Technology Integration Matrix

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Abstract

Technology Integration Matrix is a tool to help teachers discover a level of technology integration that is being applied in their classroom. Once the teacher discovers their level, lesson plans will be used to increase the classroom application to a higher level of technology integration. This paper will describe the Technology Integration Matrix, the writer’s level of classroom technology implementation presently, and the level the teacher expects to achieve in the future.
Technology Integration Matrix

Technology Integration Matrix (TIM, 2009) is a descriptive tool analyzing the level of instruction and technology in a primary or secondary classroom. Contained in Appendix A the horizontal axis of the matrix contains the levels of technology in the curriculum (i.e., entry, adoption, adaptation, infusion, transformation). The vertical axis states the characteristics of the classroom during the learning process (i.e., active, collaborative, constructive, authentic, goal directed). The combination of the vertical and horizontal axis creates 25 cells displayed on the TIM (2009) website. Each cell has two videos that represent examples of lesson implementation of technology in the classroom.

TIM (2009) assists schools and faculty to meet the requirements to be eligible for a federal grant program. Enhancing Education through Technology (EETT) also known as the Ed Tech program, and the Ed Tech State Program (Florida), is a formula grant program that is supported through the Title II, Part D No Child Left Behind (NCLB) Act (2001). The purpose of this program is to promote the use of technology in elementary and secondary schools for student achievement (U. S. Department of Education, 2009). Florida Center for Instructional Technology and Florida Department of Education developed the TIM (2009) to assess the levels of technology uses in the classroom and to provide teachers with examples of visual technology integration models.

Application of Technology

Although a classroom may be supplied with technology equipment and software, the integration of technology depends on a number of factors. First and foremost, integration depends on the knowledge and ability of the instructor and/or the student to apply skills and develop the use of technology within a curriculum. How does the teacher or the student use the
technology instruments? If the students have a computer, do they use the computer as a typewriter, or do they use the software provided to enhance their education, and solve problems? Does the teacher facilitate the advancement of the student’s prior knowledge with the programs and hardware? The TIM (2009) helps teachers evaluate the level at which their students are using technology.

**Evaluation of the Writer’s Use of Technology**

The supply of technology equipment in the writer’s classroom compared to the many American classrooms is above average. Equipped with a promethean board, 16 laptop computers, five desktop computers, a creation station, a teacher’s laptop computer, two webcams, one video camera, four flip cameras, a wireless slate, activotes and one podcast recorder, this classroom is a technology ready classroom. Technology equipment has been supplied by the county to the assigned teacher for completing 200 professional development classes in curriculum application of classroom facilitation using technology. Technology is not useful if the curriculum is not designed to apply critical thinking skills within the lesson (Jonassen, 2000). However, the county restrictions are impeding the integration of technology into the curriculum. For example, teachers are given lesson plans that indicate technology integration. Students are given a website to go to and also given a graphic organizer to complete. It sounds good but, if an educator evaluates the composition, the educator will discover the organizer (i.e. worksheet) is not much more than filling in the blanks and the assigned Internet site matches the worksheet. The students read the information and fill in the blanks. There is no individual or group application of problem solving techniques using technology in this exercise. Another inhibiting factor is the amount of curriculum devoted to the federal and state mandated test. In Georgia, it is called the Georgia Criterion Reference Competency Test (GCRCT). The
third grade reading program has been formatted around the GCRCT. This means the students are developing basic rote skills to pass the test in the spring, rather than creating experiences for learning real life skills for the future (Doering, Hughes, & Huffman, 2003).

After viewing and evaluating TIM (2009) for current application levels of technology, the level of integration indicated no more than an entry level. Appendix A indicates the present level highlighted in yellow, and the level the writer would like to attain highlighted in green. The goal will be to move the curriculum to a higher TIM (2009) level stated in the cell as an Adoption-Authentic level, which is, “Students have opportunities to apply technology tools to some content-specific activities that are based on real-world problems” (p.1). The lesson will be outlined in an ASSURE model lesson plan (Smaldino, Lowther, & Russell, 2008). The objective of the lesson plan will be to engage students to develop their creative writing skills, mathematic skills, and communication skills using computer enhanced software-(Go Animate, 2010). Go Animate is a free software application students can use to create short two-minute comic strips demonstrating student’s abilities to integrate technology across their curriculum.

Conclusion

Technology Integration Matrix (TIM, 2009) is an excellent resource for integrating technology into any lesson plan. This resource has many examples demonstrating how teachers have incorporated engaging activities using technology for students to experience learning in their classroom.
<table>
<thead>
<tr>
<th>Technology Integration Matrix</th>
<th>Entry</th>
<th>Adoption</th>
<th>Adaptation</th>
<th>Infusion</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teacher uses technology to deliver curriculum content to students.</td>
<td>The teacher directs students in the conventional use of tool-based software. If such software is available, this level is the recommended</td>
<td>The teacher encourages adaptation of tool-based software by allowing students to select a tool and modify its use to accomplish the task at hand.</td>
<td>The teacher creates a learning environment that infuses the power of technology tools throughout the day across subject areas.</td>
<td>The teacher creates a rich learning environment in which students regularly engage in activities that would have been impossible to achieve without technology.</td>
<td></td>
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</tbody>
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**A** Active

Students are actively engaged in using technology as a tool rather than passively receiving information from the technology.

**Indicator:** Students use technology for drill and practice and computer based training.

**Indicator:** Students begin to utilize technology tools to create products, for example using a word processor to create a report.

**Indicator:** Students have opportunities to select and modify technology tools to accomplish specific purposes, for example using colored cells on a spreadsheet to plan a garden.

**Indicator:** Throughout the school day, students are empowered to select appropriate technology tools and actively apply them to the tasks at hand.

**Indicator:** Given ongoing access to online resources, students actively select and pursue topics beyond the limitations of even the best school library.

**B** Collaborative

Students use technology tools to collaborate with others rather than working individually at all times.

**Indicator:** Students primarily work alone when using technology.

**Indicator:** Students have opportunities to utilize collaborative tools, such as email, in conventional ways.

**Indicator:** Students have opportunities to select and modify technology tools to facilitate collaborative work.

**Indicator:** Throughout the day and across subject areas, students utilize technology tools to facilitate collaborative learning.

**Indicator:** Technology enables students to collaborate with peers and experts irrespective of time zone or physical distances.

**C** Constructive

Students use technology tools to build understanding rather than simply receive information.

**Indicator:** Technology is used to deliver information to students.

**Indicator:** Students begin to utilize constructive tools such as graphic organizers to build upon prior knowledge and construct meaning.

**Indicator:** Students have opportunities to select and modify technology tools to assist them in the construction of understanding.

**Indicator:** Students utilize technology to make connections and construct understanding across disciplines and throughout the day.

**Indicator:** Students use technology to construct, share, and publish knowledge to a worldwide audience.

**D** Authentic

Students use technology to...
| E | **Goal Directed**  
|   | Students use technology tools to set goals, plan activities, monitor progress, and evaluate results rather than simply completing assignments without reflection. |
| Indicator: | Students receive directions, guidance, and feedback from technology, rather than using technology tools to set goals, plan activities, monitor progress, or self-evaluate. |
| Indicator: | From time to time, students have the opportunity to use technology to either plan, monitor, or evaluate an activity. |
| Indicator: | Students have opportunities to select and modify the use of technology tools to facilitate goal-setting, planning, monitoring, and evaluating specific activities. |
| Indicator: | Students engage in ongoing metacognitive activities at a level that would be unattainable without the support of technology tools. |

Present level of Technology Integration.

Goal level.
References


