INTRODUCTION

We focus our remarks about recommendations for overcoming barriers to technology integration and implementation at the school level, that is, concerning elements that are associated with the overall school technology environment and shared by all the teachers at a school. These elements are usually beyond the control of any one teacher, but as a group the teachers at a school can, and do, influence the decisions and priority setting that would put these elements into place. The basis for these remarks are primarily from the findings of the Teaching, Learning, and Computing ‘98 national survey (www.crito.uci.edu/tlc) and are further elaborated upon in Dexter, Anderson, and Ronnkvist (2002), who describe the quality technology support conditions that are associated with increased teacher and classroom uses of technology; Anderson and Dexter (2001), who note additional technology organization attributes under administrators that influence the emergence of a technology-supported culture or community; and Ronnkvist and Anderson (2001) and Dexter and Seashore (2001), who identify professional community as a mechanism for increasing teachers’ learning about, and integration of, technology.

QUALITY TECHNOLOGY SUPPORT

Part of what makes teachers’ integration activities feasible or not is the quality of technology support at a school. Dexter et al. (2002) describe technology support as encompassing both technical and instructional domains. In both of these domains, teachers need facilities, staff support, incentives, and opportunities to provide feedback (see Table 1).

The presence of high-quality technology support programs is correlated to increased use of educational technology by teachers in their own work, by their students in classrooms, and by self-reported increased usage over time. High-quality support was defined as: 1) customized one-on-one help; 2) frequent teacher participation in ongoing; technology-

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Technical Domain</th>
<th>Instructional Domain</th>
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</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>Network and Internet access, hardware, software</td>
<td>Content-area specific software, communications access to pedagogical expertise</td>
</tr>
<tr>
<td>Staff assistance and necessary services</td>
<td>Technical support, help desk, network services</td>
<td>Instructional expertise and background of support personnel</td>
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<tr>
<td>One-on-one personal guidance, help</td>
<td>Computer experts for trouble-shooting</td>
<td>Guided practice, consultation for curriculum integration</td>
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<tr>
<td>Professional development</td>
<td>Operating equipment, general software, etc.</td>
<td>Pedagogy, models, implementation strategies</td>
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<tr>
<td>Incentives</td>
<td>Release time; free hardware, software, and network access; anticipation of expert status</td>
<td>Release time, support focusing on instructional content</td>
</tr>
</tbody>
</table>
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