The Instructional Practices Inventory: A Process for Profiling Student Engaged Learning for School Improvement

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Is it feasible to develop a school-wide picture of student learning that can serve as the basis for faculty reflection, instructional change, and school improvement? More specifically,

- How do you collect data that will be accepted by faculty as a fair and accurate representation of student learning throughout the school?
- How do you depict those data in a simple, meaningful format for analysis?
- How do you engage all faculty members in study and reflection about the data that will lead to improved instructional practices throughout the school?
- How do you use the data to document enhanced learning experiences for all students?

Those were critical questions that formed the basis for the development of the Instructional Practices Inventory (IPI) in 1996.

In the introduction to *On Common Ground: The Power of Professional Learning Communities*, Rick and Rebecca DuFour and their co-editor Robert Eaker (2005) draw a significant conclusion about the common elements necessary for school change. In synthesizing the collective writings of the 21 authors whose manuscripts comprise their book the Dufours and Eaker note that each of these leading experts on school improvement and change "supports the premise that students would be better served if educators embraced learning rather than teaching as the mission of their school, if they worked collaboratively to help all students learn, and if they used formative assessments and a focus on results to guide their practice and foster continuous improvement" (p. 5). The Instructional Practices Inventory process for profiling student engaged learning effectively support those contentions. The IPI is a very practical system for understanding learning across an entire school that provides one form of data valuable when a school faculty begins the critical conversations described in DuFour's quote. The IPI "fits" the quotation in the following ways: (a) educators must focus on student learning rather than teaching--the IPI process collects data about student learning for the school's IPI profiles, (b) teachers must study and think together collaboratively--the IPI profiles are created to be the basis for collaborative faculty study and reflection, and (c) formative data are essential to monitor and adjust practices--the IPI profiles provide formative data about student engaged learning collected as frequently as faculty appropriate to maintain faculty focus on continuous change in school-wide learning and related instruction.

This manuscript was written to describe in some detail the IPI data collection categories, the use of those categories to support school-wide instructional change by studying student engaged learning and provide data from schools of various types that have used the IPI. The audiences for this manuscript are educators who are just learning about the IPI process and would like insight about its use and value, and educators who use the IPI and would like to review the recommended processes and reflect about how it is used in their school. The discussions throughout this manuscript are based upon nearly a decade of use of the IPI in school improvement in projects of the Middle Level

Leadership Center as well as observations and data from schools across the nation that utilize the IPI as one of their processes for school improvement.

IPI Development

The IPI was developed in 1996 by Bryan Painter and Jerry Valentine to address the questions posed in the previous paragraph. The IPI was designed to be used in Project ASSIST, a multi-year, comprehensive, systemic school reform of the Missouri Center for School Improvement. ASSIST is an acronym for Achieving Success through School Improvement Site Teams.

The Missouri Center for School Improvement (MCSI) provided school reform support to elementary, middle, and high schools across Missouri during the mid-nineties. In 1997 MCSI became the Middle Level Leadership Center (MLLC). MLLC was established to continue school improvement initiatives, especially with middle level schools, and to conduct and disseminate research in and for middle level leaders (middle school principals and teacher leaders). MLLC is a research and service center within the Department of Educational Leadership and Policy Analysis in the College of Education at the University of Missouri-Columbia. Funding for the Center comes from grants and contracts with professional associations, government agencies, and school systems. Primary funding for Project ASSIST comes from contracts with schools and school districts participating in the Project.

Project ASSIST is grounded in the premise that schools improve and sustain that improvement when a nucleus of teacher leaders and the principal provide the collective leadership for school improvement. The ASSIST reform process is guided by two comprehensive school reform frameworks defining components of focus for student-centered improvement and processes for vision-driven change. A cross-section of Missouri elementary, middle, and high schools participated in the initial cohort of Project ASSIST from 1996 through 1998. The Instructional Practices Inventory was developed for Project ASSIST. The IPI was used again with a cross-section of ASSIST middle schools from 1998 through 2000. In 2003 a third ASSIST cohort of only low-achieving middle schools began a three-year ASSIST initiative. For a review of the ASSIST school improvement process, see Frameworks for School Improvement: A Synthesis of Essential Concepts on the MLLC homepage www.mllc.org.

IPI Use

The IPI has been used for two purposes throughout each of the three ASSIST school improvement project cohorts. The primary purpose was "to develop a school-wide picture of student learning practices that could serve as the basis for faculty reflection and instructional improvement." This school-wide picture is really a snapshot of instruction across an entire school for a specified period of time, usually a day. The process used to create the profile was designed to provide an "optimum" snapshot, with every effort made to present the best picture of learning on a typical school day.

A second purpose was to develop instructional data that could be used as a dependent variable to measure the impact of the school improvement interventions in the ASSIST schools. The availability of observed instructional data is essential to understand the impact of interventions designed to improve instruction.

To accomplish these purposes, baseline data were collected in each school before Project ASSIST interventions were implemented and IPI data continued to be collected periodically throughout the Project. The on-going collection of the IPI profiles provided continuous data for the faculty to study and for the evaluation of Project ASSIST. Positive changes in the IPI profiles throughout Project ASSIST have confirmed, empirically, the impact of the Project interventions on instructional practices across participating schools. Evaluations of Project ASSIST have consistently documented faculty and administrator perceptions that the data profiles were valuable for reflection and change.

Project ASSIST provided the initiative for the development of the IPI, but the utility of the instrument has grown well-beyond that reform effort. Since it's origination, the developers of the instrument have made presentations at national conferences and professional meetings, provided periodic "observer training sessions" at the Middle Level Leadership Center (see www.mllc.org for details about upcoming workshops), and conducted professional development workshops and trainings for state departments of education, regional professional development service units, and school districts across the nation and abroad. Schools throughout the nation regularly collect and utilize IPI data. Leaders of schools that consistently engage faculty with IPI profile data commonly attribute positive changes as a result of their efforts.

The value of the IPI has been documented formally in other research projects. In 2001, a research team for the National Association of Secondary School Principals' National Study of Leadership in Middle Level Schools visited a set of "highly successful" middle level schools across the nation and collected IPI data during two-day site visits. Those data provided a composite profile of IPI data in exemplary middle level schools (Valentine, Clark, Hackmann, Petzko, 2004). IPI data have been used to study the relationships among school instructional leadership, collaborative leadership, learning climate, professional development, and teacher-student relationships (Painter, 1998; Quinn, 1999). Reports and monographs have noted the value of the IPI data for school improvement (Quinn, Gruenert, & Valentine, 1999; Breaking Ranks II, 2004; Breaking Ranks in the Middle, in press).

Development of the IPI Categories

The development of the IPI began with an extensive review of the existing research and literature of the era. The review findings were replete with insight about best instructional practices but lacking in instruments and processes for collecting and analyzing those practices within the context of a school improvement initiative. Writers of that era noted the emphasis given to structural and organizational reform and the corresponding paucity of attention to instructional change (Newmann and Wehlage, 1995; Hopkins, Ainscow, and West, 1994). From the review of the research and literature three broad categories associated with student learning were identified that might serve as the foundation for the IPI. They were characterized as student-engaged instruction, teacher-directed instruction, and student disengagement. The three broad categories were easy to understand but insufficient as the basis for the types of data that would be needed to foster teacher reflection and serve as a dependent variable to assess the impact of the school improvement initiatives of Project ASSIST. More detailed categories were needed that would provide specific data about student engagement and

learning experiences with attention given primarily to what students were doing and secondarily to what teachers were doing.

During development of the IPI, a commitment was made to ensure that the instrument addressed engaged learning and delineated between higher-order and non-higher-order learning. From the broad category of student-engaged instruction, two coding categories address higher-order learning: "Student Active Engaged Learning" and "Student Learning Conversations." Student active engaged learning includes research, hands-on and authentic instruction, problem-based learning, cooperative learning, and other types of engaged learning when the instruction engages students in higher-order thinking. Student learning conversations is a specific type of higher-order learning experience coded when students are constructing knowledge through student-to-student talk.

A significant amount of learning can occur when teachers work directly with students in learning experiences commonly referred to as teacher-directed instruction. Two coding categories represent teacher-directed instruction: "Teacher-Led Instruction" and "Student Work with Teacher Engaged." Teacher-led instruction forms the broadest, most common grouping of learning experiences, including most forms of teacher talk, lecture, and direction-giving. Student work with the teacher engaged includes teacher-supported learning experiences such as worksheets or other written activities that do not engage students in higher-order thought.

The IPI concluded with two coding categories affiliated with the concept of disengagement: "Student Work with Teacher not Engaged," and "Student Disengagement." Student work with the teacher not engaged is essentially the same as student work with teacher engaged except that the teacher is not providing support or being attentive to the students' learning. Student disengagement categorizes instances when students are not engaged in learning associated with the curriculum.

IPI Categories

The three broad IPI categories, the six categories that are coded during the IPI profiling process, and common instructional "look-fors" associated with each category are presented in Figure 1. This basic IPI rubric and a supplemental set of "look-fors" for use during reading instruction, physical education instruction, and when media is a tool for instruction form the foundation for developing coder reliability during the full-day observer training sessions.

Figure 1
Instructional Practices Inventory Categories

Broad Categories	Coding Categories	Common Observer "Look-fors"
Student Engaged Instruction	**Student Active Engaged Learning**	Students are engaged in higher-order learning. Common examples include authentic project work, cooperative learning, hands-on learning, problem-based learning, demonstrations, and research.
	Student Learning Conversations	Students are engaged in active conversations that construct knowledge. Conversations may have been teacher stimulated but are not teacher dominated. Higher-order thinking is evident.
Teacher-Directed Instruction	**Teacher-Led Instruction**	Students are attentive to teacher-led learning experiences such as lecture, question and answer, teacher giving directions, and video instruction with teacher interaction. Discussion may occur, but instruction and ideas come primarily from the teacher.
	Student Work with Teacher Engaged	Students are doing seatwork, working on worksheets, book work, tests, video with teacher viewing the video with the students, etc. Teacher assistance or support is evident.
Disengagement	**Student Work with Teacher not Engaged**	Students are doing seatwork, working on worksheets, book work, tests, video without teacher support, etc. Teacher assistance or support is not evident.
	Complete Disengagement	Students are not engaged in learning directly related to the curriculum.

IPI Protocols

The development of a process for collecting valid and reliable data teachers would view as fair and accurate and be willing to use as a basis for reflection and change was as challenging as the development of the IPI categories. Data collected and profiled must be consistently accurate per the coding categories. If not, then the reflections, goals, and professional development based upon the data might foster inappropriate changes in instruction or programs.

The protocols established a feasible, systematic process for collecting observation data. They were designed to collect fair and accurate data and create the optimum profile of instruction during the observation period. The reasons for these protocols and the effective use of the protocols are detailed in the IPI observer training workshops. Anyone who collects data for an IPI profile should receive formal training in the use of the IPI process, including completion of an IPI observer training workshop and reliability rating of .80 or higher. All workshop participants are provided with their IPI reliability score following the workshop. Following are some examples of the basic coding protocols studied and mastered during the IPI observer training workshop that have been designed to ensure accurate, consistent coding from observation to observation and profile to profile.

- Observations must take place on "typical" school days where there are no unusual circumstances occurring that would disrupt the normalcy of the data, such as field trips, assemblies, flu epidemics, etc.
- Observations could be conducted on Mondays through Thursdays, avoiding Fridays if teachers believe it would compromise the validity of the data.

- Faculty should be informed a few days prior to the data collection that a colleague or outside observer will be moving throughout the school observing classrooms and student learning activities. Teachers should be asked to go about "business as usual," continue with planned instructional strategies, and avoid interrupting class to visit with the observer.
- The observer should use a floor plan of the school and move systematically throughout the building to ensure that data are gathered proportionately from all instructional settings.
- The observer should continuously collect data throughout the school day, repeatedly following the same systematic pattern so each instructional setting (classroom) is observed multiple times. A typical observation day will result in approximately 125-150 observations, with a minimum of 100 observations expected.
- Most observations last from one to three minutes in length, depending upon the amount of time necessary to be certain the observation is categorized accurately.
- The observer should code the initial category observed, rather than deciding what learning experience to code if the students move from one experience to another during the observation.
- The observer should code the predominant pattern of learning if multiple learning experiences are in progress simultaneously.
- The observer should focus initially on the students and their learning experiences and then on what the teacher has done or is doing to foster the students' learning.
- The observer should step out of the instructional setting to record his/her observation, so as to minimize distractions.
- The observer should not record teacher names or other facts that would identify an individual with an observation. The data are "school-wide" and should not be used in any manner for the purposes of teacher evaluation. All codes should be anonymous.
- All classes in session should be observed once before the systematic observation cycle begins again, thus the importance of systematically covering the school then repeating that process multiple times.
- The observer should not record data from observations during "transition" times between subject/content areas. For example, in schools governed by bells and class periods, observations should not be made during the first five minutes or last five minutes of the instructional period. In schools without bells, usually elementary schools, observations during transitions from one subject to another should not be recorded. The observer should simply return to the class a few minutes later to make the observation.
- The observer should designate "core" classes and "non-core" classes on the IPI data recording form because the IPI data analysis spreadsheet creates profiles for core observations, non-core observations, and all observations. Core classes are defined as instruction in language arts, including spelling and reading/literacy, mathematics, science, and social studies. Non-core classes are all other classes, often referred to as "specials" in elementary schools, "exploratory" in middle schools, and "electives" in secondary schools.

- The observer should apply specific coding procedures to ensure validity and reliability as detailed in the IPI observer training workshops. Examples of the nuances of coding not detailed in this document that must be mastered during the observer training workshops to ensure accurate and consistent data collection include the coding of substitute teachers, special education teachers, student teachers, multiple teachers working simultaneously with the same set of students, learning experiences outside the regular classroom, learning experiences in the library or media center. Protocols are also established in the unusual situations where a definitive code is not apparent and how to be consistent in such situations while creating the optimum profile. For information about future IPI observer training workshops scheduled at the Middle Level Leadership Center monitor the Center's web site at www.MLLC.org. To schedule workshops in schools, school districts, regional education agencies, or other sites away from the Center, email Professor Jerry Valentine (ValentineJ@missouri.edu).

IPI Profiles for Faculty Study, Reflection, and Goal Setting

Four questions were posed in the opening paragraph of this document. The first was "How do you collect data that will be accepted by the faculty as a fair and accurate representation of student learning throughout the school?" The second was "How do you depict those data in a simple, meaningful format for analysis?" The previous sections provide answers to those questions. This section addresses the third question: "How do you engage all faculty members in study and reflection about the data that will lead to improved instructional practices throughout the school?"

In preparation to study the IPI data, the first decision to be made is who will facilitate the faculty study, reflection, and goal setting. In Project ASSIST the ASSIST school improvement team of teacher-leaders and the principal are expected to facilitate the discussions. If a school does not have a teacher-led team that has been coached in facilitation, the school improvement team, leadership team, team leaders, or three or four teachers who are clearly leaders of the faculty and have the ability to lead discussions and facilitate large group study could lead the process. The principal should be involved as a member of this team, sharing the facilitation duties with teachers. Absence by the principal in the leadership role may imply indifference or lack of commitment. Domination by the principal in the leadership role may lead to expectations that this study effort is "for the principal," not the faculty. Faculty must see the IPI data as "their" data, to learn from and grow from. That seldom occurs when the principal dominates the discussions. Principals must navigate the fine line between the being perceived as supportive and encouraging successful change through study of the data and being perceived as mandating faculty change based upon the data. The motivation for faculty study and the subsequent, lasting change must be internal with external encouragement and support.

All faculty members should be involved in the processes of analysis, reflection, and problem-solving. Other individuals or groups such as non-certificated staff, parents, central office administrators or curriculum leaders, and sometimes students at the secondary level, might be included based upon existing school practices and norms. Participation by non-instructional staff may be appropriate in some settings, however, the deep reflection about instructional improvement and the subsequent honesty that must

occur to foster change occurs best in many schools when only the instructional staff are involved in the study. As is the case in most forms of reflection and change, there is no definitive answer as to who "must" be involved. Omitting some faculty from the discussions because they have supervisory, coaching, or other responsibilities is usually a mistake. Every effort should be made to schedule these critical instructional discussions at times when all faculty members can participate. Teachers often grow as much from the discussions as from the conclusions. Also, through the discussions commitment to change evolves.

Following are some recommended steps for engaging all teachers in purposeful, structured study, reflection, and problem-solving based upon the IPI profiles. These steps may be completed during a two-to-four hour work session or during two or three shorter work sessions. The goal for these work sessions is to analyze the IPI profiles and develop a school plan of action for instructional change.

- Review and discuss with the whole faculty the IPI categories and the protocols used to collect the IPI data.
- Divide the faculty into small groups and ask each group to discuss concepts for celebration and write them on poster paper.
- Share small group findings and create a composite list of the concepts to celebrate.
- Distribute five stick-on dots (marking pens can also be used) and ask each participant to identify the most important items on the list.
- Discuss briefly the items most frequently identified.
- Identify the concepts for concern from the IPI profiles by repeating the small group analysis, share-out, composite list development, and prioritization process.
- Divide the faculty into small groups to identify goals that will address the areas of concern, especially those areas of highest prioritization.
- Share and discuss the goals suggested by each small group and use a whole group process such as the stick-on dots to identify the four or five most important goals.
- Ask each small group to brainstorm two or three strategies for achieving each of the top two or three goals.
- Share-out and discuss the group recommendations, writing the key suggestions on a projection system, overhead, or poster paper.
- Ask the faculty, using small group discussions and whole group share-out processes, to identify other forms of data that inform instructional change and blend their thoughts about those data with the analysis of the IPI data.
- Collect all poster papers from the small groups at the conclusion of the discussions.
- Before the next faculty discussion, develop a plan of action that includes goal statements, strategies for achieving the goals (including professional development when appropriate), and responsibilities and timelines for accomplishing the strategies.
- Discuss the plan of action during the next faculty work session, seeking input and comments from the faculty and achieving a consensus that the plan is a positive move for the school and a commitment from the faculty that the plan should be initiated.
- Finalize the plan and provide copies to all faculty members for reference.

- Implement the plan with the school improvement team serving as the coordinator of the process.

As the plan is implemented, periodically collect IPI data and discuss the profiles as a faculty. Use the data as formative information to understand progress and adjust the plan. Also use the data as summative information for evaluating success of the plan.

The above is not meant to be a prescription but rather a set of suggested practices for engaging the faculty in the important discussions that can occur based upon the IPI data profiles. The whole faculty discussions can be supplemented with additional small group discussions in departments at the secondary level, interdisciplinary teams at the middle level, or grade level teams at the elementary level. The findings from those groups can be added to the plan of action by the school improvement team or shared with the faculty during the discussions or work sessions. Some strategies work better than others. The value of different approaches to faculty study and use of the IPI data is contingent upon the school's culture and climate and level of readiness to process the data. Some schools can effectively develop a plan of action in a short time because the school has a culture of collaboration and professional learning. Some schools find the processes of honest reflection and discussion laborious. Change will evolve relatively slowly in those schools as they grow the culture of collaboration and professional learning essential for continuous improvement.

An alternative to the more structured group discussions described above might simply be a series of faculty work sessions that addresses some or all of the following questions:

- What can we learn about our current practices from the IPI data?
- Are there specific IPI categories we should work to increase and/or decrease?
- What goals should we establish to promote continuous enhancement of the quality of the learning experiences for our students?
- What professional development experiences would be appropriate to support our efforts to enhance the quality of the learning experiences for our students?
- Are we currently involved in professional development that will enhance the quality of the learning experiences for our students?
- What specific learning strategies within each of the six categories are more effective?
- What specific learning strategies within each of the six categories are less effective?
- What are two highly effective teaching strategies from IPI categories 5 and 6 (two from each category) that can be used in any content area and will enhance the quality of learning experiences for our students?
- What are some highly effective teaching strategies from IPI categories 5 and 6 that are more effective or specific to different content areas such as math, science, communication arts, social studies, etc. (use your background/expertise) that will enhance the quality of learning experience for our students?
- What are two highly effective teaching strategies from IPI categories 3 and 4 (two from each category) that can be used in any content area and will enhance the quality of learning experiences for our students?
- What are some highly effective teaching strategies from IPI categories 3 and 4 that are more effective or specific to different content areas such as math, science,

communication arts, social studies, etc. (use your background/expertise) that will enhance the quality of learning experience for our students?

- Are some learning strategies more appropriate for certain content areas than for others?
- Are some learning strategies more appropriate at different times within a given learning unit?
- Does our faculty understand the importance of engaging students regularly in higher-order thinking learning experiences?
- Does our faculty have the knowledge and experience necessary to engage students in higher-order thinking learning experiences?
- What are some examples of more effective and less effective teaching practices for categories 2, 3, and 4.
- What makes the practices more effective and less effective.

Once the initial IPI discussions have occurred, periodic data collection and analysis are important. Some schools collect data annually, most do so each semester, some do so quarterly, and a few collect it monthly. Those who collect IPI data monthly often merge two or more months together for a composite profile before sharing the profiles with the faculty for discussion. The plan of action should clarify the frequency of data collection.

IPI Data from Typical and Exceptional Schools

The natural question that arises when a faculty begins to study its school data is "What are the typical IPI profile percentages for each category in schools similar to our school?" Additional questions such as the following are often asked. "Is it common for the profiles to be so different between core and non-core classes?" "Are profiles different for elementary, middle, and high schools?" "Are profiles different in schools with higher student achievement compared to schools with lower student achievement?"

Data for these questions are provided in this section, but the reader must be aware of purposeful terminology used throughout the section. Many of the data presented are described as "typical." Typical data are findings common in schools that have shared their IPI profiles with the center when they use the IPI in their schools and schools that have participated in Center projects that have produced IPI profiles. Those "typical" findings are presented in "ranges" such as 15-25% rather than a specific percentage. These "typical" data are not "norms" that have been collected systematically and/or randomly. They are neither an average nor are they statistically representative of a population. To collect data that could be classified as norms would require a broad sampling of schools and an extensive investment of time and resources to send reliable coders to a multitude of different types of schools for at least a full day per school. At some time in the future, that effort may be feasible, but at present the on-going work in the Center does not allow for that level of time investment. In contrast to the "typical" data shared in this section, some of the tables provide data from specific types of schools and some of the data have been statistically tested for significance. All of the data in this section can be of value to a faculty as long as the faculty members understand that the most critical question to be asking is not at all about comparisons to other schools, but rather a more basic question such as: "Given our expectations, what goals can we

establish for our school that will make a difference for our students immediately and over time?" With that explanation as a caveat, the following findings are available.

Table 1 is the most generic representation of the IPI data, providing "typical" profile data from elementary, middle, and high schools for all data (core and non-core) in schools from all types of settings, including rural, suburban, and urban and schools with various student populations from very small to very large. While it is interesting to note some patterns of difference between the levels, conclusions should not be drawn from these data because they were not randomly collected under controlled research conditions.

Table 1
Typical Percentages for IPI Data in Elementary, Middle, and High Schools (April, 2004)

IPI Category	Elementary Schools	Middle Schools	High Schools
Student Active Engaged Learning	15-25	15-20	15-20
Student Learning Conversations	3-5	3-5	3-5
Teacher-Led Instruction	35-40	35-45	30-40
Student Work with Teacher Engaged	20-30	20-30	15-20
Student Work with Teacher Not Engaged	5-10	10-20	15-20
Complete Disengagement	3-8	5-10	5-15

The data presented in Table 2 provide ranges of typical differences between core and non-core classes and more effective and less effective schools. The more effective and less effective schools were designated based upon available student achievement data in those schools. Schools in this table are also from the varied types of educational settings, including elementary, middle, and high schools and rural, suburban, and urban settings, as well as small, medium, and large enrollment schools. As previously cautioned, while it is interesting to see the patterns in the table, conclusions should not be drawn from these data because they were not randomly collected under controlled research conditions.

Table 2
Typical Percentages for IPI Data for Core, Non-Core, More Effective, and Less Effective Schools (January, 2005)

IPI Category	Typical	Core	Non-Core	More Effective	Less Effective
Student Active Engaged Learning	15-20	<15	<25	>25	15-20
Student Learning Conversations	3-5	5-10	<5	5-10	<5
Teacher-Led Instruction	30-45	>40	<40	35-45	30-40
Student Work with Teacher Engaged	20-30	>25	<25	15-25	>25
Student Work with Teacher Not Engaged	10-20	>20	<20	5-10	10-20
Complete Disengagement	5-10	>5	<5	<3	>5

The data in Tables 3, 4, and 5 are from middle-level schools that participated in Project ASSIST and the National Association of Secondary School Principals' National Study of Highly Successful Middle Level Schools and Their Leaders. Both studies were conducted by the Middle Level Leadership Center. The six schools from the NASSP study were identified through an extensive national search of highly successful middle level schools and a subsequent confirmatory analysis of multiple forms of school data.

The IPI data for the six schools were collected in 2002 during two-day site visits to the schools after the schools were identified as exemplary. The five middle schools from Project ASSIST consistently had student achievement in the bottom five percent of middle level schools in a mid-western state. The IPI data were collected in the five schools in 2003 as baseline data before the beginning of a multi-year school improvement project for each school. Unlike the data presented in Tables 1 and 2, the data in Tables 3, 4, and 5 from these two "outlier" sets of schools were collected in controlled research conditions and were analyzed for significant differences. Even with a relatively small number of schools to analyze, the findings provide important insight about the differences in schools where students are relatively unsuccessful and schools where students are relatively successful. As is evident from the tables, the tests of differences for means were significant for most comparisons.

The more obvious differences between the two sets of schools presented in Table 3 are for the categories of Student Active Engaged Learning, Student Work with Teacher Engaged, and Complete Disengagement. The percent of observations in the highly successful schools for Student Active Engaged Learning was nearly twice that for the very unsuccessful schools while the percentages of observations for Student Work with Teacher Engaged were essentially reversed, with considerably more observations in the very unsuccessful schools. The most glaring difference between the two sets of schools may be the data for the Complete Disengagement category where the observations for the very unsuccessful schools was more than eight times that of the highly successful schools.

Table 3
IPI Data for the Six IPI Coding Categories from Highly Successful and Very Unsuccessful Middle Schools (February, 2005)

IPI Category	Highly Successful	Very Unsuccessful	Significance Level
Student Active Engaged Learning	29.3	16.0	.070
Student Learning Conversations	3.3	0.2	.004*
Teacher-Led Instruction	40.5	33.2	.197
Student Work w/ Teacher Engaged	17.3	28.4	.002*
Student Work w/ Teacher Not Engaged	8.5	13.6	.309
Complete Disengagement	1.0	8.4	.000*

The data in the first two columns of Table 4 are organized in pairs that reflect the original broad themes of the IPI. The Student Engaged Instruction grouping includes categories five and six and represents the total percentages of higher order learning. The difference is clearly significant. The second grouping, Teacher Directed Instruction, is categories three and four and is clearly different but not significant at the .05 level. The third grouping is labeled disengagement and includes categories one and two. Again, the difference is clearly significant. In essence, students in more successful schools are significantly more engaged in higher-order learning experiences than students in less successful, low-achieving schools. On the issue of the categories that merge teacher disengagement and student disengagement, the students and teachers in the low-achieving schools are significantly more likely to be disengaged than those in higher achieving schools.

Table 4
IPI Data Merged for the Three Broad Themes from Highly Successful and Very Unsuccessful Middle Level Schools (February, 2005)

IPI Category	Broad Themes	Highly Successful	Very Unsuccessful	Signif. Level
Student Active Engaged Learning	Student Engaged Instruction	32.6	16.2	.046*
Student Learning Conversations				
Teacher-Led Instruction	Teacher-Directed Instruction	57.8	61.6	.052
Student Work w/ Teacher Engaged				
Student Work w/ Teacher Not Engaged	Disengage-ment	9.5	22.0	.035*
Complete Disengagement				

Perhaps the most informative analysis is found in the differences between the two sets of schools when the data are grouped into categories 4, 5, and 6 and categories 1, 2, and 3. For both category groupings, the differences are significant. Students in highly successful schools are significantly more likely to be engaged in higher order thinking with teachers who are actively teaching the students. Students in less successful schools are more likely to be doing seatwork with or without the teachers' support or disengaged from learning. This grouping is especially interesting when the ratio of percentages between the highly successful schools and the very unsuccessful schools are compared. In the highly successful schools the ratio of categories 4-5-6 to categories 1-2-3 is approximately 3:1. In the very unsuccessful schools, the ratio is almost exactly 1:1. These findings provide a very strong argument that student learning experiences in schools with higher achievement engage students more frequently in higher order learning and experiences where the teacher takes an active role in leading the learning. In less successful schools, the students are more frequently engaged in more passive learning experiences or disengaged. These data paint a very different picture of instruction in high achieving and low achieving schools.

Table 5
IPI Data Merged into Two Divisions of categories 4-5-6 and 1-2-3 from Highly Successful and Very Unsuccessful Middle Level Schools (February, 2005)

IPI Category	Highly Successful	Very Unsuccessful	Significance Level
Student Active Engaged Learning	73.1	49.4	.004*
Student Learning Conversations			
Teacher Led Instruction			
Student Work w/ Teacher Engaged	26.8	50.4	.006*
Student Work w/ Teacher Not Engaged			
Complete Disengagement			

Ineffective Use of IPI Process

There is a fine line between the effective use of any tool or process for change and the misuse of that same tool or process. The IPI process is an easy victim for "potential

misuse." Over the nearly ten years of use, several concerns have surfaced as schools implement, or more accurately, "try" to implement, the IPI process.

The most common concern is the collection of data by individuals who lack observer/coder reliability. Too often an experienced educator will find the IPI on the MLLC website or perhaps attend a presentation about the IPI at a national conference. To that experienced educator, the six coding categories of the IPI appear to be an obvious set of statements that can easily be recognized and documented in any learning setting. That might be the case if the observer wanted to make one or two observations and have a conversation using the observation as an example. Or if the observer did not have to code that same learning experience in the same way a few hours later or a few months later. In addition, if the observer was the only individual ever collecting data, then there would be no concern that that individual's codes might be different from the codes of another data collector. The stakes are too high to have inconsistency across observations or across observers. In the IPI process the observer may make 150 observations on a given day and then repeat that process multiple times over the next year or two. One observer may collect data in a school in the morning and another may collect the data tha afternoon. One observer may collect a school's data in September and another may collect the data in January. Without established protocols and without a process to systematize the coding of the observations, including numerous "atypical" learning experiences that must be coded to an established protocol, the validity (accuracy) of the observers' codes and the reliability (consistent accuracy) will produce profiles with significant error and could cause faculty to reflect and make critical, long term decisions based upon bogus data. Such errors are not acceptable. No school can afford to study profiles of learning across the school and then design change based upon faulty data.

The IPI observer training is a full-day workshop designed to build a thorough understanding of the IPI process and result in a high level of coder reliability by day's end. The number of participants in each session is small and the work is structured, hands-on, and authentic. Participants begin with an understanding of the process and protocols, develop initial skills through practice in the classroom using observation scenarios, refine skills through practice in a school setting, and then return to the classroom to discuss the effective use of the data and take a final assessment that produces a reliability rating. For the purposes of collecting school-wide data and creating profiles for school improvement in individual schools, a rating of .80 is expected. For collecting research data, whether for the Middle Level Leadership Center or other projects, a reliability rating of .90 is expected. Individuals who complete the observer training workshop with reliability ratings below these standards are asked to repeat the training process and/or refine their skills through "partner-coding" until their reliability is acceptable. Workshop participants are also provided with a CD that includes electronic copies of all of the workshop materials, a detailed list of references and recommended readings, and other materials that will support their effective use of the IPI.

A second concern noted over the years is the ineffective use of the profiles, which typically falls into one of two categories. One ineffective us is the absence of engagement of the faculty in the study and use of the data. Principals and/or central office collect the data, generate the profiles, study the profiles and then file them, or at best, use them in a state report. Either way, instructional change does not occur, therefore, student learning is not enhanced. The other ineffective use occurs when the

faculty do have a chance to see the data but their engagement with the data are not "facilitated" in a manner that produces results. They see the data, talk about it for a while, and then move on to other topics during the faculty work session. Little, if any, change in instruction will occur.

Additional Information

- For information about IPI workshops at Middle Level Leadership Center, see the home page at www.MLLC.org
- For information about workshops for school districts and educational agencies where numerous individuals from a district wish to be trained and therefore it is more economical to send a trainer to the district or agency, contact Professor Valentine by phone at (573) 882-0944 or by email ValentineJ@missouri.edu
- For more detailed information about Project ASSIST see **Frameworks for Continuous School Improvement: A Synthesis of Essential Concepts** (Valentine, 2001) available at www.MLLC.org.

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