

## **APPENDIX D**

### **CPATH Crosswalk of Data Elements – Monitoring Survey**

**Data Elements of CPATH Monitoring Survey**

New or Revised	Common Collection Categories							Participant Characteristics <sup>i</sup>	Characteristics <sup>ii</sup>	Project Outputs <sup>iii</sup>
	Questions									
	<b>1. Basic Information</b>									
	Name of Respondent							X		
	Role on Project							X		
X	No-Cost Extension Status								X	
X	List of Faculty and Department participating in project (Name and Department)							X		
X	Likert scale questions addressing various barriers and supports to implementation.								X	
		Strongly Agree	Agree	No Opinion/Neutral	Disagree	Strongly Disagree	Not Applicable			
	In general, it is easy to get faculty outside the core project team to participate in grant activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	The administrative process for approving curricular change is a significant barrier to implementing our CPATH project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	The CPATH Community website ( <a href="http://www.cpath-community.msu.edu/">http://www.cpath-community.msu.edu/</a> ) is a useful resource for our project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	The incentive structure for faculty (including requirements for promotion or tenure and the weight placed on course evaluations) make focusing on pedagogical reform difficult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			

New or Revised	Common Collection Categories							Staff and Project Participant	Project Implementation	Project Outputs
	Questions									
	Overlap between research interests and program goals make it easier for faculty to devote time to project activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	Limited computing resources (i.e., a lack of hardware, software, or technical support) is an obstacle in collaborating with faculty outside traditional computing disciplines.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	Having an evaluator is beneficial to our project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs									
	<b>Questions</b>												
	<b>2. Community Building Activities</b>												
X	<p>Goals of Community Building Activities:</p> <p>What have been the major goals of your community- or partnership-building activities? Please choose all that apply:</p> <p><input type="checkbox"/> To generate ideas and resources</p> <p><input type="checkbox"/> To disseminate, share or scale ideas and resources</p> <p><input type="checkbox"/> To understand workforce needs</p> <p><input type="checkbox"/> To provide new opportunities to increase student engagement</p> <p><input type="checkbox"/> Other goal(s) not listed above</p> <p><input type="checkbox"/> None of the goals above are applicable to our project</p>		X	X									
X	<p>Questions addressing the types of organizations involved and the number of members in the community built under the CPATH award. Respondents will list individuals participating from within the institution, outside the institution, in K-12 schools, in industry, and any other groups with whom the project staff may be communicating. Each question will ask for the number of people “actively involved” and the number of departments/schools/organizations those people represent.</p> <p>Example (there is one box for each type of community participant):</p> <p><i>Within your institution, how many people have been actively involved in your community- or partnership-building activities during the life of your CPATH project?</i></p> <p><i>Please enter a number. If you are unsure of the exact number, please give your best estimate. If no one from that group has been involved please enter a zero.</i></p> <table border="1" data-bbox="175 1480 1209 1820"> <thead> <tr> <th data-bbox="175 1480 633 1585"></th> <th data-bbox="633 1480 912 1585">Number of people actively involved in the community</th> <th data-bbox="912 1480 1209 1585">Number of departments represented by those individuals</th> </tr> </thead> <tbody> <tr> <td data-bbox="175 1585 633 1690">Higher Education Faculty and Administrators at your institution within traditional computing disciplines</td> <td data-bbox="633 1585 912 1690"></td> <td data-bbox="912 1585 1209 1690"></td> </tr> <tr> <td data-bbox="175 1690 633 1820">Higher Education Faculty and Administrators at your institution outside traditional computing disciplines</td> <td data-bbox="633 1690 912 1820"></td> <td data-bbox="912 1690 1209 1820"></td> </tr> </tbody> </table>		Number of people actively involved in the community	Number of departments represented by those individuals	Higher Education Faculty and Administrators at your institution within traditional computing disciplines			Higher Education Faculty and Administrators at your institution outside traditional computing disciplines			X	X	X
	Number of people actively involved in the community	Number of departments represented by those individuals											
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Higher Education Faculty and Administrators at your institution outside traditional computing disciplines													

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs																					
<b>X</b>	<p><b>Questions</b></p> <p>Respondents who identify themselves as having K-12 participants in their community building efforts will be asked a series of follow-up questions to better understand K-12 participation patterns:</p> <p><i>What grade levels do the K-12 teachers and administrators represent? Please choose all that apply:</i></p> <p><input type="checkbox"/> Elementary School  <input type="checkbox"/> Middle School  <input type="checkbox"/> High School</p> <p><i>What disciplines did the K-12 teachers represent?</i></p> <p><i>Please choose all that apply:</i></p> <p><input type="checkbox"/> English  <input type="checkbox"/> Social Studies  <input type="checkbox"/> Math  <input type="checkbox"/> Science  <input type="checkbox"/> Technology  <input type="checkbox"/> Other:</p> <p><i>Please indicate your level of agreement or disagreement with each of the following statements: Please choose the appropriate response for each item:</i></p> <table border="1" data-bbox="175 1186 1195 1690"> <thead> <tr> <th></th> <th>Strongly Agree</th> <th>Agree</th> <th>No Opinion/Neutral</th> <th>Disagree</th> <th>Strongly Disagree</th> <th>Not Applicable</th> </tr> </thead> <tbody> <tr> <td>Our partnership with K-12 schools has, or is likely, to lead to instructional changes in participating educators' classrooms.</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> </tr> <tr> <td>Our partnership with K-12 schools has, or is likely, to lead to changes in their curriculum.</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> </tr> </tbody> </table>		Strongly Agree	Agree	No Opinion/Neutral	Disagree	Strongly Disagree	Not Applicable	Our partnership with K-12 schools has, or is likely, to lead to instructional changes in participating educators' classrooms.	○	○	○	○	○	○	Our partnership with K-12 schools has, or is likely, to lead to changes in their curriculum.	○	○	○	○	○	○	<b>X</b>	<b>X</b>	<b>X</b>
	Strongly Agree	Agree	No Opinion/Neutral	Disagree	Strongly Disagree	Not Applicable																			
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New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs
X	<p><b>Questions</b></p> <p><b>3. Areas of Project Focus - Curricular Change</b></p> <p>This section is the first in a series of questions in which if the PI answers that the area is an area of focus, they will be directed to additional questions about that type of activity.</p> <p>As part of your CPATH project in the fall of 2009, summer of 2010 and summer of 2010, was curricular change an area of focus? Please choose only one of the following:</p> <p><input type="radio"/> Yes  <input type="radio"/> No</p>		X	
X	<p>In which of the following CPATH project activities have you been involved at your institution? Please choose all that apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> New Course Creation</li> <li><input type="checkbox"/> Revision to Existing Courses or Development of Course Modules</li> <li><input type="checkbox"/> Development of a new program, course of study, or curricular pathway (thread or minor)</li> <li><input type="checkbox"/> New seminar or workshop series for students outside of the existing course structure</li> <li><input type="checkbox"/> Independent research projects</li> <li><input type="checkbox"/> Internship Program</li> <li><input type="checkbox"/> Other activity not listed</li> </ul> <p>Each box, when checked, generates additional follow-up questions related to that activity.</p>		X	

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs																								
X	<p><b>Questions</b></p> <p>Follow up Questions for New Course Creation/Revision to Existing Courses:</p> <p>Have you created new courses within traditionally computing-related disciplines (i.e., computer science, computer engineering), outside traditionally computing-related disciplines, or both?</p> <p>Please choose all that apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>within traditionally computing-related disciplines (i.e., computer science, computer engineering)?</i></li> <li><input type="checkbox"/> <i>outside traditionally computing-related disciplines?</i></li> </ul> <p>Please list any new courses within traditionally computing-related disciplines at your institution. If there is no enrollment yet, please enter zero (0).</p> <p>If a course is cross-listed, please include all departments and numbers on the same line.</p> <table border="1" data-bbox="175 978 1209 1241"> <thead> <tr> <th></th> <th>Department</th> <th>Course Number</th> <th>Cumulative Enrollment in these courses during fall 2009, summer 2010, summer 2010 terms</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td></tr> </tbody> </table> <p>These questions are followed by questions asking for the number of these students broken down by gender, race/ethnicity, and disability status. The follow-up questions for revision are similar but include a few more multiple choice questions about whether or not they are targeting their modules to other institutions.</p>		Department	Course Number	Cumulative Enrollment in these courses during fall 2009, summer 2010, summer 2010 terms	1				2				3				4				5				X	X	X
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1																												
2																												
3																												
4																												
5																												
X	<p>The remaining curricular change activity boxes, when checked, direct respondents to questions asking for short, text-box descriptions of the activity and the number of students involved in the activity.</p>		X																									

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs
X	<p><b>Questions</b></p> <p>Accreditation of new courses, revised courses, or new courses of study:</p> <p>Did you pursue any type of accreditation for your curricular revisions or new programs? Please choose only one of the following:</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not applicable</p> <p>If yes, please describe the accreditation process.</p> <p>(Text Box)</p>		X	

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs
X	<p><b>Questions</b></p> <p><b>4. Areas of Project Focus – Disseminating Computing Concepts</b></p> <p>As part of your CPATH project in the fall of 2009, summer of 2010 and summer of 2010, has disseminating computing concepts within your discipline or across disciplines been an area of focus? *Please choose only one of the following:</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>		X	

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs
X	<p><b>Questions</b></p> <p>Follow-up Questions for those listing “disseminating computing concepts” as an area of focus:</p> <p>What are the three most prominent concepts being disseminated?</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> </ol> <p>Where have you primarily attempted to disseminate computing concepts? Please choose all that apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Within traditional computing disciplines <i>within</i> my institution</li> <li><input type="checkbox"/> Outside traditional computing disciplines <i>within</i> my institution</li> <li><input type="checkbox"/> Within traditional computing disciplines <i>in other institutions</i> of higher education</li> <li><input type="checkbox"/> Outside traditional computing disciplines <i>in other institutions</i> of higher education</li> <li><input type="checkbox"/> K-12 schools</li> </ul> <p>What methods are you using to disseminate computing concepts? Please choose all that apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Workshops</li> <li><input type="checkbox"/> Conferences</li> <li><input type="checkbox"/> List-servs</li> <li><input type="checkbox"/> Web Pages or other web-based resources</li> <li><input type="checkbox"/> Publications</li> <li><input type="checkbox"/> Courses or course modules</li> <li><input type="checkbox"/> Other:</li> </ul>		X	X
X	<p><b>5. Areas of Project Focus – Workforce Skills</b></p> <p>As part of your CPATH project in the fall of 2009, summer of 2010 and summer of 2010, was defining or identifying skills needed in today's workplace an area of focus? *Please choose only one of the following:</p>		X	

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs
	<b>Questions</b> <input type="radio"/> Yes <input type="radio"/> No			
X	<p>Follow-up Questions for those listing “workforce skills” as an area of focus:</p> <p>What are the three most relevant skills you have identified that were not already part of your academic program?</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> </ol> <p>Have your findings led to changes in courses? Please choose only one of the following:</p> <p><input checked="" type="radio"/> Yes  <input type="radio"/> No</p> <p>Have your findings led to changes in pedagogical methods? Please choose only one of the following:</p> <p><input checked="" type="radio"/> Yes  <input type="radio"/> No</p>		X	X
X	<b>6. Areas of Project Focus – Pedagogical Methods</b>  As part of your CPATH project in fall 2009, summer 2010, and summer 2010, was		X	

New or Revised	Common Collection Categories	Staff and Project Participant	Project Implementation	Project Outputs																					
	<b>Questions</b> the implementation of new pedagogical methods an area of focus? *Please choose only one of the following: <input type="radio"/> Yes <input type="radio"/> No																								
X	Follow-up Questions for those listing “pedagogical methods” as an area of focus:  Please describe the pedagogical methods you are attempting to implement as part of your CPATH project. (Text Box)  Please enter the number of faculty and graduate students implementing modified pedagogies within your institution as a result of your CPATH project. <table border="1" data-bbox="256 850 1117 961"> <thead> <tr> <th></th> <th>Faculty</th> <th>Graduate Students</th> </tr> </thead> <tbody> <tr> <td><i>Within</i> traditional computing disciplines</td> <td></td> <td></td> </tr> <tr> <td><i>Outside</i> traditional computing disciplines</td> <td></td> <td></td> </tr> </tbody> </table> Please enter the number of faculty and graduate students implementing modified pedagogies outside your institution as a result of your CPATH project. Please only report for institutions that are not also CPATH grantees. <table border="1" data-bbox="219 1102 1156 1249"> <thead> <tr> <th></th> <th>Faculty</th> <th>Graduate Students</th> <th>Institutions</th> </tr> </thead> <tbody> <tr> <td><i>Within</i> traditional computing disciplines</td> <td></td> <td></td> <td></td> </tr> <tr> <td><i>Outside</i> traditional computing disciplines</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Faculty	Graduate Students	<i>Within</i> traditional computing disciplines			<i>Outside</i> traditional computing disciplines				Faculty	Graduate Students	Institutions	<i>Within</i> traditional computing disciplines				<i>Outside</i> traditional computing disciplines				X	X	
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X	Perception of project/program outcomes:  Please indicate your level of agreement or disagreement with the following statements:  <table border="1" data-bbox="175 1407 1209 1772"> <thead> <tr> <th></th> <th>Strongly Agree</th> <th>Agree</th> <th>No Opinion/Neutral</th> <th>Disagree</th> <th>Strongly Disagree</th> <th>Not Applicable</th> </tr> </thead> <tbody> <tr> <td>Our CPATH project has led to the incorporation of computational thinking into courses in departments <i>outside</i> traditional computing.</td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> </tbody> </table>		Strongly Agree	Agree	No Opinion/Neutral	Disagree	Strongly Disagree	Not Applicable	Our CPATH project has led to the incorporation of computational thinking into courses in departments <i>outside</i> traditional computing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		X	X							
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Our CPATH project has led to the incorporation of computational thinking into courses in departments <i>outside</i> traditional computing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																			

New or Revised	Common Collection Categories						Staff and Project Participant	Project Implementation	Project Outputs	
	Questions									
	Our CPATH project has created self-sustaining, multi-sector partnerships around computing education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	Our CPATH project is a promising model that other institutions could adopt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	The CPATH program has succeeded in disseminating improved curriculum and instructional practices to the higher education community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	The CPATH program has helped to build national consensus regarding the knowledge and competencies students need to enter the workforce.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	The CPATH program has had a significant influence on the national conversation surrounding undergraduate computing education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
X	Closing questions:							X		

<b>New or Revised</b>	<b>Common Collection Categories</b>	<b>Staff and Project Participant Characteristics</b>	<b>Project Implementation</b>	<b>Project Outputs</b>
	<p><b>Questions</b></p> <p>What is the most significant institutional challenge you have encountered in the implementation of your CPATH project? (Text Box)</p> <p>Was there any single institutional factor (e.g., administrative support, strong industry partner in the community, etc.) you felt made your CPATH project more successful? (Text Box)</p> <p>If you have any additional comments you would like to make about your CPATH project, or about the CPATH program in general, please add them here. (Text Box)</p>			

<sup>i</sup> Elements of these characteristics include: Name, address, date of birth, gender, ethnicity, race, disability status, class, major, grade point average, yearly fellowship or stipend amount, or project role.

<sup>ii</sup> Elements of these characteristics include: Sources and amount of funds, fellowships, scholarships, traineeships, partnerships, training, research methods.

<sup>iii</sup> Elements of these characteristics include: research findings, publications, presentations, degrees granted, educational materials.