

9-2004

## A Database Accountability System for The Michigan Career Preparation System

Kevin M. Hollenbeck

*W.E. Upjohn Institute for Employment Research, [hollenbeck@upjohn.org](mailto:hollenbeck@upjohn.org)*

Jason M. Preuss

*W.E. Upjohn Institute for Employment Research*

---

### Citation

Hollenbeck, Kevin and Jason Preuss. 2004. "A Database Accountability System for The Michigan Career Preparation System." Report submitted to the State of Michigan, Dept. of Labor and Economic Growth, Office of Career and Technical Preparation.

<https://research.upjohn.org/reports/76>

This title is brought to you by the Upjohn Institute. For more information, please contact [repository@upjohn.org](mailto:repository@upjohn.org).

**A Database Accountability System for  
The Michigan Career Preparation System**

**Kevin Hollenbeck  
Jason Preuss**

**September 2004**

**Submitted to Office of Career and  
Technical Preparation,  
Department of Labor and Economic Growth**

**W.E. Upjohn Institute for Employment Research  
300 S. Westnedge Ave.  
Kalamazoo, MI 49007**



## Table of Contents

INTRODUCTION .....	1
DISTRICT AS UNIT OF ANALYSIS .....	2
DATA TABLES .....	3
CEPR and CEPR_NONPART Data Tables.....	4
EDP and EDP_NONPART Data Tables.....	6
Benchmarks Table .....	7
Enrollments Table .....	14
Codes Table .....	14
Participation Table .....	15
ACCOUNTABILITYSCORE AND ACCOUNTABILITYSCOREUPDATE TABLES.....	16
RUNNING THE ANALYSIS WITH CHANGED PARAMETERS OR DATA .....	25
Setting the Parameters.....	25
Running the Analysis.....	26
REPORTS .....	28
EXPORTING DATA TO STATISTICAL ANALYSIS SOFTWARE.....	31
Appendix A: Summary of Procedures Followed in Collecting CEPRs and EDP Summary Forms .....	38
Appendix B: Interpretation Guide .....	41

## **List of Tables**

Table 1 CEPR and CEPR_NONPART Table Contents .....	4
Table 2 EDP and EDP_NONPART Table Contents .....	6
Table 3 Benchmarks Table Contents .....	7
Table 4 Enrollments Table Contents.....	14
Table 5 Codes Table Contents .....	15
Table 6 Participation Table Contents.....	15
Table 7 AccountabilityScore and AccountabilityScoreUpdate Table Contents .....	17

## **List of Figures**

Figure 1 Run Analysis Screen.....	27
Figure 2 Sample District Report .....	29
Figure 3 Sample ISD Report.....	30
Figure 4 Sample Region Report.....	31
Figure 5 SAS Program Listing.....	32
Figure 6 Output Listing.....	33

# Introduction

Under contract to the Michigan Department of Career Development (now the Michigan Department of Labor and Economic Growth), the W.E. Upjohn Institute for Employment Research collected data for and implemented an accountability system for Michigan's Career Preparation System (CPS). The accountability scoring system was designed by Upjohn Institute staff under a prior contract to the same department. This report documents the data and system, which comprises an Access data base.

The Career Preparation System is intended to provide career development activities for all K – 12 students in districts that participate in the system. The activities that may be funded through CPS are categorized in the following nine components:

- Career Pathways
- Educational Development Plans (EDPs)
- Authentic Instruction
- Career and Employability Skills
- Career Assessment
- Career Awareness and Exploration
- Comprehensive Guidance and Curriculum
- Technology Education
- Work-based Learning

The districts in Michigan that participated were required to offer activities/services in the Career Pathways and Educational Development Plans components, and regions may have chosen to participate in up to two of the other seven components. It should be noted that districts were required to participate in Career Pathways and EDPs, but they were not required to have them fully implemented until June 2004.

Given that full implementation in the two mandatory components was not required until June 2004 and that regions chose to participate in up to two of the other components, the accountability system for this year (2003) was seen as developing baseline levels for the accountability scores for districts.

This document first provides a discussion of the unit of analysis for the accountability system, which is the local district. It then documents the data that were collected from individual students, buildings, districts, and state administrative agencies that underlie the accountability calculations. Following that section of the document is a description of the method used to calculate accountability scores for districts. Next, we detail how a form in the database is used to calculate (or re-calculate) the accountability scores. The penultimate section of the document describes the reports that are generated by the system, and that section is followed by a discussion of how the data can be exported to statistical software for more in depth analyses. Two appendices conclude the document. The first discusses how two of the major primary data collection activities were conducted, and the second provides a copy of an Interpretation Guide

developed by the State to help administrators understand the reports and accountability scores generated by the system.

## District as Unit of Analysis

The accountability system uses the school district as the unit of analysis (public school academies are treated as districts). Furthermore, although CPS activities are intended for all K – 12 students, the indicators that were used to measure performance relied on data collected from or about 10<sup>th</sup> and 12<sup>th</sup> graders, so we omitted districts from the accountability system that did not have students enrolled in those grades<sup>1</sup>. We also omitted districts that were not participating in CPS (according to Benchmark data). The final analysis sample has 544 districts.

How does this sample compare to the total number of districts in Michigan? According to the Center on Educational Performance Indicators (CEPI)<sup>2</sup>, Michigan has 553 traditional, (i.e., noncharter schools) local educational agencies (LEAs). Of these, 524 have enrollment in grades 10 and 12. All but one of the 524 participated in CPS in 2002/2003. According to CEPI, there were 199 public school academies (charter schools), of which 60 had enrollments in both grades 10 and 12 in 2002/2003. Of these, 39 did not participate in CPS and 21 did participate. Thus, the final analysis sample included 523 traditional K–12 districts and 21 public school academies.

Another way to classify the analysis sample is by whether or not the districts were participating in CPS according to the benchmark data. The benchmark data for 2002/2003 were collected by the Department of Career Development (MDCD). Staff from MDCD supplied a data file that had benchmark data, by district, for 694 districts (558 LEAs<sup>3</sup> and 136 charter schools). However, the MDCD data indicated that some of these districts did not participate in CPS. In particular, 112 districts did not participate (12 LEAs and 100 charter schools). Of the remaining 582 districts, who all participated in CPS, 38 of them (23 LEAs and 15 charter schools) did not have enrollments in grades 10 and 12. This leaves the analysis sample of 544 districts.

The accountability system uses districts as the unit of analysis because that is the unit of measurement for the benchmarks. However, we collected career and education planning reports (CEPRs) from students, who identified their school building, and we collected Education and Development Plan (EDP) Summary Reports at the building level<sup>4</sup>. Thus, we have these data at the building level and individuals interested in analyzing them may wish to know the sample size, by building. The 544 districts in the analysis sample contain 839 school buildings with enrollment in grades 10 or 12. Of these buildings, 679 have CEPR data from 12<sup>th</sup> grade students

---

<sup>1</sup> Many small districts that do not have high schools still participate in CPS and receive funding. The accountability system that is documented here would calculate a relatively low score for them because of the absence of enrollment in grades 10 and 12. So these districts, while they may offer excellent CPS activities to their students, were excluded from the accountability system, so that regional “scores” were not diluted by the fact that districts did not have any high school students.

<sup>2</sup> Website referenced on November 10, 2003.

<sup>3</sup> There are more LEAs in the MDCD benchmark file than from the CEPI list because MDCD included a handful of “districts” that were alternative education or “elementary” school districts.

<sup>4</sup> A few districts aggregated the EDP Summary Report data to the district level.

and 670 have EDP Summary Report data concerning 10<sup>th</sup> graders. Most of the buildings that did not have CEPR or EDP data were alternative education facilities or shared time program facilities.

During the data collection phase of the study, we received CEPR and EDP data from a few buildings in districts that were not participating in CPS. These data were not used in calculating the accountability scores, but we make them available in the data system for completeness. In the data base system, we use the name NONPART to indicate that data came from buildings or districts other than the 544 in the analysis sample.

## Data Tables

Original data, administrative data, and 2002/2003 accountability scores are contained in an Access database, **careerprep.mdb**. The database contains data collected from the field, administrative data, accountability “scores” calculated from these data, and reports that were disseminated to the field. The calculation of the accountability scores depends on many parameters. The database includes default values for the parameters as documented below. In addition, we have developed the capability to re-calculate the scores by changing parameter values. Our intent was to develop a tool that analysts could easily use to calculate accountability scores (if new data are collected or if errors in the 2002/2003 data are discovered) or to re-calculate with alternative weights or points. The data base includes the reports at the region, ISD, and district-level. Finally, the tables in the data base can be exported to other statistical software, so that analyses of the data can be done.

Following are the tables in the database that contain data collected from the field or from CEPI:

CEPR	Career and Education Plans (CEPR) survey data; records from 75,198 students (539 districts, 679 buildings). Note that 5 districts did not submit CEPR data.
CEPR_NONPART	Career and Educational Plans (CEPR) survey data from students in districts not in analysis sample; records from 13 students (2 districts, 2 buildings)
EDP	Education Development Plans (EDP) summaries; records from 664 buildings (540 districts). Note we did not receive EDP summaries from 4 buildings in 4 districts.
EDP_NONPART	EDP summaries from buildings in districts not in analysis sample, (4 districts, 4 buildings)
Benchmarks	MDCD CPS benchmarks, by district; 694 records
Enrollments	10 <sup>th</sup> and 12 <sup>th</sup> grade enrollment by building, 776 buildings
Codes	ISD code and district name and code for each building, 781 records
Participation	District participation, 694 records



## CEPR and CEPR\_NONPART Data Tables

Table 1 documents the contents of the tables that contain data from the CEPR (survey) completed by 12<sup>th</sup> graders. Each record contains the individual students' answers to the survey. The CEPR scan sheet provided "bubbles" for answers to the questions and for the student's building code. The surveys were returned to the Upjohn Institute with a contact sheet that had the name of the district and the building code for surveys from each building in the district. The testing center that scanned the survey responses created a record that had the students' responses and date of scanning. Because of errors or inconsistencies by the students, the building code was overwritten on each record with the code from the contact sheet. The other fields were added to the record to assist in the analysis using building code as the link.

Table 1

CEPR and CEPR\_NONPART Table Contents

Variable/ Field Name	Field Type	Description	Valid Values
Region	Numeric 2-digit	Unique region code assigned by Michigan Department of Education	1–25
Dcode	Numeric 5-digit (has leading 0's)	Unique district code assigned by Michigan Department of Education	00000–99999
Dname	Text	Name of District	
Bcode	Numeric 4-digit (has leading 0's)	Unique building code assigned by Michigan Department of Education	0000–9999
Bname	Text	Name of Building	
Date	Numeric 6-digit (with leading 0's)	Date when data were scanned in mmddyy format	mmdd03
Q1	Numeric 1-digit	Q1. My teachers regularly used real-life examples that helped me understand the material.	1 = Agree 2 = Tend to agree 3 = Tend to disagree 4 = Disagree 5 = Not applicable blank = no answer
Q2	"	Q2. I have participated in at least one project that was presented to and judged by an adult who was not my teacher.	"
Q3	"	Q3. In my classes, I made things and solved real-world problems by using knowledge, materials, tools, machines, and skills.	"
Q4	"	Q4. My school taught me skills like teamwork, problem-solving, organizational skills, good attendance, and other "employability" skills.	"
Q5	"	Q5. At school, I explored careers, and what I learned helped me decide what classes to take during high school.	"

Table 1  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
Q6	“	Q6. At school, I explored careers, and what I learned helped me decide my education and career plans after high school graduation.	“
Q7	“	Q7. My school organized classes into career pathways and I chose a pathway(s) that helped me decide what classes to take during high school.	“
Q8	“	Q8. My school organized classes into career pathways and I chose a pathway(s) that helped me decide my education and career plans after high school graduation.	“
Q9	“	Q9. My school had students use an education development plan (EDP) and my EDP helped me decide what classes to take during high school.	“
Q10	“	Q10. My school had students use an education development plan (EDP) and my EDP helped me decide my education and career plans after high school graduation.	“
Q11	“	Q11. My school had students take career interest or aptitude tests. The results helped me decide what classes to take during high school.	“
Q12	“	Q12. My school had students take career interest or aptitude tests. The results helped me decide my education and career plans after high school graduation.	“
Q13	“	Q13. My school or teachers helped me arrange activities at a workplace or business. What I learned there helped me decide what classes to take during high school.	“
Q14	“	Q14. My school or teachers helped me arrange activities at a workplace or business. What I learned there helped me decide my education and career plans after high school graduation.	“
Q15	“	Q15. My school’s counseling program helped me decide what classes to take during high school.	“
Q16	“	Q16. My school’s counseling program helped me decide my education and career plans after high school graduation.	“
Q17	“	Q17. OPTIONAL QUESTION	“
Q18	“	Q18. “	“
Q19	“	Q19. “	“
Q20	“	Q20. “	“
Infile	Numeric 3-digit (w/o leading 0’s)	Sequence number generated by Upjohn Institute; unique to building. (May have repeated values if multiple buildings in a district.)	1 – 999

## **EDP and EDP\_NONPART Data Tables**

Table 2 documents the table that was created with data from the EDP Summary Reports that provided counts of information about the EDPs of a sample of 10<sup>th</sup> graders. Each record in this table contains the tallies from the EDP Summary report for a building (district in some cases). Most of the original data were sent on a building basis and then summed later to the district level for the analysis.

Table 2

EDP and EDP\_NONPART Table Contents

<b>Variable/ Field Name</b>	<b>Field Type</b>	<b>Description</b>	<b>Valid Values</b>
Region	Numeric 2-digit	Unique region code assigned by Michigan Department of Education	1–25
Bcode	Numeric 4-digit (has leading 0's)	Unique building code assigned by Michigan Department of Education	0000–9999
Dcode	Numeric 5-digit (has leading 0's)	Unique district code assigned by Michigan Department of Education	00000–99999
Bname	Text	Name of Building	
Dname	Text	Name of District	
q1	Numeric 3-digit (w/o leading 0's)	Q1. Number of students in sample	0–999 0=missing (used by respondents when there was no tenth-grade enrollment or if there were no EDPs; assigned to buildings that did not respond to data collection)
q2	“	Q2. Number of EDP's located	As above, except that 0 is a “true” value if q1 > 0.
q3a	“	Q3.a. Number of EDP's with personal information	“
q3b	“	Q3.b. Number of EDP's with career goals that include a Career Pathway	“
q3c	“	Q3.c. Number of EDP's with educ./training goal	“
q3d	“	Q3.d. Number of EDP's with career assessment results	“

Table 2  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
q3e	“	Q3.e. Number of EDP’s with plan of action that has at least one of following: (i) career awareness/ exploration activities, (ii) work-based activities, or (iii) course selections that support career goal(s)	“
q4	“	Q4. Number of EDP’s with all essential elements from Q3. a. – e.	“
q5	“	Q5. Number of EDP’s with parent signature/ endorsement	“
q6	“	Q6. Number of students in sample with documents (may or may not include EDP) that display work-based activities that have occurred or are planned	“
q7	“	Q7. Number of students in sample with documents (may or may not include EDP) that have career assessment results	“

### **Benchmarks Table**

Table 3 documents the contents of the Benchmarks Table that contains data supplied by districts about their progress on the components of the CPS. Each record contains district CPS benchmarks. Career Preparation Coordinators reported these data to the MDCD to reflect district progress towards career prep benchmarks. These benchmarks are used to calculate accountability scores as described below.

Table 3

### Benchmarks Table Contents

Variable/ Field Name	Field Type	Description	Valid Values
Region	Numeric 2-digit	Unique region code assigned by Michigan Department of Education	1–25
Dcode	Numeric 5-digit (has leading 0’s)	Unique district code assigned by Michigan Department of Education	00000–99999
Dname	Text	Name of District	

Table 3  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
CP1	Numeric 1-digit	The local board of education or designee has adopted the six Career Pathways or an equivalent alternative that meets the state standard.	9 = District not participating 8 = Not applicable 5 = Evaluation/Improvement 4 = Fully Implemented 3 = Partially Implemented 2 = Development 1 = Planning 0 = No implementation planned in 2002-2003
CP2	“	Ensures that all school buildings within the district utilize the Career Pathways concept adopted by the district as evidenced by their curriculum plans/guides.	“
CP3	“	Ensures that all students will have opportunities to learn about careers within all pathways as evidenced by curriculum plans/guides.	“
CP4a	“	Ensures that the Career Pathways are used as a framework for organizing career contextual teaching/learning experiences as evidenced in curriculum plans used by staff.	“
CP4b	“	Ensures that the Career Pathways are used as a framework for providing systematic career planning and preparation as evidenced by Career Pathway use in the district’s counseling and guidance program, Education DevelopmentPlans, career awareness/exploration activities, and work-based learning.	“
CP4c	“	Ensures that the Career Pathways are used as a framework for aligning high school courses into the chosen Career Pathways to reflect which courses are needed for preparing for careers as evidenced in documents such as student handbooks and course selection guides.	“
EDP1	“	The local board of education or designee has adopted Education Development Plans (EDP) that meet the state standard.	“
DP2	“	Ensures that all middle school and high school buildings within the district utilize the Education Development Plan document and process adopted by the district as evidenced by student records in each building.	“
EDP3	“	Ensures that all students are engaged in developing initial EDPs before leaving the 8 <sup>th</sup> grade level as evidenced by student records.	“

Table 3  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
EDP4	“	Ensures that all high school students review and have opportunities to revise or update their EDPs at least annually to reflect changes in career decisions for use in selecting courses and in choosing post-secondary options as evidenced by guidance/counseling plans and student records.	“
CGC1	“	local board of education or designee has adopted and customized the Comprehensive Guidance Counseling Program that meets the state standard.	“
CGC2	“	Ensures an action plan is designed and implemented to establish and operate the Program in the district on an ongoing basis.	“
CGC3	“	Ensures that the Program has a mission statement and purpose consistent with the district’s goals.	“
CGC4	“	Ensures that a student needs assessment is conducted with parents, educators, and students to help determine areas of priority for Program development as evidenced by documented assessment results.	“
CGC5	“	Ensures that the Program provides for the development of student competencies in the areas of Career Planning and Exploration, Knowledge of Self and Others, and Educational/Career-Technical Development as evidenced by the guidance program plan.	“
CGC6	“	Ensures that the Program Components of Guidance Curriculum, Individual Planning, Responsive Services, and Systems Support are implemented in order to provide a full range of activities to enhance student learning and preparation for future success as evidenced by the guidance program plan.	“
CGC7	“	Ensures that the Program is delivered to all K-12 students in each building appropriate to each developmental level (elementary, middle and high school) as evidenced by the existence of all four comprehensive guidance programmatic components in each building.	“
CGC8	“	Ensures the Program is evaluated to determine progress and to set continuous improvement goals as evidenced by documented evaluation results.	“

Table 3  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
CAE1	“	The local board of education or designee will have adopted a career awareness and exploration program that meets the state standard.	“
CAE2	“	Ensures that a variety of career informational resources are available at elementary, middle, and high school levels, including the Michigan Occupational Information System (MOIS) and/or similar comprehensive career information systems, to introduce students to career options representative of all career pathways as evidenced by career resource inventories.	“
CAE3	“	Ensures that students are provided experiential activities involving active, direct, and/or hands-on learning that focus on tasks of various careers as evidenced by curriculum plans, guides and teaching/learning activities.	“
CAE4	“	Ensures that instructional units and activities on careers are incorporated into the curriculum at all grade levels as evidenced by curriculum guides, instructional materials and the involvement of business/industry, parents, and community as resources.	“
CAE5	“	Ensures that middle and high school students are assisted in making connections with workers/experts in career pathways through school-based and work-based learning programs as evidenced by documented student participation records.	“
CA1	“	The local board of education or designee has adopted a career assessment process that meets the state standard.	“
CA2	“	Ensures utilization of a variety of developmentally appropriate career interest and aptitude assessments for all middle and high school students as evidenced by assessment records.	“
CA3	“	Ensures that school counselors provide interpretation of student's career assessment results to assist in evaluating their interests and aptitudes related to a career decision-making process as evidenced by counseling records.	“

Table 3  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
CA4	“	Ensures that students and parents understand and compare the results of various assessments over time as students progress through school, identifying trends in their individual preferences and strengths as evidenced by student/counseling records.	“
CA5	“	Ensures that career assessment results are given consideration in the student’s selection of a career pathway and are used to help refine career and educational decisions reflected in an Education Development Plan as evidenced by student and counseling records.	“
AI1	“	The local board of education or designee has adopted career contextual learning strategies that meet the state standard.	“
AI2	“	Ensures the utilization of the Michigan Curriculum Framework (MDE, 1996) as a guide to the development and adoption of a local curricular program that incorporates academic content standards in the areas of Mathematics, Science, Social Studies, and English Language Arts as evidenced by the district’s curriculum design.	“
AI3	“	Ensures that instructional teams participate in curriculum decision-making and are provided the necessary resources to design, develop and implement career contextual activities within the district’s curricular program as evidenced by school improvement plans and curricula.	“
AI4	“	Ensures that career contextual learning activities are systematically planned and provided for elementary, middle, and high school students in each building of the district as evidenced by curriculum guides and course descriptions/schedules.	“
AI5	“	Ensures that teaching and learning activities at each level use a variety of career contexts from each of the six career pathways as focal points for instruction to engage students in areas of meaningful interests and learning strengths as evidenced by curriculum guides or other records of instructional activity.	“
CES1	“	The local board of education or designee has adopted a career and employability skills program that meets the state standard.	“



Table 3  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
CES2	“	Ensures that all students in elementary, middle and high schools are provided Career and Employability Skills instruction which includes the areas of applied academic skills, career planning, developing and presenting information, problem solving, personal management, organizational skills, teamwork, negotiation skills, understanding systems, and using employability skills as evidenced by curriculum guides and course descriptions.	“
CES3	“	Ensures that students learn Career and Employability Skills in a career context as evidenced by teaching/learning strategies used.	“
CES4	“	Ensures that all students preparing to leave high school understand how to develop and utilize such items as resumes, letters of reference, school records of attendance, portfolios, transcripts, and certifications for use in pursuing future education and career goals.	“
CES5	“	Ensures that all high school students will be assessed using ACT Work Keys or another nationally recognized assessment approved by the Michigan Department of Career Development as evidenced by assessment records.	“
TE1	“	The local board of education or designee has adopted a technology education program that meets the state standard.	“
TE2	“	Ensures that all elementary and middle school students will gain technological concepts which have been integrated into the curriculum as evidenced by their incorporation into mathematics, science, and other appropriate subject area curriculum plans/guides.	“
TE3	“	Ensures that before leaving middle school, all students will have taken an Exploratory Technology Education course introducing physical, informational, and chemical/biological related technologies as evidenced by existence of district curriculum guides and course descriptions/schedules.	“

Table 3  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
TE4	“	Ensures that at the high school level, students that have not participated in an Exploratory Technology Education course introducing physical, informational, and chemical/biological technologies are provided the opportunity to enroll as evidenced by existence of district curriculum guides and course descriptions/schedules.	“
TE5	“	Ensures that at the high school level, students desiring greater knowledge and experience regarding the development, control, and use of technology will have the opportunity to enroll in a Foundations of Technology course as evidenced by existence of district curriculum guides and course descriptions/schedules.	“
TE6	“	Ensures that sufficient tools/equipment are available to support infusion of technological concepts into the curriculum at elementary and middle school levels and that facilities/equipment are available to support Technology Education separate course offerings.	“
WBL1	“	The local board of education or designee has adopted work-based learning strategies that meet the state standard.	“
WBL2	“	Ensures the implementation of work-based learning activities that combine school-based and work-site experiences in collaboration with business and industry and other community agencies to provide instruction and career exploration in authentic career contexts as evidenced by school/student records.	“
WBL3	“	Ensures that a variety of work-based learning techniques are utilized such as: student visitor, volunteer, unpaid trainee, student/learner, apprentice, and in-school placements as evidenced by school/student records.	“
WBL4	“	Ensures that student participation in work-site experiences, including acquisition of work behaviors, skills, and knowledge of careers, is documented.	“

## **Enrollments Table**

Table 4 documents a table with administrative data from the State about enrollments. Each record contains preliminary fall 2002 enrollment, by building, from the Center for Education Performance and Information (CEPI). These data are used in calculating response rates in the accountability scores.

Table 4

Enrollments Table Contents

<b>Variable/ Field Name</b>	<b>Field Type</b>	<b>Description</b>	<b>Valid Values</b>
Region	Numeric 2-digit	Unique region code assigned by Michigan Department of Education	1–25
Dcode	Numeric 5-digit (has leading 0's)	Unique district code assigned by Michigan Department of Education	00000–99999
Bcode	Numeric 4-digit (has leading 0's)	Building Code	0000–9999
Bname	Text	Building Name	
G10_TOTAL	Numeric 3-digit	Building 10th grade enrollment	0–999
G12_TOTAL	Numeric 3-digit	Building 12th grade enrollment	0–999

## **Codes Table**

Each record in this table (documented in table 5) provides district code, district name, and ISD code for each building. The purpose of the table was to assign district and ISD information to the data that were supplied with only building names and codes. It was downloaded from the CEPI data web site (<http://meis.cepi.state.mi.us/scm/databases/index.asp>) and contains district code, building code, ISD code, official building name, and grade range for all public schools in the State of Michigan. The grade range data were not retained in the database table.

Table 5  
Codes Table Contents

Variable/ Field Name	Field Type	Description	Valid Values
Region	Numeric 2-digit	Unique region code assigned by Michigan Department of Education	1–25
ISD	Numeric 4-digit (has leading 0's)	Intermediate School District Code	1–83
Dcode	Numeric 5-digit (has leading 0's)	District Code	00000–99999
Dname	Text	District Name	
Bcode	Numeric 4-digit (has leading 0's)	Building Code	00000–99999
Bname	Text	Official Building Name	

### **Participation Table**

Table 6 documents the Participation Table, which documents the participation of districts based on enrollments and benchmarks, and documents the response to the CEPR and EDP Summary data collection efforts. The records are by district, and the table includes 694 school districts. The variables benchmarks, enroll10th, and enroll12th are used to determine whether the district is participating. The benchmarks variable has a “Y” if the district is participating and an “N” if they are not, as reported in the benchmark data (nonparticipating districts have a value of 9 in the Benchmarks table). The enroll10th and enroll12th have a “Y” if the district has at least 1 student in those grades and an “N” if there are no students in those grades. A district is included in the accountability score calculations if the benchmarks column has a “Y” and either enroll10th or enroll12th has a “Y”. The variable EDP has a “Y” if an EDP Summary Report was received from the district and an “N” if it wasn’t. CEPR is coded as “Y” if at least one CEPR survey was received from the district and an “N” if no surveys were received from the district.

Table 6  
Participation Table Contents

Variable/ Field Name	Field Type	Description	Valid Values
Dcode	Numeric 5-digit (has leading 0's)	District Code	00000–99999
Dname	Text	District Name	
benchmarks	Text	Participating Status	Y=Participating in Career Prep, N=Not participating

Table 6  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
EDP	Text	EDP Status	Y=Received EDP from District, N=No EDP Received
CEPR	Text	CEPR Status	Y=Received at least 1 CEPR survey from district, N=Received no CEPR Surveys
enroll10th	Text	10th Grade Enrollment flag	Y=10th grade enrollment at least 1, N=No 10th grade enrollment
enroll12th	Text	12th Grade Enrollment flag	Y=12th grade enrollment at least 1, N=No 12th grade enrollment

## AccountabilityScore and AccountabilityScoreUpdate Tables

The tables that contain the accountability scores (outputs of the system) are as follows:

AccountabilityScore	Accountability scores, 544 records
AccountabilityScoreUpdate	Accountability scores, 544 records with user-changed parameters

The AccountabilityScore table contains the accountability scores for each district as calculated using the data collected from the field and administrative data. An accountability score is calculated for each of the nine CPS components. Each of these scores is based on several measures (also referred to in this document as subcomponents or elements) reflecting activities or outcomes at the district-level. Districts are assigned points for each of these measures based on the data or benchmarks that they provided. The MDCD Interpretation Guide (Appendix B of this document) is the best source for a thorough explanation of the scoring.

For each component, 40 points of a district's score comes from three measures that are subsets of or averages of its benchmarks. Table 7 provides the exact mapping from benchmark value to points for these three measures for each of the components.<sup>5</sup> The variable names are comprised of two parts: the first part is a brief acronym for the component (cp, edp, cae, ai, ces, wbl, te, cgc, and ca for career pathways, education development plans, career awareness and exploration, authentic instruction, career and employability skills, work-based learning, technology education, comprehensive guidance and counseling, and career assessment, respectively) and the second part is a, b, or c for the three measures. A later section of the document indicates how a user might redefine the mapping from benchmark values to points.

---

<sup>5</sup> All but one of the subcomponents gives a "score" to the value assigned by a district to a particular benchmark. The exception to this is for one of technology education subcomponents. The second subcomponent, teb, relies on the arithmetic average of technology education benchmarks 2 through 5. If this average is  $\geq 3.50$ , then the district receives 15 points. If  $3.0 \leq \text{average} < 3.5$ , then the district receives 10 points. If  $2.0 \leq \text{average} < 3.0$ , then the district receives 5 points. Otherwise, it is assigned 0 points.

The remaining points for each component come from the CEPR data, the EDP Summary data, or both. The points are calculated based on how well the district performed relative to two types of thresholds. The first type of threshold, called the response threshold, represents an adequate level of data provision in order to calculate accountability. There are, in fact, two response thresholds: (1) the percentage of 10<sup>th</sup> grade students who were sampled who had EDPs and (2) the percentage of 12<sup>th</sup> grade students enrolled in the district who provided surveys. The second type of threshold, called the element performance threshold, represents an adequate outcome for a district that is participating in a component on this measure. There are numerous element performance thresholds corresponding to all of the measures used in constructing the accountability score.

Statistics called threshold attainments are calculated for each measure for each district by taking the ratio of the district's percentages on these measures to the thresholds themselves (capped at a maximum of 1.00 whenever a district meets or exceeds the threshold.) Then the points that are assigned to a district for a given element are the product of a weight times the response threshold attainment times the element performance threshold attainment. The weights and thresholds are parameters that may be changed by the user as described below. AccountabilityScoreUpdate is the same as AccountabilityScore except that it contains the results based on user updated parameters. Table 7 documents the contents of these two tables.

Table 7

AccountabilityScore and AccountabilityScoreUpdate Table Contents

Variable/ Field Name	Field Type	Description	Valid Values
Region	Numeric 2-digit	Unique region code assigned by Michigan Department of Education	1–5
ISD	Numeric 2 digit	Unique intermediate school district code assigned by Michigan Department of Education	1–3
Dcode	Numeric 5-digit (has leading 0's)	Unique district code assigned by Michigan Department of Education	00000–9999
Dname	Text	Name of District	
surveys	Integer	Number of completed CEPRs	
enrollment	Integer	District 12th grade enrollment	
EDPsample	Integer	Number of 10 <sup>th</sup> graders in sample	
EDPfound	Integer	Number of EDPs in sample found	
response12thscale	Float	(response threshold attainment for CEPRs)=max (1.0, response/responsethreshold), where response = surveys/enrollment and response-threshold specified by user (default = 0.80)	0–1

Table 7  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
responseedpscale	Float	(response threshold attainment for EDPs)= $\max(1.0, \text{response}/\text{responsethreshold})$ , where response = EDPfound/EDPsample and response-threshold specified by user (default = 0.90)	0–1
cpa	Integer	=10 when cp1=4 or 5 =5 when cp1=3 =0 otherwise	0, 5, 10
cpb	Integer	=15 when cp2=4 or 5 =10 when cp2=3 =5 when cp2=1 or 2 =0 otherwise	0, 5, 10, 15
cpc	Integer	=15 when cp3=4 or 5 =10 when cp3=3 =5 when cp3=1 or 2 =0 otherwise	0, 5, 10, 15
cpd	Float	(subcomponent performance threshold attainment) =weight*responseedpscale*perfattain, where weight = user-specified weight (default = 20) responseedpscale = response threshold attainment for EDPs (defined above) perfattain = $\max [1.0, (q3b/q2)/\text{perfthreshold}]$ , where perfthreshold = performance threshold for Career Pathways on EDPs (default = 0.85)	0–20
cpe	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 20) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = $\max (1.0, \text{agreeratio}/\text{perfthreshold})$ , where agreeratio = (q7 = 1 or 2/total q7 response) perfthreshold = performance threshold for Career Pathways usage for courses (default = 0.80)	0–20
cpf	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 20) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = $\max (1.0, \text{agreeratio}/\text{perfthreshold})$ , where agreeratio = (q8 = 1 or 2/total q8 response) perfthreshold = performance threshold for Career Pathways usage for careers (default = 0.60)	0–20
cpg	Integer	Subcomponent not used; data not available	0
cp	Float	=sum(cpa-cpf)	0-100
edpa	Integer	=10 when edp1=4 or 5	0, 5, 10

Table 7  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
		=5 when edp1=3 =0 otherwise	
edpb	Integer	=15 when edp2=4 or 5 =10 when edp2=3 =5 when edp2=1 or 2 =0 otherwise	0, 5, 10, 15
edpc	Integer	=15 when edp3=4 or 5 =10 when edp3=3 =5 when edp3=1 or 2 =0 otherwise	0, 5, 10, 15
edpd	Float	(subcomponent performance threshold attainment) =weight*responseedpscale*perfattain, where weight = user-specified weight (default = 20) responseedpscale = response threshold attainment for EDPs (defined above) perfattain = max [1.0, (q4/q2)/perfthreshold], where perfthreshold = performance threshold for complete EDPs (default = 0.85)	0–20
edpe	Float	(subcomponent performance threshold attainment) =weight*responseedpscale*perfattain, where weight = user-specified weight (default = 10) responseedpscale = response threshold attainment for EDPs (defined above) perfattain = max [1.0, (q5/q2)/perfthreshold], where perfthreshold = performance threshold for parent endorsements on EDPs (default = 0.60)	0–10
edpf	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 15) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q9 = 1 or 2/total q9 response) perfthreshold = performance threshold for EDPs usage for courses (default = 0.80)	0–15
edpg	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 15) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q10 = 1 or 2/total q10 response) perfthreshold = performance threshold for EDPs usage for careers (default = 0.60)	0–15
edp	Float	=sum(edpa-edpg)	0–100



Table 7  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
caea	Integer	=10 when cae1=4 or 5 =5 when cae1=3 =0 otherwise	0, 5, 10
caeb	Integer	=15 when cae2=4 or 5 =10 when cae2=3 =5 when cae2=1 or 2 =0 otherwise	0, 5, 10, 15
caec	Integer	=15 when cae3=4 or 5 =10 when cae3=3 =5 when cae3=1 or 2 =0 otherwise	0, 5, 10, 15
caed	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 30) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q5 = 1 or 2/total q5 response) perfthreshold = performance threshold for cae influence on courses (default = 0.60)	0–30
caee	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 30) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q6 = 1 or 2/total q6 response) perfthreshold = performance threshold for cae influence on courses (default = 0.80)	0–30
caebench	Float	=sum(caea-caee)	0–100
aia	Integer	=10 when ai1=4 or 5 =5 when ai1=3 =0 otherwise	0, 5, 10
aib	Integer	=15 when ai2=4 or 5 =10 when ai2=3 =5 when ai2=1 or 2 =0 otherwise	0, 5, 10, 15
aic	Integer	=15 when ai3=4 or 5 =10 when ai3=3 =5 when ai3=1 or 2 =0 otherwise	0, 5, 10, 15
aid	Integer	Subcomponent not used; data not available	0
aie	Float	(subcomponent performance threshold attainment)	0–30

Table 7  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
		=weight*response12thscale*perfattain, where weight = user-specified weight (default = 30) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q1 = 1 or 2/total q1 response) perfthreshold = performance threshold for auth. instruction usage (default = 0.80)	
aif	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 30) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q2 = 1 or 2/total q2 response) perfthreshold = performance threshold for auth. assessment (default = 0.80)	0–20
ai	Float	=sum(aia-aif)	0–90
cesa	Integer	=10 when ces1=4 or 5 =5 when ces1=3 =0 otherwise	0, 5, 10
cesb	Integer	=15 when ces2=4 or 5 =10 when ces2=3 =5 when ces2=1 or 2 =0 otherwise	0, 5, 10, 15
cesc	Integer	=15 when ces3=4 or 5 =10 when ces3=3 =5 when ces3=1 or 2 =0 otherwise	0, 5, 10, 15
cesd	Integer	Subcomponent not used; data not available	0
cese	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 30) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q4 = 1 or 2/total q4 response) perfthreshold = performance threshold for ces activities in school (default = 0.80)	0–30
ces	Float	=sum(cesa-cese)	0–70
wbla	Integer	=10 when wbl1=4 or 5 =5 when wbl1=3 =0 otherwise	0, 5, 10

Table 7  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
wblb	Integer	=15 when wbl2=4 or 5 =10 when wbl2=3 =5 when wbl2=1 or 2 =0 otherwise	0, 5, 10, 15
wblc	Integer	=15 when wbl3=4 or 5 =10 when wbl3=3 =5 when wbl3=1 or 2 =0 otherwise	0, 5, 10, 15
wbld	Float	(subcomponent performance threshold attainment) =weight*responseedpscale*perfattain, where weight = user-specified weight (default = 20) responseedpscale = response threshold attainment for EDPs (defined above) perfattain = max [1.0, (q6/q2)/perfthreshold], where perfthreshold = performance threshold for wbl activities (default = 0.50)	0–20
wble	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 15) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q13 = 1or2/total q13 response) perfthreshold = performance threshold for wbl on courses (default = 0.80)	0–15
wblf	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 25) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q14 = 1or2/total q14 response) perfthreshold = performance threshold for wbl on careers (default = 0.80)	0–25
wbl	Float	=sum(wbla-wblf)	0–100
tea	Integer	=10 when te1=4 or 5 =5 when te1=3 =0 otherwise	0, 5, 10
teave	Float	=15 when teave >= 3.50 =10 when 3.0 <= teave < 3.5 =5 when 2.0 <= teave < 3.0 =0 otherwise, where teave=(te2 + te3 + te4 + te5)/4 if te2, te3, te4, te5 < 8 =0 otherwise	0-5.0

Table 7  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
tec	Integer	=15 when te6=4 or 5 =10 when te6=3 =5 when te6=2 =0 otherwise	0, 10, 20, 30
ted	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 60) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q3 = 1 or 2/total q3 response) perfthreshold = performance threshold on technology ed. in school (default = 0.80)	0–60
te	Float	=sum(tea-ted)	0–100
cgca	Integer	=10 when cgc1=4 or 5 =5 when cgc1=3 =0 otherwise	0, 5, 10
cgcb	Integer	=15 when cgc2=4 or 5 =10 when cgc2=3 =5 when cgc2=1 or 2 =0 otherwise	0, 5, 10, 15
cgcc	Integer	=15 when cgc3=4 or 5 =10 when cgc3=3 =5 when cgc3=1 or 2 =0 otherwise	0, 5, 10, 15
cgcd	Integer	Subcomponent not used; data not available	0
cgce	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 20) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q15 = 1 or 2/total q15 response) perfthreshold = performance threshold for cgc on courses (default = 0.80)	0–20
cgcf	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 20) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q16 = 1 or 2/total q16 response) perfthreshold = performance threshold for cgc on careers (default = 0.80)	0–20

Table 7  
(Continued)

Variable/ Field Name	Field Type	Description	Valid Values
cgc	Float	=sum(cgca-cgcf)	0–80
caa	Integer	=10 when ca1=4 or 5 =5 when ca1=3 =0 otherwise	0, 5, 10
cab	Integer	=15 when ca2=4 or 5 =10 when ca2=3 =5 when ca2=1 or 2 =0 otherwise	0, 5, 10, 15
cac	Integer	=15 when ca3=4 or 5 =10 when ca3=3 =5 when ca3=1 or 2 =0 otherwise	0, 5, 10, 15
cad	Float	(subcomponent performance threshold attainment) =weight*responseedpscale*perfattain, where weight = user-specified weight (default = 20) responseedpscale = response threshold attainment for EDPs (defined above) perfattain = max [1.0, (q7/q2)/perfthreshold], where perfthreshold = performance threshold for career assessment results on EDPs (default = 0.85)	0–20
cae	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 20) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q11 = 1or2/total q11 response) perfthreshold = performance threshold for cae on courses (default = 0.80)	0–20
caf	Float	(subcomponent performance threshold attainment) =weight*response12thscale*perfattain, where weight = user-specified weight (default = 20) response12thscale = response threshold attainment for CEPRs (defined above) perfattain = max (1.0, agreeratio/perfthreshold), where agreeratio = (q12 = 1or2/total q12 response) perfthreshold = performance threshold for cae on courses (default = 0.80)	0–20
ca	Float	=sum(caa-caf)	0–100
totalscore	Float	=(cp+edp+caebench+ai+ces+wbl+te+cgc+ca)	0–840

## Running the Analysis with Changed Parameters or Data

The calculation of the accountability scores uses a number of parameters: weights, thresholds, and mappings of benchmarks to points. In developing the system, we performed a validation test of those parameters with knowledgeable individuals across the state. However, the number of individuals who responded was small, and the variation around the parameter values was large (even though the means from the validation sample were close to the default values.) Thus it is reasonable to expect that users may want to alter some of these parameters. However, the Access database provides the AccountabilityScore table, in which default parameters and data in the Benchmarks, CEPR, and EDP tables are used to calculate the accountability scores. A user not interested in re-calculating the accountability scores can skip to the next section of the document, which describes the reports that are accessible.

### Setting the Parameters

We have set up the Access database in a flexible and accommodating way to allow the user to re-run the analysis with alternative parameters and data. However we have found that the user needs to be somewhat organized and careful to keep track of the various changes that he or she is running. The parameters that can be changed are in tables Values1, Values2, and Values3. (Note that the default values for parameters are in the tables titled Values1Default, Values2Default, and Values3Default. **These tables should never be changed.** They are used to reset the Values tables to the original parameters and, if altered, will do so inaccurately.) Values1 contains parameters for assigning points to the district's benchmark values. For example, districts may report values of 1, 2, 3, 4, or 5 for Benchmark 1 for career pathways, which is used for the subcomponent cpa, . The Values1 table has an assigned value for each of these possibilities. If a user wants to change the assigned value for a benchmark value of 4 from the default of 10 to 7, for example, the user would find the row where subcomponent = cpa and benchmarkval=4 and change the assignedvalue column from 10 to 7. There are 133 different parameters that may be changed in Values<sup>6</sup>. Note that the accountability scores are not automatically recalculated and the AccountabilityScoreUpdate tables entries are not changed when parameters are changed. The analysis program has to be “run” first, which is explained later in this section.

The Values2 table contains the weights that are used in calculating the subcomponent scores that are based on CEPR survey or EDP data. The weight specifies the maximum points possible for a particular subcomponent when both the response threshold and element performance threshold are met. For example, the weights for the EDP subcomponents edpd and edpe are 20 and 10, respectively. These represent the scores that are “earned” if the response threshold is met and if at least 85 percent of the EDPs have all of the essential elements as specified by the state (edpd) if at 60 percent of the EDPs have parent endorsement (edpe). If a

---

<sup>6</sup> Note that the teb subcomponent is slightly different from the others. The values in the table provide “breakpoints” such that the value in “assignedvalue” is assigned if the average of technology education benchmarks 2 through 5 exceeds the value in “benchmarkval” if it less than the value immediately above it. For example, in the default case, the assigned value is 20 if the average of the four benchmarks is greater than or equal to 3, but less than 3.50.

user were to put more emphasis on parent endorsements, they might go into the Values2 table and change the weight on edpd to 10 and edpe to 20. Again any changes here will not take effect until the analysis program is run.

The Values3 table contains the response thresholds for the CEPR and EDP data collection activities and the performance thresholds for the elements based on the CEPRs or EDP Summaries. The column to change these values is threshholdval. Again these values are not reflected in the reports or the AccountabilityMatrixUpdate table until the analysis is run.

### **Running the Analysis**

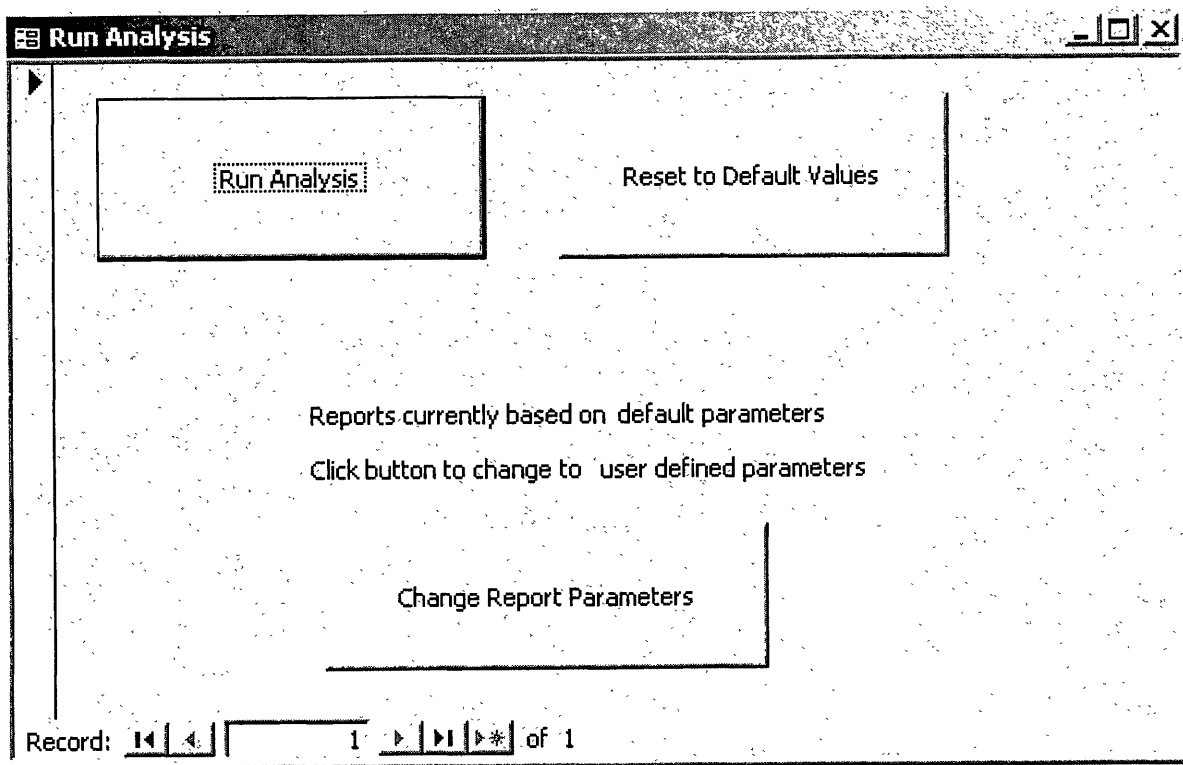
After the user has set (or reset) the parameter values, they can “run” the analysis to calculate the accountability scores using the desired parameters. Note that a user may simply want to change or update benchmark, CEPR, or EDP summary data and recalculate the accountability scores using the default parameter values. They would enter the updated data in the Benchmarks, CEPR, or EDP tables and do “Run Analysis” as described below using default values in the Values tables.

To “run” the analysis, go to the Forms object, and double-click on RunAnalysis. Figure 1 shows the screen that appears. The screen has three buttons. The “Run Analysis” button calculates accountability scores using the parameters in the Values tables if the Mode of Calculation is User Defined parameters. It calculates accountability scores using the ValuesDefault tables if the Mode of Calculation is Default parameters. The “Reset to Default Values” overwrites all of the parameters set in the Values tables with the parameters from the ValuesDefault tables. The “Change Report Parameters” button controls the Mode of Calculation. If the text in the middle of the screen indicates that reports are based on default parameters, then clicking on this button will result in a box that requests a report title (the report uses the first 16 characters in the Report Name: field). Then clicking on “Run Analysis” will result in accountability scores based on the parameters in the Values tables (user-defined). The reports will indicate “User Defined” in the Parameters: field and will use the user-supplied name in the Report Name: field. If the text in the middle of the screen indicates that reports are based on user-defined parameters, then clicking on the “Change Report Parameters” button will change the Mode of Calculation to Default. Clicking on “Run Analysis” will result in accountability scores based on the parameters in the ValuesDefault tables. The reports will indicate “Default” in the Parameters: field and in the Report Name: field.

After clicking the “Change Report Parameters” button, Access will take a short while (approximately 10 seconds; longer on slower computers) to update the report source for all the reports. The text above the button will inform you the current source of the reports and what action will be taken if the button is hit.

Figure 1

Run Analysis Screen



When a message box pops up indicating "Analysis Complete," click OK and the AccountabilityMatrixUpdate table and the report tables are now updated with the analysis values based on the user defined or default parameter values.

A couple of technical points should be kept in mind if you RunAnalysis several times. First, the analysis will take some time to execute, particularly if you are running this on an older machine with little RAM. On a 1.0 Gigahertz computer with 512mb RAM, it takes about 2 minutes to run. Running the program with the database on a network drive instead of your local hard drive will significantly increase how long it takes to run. Second, after every analysis run a Compact and Repair (under the Tools menu in the database utilities) as the analysis creates and destroys numerous temporary tables that will not be cleaned up from disk memory until this is done. After just a few runs, the database can explode in disk space from less than 30mb to over 500mb.



## Reports

The Access file includes reports that provide the accountability scores by district, ISD, or region. These reports are organized in a particular order and may be viewed electronically or may be printed. To view the reports, click on the “Reports” tab under Objects. Fifteen reports are listed there. There are 3 levels of reports, District, ISD and Region, and each level has five reports; each of the reports provides information about 2 of the components, except for the fifth report in the series, which has information on the career assessment component and on the total score (sum of the 9 component scores). The level of report is the first part of the report name and the components shown in the report comprise the second part of the name: `_CP_EDP` for career pathways and EDPs; `_CAE_AI` for career awareness and exploration and authentic instruction; `_CES_WBL` for career and employability skills and work-based learning; `_TE_CGC` for technology education and comprehensive guidance and counseling; and `_CA_Total` for career awareness and Total Score.

“Double clicking” on a report name gives a print preview screen. You can navigate through the reports using the arrow keys at the bottom of the screen. The reports are sorted in ascending order: so the district reports are in ascending order based on district code, the ISDs on ISD code, and regions on region number. The data displayed in the reports come from an intermediate set of tables that are populated with data from the `AccountabilityMatrixTable` or input data tables in `ReportDistrictTable[Default]`, `ReportISDTable[Default]`, and `ReportRegionTable[Default]` tables respectively.

Figure 2 provides a sample of a district level report. The top left corner shows Parameters and Report Name. This sample indicates that this report is based on the default values. If a user updated some parameters, the Parameters: field would say User Defined and the Report Name: field would be the user-identified title. Under the report title is general information about the response rates for the district being shown. This top part of the district report is the same for all the district reports regardless of the component. Below the general response information is the accountability score for the specific components of the given report. It lists the components and elements (subcomponents) used in constructing the scores for each component, the maximum scores possible, the district score, and ISD, Region, and State score. The final column shows how the district’s score deviates from the State in that component. Note that the aggregated scores at the ISD, Region, and State levels are simple, unweighted averages of the districts’ scores.

A note on the bottom of the report refers the reader of the report to a report interpretation guide. This guide was developed by Michigan DLEG Office of Career and Technical Preparation staff. It is provided in Appendix B to this document.

Figure 2  
Sample District Report

#CP-2000

Parameters Default

Report Name Default

MICHIGAN ACCOUNTABILITY REPORT  
CAREER PREPARATION SYSTEM  
2002-2003

Michigan Department of  
Career Development  
Office of Career and  
Technical Preparation

District Code 24040

District Name PELLSTON PUBLIC SCHOOLS

# Grade 12 Students 39

# Grade 10 EDP Sample 39

# Grade 12 CEPR (Surveys) 32

# Grade 10 EDP's Found 39

(1)  
Component/Subcomponent

(2)  
Source of Data

(3)  
Maximum  
Possible

(4)  
District

(5)  
ISD

(6)  
Region

(7)  
State

(8)  
District  
relative to  
State

Career Pathways (CP)

Local board adoption

Buildings utilize CP concept

Pathways used to align HS courses

EDPs have career goals that include Career Pathway

CPs used to select courses

CPs influence career choice

Total

Education Development Plans (EDP)

Local board adoption

Student records show MS/HS buildings use EDPs

HS use EDPs for course selection and postsecondary options

EDPs meet state standards (exc for parent endorsement)

EDPs have parent endorsement

EDPs used for course selection

EDPs influence career choice

Total

**Note: See report interpretation guide for full explanation of scores.**

Figure 3 provides a sample ISD report. The format is very similar to the district report (the information in the first four columns is identical.) This report differs only in that the final two columns provides region and state averages for all of the elements (subcomponents) that make up a component's score.

Figure 3  
Sample ISD Report

#CP-2000

Parameters Default

Report Name Default

MICHIGAN ACCOUNTABILITY REPORT  
CAREER PREPARATION SYSTEM  
2002-2003

Michigan Department of  
Career Development  
Office of Career and  
Technical Preparation

ISD Code 29

# Grade 12 Students 1033

# Grade 10 EDP Sample 270

# Grade 12 CEPR (Surveys) 571

# Grade 10 EDP's Found 265

(1)  
Component/Subcomponent

(2)  
Source of Data

(3)  
Maximum  
Possible

(4)  
ISD

(5)  
Region

(6)  
State

Career Pathways (CP)

100

77.4

75.6

75.9

Local board adoption

Benchmark 1

10

10 0

10 0

9 8

Buildings utilize CP concept

Benchmark 2

15

14 5

14 8

11 2

Pathways used to align HS courses

Benchmark 4c

15

14.5

14 5

12 3

EDPs have career goals that include Career Pathway

EDP Review (q 3b)

20

13 6

10 9

15 4

CPs used to select courses

CEPR (q 7)

20

11 6

11 4

11 9

CPs influence career choice

CEPR (q 8)

20

13.2

13.9

15.2

Total

100

77 4

75 6

75 9

Education Development Plans (EDP)

100

66.2

64.2

66.0

Local board adoption

Benchmark 1

10

10 0

10 0

9 7

Student records show MS/HS buildings use EDPs

Benchmark 2

15

14 5

14 8

12 2

HS use EDPs for course selection and postsecondary options

Benchmark 4

15

13 5

14 3

12 0

EDPs meet state standards (exc for parent endorsement)

EDP Review (q 4)

20

9 6

5 5

11 4

EDPs have parent endorsement

EDP Review (q 5)

10

4 0

4 4

4 7

EDPs used for course selection

CEPR (q 9)

15

6 5

6 8

7 1

EDPs influence career choice

CEPR (q 10)

15

8 1

8 4

8 9

Total

100

66 2

64 2

66 0

Note: See report interpretation guide for full explanation of scores.

Finally, figure 4 provides a sample of the Region report. No State report is generated because the state scores are reported on the ISD and Region reports.

Figure 4

## Sample Region Report

#CP-2000

Parameters Default

Report Name Default

MICHIGAN ACCOUNTABILITY REPORT  
CAREER PREPARATION SYSTEM  
2002-2003

Michigan Department of  
Career Development  
Office of Career and  
Technical Preparation

Region Code 17

# Grade 12 Students 1946

# Grade 10 EDP Sample 1136

# Grade 12 CEPR (Surveys) 1613

# Grade 10 EDP's Found 1074

(1)  
Component/Subcomponent

(2)  
Source of Data

(3)  
Maximum  
Possible

(4)  
Region

(5)  
State

Career Pathways (CP) 100 86.5 75.9

Local board adoption Benchmark 1 10 10.0 9.8

Buildings utilize CP concept Benchmark 2 15 10.0 11.2

Pathways used to align HS courses Benchmark 4c 15 15.0 12.3

EDPs have career goals that include Career Pathway EDP Review (q 3b) 20 18.6 15.4

CPs used to select courses CEPR (q 7) 20 14.4 11.9

CPs influence career choice CEPR (q 8) 20 18.4 15.2

Total 100 86.5 75.9

Education Development Plans (EDP) 100 74.9 66.0

Local board adoption Benchmark 1 10 10.0 9.7

Student records show MS/HS buildings use EDPs Benchmark 2 15 12.0 12.2

HS use EDPs for course selection and postsecondary options Benchmark 4 15 12.0 12.0

EDPs meet state standards (exc for parent endorsement) EDP Review (q 4) 20 18.4 11.4

EDPs have parent endorsement EDP Review (q 5) 10 4.0 4.7

EDPs used for course selection CEPR (q 9) 15 8.1 7.1

EDPs influence career choice CEPR (q 10) 15 10.5 8.9

Total 100 74.9 66.0

Note: See report interpretation guide for full explanation of scores.

## Exporting Data to Statistical Analysis Software

Analysts may wish to calculate or estimate various statistics from the data in **careerprep.mdb**. This generally requires exporting the data into a format that is recognizable by the particular software with which the user is familiar. Figure 5 shows a SAS program that runs a principal components factor analysis on the CEPR data (unit of observation is the student) and a descriptive statistical analysis on the accountability score data. Figure 6 shows the resulting output from executing that program. Note that prior to running these analyses, we had to export the CEPR and the AccountabilityScore tables from **careerprep.mdb** to a SAS data set.

Figure 5 SAS Program Listing

```

1                                     The SAS System                                08:12 Wednesday, February 11, 2004

1      /*****
2
3      This program runs a factor analysis on the CEPR data and the means of the AccountabilityScore
table
4      Jason Preuss 02-11-04
5
6      *****/
7
8      libname sql 'user4:[cppmss]';
NOTE: Libref SQL was successfully assigned as follows:
      Engine:          V8
      Physical Name: $1$DGA101:[CPPMSS]
9
10     proc factor data=sql.cepraccess;
11         var q1 q2 q3 q4 q5 q6 q7 q8 q9 q10 q11 q12 q13 q14 q15 q16;
12     run;

WARNING: 7222 of 75198 observations in data set SQL.CEPR omitted due to missing values.
NOTE: 5 factors will be retained by the MINEIGEN criterion.
NOTE: The PROCEDURE FACTOR printed pages 1-2.
NOTE: PROCEDURE FACTOR used:
      real time          1.58 seconds
      cpu time           1.55 seconds

2                                     The SAS System                                08:12 Wednesday, February 11,
2004

13
14     proc means data=sql.accountabilityscore;
15     run;

```

Note: Variables listed in line 11 are Q1 through Q16 as documented in table 1. A detailed explanation of this program listing may be found in SAS Institute, Inc. *SAS/STAT® User's Guide, Version 8*, (Cary, NC: SAS Institute, Inc.), 1999, pp. 1121–1192.

Figure 6 Output Listing for Factor Analysis and Means Procedures

The SAS System                      08:12 Wednesday, February 11, 2004    1

The FACTOR Procedure  
Initial Factor Method: Principal Components

Prior Communality Estimates: ONE

Eigenvalues of the Correlation Matrix: Total = 16    Average = 1

	Eigenvalue	Difference	Proportion	Cumulative
1	6.23661245	4.67884693	0.3898	0.3898
2	1.55776552	0.34429806	0.0974	0.4871
3	1.21346746	0.06259604	0.0758	0.5630
4	1.15087142	0.12173816	0.0719	0.6349
5	1.02913326	0.08073438	0.0643	0.6992
6	0.94839888	0.12457015	0.0593	0.7585
7	0.82382873	0.13670387	0.0515	0.8100
8	0.68712486	0.07512775	0.0429	0.8530
9	0.61199712	0.07034973	0.0382	0.8912
10	0.54164739	0.07518083	0.0339	0.9251
11	0.46646656	0.23467881	0.0292	0.9542
12	0.23178775	0.05761325	0.0145	0.9687
13	0.17417450	0.04250483	0.0109	0.9796
14	0.13166967	0.02298367	0.0082	0.9878
15	0.10868600	0.02231756	0.0068	0.9946
16	0.08636844		0.0054	1.0000

5 factors will be retained by the MINEIGEN criterion.

Figure 6 (Continued)

The SAS System

08:12 Wednesday, February 11, 2004 2

The FACTOR Procedure  
Initial Factor Method: Principal Components

	Factor Pattern				
	Factor1	Factor2	Factor3	Factor4	Factor5
Q1	0.45637	0.43576	0.09192	0.29595	0.05566
Q2	0.30539	0.18213	0.29698	0.44971	0.02943
Q3	0.47594	0.41919	0.14358	0.39640	0.04827
Q4	0.54918	0.46059	0.00915	0.18052	0.04065
Q5	0.66108	0.27710	-0.22886	-0.07014	-0.11969
Q6	0.66846	0.26605	-0.21214	-0.08584	-0.15310
Q7	0.69561	-0.10466	-0.45360	0.05138	-0.29626
Q8	0.71005	-0.09497	-0.44392	0.03903	-0.30789
Q9	0.64901	-0.47856	-0.19538	0.23903	0.32793
Q10	0.67098	-0.47821	-0.19004	0.22467	0.30472
Q11	0.70500	-0.16870	0.23166	-0.05638	0.28644
Q12	0.69834	-0.13950	0.23661	-0.07200	0.28609
Q13	0.66733	-0.29380	0.44766	-0.06298	-0.41122
Q14	0.66487	-0.27018	0.45761	-0.07115	-0.42180
Q15	0.59842	0.26950	0.02334	-0.52129	0.23612
Q16	0.65836	0.20429	0.04044	-0.50806	0.18384

## Variance Explained by Each Factor

Factor1	Factor2	Factor3	Factor4	Factor5
6.2366124	1.5577655	1.2134675	1.1508714	1.0291333

Final Communality Estimates: Total = 11.187850

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
0.49729753	0.41773863	0.58231770	0.54807426	0.58543373	0.59343136	0.79097974	0.80656927
Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
0.85307625	0.85834137	0.66438095	0.65015292	0.90510990	0.90744341	0.75877917	0.76872390

Note: Q1 through Q16 are documented in table 1.

Figure 6 (Continued)

The SAS System

08:12 Wednesday, February 11, 2004 3

## The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Region		544	13.3235294	7.1956426	1.0000000	25.0000000
surveys		539	139.5139147	207.0322634	1.0000000	3703.00
enrollment	enrollment	544	198.2738971	325.7289493	1.0000000	5890.00
EDPsample	EDPsample	540	100.0444444	140.3291713	0	1778.00
EDPfound		540	84.6685185	115.0386373	0	1483.00
response12thscale	response12thscale	544	0.8869866	0.1657688	0	1.0000000
responseedpscale	responseedpscale	525	0.8968186	0.2415351	0	1.0000000
cpa		544	9.8069853	1.2173799	0	10.0000000
cpb		544	11.2224265	3.3412667	5.0000000	15.0000000
cpc		544	12.3161765	3.6493693	5.0000000	15.0000000
cpd		544	15.4493364	6.9478339	0	20.0000000
cpe		544	11.9078972	4.4248308	0	20.0000000
cpf		544	15.2270757	4.7965759	0	20.0000000
cpg		544	0	0	0	0
cp		544	75.9298976	14.9788772	10.0000000	100.0000000
edpa		544	9.6507353	1.5962893	0	10.0000000
edpb		544	12.1966912	3.1970158	5.0000000	15.0000000
edpc		544	12.0496324	3.4570929	5.0000000	15.0000000
edpd		544	11.3972187	8.4276399	0	20.0000000
edpe		544	4.6677650	4.4847048	0	10.0000000
edpf		544	7.1097466	3.5689051	0	15.0000000
edpg		544	8.9307056	3.9906310	0	15.0000000
edp		544	66.0024947	17.3359289	10.0000000	100.0000000
caea		544	6.0386029	4.5996616	0	10.0000000
caeb		544	10.9191176	5.0940404	0	15.0000000
caec		544	8.7683824	4.6368720	0	15.0000000
caed		544	25.7147293	5.5547673	0	30.0000000
caee		544	22.5473223	5.6388840	0	30.0000000
caebench		544	73.9881546	17.0071513	5.0000000	100.0000000
aia		544	3.1801471	4.3760493	0	10.0000000
aib		544	7.2150735	5.4966651	0	15.0000000
aic		544	6.4981618	4.9961308	0	15.0000000
aid		544	0	0	0	0
aie		544	25.5105749	5.2373042	0	30.0000000
aif		544	12.5545273	4.0859784	0	20.0000000
ai		544	54.9584846	15.0413967	0	90.0000000
cesa		544	3.7500000	4.6020253	0	10.0000000
cesb		544	6.8750000	5.4091356	0	15.0000000

Note: All variables listed on this page and on the next page are documented in table 7.



Figure 6 (Continued)

The SAS System			08:12 Wednesday, February 11, 2004				4
The MEANS Procedure							
Variable	Label	N	Mean	Std Dev	Minimum	Maximum	
cesc		544	8.8511029	5.7984788	0	15.0000000	
cesd		544	0	0	0	0	
cese		544	25.6338397	5.2884093	0	30.0000000	
ces		544	45.1099426	14.8843016	0	70.0000000	
wbla		544	3.0514706	4.3095164	0	10.0000000	
wblb		544	6.3511029	5.8968949	0	15.0000000	
wblc		544	6.8750000	6.2612698	0	15.0000000	
wbld		544	9.7865483	9.1559567	0	20.0000000	
wble		544	6.7763607	2.7409121	0	15.0000000	
wblf		544	12.1070790	4.6978509	0	25.0000000	
wbl		544	44.9475615	20.5952837	0	96.7307692	
tea		544	4.7150735	4.7168122	0	10.0000000	
teb		544	6.5533088	6.4887570	0	15.0000000	
tec		544	7.9411765	6.6474102	0	15.0000000	
ted		544	48.3114819	11.2014754	0	60.0000000	
te		544	67.5210407	20.7508004	0	100.0000000	
cgca		544	3.8143382	4.4927296	0	10.0000000	
cgcb		544	6.5257353	5.4929454	0	15.0000000	
cgcc		544	5.8915441	5.1573047	0	15.0000000	
cgcd		544	0	0	0	0	
cgce		544	14.0293951	4.4072655	0	20.0000000	
cgcf		544	12.3676447	4.2997077	0	20.0000000	
cgc		544	42.6286575	16.7770403	0	80.0000000	
caa		544	3.4558824	4.4396799	0	10.0000000	
cab		544	8.7040441	5.9248441	0	15.0000000	
cac		544	7.6562500	5.6013545	0	15.0000000	
cad		544	13.8357493	8.1446107	0	20.0000000	
cae		544	11.3117930	3.9218708	0	20.0000000	
caf		544	11.9192942	3.8655685	0	20.0000000	
ca		544	56.8830129	18.8337496	10.0000000	97.1472628	
totalscore	totalscore	544	527.9692467	114.7363519	50.0000000	803.8797582	

Note that these examples are intended to be instructive only. Other types of statistical analyses or other models should be estimated in order to understand more thoroughly and rigorously the data.

The factor analysis output in figure 6 indicates five factors, using the criterion of an eigenvalue of 1.0. The factors (at least the first three) seem to be interpretable. Recall that the response pattern for the CEPR had values of 1 or 2 for agreement (positive effect of the CPS activity) and 3 or 4 for disagreement (i.e., negative effect). The first factor shows loadings for q1 to q4 that are different from, smaller in magnitude than, the loadings on q5 to q16. An examination of the CEPR shows that questions one through four are a different type of question from questions five through 16 (the latter asked whether specific CPS components had an influence on the choice of classes taken in high school or on career and educational plans after high school). We interpret the first factor as a “question type” or “locus of effect” factor. It was presumably easier for respondents to indicate that they had encountered general types of instruction than to agree that specific activities caused them to alter their course taking behavior or career plans.

The first page of figure 6 shows eigenvalues of the 16 factors, and clearly the first factor is stronger than the next four factors. So the interpretations of the second and third factors are weak. Nevertheless, we suggest that the second factor’s loadings contrast the CPS components targeted on careers: career pathways, EDPs, career assessments, and work-based learning to the components of a more general academic nature: authentic instruction, technology education, career awareness and exploration, and comprehensive guidance and counseling. This factor might be titled, “career-focus.” The negative loadings on the career-oriented components have the expected sign because of the inverse scaling of the responses.

The third factor might be titled, “recognizable exposure.” For a CPS component to have an influence on a student, the student must have participated in the component and must recognize that participation. The negative loadings on factor three for career pathways and EDPs likely occur because these are the priority components that were required in all districts. Career awareness and exploration is also a common activity in districts (not necessarily funded by CPS). Only a relatively small percentage of students engage in work-based learning, and its loadings (Q13 and Q14) on this factor are large and positive. Similarly, authentic assessment (Q2) is a relatively less common experience for students. The other components are more common—authentic instruction, technology education, employability skills, and comprehensive guidance—but are arguably not recognizable as “activities” to students.

The last two pages of figure 6 simply show some descriptive statistics about the accountability scores. Analyses like these are useful to identify potential errors in the data (if the minimum or maximum values are not sensible, for example.) Cross-tabulating these data by district or by region would be much more useful than examining the overall means.

## **Appendix A**

### **Summary of Procedures Followed in Collecting CEPRs and EDP Summary Forms**

### **Step 1: Receiving Orders for the CEPRs**

The process started when we would receive an order for the survey scan sheets. This order usually came from the district, but sometimes they were ordered by building or by region. The scan sheets/surveys were packaged with contact sheets (for each building), business reply envelopes, and instructions, and sent out via UPS.

### **Step 2: Receiving CEPRs from the Field and Initial Quality Checking**

Districts were responsible for distributing and administering the CEPRs to all 12<sup>th</sup> grade students. After the students completed the surveys, the districts sent the surveys back to the Upjohn Institute in the business reply envelope that had been supplied. The surveys were to be bundled by building and each bundle was to have the contact sheet on top. When the surveys arrived at the Institute, we discovered that not all of the districts/buildings had followed these directions and furthermore some buildings used the wrong building code. For the buildings that sent the surveys bundled with a contact sheet, we verified the building code. If there was no contact sheet, we determined if the students had filled in the building code “bubbles.” If so, we verified the building code. For buildings that did not complete either a contact sheet or fill in the building code on the survey forms, we identified the building by the postal stamp on the envelope. In all cases, we inserted a scan sheet at the beginning of each building’s surveys that was blank except for the building code.

We leafed through the piles of surveys and removed blank surveys and surveys that were obviously incorrectly completed. We oriented all of the surveys in the appropriate direction in preparation of having the data scanned.

### **Step 3: Scanning**

Once a substantial number of surveys were prepared were scanning, we transported them to Western Michigan University’s scanning services. WMU staff would then scan the surveys and send, via e-mail, a text file containing all the records for the completed surveys. After the surveys were scanned, Upjohn Institute staff retrieved the CEPRs from Western and returned them to the Upjohn Institute for storage. The text files were imported into an Excel spreadsheet for cleaning before being imported into the Access database. The data cleaning consisted mostly of eliminating the header records from the data, making sure all the data records contained the correct building code, and adding the date in which the data was scanned. When this was done, the data were then imported into Access.

### **Step 4: Edit Checks and Other Data Verification Activities**

In order to check the accuracy of the scanning equipment, 75 records (about 0.10 percent) were selected at random. The electronic data were checked against the hard copy CEPRs. For all forms that had been filled out correctly, meaning the circles filled in with pencil, the scanning process was 100% accurate. However this activity led to the discovery that a large number of surveys (which turned out to be about 3-4% of the total sample) had been completed in ink or

marker. In these cases, the scanner was able to “pick up some of the data,” but for the most part, it returned a blank entry. To remedy this problem, Upjohn Institute staff checked all blank data against the CEPRs to see if the response was actually blank. If the response was in pen, and therefore not read by the scanner, the correct value was hand entered.

Unfortunately, the logic of the CEPR precluded any specific edit checks. We did examine every single record that had nonblank responses for the optional questions to ensure that scanner did not offset responses (e.g., scan items 1 to 16 into variables 2 to 17.) No offset errors were discovered.

### **Step 5: Handling of the EDP Summary Data**

The EDP Summary forms collected information about the EDPs of 10<sup>th</sup> grade students. Another contractor was responsible for the distribution of the EDP Summary forms to districts or regions. Most districts collected the information for a random sample of students in the district as per the sampling instructions that had been developed. Some districts, however, chose to tally information for the entire 10<sup>th</sup> grade class. Hard copy of the Summary Forms were sent to the Upjohn Institute directly from districts or regions, or indirectly through the contractor. Upjohn Institute staff keyed in the data.

The data entry was verified by drawing a random sample of 50 districts and checking the electronic data versus the hard copy. Input had been 100 percent accurate. The purpose of the EDP Summary form was essentially to determine how many EDPs (or other documents) had particular information. Consequently, there were numerous edit checks built into the logic. In fact, we ran 32 different edit checks that were mostly of the form, “Is the number of EDPs with a specific item greater than the number of EDPS, or greater than the sample drawn?” Many districts had responses that were “out of bounds.” Apparently, these districts interpreted question 2 to measure how many EDPs could be located from a sample of students, and all of the other questions as measuring how many student EDPs (whether in the sample or not) had particular items. All of the data inconsistencies were corrected.

**Appendix B**  
**Interpretation Guide**

**Developed by**  
**Michigan Department of Labor and Economic Growth**  
**Office of Career and Technical Preparation**

**Michigan Department of Career Development**  
Office of Career and Technical Preparation  
**Career Preparation System**  
**Accountability Report 2002-2003**  
Interpretation Guide

**Why report accountability data?**

The authorizing legislation for the Career Preparation System (Section 68 of the State School Aid Act) specifies that a review procedure must be established for assessing the Career Preparation System in each participating region.

**What data are collected?**

Three types of data are collected for assessing the Career Preparation System. These are:

- Career Preparation System Benchmark status
- Documentation on 10<sup>th</sup> grade student Education Development Plans (EDPs)
- Career and Education Plans Report (CEPR) completed by 12<sup>th</sup> grade students

**How is the information collected?**

Each Career Preparation Planning Region may organize collection of the information a little differently. However, in general, regions follow these steps to collect the information, generally in the Spring of each year:

1. Career Preparation Coordinators review district progress toward each Career Prep benchmark and report the status on the Benchmark Status Summary Report. Selected key benchmarks are used in computing component accountability scores.
2. Career Preparation Coordinators select a sample of 10<sup>th</sup> grade EDPs in each participating district using a specified sampling strategy. The coordinators (or designated reviewers) count the number of EDPs in the sample with each “essential element” and record the total on the 10<sup>th</sup> Grade EDP Assessment form.
3. Participating districts collect the Career and Education Plans Report information from 12<sup>th</sup> grade students using scannable answer sheets and submit the answer sheets to their regional Career Preparation Coordinators to be sent to the State Data Processing Center.

**How is each component of the Career Preparation System assessed?**

The Career Preparation System includes nine main components (see Table 1). An accountability component score is calculated to assess each component. Each component score is computed utilizing information gathered from at least two of the three types of data collected through the Career Preparation System accountability instruments (Benchmark Status Summary Report, EDP Review, Career and Education Plans Report).

**Column-by-Column Interpretation of Report**

In the example report (Figure 1), the first section of the report lists the name and district code for the district covered by the report. Below the district identifying information the report lists the number of 12<sup>th</sup> grade students reported on the fall enrollment report (# students) and the number of valid Career and Education Plans Reports (CEPRs) returned for the district (# 12 CEPR). In the next column, the size of the EDP sample is listed (# EDP sample). This value is determined by the sampling procedure used to select EDPs for review. (See EDP Sampling Plan document for instructions).

The first column on the left (column 1) lists the measures used to compute the component score for the component listed. Note that in 2002-2003, scores are only reported for Career Pathways and EDPs. The method for scoring each of the measures is described under the section “How are the instruments scored?” Column 2 (Source of Data) lists the source of the data for each measure (the instrument used to collect the data). Column 3 (Maximum Possible) lists the total number of points possible for each measure and for the total component score. Column 4 (District) lists the total points earned for the district for each measure and for the component total. Column 5 (ISD) lists the average total component score for the districts in the Intermediate School District (ISD). Column 6 (Region) lists the average total component score for the districts in the region. Column 7 (State) lists the state average total component score. Column 8 (District relative to State) indicates the percent above or below the state average for the district.

Figure 1  
Example Report

**MICHIGAN ACCOUNTABILITY REPORT  
CAREER PREPARATION SYSTEM  
2002-2003**

District Code: 00000

District Name: ABC\_District

# 12 Students: 48  
#12 CEPR (Surveys): 35

# EDP Sample: 29  
# EDP's Found: 28

(1) <u>Component/Subcomponent</u>	(2) <u>Source of Data</u>	(3) <u>Maximum Possible</u>	(4) <u>District</u>	(5) <u>ISD</u>	(6) <u>Region</u>	(7) <u>State</u>	(8) <u>District relative to State</u>
Career Pathway (CP)		100	80.8	61	64	70	+15.5%
Local Board Adoption	Benchmark 1	10	10.0				
Buildings utilize CP concept	Benchmark 2	15	5.0				
Pathways used to align HS courses	Benchmark 4c	15	20.0				
EDPs have career goals that include Career Pathway	EDP Review (q. 3b)	20	17.6				
CPs used to select courses	CEPR (q.7)	<u>20</u>	<u>18.2</u>				
CPs influence career choice	CEPR (q.8)	100	80.8				
Total							

### How are the instruments scored?

Each instrument contains a set of items that measure the components of the Career Preparation System. Each component of the Career Preparation System is assessed utilizing multiple measures. Most measures are computed from more than one data element. Data elements used include items on the instruments (Benchmark Status Summary Report, EDP Review, or CEPR) and response rates. The scoring computation always compares the data elements and response rates to performance thresholds. See sections below for examples.

### Benchmark Status

Each district reports its status on key benchmarks related to implementation of the Career Preparation System, on a scale from one to five, with one indicating that the district is in the preliminary planning stage and five indicating that the district is engaged in ongoing evaluation after full implementation of the benchmark. A score of four indicates full implementation of the benchmark. Please see Appendix A for complete coding information. The benchmarks utilized for accountability purposes are shown in Table 1, by component. See the appendix B for definitions of each benchmark.

Table 1  
Benchmarks Used in Accountability Scoring

<b>Career Preparation System Component</b>	<b>Benchmarks Utilized for Accountability</b>
Career Pathways	Benchmarks 1, 2, 4c
Education Development Plans (EDPs)	Benchmarks 1, 2, 4
Career Awareness & Exploration	Benchmarks 1, 2, 4
Authentic Instruction	Benchmarks 1, 3, 4
Career & Employability Skills	Benchmarks 1, 2, 4
Work-Based Learning	Benchmarks 1, 2, 4
Technology Education	Benchmarks 1, 6, 2 -5 (average)
Comprehensive Guidance & Counseling	Benchmarks 1, 6, 7
Career Assessment	Benchmarks 1, 2, 5



**Performance Threshold:** The performance threshold for the key benchmarks utilized in the Accountability score is level 4 (Fully Implemented) on each benchmark, with the exception of the Technology Education benchmarks 2 through 5, which are averaged. The performance threshold for the average is 3.5.

All components include status on benchmark 1 (adoption by the local board of education or designee) in the accountability score. The scoring for each benchmark is shown in Table 2. If the district reports board approval, it receives 10 points. If it reports partial implementation (level 3), it receives 5 points. Otherwise it receives 0 points for benchmark 1.

Table 2  
Scoring of Benchmarks

	Level	Points
Benchmark 1	4+	10
	3	5
	< 3	0
All Other Benchmarks (Except Tech Ed)	4+	15
	3	10
	1, 2	5
	0	0
Ave of Tech Ed Benchmarks 2 through 5	3.5+	15
	3.0-3.49	10
	2.0-2.9	5
	< 2.0	0

Except for benchmark 1, a district receives 15 points for each benchmark for which it meets or exceeds the performance threshold. Table 2 shows the scoring for the Benchmarks.

#### Education Development Plan (EDP) Review

Scoring of the EDP review depends upon both the number of students who have EDPs and the number that have the required elements present on their EDPs. A sample of students in 10<sup>th</sup> grade in 2002-2003 is drawn and the number for which the reviewer could locate the EDP is counted. Next, the reviewer examines each EDP for specific elements including personal information, Career Goal including a Career Pathway, Education/Training Goal(s), Career Assessment results, a Plan of Action and parent signature or endorsement. Reviewers also record work-based activities and Career Assessment information found either on the EDP or documented in another location.

**Performance Threshold:** There are two performance thresholds for the EDP Review. The first is for the percent of students who have EDPs (the EDP rate), and the second is for the percent of EDPs that have each key EDP element (the 'EDP element rate'). The performance threshold for the percent of students with EDPs is 90%. The performance threshold for the percent of EDPs that have a key element varies according to the EDP element being evaluated. For example, the performance threshold for the percent of EDPs that meet state standards (have all required EDP elements except the parent endorsement) is 85%. Table 3 shows the performance threshold for each EDP Element.

If the district meets or exceeds the performance threshold for the percent of students with EDPs (90% or more 10<sup>th</sup> grade students have EDPs), the percent of threshold attainment for EDP is 100%. If the district does not meet the performance threshold, we modify the EDP rate by dividing by the performance threshold to obtain the percent of threshold attainment. The EDP element rate is determined separately for each of the EDP Elements. If the district meets or exceeds the performance threshold for an EDP element (see Table 3), the percent of threshold attainment for that EDP element is 100%. Otherwise, the percent of threshold attainment for a given EDP element is the percent of EDPs with the EDP element in question divided by the performance threshold.

Table 3  
Performance Thresholds for Each EDP Element

EDP Element	Performance Threshold
Percent of EDPs with a Career Goal, including Career Pathway	85%
Percent of EDPs that meet state standards (except for parent endorsement)	85%
Percent of EDPs with Parent Endorsement	60%
Percent of EDPs or supporting documentation accessible to students and parents demonstrating evidence of Work-Based Learning experiences	50%
Percent of EDPs or supporting documentation demonstrating evidence of Career Assessment results accessible to students and parents	85%

EDP review measures are weighted as shown in Table 4. Scoring of the EDP review measures is simply the product of the weighting factor (20 or 10), the EDP rate and the EDP element rate. For example, if District A has a sample of 50 students and 47 of them (94%) have EDPs, and all 47 (100%) of the EDPs have a career goal with a Career Pathway, the score for the Career Pathway EDP measure for District A is  $20 \times 1.0 \times 1.0 = 20$  (full points). If District B also has a sample of 50 students but only 35 of them have EDPs (EDP rate = 70%) and only 28 of the EDPs have a career goal with Career Pathway (80%), the score for the Career Pathway EDP measure for District B is  $20 \times (70/90) \times (80/85) = 14.6$  points out of 20 possible points. Note that the EDP rate is divided by the performance threshold of 90% and the EDP element rate is divided by the performance threshold of 85% for the Career Pathways EDP element. See Equation 1 and Example 1.

Table 4  
Weights for EDP measures

Measures using Elements on EDP	Weight
Career Pathways	20
EDPs meeting state standards	20
Work-Based Learning	20
Career Assessment	20
Parent Endorsement	10

Equation 1  
Scoring of EDP Measures

(W) Weight	X	(A) % Threshold Attainment for EDP Rate	X	(B) % Threshold Attainment for EDP Element Rate	=	(P) Points for Career Pathway EDP measure
---------------	---	--	---	--	---	--

Example 1  
Scoring of EDP Measures

	District A	District B
No. of 10 <sup>th</sup> Grade Students =	100	100
EDP review sample size =	50	50
No. of EDPs Found (EDP rate) =	47 (94%)	35 (70%)
Performance Threshold (EDP Rate) =	90%	90%
Is EDP rate $\geq$ performance threshold?	Yes	No
Percent Threshold Attainment for EDP Rate (A) =	100% (1.0)	$70 \div 90 = .7778$
No. of EDPs w/Career Pathway (EDP Element Rate) =	47 (100%)	28 (80%)
Performance Threshold (Career Pathway Element) =	85%	85%
Is EDP Element rate $\geq$ performance threshold?	Yes	No
Percent Threshold Attainment for EDP Element Rate (B) =	100% (1.0)	$80 \div 85 = .9412$
Weight (W) =	20	20
<b>CALCULATIONS:</b>	$20 \times 1.0 \times 1.0 = 20$ points	$20 \times .78 \times .94 = 14.6$ points

12<sup>th</sup> Grade Career and Education Plans Report (CEPR)

The Career and Education Plans Report includes sixteen items asking 12<sup>th</sup> grade students how helpful components of the Career Preparation System are to them, including how well they helped them decide what classes to take in high school and how much they helped them decide their career and education plans for after high school. Students answer each item by indicating whether they agree, tend to agree, tend to disagree, or disagree. Students are instructed to mark ‘not applicable’ for any item that did not happen in their school district (e.g. Career Pathways were not used). Scoring of each CEPR item depends upon both the percent of valid CEPR forms returned (response rate) and the percent of responses that are either ‘agree’ or ‘tend to agree’ (percent agreement).

**Performance Threshold:** The performance threshold for the response rate (percent of valid forms returned) is 80%. The performance threshold for the percent agreement varies for each measure. For example, the performance threshold for the percent agreement with the CEPR item “Career Pathways helped me decided what classes to take during high school” is 80%. Table 5 shows the performance threshold for percent agreement for each CEPR item.

Table 5  
Performance Thresholds for CEPR items

Career Preparation System Component	CEPR item	Performance Threshold for percent agreement
Career Pathways	Career Pathways helped student decide what classes to take during high school—Question 7	80%
Career Pathways	Career Pathways helped student decide Career and Education Plans after high school—Question 8	60%
EDP	EDP helped student decide what classes to take during high school—Question 9	80%
EDP	EDP helped student decide Career and Education Plans after high school—Question 10	60%
Career Exploration	Career Exploration helped student decide what classes to take during high school—Question 5	60%
Career Exploration	Career Exploration helped student decide Career and Education Plans after high school—Question 6	80%
Authentic Instruction	Teachers used real-life examples that helped student understand the material—Question 1 [Authentic Instruction]	80%
Authentic Instruction	Student participated in a project in school presented to/judged by an adult other than teacher—Question 2 [Authentic Assessment]	80%

<b>Career Preparation System Component</b>	<b>CEPR item</b>	<b>Performance Threshold for percent agreement</b>
Career & Employability Skills	School taught teamwork, problem solving, organizational skills, good attendance, other 'employability skills'—Question 4	80%
Work-Based Learning	Activities at workplace or business helped student decide what classes to take during high school—Question 13	60%
Work-Based Learning	Activities at workplace or business helped student decide Career and Education Plans after high school—Question 14	80%
Technology Education	Student made things and solved real-world problems by using knowledge, materials, tools, machines and skills—Question 3	80%
Comprehensive Guidance & Counseling	School's counseling program helped student decide what classes to take during high school—Question 15	80%
Comprehensive Guidance & Counseling	School's counseling program helped student decide Career and Education Plans after high school—Question 16	80%
Career Assessment	Career interest or aptitude tests helped student decide what classes to take during high school—Question 11	80%
Career Assessment	Career interest or aptitude tests helped student decide Career and Education Plans after high school—Question 12	80%

If a district meets or exceeds the performance threshold for response rate (at least 80% of 12<sup>th</sup> grade students reported on the fall enrollment count returned a valid CEPR form), the district receives full credit for an acceptable response rate (a value of 1.0). If the district does not reach the performance threshold for response rate, the performance score for that component is weighted by the actual response rate divided by the performance threshold of 80%. If a district meets or exceeds the performance threshold for percent agreement (see Table 5), it receives full credit for an acceptable percent agreement for the measure (a value of 1.0). If the district does not reach the performance threshold for percent agreement, the performance score for that component is weighted by the actual percent agreement divided by the performance threshold for that item. See Example 2.

CEPR items are weighted as shown in Table 6. Scoring of the CEPR measures is simply the product of the weight shown in Table 6, the response rate and the percent agreement for the measure. For example, if a district reported 100 12<sup>th</sup> grade students enrolled in the fall, 94 of them returned valid CEPR forms, and 82% marked 'agree' or 'tend to agree' for question 7 ("My school organized classes into career pathways and I chose a pathway(s) that helped me decided what classes to take during high school"), the score for the Career Pathways CEPR measure utilizing item 7 is  $20 \times 1.0 \times 1.0 = 20$  (full points). If only 75 students returned valid CEPR forms (response rate = 75%) and only 50% marked 'agree' or 'tend to agree' for question 7), the score for the Career Pathways CEPR measure is  $20 \times (75/80) \times (50/80) = 11.7$  points out of 20 possible points. Note that both the response rate and the percent agreement are divided by their respective performance thresholds.

Table 6  
Weights for CEPR items

Career Preparation System Component	Weight for Each CEPR item
Career Pathways (2 items)	20
EDPs (2 items)	15
Career Awareness & Exploration (2 items)	30
Authentic Instruction	30
<i>Authentic Instruction Bonus Item (Authentic assessment)</i>	20
Career & Employability Skills (1 item)	30
Work-Based Learning (decide what classes to take—question 13)	15
Work-Based Learning (decide education and career plans after high school—question 14)	25
Technology Education (1 item)	60
Comprehensive Guidance & Counseling (2 items)	20
Career Assessment (2 items)	20

Equation 2  
Scoring of CEPR Measures

(W) Weight	X	(A) % Threshold Attainment for Response Rate	X	(B) % Threshold Attainment for Percent Agreement	=	(P) Points for CEPR Question 7
---------------	---	---	---	---	---	--------------------------------------

Example 2  
Scoring of CEPR Measures

	District A	District B
No. of 12 <sup>th</sup> Grade Students =	100	100
No. who returned valid CEPR forms =	94	75
Response Rate =	94%	75%
Performance Threshold for Response Rate =	80%	80%
Is response rate $\geq$ performance threshold?	Yes	No
Percent Threshold Attainment for Response Rate (A) =	100% (1.0)	$75 \div 80 = .9375$
No. of returned CEPR forms with 'agree' or 'tend to agree' marked for Question 7 =	77	38
Percent Agreement for Question 7 =	$77 \div 94 = 82\%$	$38 \div 75 = 50\%$
Performance Threshold for Question 7 =	80%	80%
Is Percent Agreement $\geq$ performance threshold?	Yes	No
Percent Threshold Attainment for Percent Agreement (B) =	100% (1.0)	$50 \div 80 = .625$
Weight (W) =	20	20
<b>CALCULATIONS:</b>	$20 \times 1.0 \times 1.0 = 20$ points	$20 \times .9375 \times .625 = 11.7$

## How are the Career Preparation System component scores computed?

Each Career Preparation System component score is computed by summing the scores of all of the measures for that component. For example, the Career Pathways Component Score is computed by summing the points for six measures. These include Career Pathways Benchmarks 1, 2 and 4c, Question 3 on the EDP Review, and CEPR Questions 7 and 8. See example 3.

Example 3  
Computing the Career Pathways Component Score

	District A	District B
Status on Benchmark 1 =	Level 4	Level 4
Points for Benchmark 1 =	10	10
Status on Benchmark 2 =	Level 4	Level 3
Points for Benchmark 2 =	15	10
Status on Benchmark 4c =	Level 4	Level 2
Points for Benchmark 4c =	15	5
Points for Question 3 on EDP Review =	20	14.6
Points for CEPR Question 7 =	20	11.7
Points for CEPR Question 8 =	20	18.2
Sum of Career Pathways Measures =	10+15+15+20+20+20=100	10+10+5+14.6+11.7+18.2=69.5

## How should the component scores be interpreted?

Because the Career Preparation System is designed to promote change throughout the K-12 education system, districts are limited to implementing the 2 state-required components (Career Pathways and EDPs) and no more than two additional components designated by the region in order to focus on full implementation of the key components of the system. Districts that have achieved full implementation of the state-required components may then focus on implementing additional components of the system as resources permit. It is important to remember that full implementation of a component requires that all benchmarks be reached with all students at all levels. Districts are not expected to achieve full implementation of all Pathways and EDP benchmarks until Spring 2004. Therefore, the data collected in Spring 2003 should be viewed as baseline data against which future data may be compared.

## How should the information be used?

The Career Preparation legislation (Section 68 of the State School Aid Act) requires that the Department establish a review procedure and criteria for assessing the Career Preparation System in each region. Regions are to review the Career Preparation System utilizing the criteria set forth by the Department, and the results of the review are to be taken into account in future revisions to the regional career preparation plan.

## What is the information designed to show?

The information collected with the Career Preparation Accountability instruments is designed to show how well the Career Preparation System has been implemented in the classrooms of Michigan schools.

It is designed to answer questions like, “Does the Career Preparation System help students and their parents make informed choices about future education and career plans?”

It also aims to measure whether the Career Preparation System helps students achieve the skills and knowledge they need to succeed in their chosen education and career fields.

Finally, some of the measures focus on the progress that has been made in making career preparation an integrated part of the Michigan education system.

## Appendix A

### Benchmark Status Summary Report Coding

The Career Preparation Benchmark Summary Report reflects the actual status of each district participating in the Career Preparation System at the end of the year.

**Level 5 - Evaluation/Improvement:** A benchmark was given a status code of '5' if there is evidence that every aspect of a benchmark has been met; with all students, including a full range of activities at every level for all students and the district is engaged in ongoing evaluation and continuous improvement

Example

Evaluations and modifications based on ongoing assessment

**Level 4 - Fully Implemented:** A benchmark was given a status code of '4' if there is evidence that every aspect of a benchmark has been met, with all students, including a full range of activities at every level for all students.

Examples

Obtaining board approval

Utilizing revised and finalized documents and policies with all students

Utilizing new materials and procedures at all levels with all students.

**Level 3 - Partially Implemented:** A benchmark was given a status code of '3' if there is evidence that some but not all aspects of a benchmark have been met, aspects of the benchmark have been met with some, but not all students, or incomplete, rather than full achievement of one or more aspects of the benchmark.

Examples

Implementation of a limited range of activities at some levels but not others

Implementation of activities with some, but not all, students.

Utilizing revised documents and policies with some, but not all students (such as in a single building or at some but not all grade levels)

Utilizing draft documents and policies.

Utilizing new materials at some levels but not others.

**Level 2 – Development:** A benchmark was given a status code of '2' if there is evidence that the agency engaged in planned activities, but has not yet achieved any aspect of the benchmark by the end of year 02-03.

Examples

Seeking but not obtaining board approval

Initiating changes to documents and policies

Purchasing materials for future use

**Level 1 – Planning:** A benchmark was given a status code of '1' if there is evidence that the agency participated in Career Prep in 02-03 but activities were limited to research, investigation, organization and planning and there was no achievement of any aspects of the benchmark in 02-03.

Examples

Holding planning meetings

Researching promising practices

Planning future activities

**Level 0 - No Implementation Planned in 2002-2003:** A benchmark was given a status code of '0' only if the agency participated in the Career Preparation System in 02-03 but no activities were planned or implemented toward achieving this benchmark using any source of funds and there was no achievement of any aspects of the benchmark in 02-03. This code was used most often where the activity category was not a priority for this district in 02-03.

Examples

District does not engage in any activities in this area using any funding source.

Activity category is not a Career Preparation regional priority AND no activities were planned using any other source of funds either.

**Not Applicable**

Some benchmarks are not applicable for districts with fewer than grades K through 12. These benchmarks are coded 'not applicable' for that district.

Example

If the agency has only grades K-6, an '8' would be entered for Pathways benchmark 4c.



**Appendix B**  
**Career Preparation System Benchmarks**  
*\*Denotes benchmarks used in Accountability Score*

Career Pathways

- \*1. The local board of education or designee has adopted the six Career Pathways or an equivalent alternative that meets the state standard.**
- \*2. Ensures that all school buildings within the district utilize the Career Pathways concept adopted by the district as evidenced by their curriculum plans/guides.**
  - 3. Ensures that all students will have opportunities to learn about careers within all pathways as evidenced by curriculum plans/guides.
  - 4a. Ensures that the Career Pathways are used as a framework for organizing career contextual teaching/learning experiences as evidenced in curriculum plans used by staff.
  - 4b. Ensures that the Career Pathways are used as a framework for providing systematic career planning and preparation as evidenced by Career Pathway use in the district's counseling and guidance program, Education Development Plans, career awareness/exploration activities, and work-based learning.
- \*4c. Ensures that the Career Pathways are used as a framework for aligning high school courses into the chosen Career Pathways to reflect which courses are needed for preparing for careers as evidenced in documents such as student handbooks and course selection guides.**

Education Development Plans (EDPs)

- \*1. The local board of education or designee has adopted Education Development Plans (EDP) that meet the state standard.**
- \*2. Ensures that all middle school and high school buildings within the district utilize the Education Development Plan document and process adopted by the district as evidenced by student records in each building.**
  - 3. Ensures that all students are engaged in developing initial EDPs before leaving the 8<sup>th</sup> grade level as evidenced by student records.
- \*4. Ensures that all high school students review and have opportunities to revise or update their EDPs at least annually to reflect changes in career decisions for use in selecting courses and in choosing post-secondary options as evidenced by guidance/counseling plans and student records.**

Career Awareness and Exploration

- \*1. The local board of education or designee will have adopted a career awareness and exploration program that meets the state standard.**
- \*2. Ensures that a variety of career informational resources are available at elementary, middle, and high school levels, including the Michigan Occupational Information System (MOIS) and/or similar comprehensive career information systems, to introduce students to career options representative of all career pathways as evidenced by career resource inventories.**
  - 3. Ensures that students are provided experiential activities involving active, direct, and/or hands-on learning that focus on tasks of various careers as evidenced by curriculum plans, guides and teaching/learning activities.
- \*4. Ensures that instructional units and activities on careers are incorporated into the curriculum at all grade levels as evidenced by curriculum guides, instructional materials and the involvement of business/industry, parents, and community as resources.**
  - 5. Ensures that middle and high school students are assisted in making connections with workers/experts in career pathways through school-based and work-based learning programs as evidenced by documented student participation records.

Authentic Instruction

- \*1. The local board of education or designee has adopted career contextual learning strategies that meet the state standard.**
  - 2. Ensures the utilization of the Michigan Curriculum Framework (MDE, 1996) as a guide to the development and adoption of a local curricular program that incorporates academic content standards in the areas of Mathematics, Science, Social Studies, and English Language Arts as evidenced by the district's curriculum design.

- \*3. Ensures that instructional teams participate in curriculum decision-making and are provided the necessary resources to design, develop and implement career contextual activities within the district's curricular program as evidenced by school improvement plans and curricula.**
- \*4. Ensures that career contextual learning activities are systematically planned and provided for elementary, middle, and high school students in each building of the district as evidenced by curriculum guides and course descriptions/schedules.**
- 5. Ensures that teaching and learning activities at each level use a variety of career contexts from each of the six career pathways as focal points for instruction to engage students in areas of meaningful interests and learning strengths as evidenced by curriculum guides or other records of instructional activity.

#### Career and Employability Skills

- \*1. The local board of education or designee has adopted a career and employability skills program that meets the state standard.**
- \*2. Ensures that all students in elementary, middle and high schools are provided Career and Employability Skills instruction which includes the areas of applied academic skills, career planning, developing and presenting information, problem solving, personal management, organizational skills, teamwork, negotiation skills, understanding systems, and using employability skills as evidenced by curriculum guides and course descriptions.**
- 3. Ensures that students learn Career and Employability Skills in a career context as evidenced by teaching/learning strategies used.
- \*4. Ensures that all students preparing to leave high school understand how to develop and utilize such items as resumes, letters of reference, school records of attendance, portfolios, transcripts, and certifications for use in pursuing future education and career goals.**
- 5. Ensures that all high school students will be assessed using ACT Work Keys or another nationally recognized assessment approved by the Michigan Department of Career Development as evidenced by assessment records.

#### Work-Based Learning

- \*1. The local board of education or designee has adopted work-based learning strategies that meet the state standard.**
- \*2. Ensures the implementation of work-based learning activities that combine school-based and work-site experiences in collaboration with business and industry and other community agencies to provide instruction and career exploration in authentic career contexts as evidenced by school/student records.**
- 3. Ensures that a variety of work-based learning techniques are utilized such as: student visitor, volunteer, unpaid trainee, student/learner, apprentice, and in-school placements as evidenced by school/student records.
- \*4. Ensures that student participation in work-site experiences, including acquisition of work behaviors, skills, and knowledge of careers, is documented.**

#### Technology Education

- \*1. The local board of education or designee has adopted a technology education program that meets the state standard.**
- +2. Ensures that all elementary and middle school students will gain technological concepts which have been integrated into the curriculum as evidenced by their incorporation into mathematics, science, and other appropriate subject area curriculum plans/guides.**
- +3. Ensures that before leaving middle school, all students will have taken an Exploratory Technology Education course introducing physical, informational, and chemical/biological related technologies as evidenced by existence of district curriculum guides and course descriptions/schedules.**
- +4. Ensures that at the high school level, students that have not participated in an Exploratory Technology Education course introducing physical, informational, and chemical/biological technologies are provided the opportunity to enroll as evidenced by existence of district curriculum guides and course descriptions/schedules.**
- +5. Ensures that at the high school level, students desiring greater knowledge and experience regarding the development, control, and use of technology will have the opportunity to enroll in a Foundations of Technology course as evidenced by existence of district curriculum guides and course descriptions/schedules.**
- \*6. Ensures that sufficient tools/equipment are available to support infusion of technological concepts into the curriculum at elementary and middle school levels and that facilities/equipment are available to support Technology Education separate course offerings.**

+Averaged

### Comprehensive Guidance & Counseling

- \*1. local board of education or designee has adopted and customized the Comprehensive Guidance Counseling Program that meets the state standard.**
- 2. Ensures an action plan is designed and implemented to establish and operate the Program in the district on an ongoing basis.
- 3. Ensures that the Program has a mission statement and purpose consistent with the district's goals.
- 4. Ensures that a student needs assessment is conducted with parents, educators, and students to help determine areas of priority for Program development as evidenced by documented assessment results.
- 5. Ensures that the Program provides for the development of student competencies in the areas of Career Planning and Exploration, Knowledge of Self and Others, and Educational/Career-Technical Development as evidenced by the guidance program plan.
- \*6. Ensures that the Program Components of Guidance Curriculum, Individual Planning, Responsive Services, and Systems Support are implemented in order to provide a full range of activities to enhance student learning and preparation for future success as evidenced by the guidance program plan.**
- \*7. Ensures that the Program is delivered to all K-12 students in each building appropriate to each developmental level (elementary, middle and high school) as evidenced by the existence of all four comprehensive guidance programmatic components in each building.**
- 8. Ensures the Program is evaluated to determine progress and to set continuous improvement goals as evidenced by documented evaluation results.

### Career Assessment

- \*1. The local board of education or designee has adopted a career assessment process that meets the state standard.**
- \*2. Ensures utilization of a variety of developmentally appropriate career interest and aptitude assessments for all middle and high school students as evidenced by assessment records.**
- 3. Ensures that school counselors provide interpretation of student's career assessment results to assist in evaluating their interests and aptitudes related to a career decision-making process as evidenced by counseling records.
- 4. Ensures that students and parents understand and compare the results of various assessments over time as students progress through school, identifying trends in their individual preferences and strengths as evidenced by student/counseling records.
- \*5. Ensures that career assessment results are given consideration in the student's selection of a career pathway and are used to help refine career and educational decisions reflected in an Education Development Plan as evidenced by student and counseling records.**

If you have questions regarding this Interpretation Guide or the Career Preparation Accountability Report, contact:

Jill Kroll, Ph.D.  
Education Research Consultant  
Office of Career and Technical Preparation  
Michigan Department of Career Development  
P.O. Box 30712  
Lansing, Michigan 48909  
(517) 241-4354  
KrollJC@Michigan.gov