In the spring of 2020, the COVID-19 pandemic forced educational institutions at all levels to switch instruction almost overnight to the virtual classroom. With scant time to marshal their resources, K-12 schools and colleges and universities had to figure out how to deliver curricula, share materials, foster collaboration and keep students engaged. Given the many teachers who lacked experience with distance learning, and the many students who lacked access to the necessary technology, schools faced significant challenges.

Since then, educators have learned a great deal about how to deliver instruction in a hybrid learning environment. Now, as most schools have returned to in-person instruction, they are looking for ways to leverage digital solutions to further enhance the teaching and learning experience.

In this new digital classroom, visionary educators will blend in-person learning with opportunities for online communication and collaboration. At the same time, schools will work to ensure that all students have the devices and connectivity required to embrace new modes of learning.

To assess the role of digital transformation during the pandemic and explore the implications for the future of learning, the Center for Digital Education (CDE) conducted a survey of 103 K-12 and 135 higher education (HED) leaders.
Respondent Demographics

What type of school do you work for?*

Higher Education: 56%
- Public university campus: 49%
- Community college: 26%
- Private university (non-profit): 19%
- Private university (for profit): 3%
- Private 2-year college: 2%
- Public university system office: 2%

K-12: 44%
- Public school district: 54%
- Public school: 44%
- Private school: 4%
- Charter school: 4%

What is the total number of full-time enrolled students at your school, school district, college or university?

<table>
<thead>
<tr>
<th>Higher Education</th>
<th>K-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 500</td>
<td>30%</td>
</tr>
<tr>
<td>500 – 999</td>
<td>22%</td>
</tr>
<tr>
<td>1,000 – 2,499</td>
<td>15%</td>
</tr>
<tr>
<td>2,500 – 4,999</td>
<td>10%</td>
</tr>
<tr>
<td>5,000 – 9,999</td>
<td>10%</td>
</tr>
<tr>
<td>10,000 – 19,999</td>
<td>17%</td>
</tr>
<tr>
<td>20,000 – 29,999</td>
<td>19%</td>
</tr>
<tr>
<td>30,000 or more</td>
<td>18%</td>
</tr>
<tr>
<td>Do not know</td>
<td>20%</td>
</tr>
</tbody>
</table>

What is your job role?

Higher Education
- Faculty/instructor/educator: 43%
- IT leadership: 10%
- Leadership/administrative staff/non-IT: 25%
- IT support staff: 7%
- IT managerial/supervisory: 7%
- Non-classroom student support: 6%
- Procurement professional: 1%
- Other: 2%

K-12
- Faculty/instructor/educator: 55%
- IT leadership: 16%
- Leadership/administrative staff/non-IT: 15%
- IT support staff: 7%
- IT managerial/supervisory: 4%
- Non-classroom student support: 4%
- Procurement professional: 0%
- Other: 0%

*Percentages throughout this report may not equal 100 due to rounding.
The Student Experience

Although the transition to virtual learning was challenging for all concerned, educators have also found that this mode of instruction can enhance the student experience. When asked about the aspects of virtual learning that have made a positive impact on students, three features rose to the top among both K-12 and HED respondents: It provides more accessible learning; it offers more flexible formats for learning; and it allows educators to serve a greater number of students.

What are the top 3 ways virtual classrooms have positively impacted the student experience?

More accessible learning 94% 86%
More flexible formats for learning 85% 84%
Greater number of students served 56% 43%
More student engagement 21% 31%

What have been the 3 most beneficial features of the communication and collaboration solution you use in the digital classroom?

Screen sharing 80% 85%
Real-time collaboration 70% 73%
File sharing 47% 73%
Digital whiteboards 30% 39%
Gamified learning 11% 39%
Digital badges 4% 4%
As educators contemplated which features of a UCC would most enhance the student experience in the future, K-12 respondents were most likely to mention using these tools to support self-paced learning, screen sharing and saving content. Many HED respondents mentioned those features as well. They also said they looked forward to bringing in virtual guest speakers. K-12 and HED respondents showed less interest in allowing students to earn digital badges.

What are the top 3 features you plan to incorporate in your virtual classrooms in the next year to improve the student experience?

1. Provide self-paced learning opportunities
2. Include more screen-sharing capabilities
3. Allow content to be saved

**Top 3 digital features HED & K-12 plan to incorporate in the future:**

1. Provide self-paced learning opportunities
2. Include more screen-sharing capabilities
3. Allow content to be saved

**Higher Education**

- Provide self-paced learning opportunities: 44%
- Include more screen-sharing capabilities: 40%
- Allow content to be saved: 56%
- Include digital field trips: 15%
- Provide gamified learning activities: 19%
- Bring in virtual guest speakers: 31%
- Incorporate student response systems: 24%
- Incorporate digital badges for students to earn: 13%
- Other: 6%
- None: 7%
- Do not know: 4%

**K-12**

- Provide self-paced learning opportunities: 49%
- Include more screen-sharing capabilities: 46%
- Allow content to be saved: 45%
- Include digital field trips: 36%
- Provide gamified learning activities: 32%
- Bring in virtual guest speakers: 51%
- Incorporate student response systems: 22%
- Incorporate digital badges for students to earn: 10%
- Other: 11%
- None: 3%
- Do not know: 7%
Virtual Learning Challenges and Priorities

Looking ahead to how they might incorporate digital tools in the future, educators are focused on how to overcome basic challenges, such as making sure students have access to internet connections and adequate hardware, and improving students’ digital literacy. Roughly a third of respondents are also concerned about application overload.

What are the 3 most pressing challenges to address in your virtual classrooms?

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Higher Education</th>
<th>K-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring students have adequate internet connection</td>
<td>67%</td>
<td>71%</td>
</tr>
<tr>
<td>Ensuring students have adequate hardware</td>
<td>47%</td>
<td>43%</td>
</tr>
<tr>
<td>Improving digital literacy among students</td>
<td>27%</td>
<td>38%</td>
</tr>
<tr>
<td>Application overload</td>
<td>32%</td>
<td>38%</td>
</tr>
<tr>
<td>Overcoming learning loss</td>
<td>21%</td>
<td>33%</td>
</tr>
<tr>
<td>Technical skills training for faculty/staff</td>
<td>39%</td>
<td>32%</td>
</tr>
</tbody>
</table>

What are your top 3 IT investment priorities to support virtual classrooms?

<table>
<thead>
<tr>
<th>Priority</th>
<th>Higher Education</th>
<th>K-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical training</td>
<td>43%</td>
<td>55%</td>
</tr>
<tr>
<td>Student services</td>
<td>33%</td>
<td>54%</td>
</tr>
<tr>
<td>Broadband connectivity</td>
<td>46%</td>
<td>49%</td>
</tr>
<tr>
<td>Integrated communication/collaboration tools</td>
<td>48%</td>
<td>44%</td>
</tr>
<tr>
<td>Learning management systems</td>
<td>43%</td>
<td>36%</td>
</tr>
<tr>
<td>Cybersecurity tools</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Student information systems</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>None</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Do not know</td>
<td>10%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Those basic concerns heavily influence educators’ plans to invest in virtual learning technologies. The top investment priorities for K-12 schools are technical training, student devices, broadband connectivity and integrated communication/collaboration tools (ICC). Among HED respondents, the top investment priorities are ICC tools, broadband connectivity, technical training and learning management systems.
Whatever their immediate spending plans, a large proportion of education leaders would like to streamline the digital classroom by adopting ICC technology. When asked about this technology, 69 percent of K-12 respondents said they are very or somewhat interested in ICC, and 55 percent of HED respondents said they are very or somewhat interested.

ICC offers a particularly interesting response to application overload. Application overload has become a significant challenge in the business world where employees must constantly switch between applications like e-mail, office productivity programs, social media, videoconferencing and more. More than two-thirds of workers say they waste up to 60 minutes every workday moving from app to app, and 68 percent say they switch apps up to 10 times an hour.¹ Navigating all day among too many applications can lead to frustration and fatigue.

Application overload poses the same danger in education, undermining instructors’ efforts to teach their students. A far better solution is to migrate from a variety of standalone solutions to an ICC tool, which can, for example, provide a single app for messaging, video conferencing and even voice communications. This lets students and educators switch from one activity to another within a single environment. The unified approach also reduces the learning curve, since everyone needs to learn just one app to perform a whole array of functions.

How interested are you in adopting an ICC platform solution to reduce the number of applications used in your virtual learning environment while still meeting your learning needs?

Lessons Learned

As they grow more familiar with virtual learning tools and adjust their teaching methods to the new environment, educators gain insights that will help shape strategies for virtual instruction in the future. Among the lessons they shared in the CDG survey:

- **“Virtual learning is not a one-size-fits-all proposition. Educators must evaluate the need for different types of engagement based on the content they are teaching and their students’ learning requirements.”**
  — An IT manager at a public school district

- **“We need to customize learning for everyone.”**
  — A faculty member at a public university campus

- **“The technology worked, but our teachers were unprepared and often unable to adapt to online learning.”**
  — An IT leader at a public school district

- **“Patience is needed [for] the learning curve associated with virtual learning.”**
  — A professional who provides support to non-classroom students at a public university campus

Conclusion

Educators have learned to teach in new ways and in new environments: fully virtual classes; blended in-person and virtual instruction; breaking students into small, collaborative groups online; sharing materials and videos onscreen; blending real-time and asynchronous learning; and more. Neither educators, students nor parents will forget the experiences of the COVID era. As they turn to the future, the most forward-looking among them will expand the concept of classroom instruction in ways we are only starting to understand.

As those pioneers create the classroom of the future, integrated platforms for communication and collaboration will provide essential support.