The Technology Integration Matrix (TIM) provides a framework for describing and targeting the use of technology to enhance learning. The TIM incorporates five interdependent characteristics of meaningful learning environments: active, collaborative, constructive, authentic, and goal-directed. These characteristics are associated with five levels of technology integration: entry, adoption, adaptation, infusion, and transformation. Together, the five characteristics of meaningful learning environments and five levels of technology integration create a matrix of 25 cells, as illustrated below.

### Table of Summary Descriptors

**Characteristics of the Learning Environment**
- **Active Learning**: Students are actively engaged in using technology as a tool rather than passively receiving information from the technology.
- **Collaborative Learning**: Students use technology tools to collaborate with others rather than working individually at all times.
- **Constructive Learning**: Students use technology tools to connect new information to their prior knowledge rather than to passively receive information.
- **Authentic Learning**: Students use technology tools to link learning activities to the world beyond the instructional setting rather than working on decontextualized assignments.
- **Goal-Directed Learning**: Students use technology tools to set goals, plan activities, monitor progress, and evaluate results rather than simply completing assignments without reflection.

**Levels of Technology Integration**
- **Entry Level**: The teacher begins to use technology tools to deliver curriculum content to students.
- **Adoption Level**: The teacher facilitates students in the conventional and procedural use of technology tools.
- **Adaptation Level**: The teacher provides the learning context and the students choose the technology tools.
- **Infusion Level**: The teacher encourages the innovative use of technology tools to facilitate higher-order learning activities that may not be possible without the use of technology.
- **Transformation Level**: The teacher encourages the innovative use of technology tools to facilitate higher-order learning activities that may not be possible without the use of technology.

### Table

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>ENTRY LEVEL</th>
<th>ADOPTION LEVEL</th>
<th>ADAPTATION LEVEL</th>
<th>INFUSION LEVEL</th>
<th>TRANSFORMATION LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVE LEARNING</strong></td>
<td>Active Entry: Information passively received</td>
<td>Active Adoption: Conventional, procedural use of tools</td>
<td>Active Adaptation: Conventional independent use of tools; some student choice and exploration</td>
<td>Active Infusion: Choice of tools and regular, self-directed use</td>
<td>Active Transformation: Extensive and unconventional use of tools</td>
</tr>
<tr>
<td><strong>COLLABORATIVE LEARNING</strong></td>
<td>Collaborative Entry: Individual student use of technology tools</td>
<td>Collaborative Adoption: Collaborative use of tools in conventional ways</td>
<td>Collaborative Adaptation: Collaborative use of tools; some student choice and exploration</td>
<td>Collaborative Infusion: Choice of tools and regular use for collaboration</td>
<td>Collaborative Transformation: Collaboration with peers, outside experts, and others in ways that may not be possible without technology</td>
</tr>
<tr>
<td><strong>CONSTRUCTIVE LEARNING</strong></td>
<td>Constructive Entry: Information delivered to students</td>
<td>Constructive Adoption: Guided, conventional use for building knowledge</td>
<td>Constructive Adaptation: Independent use for building knowledge; some student choice and exploration</td>
<td>Constructive Infusion: Choice and regular use for building knowledge</td>
<td>Constructive Transformation: Extensive and unconventional use of technology tools to build knowledge</td>
</tr>
<tr>
<td><strong>AUTHENTIC LEARNING</strong></td>
<td>Authentic Entry: Technology use unrelated to the world outside of the instructional setting</td>
<td>Authentic Adoption: Guided use in activities with some meaningful context</td>
<td>Authentic Adaptation: Independent use in activities connected to students’ lives; some student choice and exploration</td>
<td>Authentic Infusion: Choice of tools and regular use in meaningful activities</td>
<td>Authentic Transformation: Innovative use for higher-order learning activities connected to the world beyond the instructional setting</td>
</tr>
<tr>
<td><strong>GOAL-DIRECTED LEARNING</strong></td>
<td>Goal-Directed Entry: Directions given; step-by-step task monitoring</td>
<td>Goal-Directed Adoption: Conventional and procedural use of tools to plan or monitor</td>
<td>Goal-Directed Adaptation: Purposeful use of tools to plan and monitor; some student choice and exploration</td>
<td>Goal-Directed Infusion: Flexible and seamless use of tools to plan and monitor</td>
<td>Goal-Directed Transformation: Extensive and higher-order use of tools to plan and monitor</td>
</tr>
</tbody>
</table>

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