Instructional Practices Inventory-Technology Component Overview

The Instructional Practices Inventory Process for studying student engagement during classroom learning time was originally developed in 1995-96 by Jerry Valentine and Bryan Painter. The IPI is a set of faculty-led strategies for collecting valid/reliable student engagement data and for collaboratively studying the data with the goal of increasing and enriching learning experiences throughout the school. The process serves a school best when teacher-leaders are the data collectors and the facilitators of the faculty collaborative study of the data. When implemented with integrity, our studies indicate that the IPI process fosters instructional change, organizational learning, and improvement in student academic performance. Due to the recent growth, and projected continued growth, of technology to support classroom learning, the Instructional Practices Inventory-Technology (IPI-T) component was developed so school faculties can study student engagement using the basic IPI process and gain additional insight about the use of various forms of technology and the types of engagement present when technology is being used. The IPI-T is particularly valuable when schools are making a concerted effort to use technology on a regular basis throughout the school.

All basic IPI Protocols for collecting IPI data are followed when the Technology Component is added. For example, data collectors should systematically collect a proportionate sample of student engagement throughout the school day. Also, the basic protocols of coding engagement upon entry into the learning setting, of not collecting data during the first five minutes and last five minutes of learning time, and of not collecting data during content-area transitions remain the same when using the technology component. The data collector takes the observation "snapshot" as he/she enters the learning setting and proceeds to move about in the learning setting, observing student engagement and talking with students and teachers as necessary to determine the appropriate IPI category code. The distinction between Core and Non-Core learning is made, as per the basic IPI protocols.

During the observation process, the data collector simultaneously determines the total number of students in the learning setting who are engaged in some form of technology. In addition, the data collector should note which of the nine types of technology applications are being used in the learning setting and record the number of students engaged with each type of application. As with the regular IPI process, the details of student engagement are generally not apparent until the observer has moved throughout the setting and, as needed, spoken with students and teachers about the learning experience. The data collector should then have the information needed to identify the IPI-T code. As with the regular IPI Process, the data collector should make every effort to avoid, or at least minimize, the amount of writing while in the learning setting. All forms of writing by the data collector during the learning setting are particularly distracting to students and teachers. However, in learning settings where multiple students are engaged in multiple technology applications, the recording of numbers of students per application during the observation is necessary and thus acceptable.

To be certified to collect engagement data using the IPI-Technology process, data collectors are required to be certified IPI data collectors, having successfully completed the IPI Level I Reliability Assessment at a .80 or higher accuracy rating. The data collector must also successfully complete the three-hour IPI-T Workshop supplement. The IPI-T Workshop supplement is designed to ensure that data collectors have the necessary knowledge and skills to collect the technology codes with validity and reliability and engage the faculty in the study of the IPI-T data. For additional information about the use of the IPI or the IPI-T process for creating student engagement profiles and collaboratively studying those profiles as a faculty, contact Jerry Valentine at ValentineJ@missouri.edu.

Student Engagement across 9 Technology Applications

The IPI-Technology applications were defined by Jerry Valentine, Larinee Dennis, and Michelle Arneson. They are a classification of technology *applications* commonly used in the classroom (i.e. word processing, mathematical computations, media development, web-based information search, web-based user collaboration, classroom interactive media, commercially developed learning materials, teacher/staff developed learning materials, student technology development). They are not a classification of technology hardware (i.e. desktops, laptops, tablets, interactive whiteboards, smartphones) because multiple types of hardware are capable of supporting the same technology application. For example numerous types of hardware (e.g. laptops, desktops, tablets) directly support word processing, or provide the vehicle to use word processing on the Internet; however, the application is word processing regardless of the hardware or the source of the application.

When combining the six categories of student engagement as measured by the IPI process with the nine technology applications, faculty can better understand how students are cognitively engaging in learning when the learning is driven by a particular type of technology. For example, when students use the Internet to research a paper, the form of engagement used as they do their search may be simple fact finding or it may be complex analyses of multiple sources of information that require reflection and synthesis. When a student uses a laptop to develop a PowerPoint presentation about President Lincoln, the development of the visuals for the presentation may be creative and innovative, requiring deeper understandings and complex decisions to communicate a fact or concept about the content associated with Lincoln's presidency; or, the presentation visual may simply be copying and pasting a picture of Lincoln with birthplace facts, none of which would be higher-order analyses and decision making. The former usually requires more analytical, deeper thought and the latter is usually a simple copy-paste function of obvious facts.

When data profiles about engagement in general, and engagement in technology specifically, have been developed the faculty will be able to contrast the degree of engagement and the type of engagement when technology is or is not being used. They will also be able to contrast the degree to which the use of technology fosters higher-order/deeper engagement. And they will also be able to sort the manner with which teachers are attentive to, engaged with, or supportive of student learning when the students are using the technology to support practice, skill development, basic fact finding, and other similar forms of surface learning.