



# DISTRIBUTED ICT EDUCATION TEACHING AND LEARNING TOOLKIT

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## Distributed ICT Education

Even in good economic times, it is difficult for many community colleges to justify more specialized and advanced information and communications technologies (ICT) courses. These courses often require significant investments in lab equipment and faculty development, and demand at one college for more advanced or specialized courses is not as consistent or great as demand for more basic courses, which are easier to fill and justify. This is especially true for smaller and more rural colleges.

In bad economic times, it is even more difficult to justify more advanced or specialized ICT courses. Even if courses exist, they are more frequently cut and less frequently offered, because student demand at one college may not be large enough to consistently fill the classes.

As a result, demand for more advanced and specialized courses is currently not adequately being met by community colleges in the MPICT region. There is demand in the region for advanced and specialized ICT courses that is unmet because individual colleges cannot justify the classes based on the demand at their colleges alone. There is demand for advanced and specialized courses that are offered at individual community colleges which are cut or not offered consistently, stranding students, who are not able to get when they want them the classes they need to complete their studies and obtain the academic or industry credentials they need and want to advance their job and career prospects.

This means industries, enterprises and economies at many levels are not benefitting from the productivity improvements of a community college developed ICT workforce with these more advanced and specialized ICT knowledge and skill sets.

We have an opportunity to improve ICT education in the region by offering specialized and advanced ICT courses from single colleges that serve students at many colleges.

Creating a systematic solution to this problem and opportunity is complex. Colleges that already offer a similar course may not want a competitive offering from a remote school. Students already enrolled at one college, who already pay fees at one college, do not want to pay fees for another college. How would instructors and colleges be fairly compensated for these courses? How can remote courses be integrated into local college course catalogs or into local degree and certificate programs? How should transfer and articulation be handled?

MPICT is working on a systematic, “top-down” solution to these problems, but that will take time and be difficult. At the same time, MPICT would like to create and encourage “bottom-up” successes of ad hoc efforts to serve students from broader areas with specialized and advanced courses. To accomplish that, it is important to focus on disseminating effective Distributed ICT Education teaching and learning practices and skills. With or without a comprehensive Distributed ICT Education system, there is an opportunity for instructors to learn to use ICT tools to improve ICT education.

In the Fall of 2009, MPICT conducted a [pilot](#)<sup>1</sup> of three specialized and advanced ICT courses, taught at City College of San Francisco, Foothill College and Cabrillo College, to students from many MPICT partner colleges. Its purpose was to validate and evaluate a hybrid, in-person and online teaching and learning model. This document shares knowledge acquired from those very successful experiences, in order to develop and encourage more community college ICT faculty to be able to use these very effective teaching and learning tools to expand the reach of their efforts.

## Hybrid In-Person and Online Education

The model presented in this teaching and learning toolkit allows instructors to simultaneously serve:

- students physically in the classroom with in-person, instructor led classroom experiences
- students who show up on time via the Internet with interactive, real time classroom experiences
- students who cannot be there in real time with asynchronous, archived classroom experiences

In fact, any student can participate in the class via all of these modalities.

This versatile delivery mechanism allows instructors to reach a larger audience, increasing potential course enrollments, by meeting more diverse student needs, for example:

- by allowing a student too far away to physically attend the class to participate in the class
- by allowing students who know they could not attend all classes in person, because of scheduling conflicts, to take the course and attend conflicted classes remotely (from any computer at any network connection speed anywhere in the world) or via class archives
- by enabling attendance, interaction and participation by students with physical handicaps that would prevent them from physically attending
- by serving people who will not attend a physical or online class at a specific time, by allowing them to access most of the class experiences at their convenience, from anywhere

This versatile delivery model can also improve student success and class retention and completion, by meeting more diverse student needs and learning styles:

- serving students who need or want in person, classroom experiences and instructor access
- serving students who need or want remote but interactive experiences, with dynamic participation and opportunities for interaction, networking and learning from other students
- giving all students opportunities to review streaming, archived classes anytime from anywhere via the Internet
- providing transcripts of lectures, so students do not have to capture and process what instructors say through real-time note-taking
- giving all students, in person and remote, access to real laboratory equipment so they can learn from real experiences with real gear
- giving all students reasonable instructor access through real-time, interactive, online office hours, including access to labs, so instructors can help students with their issues, including helping them get past places they are stuck with lab exercises
- giving students tools and opportunities to connect, interact and learn from each other remotely outside of the classroom, without having to physically meet
- giving students with handicaps or special needs class access to real time and asynchronously accessible, closed captioned class transcripts and asynchronously accessible and downloadable archives, which can be reviewed using tools to improve reception by impaired learners
- allowing instructors to create class archives which can be downloaded to computers and mobile devices for offline review, for example by commuters on their way to and from work

With or without a widespread Distributed ICT Education system in place, this hybrid course delivery model enables instructors to recruit and serve more students with better student and class outcomes.

## Teaching and Learning Toolkit

This Teaching and Learning Toolkit presents information designed to get college faculty started in high impact, hybrid delivery of Distributed ICT Education courses. There are rich capabilities in the platforms and practices presented, and there are many prospects for adaptation and improvement.

### The Platform

These materials are primarily focused on tools available for California community colleges, because the majority of MPICT colleges are in California, and because the primary platform is available free to charge to all California community colleges through CCC Confer, which is grant funded by the California Community College Chancellor's Office through Palomar College in southern California. CCC Confer currently uses [Elluminate](#)<sup>2</sup> as its underlying platform. Elluminate is available for purchase by colleges and systems outside of California. Additionally, similar platforms, like [Wimba](#)<sup>3</sup>, [Adobe Connect](#)<sup>4</sup>, [Cisco Webex](#)<sup>5</sup> and [WebTrain](#)<sup>6</sup> can be used and adapted for similar results.



### Elluminate

Elluminate provides a rich and powerful suite of tools and services to enable online, real time, interactive classroom experiences.

[Elluminate Live!](#)<sup>7</sup> is an online meeting and audio, video and web conferencing platform, which can be adapted to create an online, interactive classroom environment. This is where students and faculty meet. See Elluminate's [resource page](#)<sup>8</sup> for an introduction to this environment. [Case studies](#)<sup>9</sup> are available to learn how this platform is being used by a variety of educational institutions and enterprises. [White papers and best practices](#)<sup>10</sup> are also available. [Recorded events and demonstrations](#)<sup>11</sup> provide archived experiences of what can be done with the platform. [Third party articles](#)<sup>12</sup> and [marketing literature](#)<sup>13</sup> are additional sources of platform information.

[Elluminate Plan!](#)<sup>14</sup> is a tool for planning, developing and delivering successful classes and events by organizing the class and creating shortcuts to resources and multi-step processes, so instructors do not have to search and figure out how to do complex steps on the fly. It is not necessary to use Elluminate Plan! to successfully deliver hybrid or online courses, but it can help with executing the class better.

[Elluminate Publish!](#)<sup>15</sup> is a toolset for converting and editing Elluminate Live! Archives into a variety of file formats for download to computers or mobile devices. This allows the relatively simple creation of high quality educational content for a variety of purposes.

[Elluminate Bridge!](#)<sup>16</sup> is a toolset for integrating Elluminate Live! with course management systems, like [Angel](#)<sup>17</sup>, [Blackboard Enterprise](#)<sup>18</sup>, [Blackboard CE/Vista Enterprise](#)<sup>19</sup> (formerly WebCT), [Desire2Learn](#)<sup>20</sup>, [Moodle](#)<sup>21</sup>, [Pearson Learning Studio](#)<sup>22</sup> and [Sakai](#)<sup>23</sup>.

[Accredited Certifications](#)<sup>24</sup> are available for [Teacher Certification](#)<sup>25</sup> (primarily for K-12 teachers) and [Moderator Certification](#)<sup>26</sup> through UC San Diego, but they are not necessary to effectively use Elluminate.

[Training](#)<sup>27</sup> resources for all of the above are available online at no cost or in-person for a fee.

In addition to creating dynamic online, real-time, interactive learning environments, Elluminate tools and services can be used to efficiently create community and connection between faculty in educational departments, for conference calls and online meetings. They can also be used to enable high quality online office hours, so faculty can efficiently counsel and assist students personally.

Community building resources for users of Elluminate include [LearnCentral](#)<sup>28</sup>, [Elluminati](#)<sup>29</sup> and [Centers of Excellence](#)<sup>30</sup>.

Great work is being done by many people around the world to adopt and adapt the Elluminate platform as a versatile, virtual classroom environment. Basically, that is what we are encouraging ICT educators in the MPICT region to do.

Note that at on July 7, 2010 Blackboard announced that it is buying Elluminate and Wimba. See this client [letter from Blackboard](#)<sup>31</sup>.

## Other Platforms

Educators at community colleges in California, and those interested in using the Elluminate platform for Distributed ICT Education, are encouraged to explore the resources above to learn about the platform and how to use it. However, again, the benefits of Distributed ICT Education can also be achieved through similar platforms, like [Wimba](#)<sup>32</sup>, [Adobe Connect](#)<sup>33</sup>, [Cisco Webex](#)<sup>34</sup> and [WebTrain](#)<sup>35</sup>. Explore those platforms to discover and learn how to use their similar capabilities if those platforms are more available or desirable to you.



## CCC Confer

Elluminate is available free of charge to all California Community College instructors as [CCC Confer](#)<sup>36</sup> through a grant from the State Chancellor's office, awarded through Palomar College in southern California. CCC Confer provides value-added services that make Elluminate even more accessible, valuable and useful for Distributed ICT Education, including automated scheduling services, online archiving services, real-time closed captioning services, training services, and real-time customer support services.

See a [description of CCC Confer on MPICT's website](#)<sup>37</sup>.



[Call Confer](#)<sup>38</sup> is a free audio-only conference call service, great for faculty or business advisory meetings.



[Meet & Confer](#)<sup>39</sup> is a free service that allows you to hold a web conference at any time. These are great for faculty, team or planning meetings.



[Office Hours](#)<sup>40</sup> is a free service that allows you to set up regularly scheduled, web-based office hours to meet and interact with one or more students.



[Teach & Confer](#)<sup>41</sup> is an online interactive classroom that allows you to present to groups of students, hold small group discussions, and have exchanges with individual students. This is the primary functionality used for Distributed ICT Education.



[Webinars](#)<sup>42</sup> are web-based seminars designed to reach a broad audience of attendees.



The [Meetings](#)<sup>43</sup> section of the CCC Confer site provides access login screens for scheduled [Meet & Confer](#)<sup>44</sup>, [Office Hours](#)<sup>45</sup>, [Teach & Confer](#)<sup>46</sup>, and [Webinar](#)<sup>47</sup> conferences. Each conference is password protected.



[Accessibility](#)<sup>48</sup> services of CCC Confer include real-time closed-captioning by a real human being, so classes and meetings can meet Americans with Disabilities Act (ADA) requirements for serving students with hearing disabilities.



The CCC Confer [Training Center](#)<sup>49</sup> helps you learn to use the features of their web conferencing software. You can access [live online training](#)<sup>50</sup>, [recorded training](#)<sup>51</sup> presentations, [slide shows that you can view at your own pace](#)<sup>52</sup>, and online [demo rooms](#)<sup>53</sup> where you can try CCC Confer software.



The CCC Confer [Archives](#)<sup>54</sup> allow you to search and access recorded conferences that have been made available by CCC faculty members. The archives are categorized by conference type, [Meet & Confer](#)<sup>55</sup>, [Office Hours](#)<sup>56</sup>, [Teach & Confer](#)<sup>57</sup>, and [Webinar](#)<sup>58</sup>.



If you are a California community college educator, please explore CCC Confer and its various resources and services to learn more. These are extraordinary resources, free for you to use, to help you do what you do better.

## Equipment

### Computers

Illuminate and CCC Confer work on any computer, running any major operating system. They also work on many mobile devices. However, the device browser must support current versions of Java. Apple iPhones and iPads currently do not support Java (or Flash).

*Best Practice Tip:* It is a good idea for instructors to have two computers logged into the session. One can provide a backup for the other if both have Moderator privileges, in case of technical issues on the primary machine. It is also helpful to have one computer with the Moderator view and one with the Participant view to be able to monitor the student experience.

### Network Connectivity

Illuminate and CCC Confer will work at any network connection speed, including dial-up. The systems will buffer and manage content delivery over that connection speed. Those connected at lower speeds may experience delays in content delivery. (There is a visual indication beside the user name in the interface to indicate users who are delayed behind the real-time interaction.)

*Best Practice Tip:* It is best for the instructor/Moderator to be on a reliable, wireline, high-speed connection. (Wireless is frequently unreliable, especially with lots of users sharing an access point.) Technical difficulties affecting the Moderator connection affect everyone's experiences.

### Microphones for Voice over IP (VoIP)

For presenters using Voice over IP (VoIP) audio, using a wireless microphone so you are not restricted by a wire when teaching, especially if you like to walk around the classroom, is a great idea. Headsets are designed for user preference – behind the head, over the top, the ear pieces are different comfort level and padding, etc.

- USB headsets are recommended.
- Integrated stereo sound and a noise cancellation microphone are also recommended.
- Some brands that we hear good things about: Logitech, Plantronics
- Price: \$40-\$85

*Best Practice Tip:* Keep a backup wired microphone and headset in case the batteries run out on the wireless microphone.

- [Plantronics Voyager Pro Bluetooth wireless microphone](#)<sup>59</sup> is extremely easy to use. It has very good noise reduction and lasts for 6 hours of continuous use.
- You also need a [wireless Bluetooth adaptor and associated drivers](#)<sup>60</sup>.

- [Microsoft X-Box 360 Bluetooth microphone](#)<sup>61</sup>.
  - Be sure to get [one that has the "Xbox 360 Wireless Receiver for Windows"](#)<sup>62</sup> also - that provides the connection from the mic to your computer for the VoIP.
- [Polycom communicator](#)<sup>63</sup> VoIP phone w/ USB is great for several in the same room needing to take turn speaking.
- [Logitech](#)<sup>64</sup>

### Speakerphones/Telephone Headsets

Because network connection speeds can differ, voice over IP (VoIP) audio performance can be poor. Some users experience delays. Dropped packets can create sound quality degradations. For that reason, many prefer to use the integrated telephone audio-conferencing ability of the platform(s). A separate web- and audio-conference are established, and the two are linked via the web interface. That way, everyone is experiencing the audio in high quality and in real time.

Speakerphones can allow a single connection to the audio-conference from the classroom. However, remote users experience different quality of sound as instructors move about the classroom, and students in the classroom speak from different distances or angles.

*Best Practice Tip:* Be sure to repeat questions and summarize comments of students in the room if those would be difficult for remote users to hear.

- [Polycom SoundStation2 EX](#)<sup>65</sup> (Expandable), for example, is the most popular conference phone from probably the best known conference phone producer. Costing less than \$200, it has good sound quality, and it is expandable with peripheral units (also less than \$200) to create sound coverage for larger rooms.



- [Yamaha The PJP-20UR](#)<sup>66</sup> is a Web conference microphonespeaker with a built-in high performance echo canceller.

Just connect it to a PC with a USB cable, and experience smooth, hands-free communication with no cut-outs or echo.



Some instructors like to establish a landline telephone connection to an integrated audio bridge for high quality audio. Then, to enable mobility, they use headsets or wireless/Bluetooth headsets tied to the landline telephone. Find one that works with your phone.

*Best Practice Tip:* Keep a backup wired microphone and headset in case the batteries run out on the wireless microphone.

Other instructors (with big buckets of free cellular usage minutes and good cellular connections in their classrooms) like to connect via their cell phones to the audio bridge. Bluetooth headsets create hands-free and classroom mobility options for that preference.

*Best Practice Tip:* Make sure your mobile phone is well charged, and keep a backup wired microphone and headset in case the batteries run out on the wireless microphone.

### Cameras/Video-cams

Any digital photo or video can be integrated into online presentations and experiences. The platform supports up to 6 simultaneous video feeds. Low resolution video works best for product performance, because some users may be on slow-speed network connections. Video-cams are a nice way to provide remote users with a feel for what is happening in the classroom, and they are a nice way for students in the classroom to get to know remote participants. The video stream can be turned off by the students individually if it uses excessive bandwidth and interferes with the rest of the transmission.

*Best Practice Tip:* Some webcams have built in microphones. Be careful which audio source is selected in Elluminate. Change it by going to Tools / Audio / Select Input Device and Select Output Device.)

- [Logitech webcam pro9000](#)<sup>67</sup>
  - This one affixes to more surfaces and has a few more features than the C905.
- [Logitech Webcam C905](#)<sup>68</sup>
  - This one comes with a stand which allows you to pivot it around.

**Touch Screen or Pallet Monitors** make it so much easier to interact with and enhance your slide presentations. They replace “smart” whiteboards.

*Best Practice Tip:* Be aware that Apple iPads do not support Java and therefore will not run Elluminate.

- [Wacom Palette Tablets](#)<sup>69</sup>
- [Hitachi StarBoard](#)<sup>70</sup>

### Getting Started

1. **Get Presenter Account:** Contact CCC Confer client Services at Palomar College, 760-744-1150 ext. 1542, 1537 or 1554, or fill out the [form](#)<sup>71</sup> to get your Presenter account and access to the system. Colleagues at institutions using other solutions, such as [Adobe Connect Pro](#)<sup>72</sup>, [WebEx](#)<sup>73</sup>, [WebTrain](#)<sup>74</sup> or [Wimba](#)<sup>75</sup> should contact their distance education department to determine the process for getting a Presenter account.
2. **Get Presenter/Moderator Training:** Familiarity with the software platform and developing an ease-of-use with it are paramount. Several online resources and tutorials are available to help you begin using Elluminate/CCC Confer:

- A free [Training Center](#)<sup>76</sup> at CCCConfer with Live, Recorded and Self-Paced options and a Demo Room to practice.
  - Free recorded [training](#) from Elluminate for Participants and Moderators.
3. **Work with Your Department:** Discuss the ICT Distributed Education vision, the hybrid delivery option and the benefits of improved enrollment and student and class outcomes. Demonstrate the classroom experience and platform capabilities. Figure out whether you can work in a description of in-person or remote student participation options into the course descriptions student prospects see. Try to get a lab aid to assist in monitoring online interactions.
  4. **Integrate with CMS:** Elluminate/CCC Confer are powerful remote classroom delivery systems. However, your school may already use a Course Management System, like Moodle or Blackboard, for other aspects of online learning, such as sharing syllabi, course schedules, classroom assignments, reading materials, testing and instructor notices. Figure out how you will use each and how to integrate the experiences as much as possible.
  5. **Create Remote Lab Solution:** If your course includes student experiences with lab equipment, figure out how to provide remote access to that equipment and schedule student access. Netlab is a commonly used solution.
  6. **Determine Closed Captioning Requirements:** Do you have students who are hard of hearing? What are ADA compliance requirements?
  7. **Schedule Classes and Online Office Hours:** Use the tools and training resources at CCC Confer to integrate the platform into your classes. You will need to schedule Office Hours and Class sessions for your students to access. Be sure to schedule closed-captioning services if needed.
  8. **Tell Students How To Join Class Remotely:** In an email or other communication to enrolled students, describe the hybrid delivery model and provide instructions for how to join the class physically and remotely. Include:
    - Instructions for Participant/Student Login
    - [Student system requirements](#)<sup>77</sup>
    - How to [test their systems](#)<sup>78</sup>
    - How to Find the Web Conferencing Session Online
    - How to join the audio-conference (if used)
    - A phone number to call in case of problems (Many instructors make their cell number available to their students for this purpose)
    - How to set up audio if there are special requirements
    - Instructions to mute computer loudspeakers if audio-conferencing is used, and instructions to mute computer microphones if VoIP is used
  9. **Launch the 1<sup>st</sup> Class:** Initiate with first class session online.

- Give yourself a good 30 minutes for the first session to set up the online platform. After that 15 minutes to get everything going is usually enough
- Login as a Presenter/Moderator
- Find your class and launch the session (use Moderator access codes provided in reservation)
- Enable Java download/launch, if needed
- Test/optimize your audio settings
- Initiate the audio-conference (use Presenter access codes)
- Join the audio and video conferences (Be sure to review the [Telephone and VoIP Integration](#)<sup>79</sup> recording. It will help you with using a phone line and/or VoIP for your sessions.)
- Be sure to monitor the phone number provided for people with difficulty joining
- Have any participants in the room accessing the session on computers mute loudspeakers and/or microphones to avoid feedback loops

10. **Orient Students:** Describe to everyone the Distributed ICT Education and Hybrid Delivery models and benefits. Explain that there are opportunities to participate in person, online in real time and asynchronously via streaming archives (and downloadable archives). Describe the advantages of that approach and any disadvantages.

- Start with [Elluminate's recorded and printed training materials for the Participants](#)<sup>80</sup> to help develop an understanding of what it is like from the students' perspective.
- Establish communications protocols for the course (e.g. raise your hand first or enter questions via chat or just speak out)
- Show off and use major features of the platform in the first class, to demonstrate the richness of the platform, convince participants of its value and to teach the interface
- Describe any course management system and its use
- Explain how online office hours work
- Tell people how to get technical support

## Example Sessions

- MPICT has posted a few sample video clips from our classes on the MPICT website to show you some ideas and techniques of how to use the platform in your courses: [Drawing on Slides](#), [Application Sharing](#), [IP Subnetting](#), [IP Subnetting 2](#), [IP Subnetting 3](#), [IP Subnetting 4](#), and [OSPF](#)
- Some of MPICT's Regional Partners have entire class sessions archived and are happy to give you access to them. If interested, please contact us at [info@mpict.org](mailto:info@mpict.org). (We can also give you guest access to our live classes so that you can observe.)

See [more ideas on using CCCConfer in your class](#)<sup>81</sup>, a collection of vignettes from innovative teachers from around California. **Suggestions from Lessons Learned**

Here are ideas and recommendations to help you be more successful in delivering your classes:

- First, don't be afraid to try this. It is pretty easy to get started, and you certainly don't have to be an expert at every tool before using Elluminate. Get comfortable with what you want to do, then build your repertoire. It can be fun for you and the students.
- When the students enter the Elluminate session, some are in person in the classroom and some are remote. Require the remote ones to use their real names, no Avatars, and the @ symbol followed by home or work or their city/state/country. It is easier to take roll and remember to include the remote folks in the live class this way.
- Upload your PowerPoint slides before class starts. It is easier and faster for the remote students to see them. If you are using Elluminate and want to re-use the converted PPT file to reload later (this is faster), then save the White Board from your session. You can draw on the slides, then switch back to PowerPoint full screen for better resolution.
- Use the chat box with the time stamp to let the online students know when we are on a break and the time you will be starting again.
- If possible, use a lab/student aid to assist in monitoring and drawing your attention to online interactions.
- Post instructions in the chat window and on the whiteboard.
- Use a second computer logged on as student to "see" what the students are seeing. This allows you to use PowerPoint slide show view on one machine and the chat window on the other.
- Give that second computer moderator privileges, so if the primary computer fails, you have a hot swap backup.
- Use a touch screen that allows you to write on the slides and images in the whiteboard area. Or use a smart board that is linked to Elluminate.
- Schedule your classes and Closed Captioning requests at least a week before your sessions
- Have a phone number and email contact for students with technical problems and check them
- When sharing an application, sometimes it is necessary to toggle with the alt+tab keys between the sharing window and the application itself in order for Elluminate to recognize the application to be shared.
- Set the Java temp files folder size to 100 MB instead of using the default 1,000. This helps ensure that you will download the most recent version of Elluminate when starting the session. In Windows, Start, Settings, Control Panel, Java, General, Temporary Internet Files, Settings. Keep Java up to date too.
- Video from a webcam helps the remote students maintain and feel more connected to the class. It helps focus their attention and allows more of their brain to concentrate on the lesson, rather than trying to visualize you and the class. Studies of cell phone users validate this.

- Check the status indicator of your students online. If you see a red rectangle near the webcam on the participant window, try to pause for about 30 seconds and let them catch up with you.
- If sharing a video, make sure you let buffering finish before you play it (e.g. Youtube videos).
  - Don't share your video through "Desktop sharing" tool, just App share it.
- If you record/archive your session, you may need a release form. Here is a [sample](#).
  - Note that there is an agreement window that the students see when they enter the online room which states that the session may be recorded and they give their consent.
- Start your recording/archiving after roll call and other housekeeping chores are done.
- When sharing applications, have the documents and programs already open to save time.
  - Avoid moving the cursor around while sharing, as the pixel re-write takes band width.
  - Be mindful of the yellow outline around the shared application. It represents what the students see on their screen.
  - Talk through what you are doing and what you have “pre-baked” so students will know why it worked so well in the demo and why it might not during their attempts
    - When you are showing something, be doing it and saying it at the same time
    - Try to convey what is it that you know that you am not telling them
- PowerPoint animations sometimes do not show in the White Board, see [this document](#) if running Windows Vista or Windows 7 for workaround
- Be sure to speak for the remote students, providing them “voice” in the classroom by reading some of the chat questions and comments out-loud. Allowing remote students VoIP is still problematic and may need to be incorporated with a phone bridge.
- Set and post the agenda then stick to it, especially in regards to time. This helps the remote students be attentive.
- If your class is several hours long, be sure to give breaks
- Here are some fun things to do too
  - Have music playing before class online and in class
    - This helps set the volume level on the remote computers too
  - Put up map so online can show where they are, but be sure to set it to the right scale

## Some Observations and Musings about Online Teaching

There is a growing and developing body of evidence that shows increased and improved student success and retention with classes that use this method of instruction that is above and beyond either traditional face-to-face classes or asynchronous online classes. Both the remote and in-person students benefit through the use of the course delivery program.

The following is from a colleague after using Elluminate via CCCConfer in his class for the first time:

*The most important thing for me is to try and make the online learning environment the same as the in-person environment, that is, to make the online student feel as if they are in the classroom with the in-person students (and other online students).*

An online class should give the student a similar experience to an in-person class, otherwise the online class becomes more of an individualized learning experience with the responsibility of understanding the material resting upon the text book and other learning materials provided by the instructor. The instructor is no longer the primary teaching resource as this responsibility is delegated to non-classroom resources such as text books, videos, and other materials which are normally used to supplement the teacher in the classroom.

If the instructor wants it to give the student the same learning experience as an in-person class than it should be more than just the student reading material and posting questions. The online class should be an actual online version of an in-person class providing:

- lecture
- labs
- interactive communications

Michael McKeever and Rick Graziani both teach what we call an overlay class with instruction given to in-person students and online students at the same time. This may be different for other instructors but they are better presenters/instructors when teaching to a live, in-person audience of students. Both tend to be more “alive”, more animated, more aware of the students, more entertaining, more interesting and more enjoyable. This all translates to a more interesting and informative learning experience for the student. Having in-person students allows them to give online student the same lecture experience as the in-person student is receiving.

Some of the techniques they have used to give the online student a similar experience to the in-person student:

- Always be aware that you have both in-person and on-line students. Think of the online student as another in-person student but remember they may not be able to see all your body language.
- Continuously check-in directly with the online students asking them to respond to positively or negatively to questions like, ‘For those of you at home...’
  - Do you have any questions?
  - How you doing so far?
  - Is the pace okay?
  - Let me pause a moment and let you type in any questions you may have.
  - Do you have any comments?
- When In-person students: ask a question, repeat it for the remote ones
  - Tell everyone (using your microphone) that someone has a question so the online students know why there is going to be a pause. After the student asks the question say



the name of the student who asked the question and repeat it so the online students know who asked the question and what the question was.

- If an online student using VoIP asks a question, treat it as you do an in-person question. Let everyone (in-person and online) students know that one of the online students has a question.
  - Repeat the question from the chat window.
- After answering the question make sure that both the in-person and online students understood the answer and see if there are any further questions.
- Encourage the in-person students to open up the same CCCConfer session as the online students. This allows the in-person students to also use the chat window and to participate in the online polls (smiley or no smiley, check or X, A through E, Yes or No, etc.). This also lets the online students see the names of the in-person students. You will find that the students use the chat room to share links to online resources they discover during the course of your presentation. This and other collaboration between the in-person and online students is part of what makes the class better and more challenging.
- Most schools have Course Management Software (CMS) to conduct their online classes. Encourage and show the online and in-person students how to use its chat and forum features to facilitate their interaction and collaboration. Some may be familiar with other tools and options such as Skype, Google or Yahoo Groups and Forums; letting them explore and setup their own communications network can be a positive lesson and developed skill set itself as well as integral to their success in your course.
- Above all, don't let the technology get in the way of your teaching. Use it as a tool, not as an end itself. Go slowly adding features and enhancements to your class as you become more comfortable and confident managing and integrating the two environments.

## Be an Advocate

Colleagues will be inclined to adopt these new ideas and practices into their classes if they hear from you directly and see how you are integrating them in yours. Don't be shy about sharing your innovations with us and others!

## Questions/Contact Us

Please feel free to contact us at [info@mpict.org](mailto:info@mpict.org) if you have questions. We also welcome and encourage your comments and suggestions for colleagues that we can add to this toolkit.

As our collective experiences expand, and this document improves, revised versions will be posted on the MPICT website at [www.mpict.org](http://www.mpict.org). Please check back for updates.

## Endnotes

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