan Department of Education. It is necessary to have a copy of that document in order to complete a district’s self-assessment. Individuals conducting an assessment of a District’s Career Preparation System Initiative should assign from 0 to 4 points for each of the following factors.

Factor 1: Education System Leadership

- 4 District superintendent, principals, and other leaders are fully engaged in the Career Prep initiative. They are fully informed and aware of all activities. They have been active in the transition from School-to-Work to Career Preparation. They support the vision and goals of the Career Preparation System. They actively support professional development activities of staff involved in Career Preparation. They work in concert with the EAG and other Career Prep participants.
- 3 District superintendent, principals, and other leaders have been fully informed, are generally aware, and reasonably knowledgeable about the Career Prep initiative. They know the difference between School-to-Work and Career Preparation. They support the vision and goals of the Career Preparation System. They generally support most professional development activities of staff involved in Career Preparation. They are aware of or have been informed about the EAG and other Career Prep participants.
- 2 Most of the leaders of the district (superintendent, principals, and other leaders) have been fully informed, are generally aware, and reasonably knowledgeable about the Career Prep initiative. Leaders probably do not understand the difference between School-to-Work and Career Preparation. They do support the vision and goals of the Career Preparation System, however. They generally support most professional development activities of staff involved in Career Preparation. Some of the leaders may be aware of or have been informed about the EAG and other Career Prep participants.
- 1 Most of the leaders of the district (superintendent, principals, and other leaders) aware of or knowledgeable about the Career Prep initiative. (There may be one or two leaders who are knowledgeable.) Leaders do not understand the difference between School-to-Work and Career Preparation; they leave that to coordinators. They may support the vision and goals of the Career Preparation System, however. They support most professional development activities of staff involved in Career Preparation. Most are unaware of the EAG and other Career Prep participants.
- 0 The leaders of the district are unaware of the Career Prep initiative and would say that the vision and goals of the Career Preparation System are less important than other priorities for the district. They are unaware of the EAG as well.

Factor 2: Leadership Among the Deliverers of Career Prep Related Activities

- 4 District teachers, aides, volunteers, and all others associated with the Career Prep initiative work together well. They have strong organizational and communication skills and are fully knowledgeable in the areas of pedagogy, learning styles, and youth development. They are sensitive to diversity issues. All staff and volunteers understand the transition from School-to-Work to Career Preparation and have integrated School-to-Work efforts into Career Development activities.
- 3 Most of the District teachers, aides, volunteers, and all others associated with the Career Prep initiative work together well. They are organized and generally communicate well. They are aware of issues of learning styles and youth development. They are sensitive to diversity issues. Staff and volunteers understand there was a transition from School-to-Work to Career Preparation.
- 2 Most of the District teachers, aides, volunteers, and all others associated are well organized and are good teachers, who can communicate well with their classes. The Career Prep initiative could probably be improved if staff would work together better and share their approaches and expertise. Most staff are aware of learning styles and youth development. They are sensitive to diversity issues. Staff and volunteers understand there was a transition from School-to-Work to Career Preparation.
- 1 The District has only one or two staff involved in Career Prep activities. Those staff have little interaction with other teachers or administrators in the District. The activities that are offered are not integrated well with School-to-Work efforts.
- 0 The District has very limited Career Prep activities. The staff that are involved have multiple responsibilities and realistically have minimal time to commit to Career Prep.

Factor 3: Professional Development

- 4 District administrators and staff fully understand and “buy into” the importance of professional development for Career Prep staff. There are subs available for class time that is missed, and there is support for travel. Staff are given considerable decisionmaking authority with respect to professional development activities.
- 3 Many within the District understand the importance of professional development for Career Prep staff. There is a limited amount of resources available for subs and for travel. Generally staff recommendations about professional development opportunities are accepted.
- 2 The District has a very limited budget for professional development and Career Prep competes with all other professional development opportunities for support. Many within the District understand the importance of professional development, and there is reasonable support for attendance at conferences or other professional development as long as no resources are needed.
- 1 The District places relatively low priority on professional development, and there is seldom any financial support or classroom coverage. Career Prep staff perceive that the District is unlikely to support conference or workshop attendance, so they don’t even try.
- 0 The District doesn’t recognize the importance of professional development in the area of Career Prep and they explicitly discourage staff from its pursuit.

Factor 4: Collaboration Among Business, Education, and Community Partners

- 4 Extensive collaboration among business, education, and community partners occurs concerning Career Prep activities. Virtually all segments of the community are represented, and representatives from all layers of organizations are involved. Frequent meetings and communications occur between stakeholders. Parents are active partners in the collaboration. The partners are on an equal basis; no sector or individual carries the most weight. The business and community stakeholders understand and are aware of the transition from School-to-Work to the Career Preparation system.
- 3 Collaboration occurs between business, education, and possibly other community partners concerning Career Prep activities. Many segments of the community are represented, and there may be representation from all layers of organizations. Occasional meetings and communications occur between stakeholders. Some parents may be active partners in the collaboration. Some partners may feel like not all collaborators are on an equal basis. The business and community stakeholders may not understand the transition from School-to-Work to the Career Preparation system.
- 2 Some collaboration occurs between business and education concerning Career Prep activities. There is little involvement of other community partners. The representation across sectors and throughout organizational layers is variable. Occasional meetings and communications occur between stakeholders. Some parents may be active partners in the collaboration. Some partners may feel like not all collaborators are on an equal basis. The business and community stakeholders may not understand the transition from School-to-Work to the Career Preparation system.
- 1 District activities may involve some employers, but there is little formal collaboration. The employers represent only a small share of the business community. Occasional meetings may occur, but they are formal and result in little substantive action. Few parents or other stakeholder groups are involved in collaboration with Career Path staff.
- 0 The District has very few Career Prep activities, although some may involve employers. There has been no attempt to formalize a collaboration.

Factor 5: Student Motivation

- 4 District has fully accepted the idea that Career Prep activities are for all students. At risk and special needs students are included in activities and are proportionately involved in work-based experiences. All students have the opportunity to interact with caring adults. The District has comprehensive counseling and appropriate support mechanisms available to all students. The District has placed some priority of attracting out of school youth.
- 3 Most District administrators and staff understand and support the idea that Career Prep activities are for all students. Activities are offered to at risk and special education students, but District is struggling with low participation from those groups. District has implemented comprehensive career counseling model. Some parents focus only on college, but most parents, when they have the Career Preparation system explained to them, support it. The District makes some efforts to attract out of school youth.
- 2 Most District leaders and staff articulate the idea that Career Prep activities are for all students, but student participation is highly variable. There are some groups—highly motivated, college bound and at-risk or special education students—that do not participate. District has implemented comprehensive career counseling, but not all counselors have bought into it. A significant share of parents and students focus only on college entrance. The District does not try to offer activities to out of school youth.
- 1 Only a few District leaders and staff believe or articulate that Career Prep activities are for all students. Student participation is low and highly variable. Few special needs students participate in career development activities. District has not implemented comprehensive career counseling. Counseling loads are extremely heavy, and counselors spend little time working with students on career development.
- 0 Few students are involved in Career Prep activities. Most parents and students do not support Career Prep, but rather focus on college entrance or just graduating. Counselors are not trained or interested in career counseling.

Factor 6: Applied Learning, Academic Standards

- 4 District administrators and staff actively work toward offering fully integrated applied learning opportunities in all grade levels. High academic standards are set for all courses. There are many contextualized learning opportunities in the curriculum, and the District makes an effort to maximize the number of students who participate in work-based experiences. Formal articulation agreements are in place for many courses. Students prepare individualized learning plans. Curricula emphasize workplace preparedness, and students are serious about career and postsecondary plans.
- 3 District administrators and staff understand the importance of integrated applied learning opportunities, and several courses in the District attempt to offer them. High academic standards are set for all courses. There are some contextualized learning opportunities in the curriculum, and the District generally facilitates arrangements that allow students to participate in work-based experiences. Formal articulation agreements are in place for a few courses. The District has considered individualized learning plans, but may not yet have implemented them. There is some curriculum emphasis on workplace preparedness.
- 2 Some District personnel understand the importance of integrated applied learning opportunities, and a few courses in the District attempt to offer them. High academic standards are set for most courses. There are some contextualized learning opportunities in the curriculum, but there is relatively little student participation in work-based experiences. Formal articulation agreements may be in place for a few courses. The District may have considered individualized learning plans, but they are not in place yet. There is some curriculum emphasis on workplace preparedness.
- 1 Few District administrators or staff understand the importance of integrated applied learning opportunities, and the curriculum is very traditional and has remained virtually unchanged for several years. High academic standards are set for most courses. There are few contextualized learning opportunities in the curriculum. No formal articulation agreements are in place and the District has not even considered individualized learning plans. A few teachers may emphasize workplace preparedness.
- 0 Little importance is placed on integrated applied learning opportunities in the District. Only a very few work-based learning opportunities are available to students. No formal articulation agreements are in place and the District has not even considered individualized learning plans. A few teachers may emphasize workplace preparedness.

Factor 7: Multiple Work Based Learning Options

- 4 District administrators and Career Prep staff actively work toward offering many types of work-based learning opportunities. For example, the District uses the Internet to match students and employers. Some opportunities are paid and others are unpaid. Career Prep staff are knowledgeable about labor laws, training, and supervision requirements. Educators and work sites collaborate closely to insure that each student's experience is effective and involves learning. The work-based learning activities are coordinated and linked to curricula. There are opportunities for School to Registered Apprenticeship. All students have the opportunity to participate in a work-based learning experience if they so desire.
- 3 Most Career Prep staff work toward offering as many work-based learning opportunities to students as possible. Some opportunities are paid and others are unpaid. Most Career Prep staff are knowledgeable about labor laws, training, and supervision requirements. Educators and work sites cooperate most of the time to insure that each student's experience is effective and involves learning, but some employers simply won't cooperate. The work-based learning activities are usually well-linked to curricula. There are opportunities for School to Registered Apprenticeship. All students have the opportunity to participate in a work-based learning experience if they so desire, but there is low participation by some groups.
- 2 Work-based learning opportunities are offered to students in the District, but there are not a lot of different types of opportunities. Some opportunities may be paid, while others are unpaid. Most Career Prep staff are knowledgeable about labor laws, training, and supervision requirements. Educators and work sites rarely cooperate about the content of the work based experience. Few staff persons in the District have heard of School to Registered Apprenticeships. All students have the opportunity to participate in a work-based learning experience if they so desire, but there is low participation by some groups.
- 1 Very few work-based learning opportunities are offered to students in the District, and there is virtually no variety in the types of opportunities. Career Prep staff are not knowledgeable about labor laws, training, and supervision requirements. Educators and work sites rarely cooperate about the content of the work based experience. Few staff persons in the District have heard of School to Registered Apprenticeships. Only a few students have the opportunity to participate in a work-based learning experience if they so desire—those that happened to be known by Career Prep advisors.
- 0 Only a very few work-based learning opportunities are available to students. Educators do not attempt to set the parameters of the opportunities.

Factor 8: Integration of Career Information and Guidance

- 4 A comprehensive career information and guidance service is available to all students in the District beginning early in their education. The information, which is kept up to date, is accessible by students, parents, and employers. All students develop and keep current an educational and career plan that is reviewed regularly. Teachers constantly try to link their subject matter to specific careers.
- 3 A comprehensive career information and guidance service is available to students in the District, but only at high school or middle school. The information is generally kept up to date, although sometimes when resources are tight, it is not updated. The career information is accessible by students, but not parents or employers. All students are supposed to develop and keep current an educational and career plan, but it is not reviewed regularly.
- 2 Career information that is generally complete and guidance service are available to most students in the District, but only at the high school level. The information is generally kept up to date, although sometimes when resources are tight, it is not updated. The career information is generally accessible by students, but not parents or employers. The District has not implemented educational and career plans.
- 1 Some career information is available to students in the District. The information is generally kept up to date, although sometimes when resources are tight, it is not updated. The career information is not well-known by students, and is not accessible by all students. The District has not implemented educational and career plans.
- 0 Career information is not available to students in the District.

Factor 9: Inclusion of All Grade Levels

- 4 Age appropriate Career Prep activities are incorporated into elementary and middle school levels as well as high school. The activities have been coordinated across grade levels so that the career development curriculum is seamless.
- 3 Age appropriate Career Prep activities are incorporated into some classes at the elementary and middle school levels as well as high school. There has been some effort to coordinate the activities across grade levels, but some duplication and omissions probably exist.
- 2 Age appropriate Career Prep activities are incorporated into a few classes at either the elementary or middle school levels as well as high school. There has been no some effort to coordinate the activities across grade levels.
- 1 Very few Career Prep activities are incorporated into classes at the elementary or middle school levels.
- 0 No Career Prep activities are incorporated into classes at the elementary or middle school levels.

Factor 10: Articulation Agreements with Post Secondary Institutions

- 4 The District realizes the importance of including postsecondary partners in its Career Preparation Initiative and actively attempts to collaborate with both four-year and two-year institutions as well as other institutions such as the military. Furthermore, the District has students who are dual enrolled, who are participating in alternate credit options, and who have access to postsecondary counseling and guidance services. Many formal articulation agreements are in place. Students observe a seamless transition from high school to college. School-to-Registered Apprenticeships are offered and encouraged.
- 3 The District includes postsecondary partners in its Career Preparation Initiative and tries to collaborate with both four-year and two-year institutions. Furthermore, the District has a few students who are dual enrolled, who are participating in alternate credit options, or who have access to postsecondary counseling and guidance services. Some formal articulation agreements are in place, but students have little knowledge of them.
- 2 The District works with a postsecondary partner in its Career Preparation Initiative, but there is not much substantive sharing. Furthermore, the District has a few students who are dual enrolled, but it discourages such arrangements. Some formal articulation agreements are in place, but students have little knowledge of them.
- 1 The District has no dealings with postsecondary institutions in its Career Preparation activities. The District allows students to be dual enrolled, but it discourages such arrangements. No formal articulation agreements are in place.
- 0 The District has very limited Career Prep activities, and it does not even see advantages to coordination with postsecondary institutions.

Factor 11: Sustainability

- 4 The District recognizes the importance of attempting to supplement Career Preparation funding with other sources of funds in order to maximize its effectiveness. The District has a long-term vision for Career Prep. There is no doubt that career development activities will proceed for all students even if State funding were to cease.
- 3 The District tries to supplement Career Preparation funding with other sources of funds, but it does not see a high priority for this because District administrators believe that State funding will not end. The District has a long-term vision for Career Prep, but it does not give a sense of sustainability. There is a substantial question of whether that career development activities would proceed for all students if State funding were to cease.
- 2 The District does little to supplement Career Preparation funding with other sources of funds. District administrators probably believe that State funding will not end. The District may have a long-term vision for Career Prep, but it does not give a sense of sustainability. It is doubtful that career development activities would proceed for all students if State funding were to cease.
- 1 The District does not try to supplement Career Preparation funding with other sources of funds. The District does not have a long-term vision for Career Prep. It is highly unlikely that career development activities would proceed in the absence of State funding.
- 0 Career Preparation activities are not very effective because the District sees them only as a source of funds for which they don't have to work very hard.

Factor 12: Use of Data for Planning and Decision Making

- 4 The District actively collects and analyzes numerous types of data in order to make decisions about its Career Prep activities, but also to evaluate their effectiveness. The District probably has performance standards, either explicitly or implicitly stated. Activities are well-documented. Enrollment and satisfaction surveys are conducted. Student achievement is seen as an important outcome of Career Prep activities. Those activities are integrated into the District's school improvement process. The District scans the local labor market and staff are very knowledgeable about the local economy.
- 3 The District collects and analyzes some data in order to make decisions about its Career Prep activities. The District does not see much value in evaluation, however. The District has not considered performance standards. The District complies with all required numerical documentation and is well-organized, so that it can easily verify numbers. Activities are well-documented. Enrollment and satisfaction surveys are occasionally conducted. Student achievement is seen as an important outcome of Career Prep activities. Some staff members of the District, mainly counselors, scan the local labor market and try to follow job trends.
- 2 The District complies with required data collection, but doesn't use the data itself. The District does not see much value in evaluation, either. The District has not considered performance standards. The District has a hard time keeping track of data, and staff are not very organized. Only a few activities are well-documented. Enrollment and satisfaction surveys are never conducted. Student achievement is tracked by the District, but as part of its school improvement plan, which is separate from its Career Preparation system. Some staff members of the District, mainly counselors, scan the local labor market and try to follow job trends.
- 1 The District minimizes the amount of data collection in which it engages, and never uses the data itself. The District has not considered performance standards. The District has a hard time keeping track of data, and staff are not very organized. Only a few activities are well-documented. Enrollment and satisfaction surveys are never conducted. Student achievement is tracked by the District, but as part of its school improvement plan, which is separate from its Career Preparation system. Staff members of the District rarely track the local labor market or try to follow job trends.
- 0 The District does not collect data, and it actively eschews evaluation or monitoring.