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I. About CPS

The Classroom Performance System (or CPS) is one of many "classroom response systems" that are on the market today. In general, the technology is an in-class assessment tool that allows the professor to both receive and provide instant feedback on the effectiveness of their teaching, or the extent to which students are learning. The technology consists of radio-frequency receivers, hand-held remote devices that send a signal to the receivers, and software. The software is free and can be installed on any computer. If you do not teach in a large lecture hall where the receivers have already been installed (see list below), you can bring a CPS receiver with you to class and plug it into the computer in the classroom (if the room is not already equipped with a computer, then you can bring a laptop and LCD projector as well). If you want to request for the installation of the software on your classroom computer, please call Media Support Services at (or, contact your schools tech support division).

How it works

Professors can create questions ahead of time, or generate verbal questions on the fly. At the appropriate time in the class, the professor can project a question on the big screen. Students, in turn, consider the question and then submit their responses with their remote devices (also called pads or clickers). The professor can then show a distribution of the responses in a chart on the big screen. All of the data that is generated from the questioning can be saved in the CPS gradebook. The technology is particularly useful in getting students in large lecture classes engaged in the subject matter and with each other. It is also useful for addressing controversial subject matter because the students are anonymous to each other (however, they are not anonymous to the professor). The art of asking well-constructed and well-timed questions can serve a number of functions including promoting active learning, increasing student engagement and participation, quizzing for comprehension, and taking attendance.

There is a second method for using CPS in the classroom. This method is particularly useful for small classes, classes where you will use CPS infrequently and inconsistently, or when you want the students to be anonymous to both themselves and to you. This method requires you to purchase a set of clickers with the equivalent number of registration codes. Upon registering each remote into a database, you can randomly hand out the remotes before class and then collect them after class. You will still gather data from the questions that you ask but the data will not be tied to any one student—unless you assign each student to the same clicker each time you hand them out.

II. Getting Started with CPS

To get started with CPS, please follow the following steps in order.

1. Download the latest version of CPS from the e-instruction website <http://www.einstruction.com/>. The software is free so you should install the program on as many of your computers as you think necessary (e.g. home, office, laptop, etc.)
 - a. Select the **Downloads** option from their main menu
 - b. Select **CPS for PC Full Release** from the drop-down menu
 - c. Select Higher Education and then the submit button
 - d. Click on the link entitled **Classroom Performance System**
 - e. Click on OK for the option Save to a Disk. It will download the installation file to your desktop. The download will take 3 – 5 minutes
 - f. After the file has downloaded, double-click on the installation file icon and the install wizard will walk you through the installation process.
 - g. When the program has been successfully installed, you will be prompted to restart your computer
2. When you open the program for the first time, you will be asked if you want to “open an existing database” or “create a new database.”
 - a. You should “create a new database.” You will only have to do this once. You should call the database by your first (and/or last) name (e.g. john.cps, doe.cps, or johndoe.cps)
 - b. Once the database is created, you will begin to populate it with three different types of data: (1) all of your classes and class rosters will eventually be housed in this database, (2) your CPS questions—if you author them inside of CPS—will be stored here, and (3) the student responses to your questions. But for the time being, all you are doing is creating an empty database.
3. The next step is to create your account with e-instruction along with your first class. You will only have to set up your account once. However, you will set up a new class each semester. You can view a Flash movie on how to do this on our website at <http://www.vcu.edu/cte/resources.html> - select **CPS tutorials** and then **Getting Started** from the table of contents,

then select **CPS Tutorial: Setting up Your User Account and First Class** in item #3. We strongly recommend that you watch this tutorial before you setup your first class...it is loaded with good advice that you may not otherwise find.

- a. When you launch the CPS program for the first time, you will be prompted to either **Open an Existing Database** or **Create a New Database**...you want to **Create a New Database**. You will only have to do this once. You should name your database with your first or last name (e.g. zach.cps). This database will house three types of data—your classes (including your class rosters) your questions (if they are authored inside of CPS), and your students responses to your questions (in the CPS gradebook).
- b. Once the database is created, go to the **Classes** tab and then select the **New** button. The Class Wizard will walk you through the rest of the set-up process.
 - i. Select Higher Education
 - ii. Select No (if you haven't used CPS before...this will allow you to set up your user account for the first and last time. If you select yes, you will be directed to set up a new course—see vii below)
 - iii. Type in the Instructor Setup Code **PSU092474**
 - iv. Select Virginia Commonwealth University from the list
 - v. Create a username and password
 - vi. Type in your instructor information (required fields only)
 - vii. Type in your class information (required fields only). You should name your class as specifically as possible (e.g. Sociology 101- Sect. 022- Fall 2006). I would also recommend that your **class start date** be set for a week before the class actually starts and the **class end date** a week after your final exam. I would deselect **enable notification date** unless you want an email each time a student enrolls into your class. Lastly, leave the **automatically sync class on startup** box checked...this will update your roster every time you launch CPS.
 - viii. The next page gives you the opportunity to go back and edit any field from the previous pages...you can select **Next** here because you can always edit these fields later.
 - ix. This lat page generates your **class key**. You should consider providing your class key to your students in a variety of ways. (in blackboard, in an email, on the white board during the first day of class). You should also select the Print option on this page as well...this will create two word docs—one will contain information that you need as the instructor and the other will be a set of detailed instructions for students on how to register their remote for your class. We recommend that you save the first document for your

- own records and post the second document on Blackboard or make it available to your students somehow.
4. Once you have created a database (#2 above) and set up your instructor account and your first class (#3 above), we recommend that you enroll yourself into your own course.
 - a. Go to the eInstruction website <http://www.einstruction.com/> and select students at the top of the page.
 - b. Then select your institution from the drop down menu
 - c. Since you are new to CPS, you will need to create an account.
Note: This will be different from the instructor account that you previously set up. You will need to create a pseudo name and a new username and password. My recommendation is to type in the serial number on your remote (it is displayed as soon as you turn your remote on) and cut and paste it into all of the required fields. That way you will always know, and have access to, your username and password.
 - d. Once you set up your pseudo student account, you can enroll yourself into your own course using the lifetime enrollment code provided in your startup kit.
 - e. Since you are the first person to sign up for your class, you will be assigned CPS #1. The second student to sign up for your class will be assigned #2. **Note: This will be important for students to understand as well. They will not be the same CPS # for every class. If they were the 22nd person to sign up for a Sociology class, then they would look for #22 to light up on the answer grid in that class. If they were the 123rd person to register their remote for their Chemistry class then they would need to look for #123 to light up in that class.**

III. Authoring and Delivering Questions

There are a number of ways in which you can author and deliver your questions.

1. One way is to use the authoring feature inside of CPS. This is particularly applicable to instructors who don't use PowerPoint or any other presentation software.
 - a. Open up the CPS software and select the **Lessons** tab.
 - b. In the left-hand frame, right click on your **database file**.
 - c. Select **New** and then **Lesson**. Notice that your only option is to create a lesson at this point. Consider the lesson to be the questions that you intend to ask during one class period. I would avoid creating multiple lessons for one class period because that would involve going in and out of different lessons during the class resulting in loss of time. All you really need to do here is name it—you can offer a brief description but it is not necessary

- d. Once a lesson has been created, you can right click on the **Lesson** and select **New** and then **Question**.
 - e. Near the upper right corner of the inner window is a template drop-down menu—this is where you can select the type of question (e.g. multiple choice with 4 answers—or 5 answers, True / False, Yes / No, etc.)
 - f. Once your questions are developed, save your CPS database to a flashdrive and take it to class. To launch the questions, highlight the lesson for the day and select **Engage**.
2. Another method for authoring and delivering questions is with PowerPoint. There are at least three ways of using PowerPoint.
- a. You can take an existing PowerPoint slideshow and insert new question slides into the slideshow using PowerPoint. Once your questions have been embedded save and close PowerPoint. Next, Save the powerpoint presentation to your flashdrive along you're your CPS database. When you get to class, open CPS and go to the **Lessons** tab and right click on the PowerPoint folder in the left-hand frame. Then select **Add File...** then browse for you powperpoint file on your flashdrive and select that file. When you are ready to start class, highlight the PowerPoint presentation file and select **Engage**.

Note: Always save your PowerPoint file to the flashdrive that contains your CPS database and always import it into the PowerPoint folder in CPS while you are in the classroom. If you add the PowerPoint file in your office, the link to the PowerPoint file may not work in the classroom.

- b. A second way to use PowerPoint is to author your questions inside of PowerPoint as indicated in the previous section and save it to you flashdrive. When you get to the room, instead of importing the PowerPoint file into CPS, you can run both programs—CPS and Powerpoint simultaneously. This is particularly useful if you have a lot of multimedia (sound files, video files, or hotlinks) in your PowerPoint slideshow. When you are ready to begin, open PowerPoint and launch the slideshow. Next launch CPS and go to the **Lessons** tab and select **Verbal Questions**. The CPS toolbar will hover over your slideshow. Proceed through your slideshow until you get to a question slide. Once there, select Verbal and then identify the answer set on the question. Once the question is engaged, you should see a PPT icon on a button on the lower right of the toolbar, if you select that button, you can attach the answer grid to the right-hand side of the PowerPoint slide so that it does not overlay the question itself.

- c. A third way of using PowerPoint is to download a new version of PowerPoint from the eInstruction website called PowerPoint for CPS. This program operates just like PowerPoint but it has an additional toolbar for CPS. When you want to insert a question slide into a PowerPoint presentation, place your cursor where you want to insert the question and select Insert Question from the CPS toolbar inside the program. Type your question and answers over the existing text. You can identify the correct answer if you want, or you can wait and identify the correct answer immediately after you ask the question or later when you get back to your office. When you are finished authoring your questions, save the file to your flashdrive and take it to the classroom. Open up the program PowerPoint for CPS on the classroom computer and launch the slideshow as you would with any other PowerPoint presentation. The CPS toolbar will be located at the bottom of the slide. When you come to a question slide, an Engage button will appear—select it to launch the answer grid. You can use the ppt. button to attach the answer grid to the right of the slide as you did in B above.
3. The third way to author and deliver questions is similar to B above. By launching CPS and selecting **Verbal Questions** from the **Lessons tab**, you can overlay the CPS toolbar over any application—PowerPoint, a word or PDF document, an excel spreadsheet, a website, etc. The questions can be embedded in the application itself, or they can be a true *verbal* question. The main caveat here is that you will need to be able to associate the student response data with the appropriate questions.

IV. Some Initial Decisions: Course Planning and Design

If you are committed to using CPS in your course(s), then we recommend that you think through some initial decisions in order to facilitate a smooth integration of CPS into your course(s).

1. In what room(s) will you be teaching?

This is an important question to ask yourself regardless of whether you are going to be using CPS or not. Although VCU has come a long way in attempting to standardize the technology and resources in classrooms, there is still plenty of inconsistencies across the university. You should visit your classroom(s) before classes start so you can see what is available in the room and to familiarize yourself with what is available. A list of the rooms where a CPS receiver is permanently installed is below.

- Oliver Hall 1024
- Life Sciences 151, 155
- Temple 1160, 1164, 1165 and 1169

- Hibbs 203, 303, 403
- Business Building Auditorium

2. What instructional goals do you hope to accomplish with using CPS?

As discussed above, CPS can serve a wide range of instructional goals. We recommend that you start with modest goals—as would be the case with the adoption of any new instructional technique or technology. However, the use of CPS has great potential for creating a very learning-centered classroom.

- a. CPS can provide frequent feedback to both students and professors on a daily basis
- b. CPS can be used to explore and expose hidden misconceptions that both students and instructors may bring with them to class
- c. CPS can be used in conjunction with active learning techniques that are particularly suitable for large class settings
- d. CPS can be used to survey student attitudes, opinions, and behaviors.
- e. CPS can be used to help inform instructors on the effectiveness of various teaching methods or learning activities

3. How often do you plan on using the technology?

If you are going to require that your students purchase their own remotes and register them into your course, then we recommend that you use CPS as frequently as possible—ideally, every class period. Otherwise, students will not bring them to class consistently

If you are going to use CPS infrequently, for test reviews or for certain activities, then you should probably explore using the “mobile” system where *you* bring in a bag of remotes—handing them out at the beginning of class and collecting them at the end. Students may not appreciate buying a remote and registering it if they will only be using it a few times during the semester.

4. How will you integrate CPS into your grading scheme?

It is tough to give a “standard” response to this question given the variety of courses that are out there. The one “standard” that I would apply here is that it should count for something! Here are some possibilities:

- a. Create a class participation grade that will be integrated into the final grade (0 points for no response, 1 point for any response, 2 points for the correct response)
- b. Create pop-quizzes that could be aggregated into an additional test grade

- c. Create a scoring system that will allow you to justify rounding final grades up at the end of the semester
- d. In addition to positive incentives, you may also consider consequences for not using them during class.

5. How will you address broken, lost, or forgotten remotes?

This can be a fairly thorny issue in large enrollment classes. You do not want to spend that majority of your time before or after class dealing with students who have these sort of problems—especially if you don't have any TAs. In order to minimize these issues, develop a policy, convey it early and often, and stick to it. Here are some recommendations

- a. Be a little lenient during the first week or two. Students will be adding and dropping and some are waiting for financial aid.
- b. Offer a certain number of “passes,” once these are exhausted, all additional occurrences will affect their grade
- c. Have them turn in a piece of paper indicating what the issue is. This way, you can help them if it is a technical issue versus irresponsibility. It is also good for record keeping.

6. How will you motivate students to use them?

First and foremost, include some text in your syllabus that explaining why you are using CPS in your course. Link it to your teaching philosophy and/or course goals. Emphasize the value that they will get out of using CPS regularly (i.e. instant feedback, self-assessing for comprehension, becoming familiar with how professor ask / word questions—reducing test anxiety, etc.)

V. Troubleshooting

Many of the problems that CPS users experience can be resolved rather quickly by the student or the instructor. Very few of the problems that we have experienced wind up being technical problems that only eInstruction can resolve. That being said, the following list of “frequently experienced problems” can be resolved by the student and the instructor together. If the issue cannot be resolved then please contact the CTE for assistance, or call the eInstruction tech support numbers below.

One rule of thumb is that if the aforementioned problems are happening sporadically to a relatively small number of students at different times, it is usually an end user issue. However, if the aforementioned problems are happening to a large number of students at the same time then it is probably a systemic problem.

Common Student Problems

1. If the remote will not turn on, or stay on, then it is either a bad set of batteries, or a bad remote. Students should change the batteries to see if this resolves the problem. When the batteries are functional, the LCD screen should first reveal the remotes serial number, then cycle through—automatically joining the channel in the room, and eventually settling into the TMA mode with the number of that clicker in the upper left had side. If a new set of batteries does not resolve the problem then the student should call the elnstruction tech support number (below) and request for a form to be sent to their email allowing them to exchange the remote for a new one at the bookstore.
2. Occasionally, the remotes will not cycle through the appropriate modes upon start up and will become stuck in SMA mode. If this happens, the instructor should open CPS and go to the **Classes** tab and highlight the appropriate class to look at that class's roster. The instructor can look and see if the student has registered correctly. They may not have registered at all, or they may have typed in the wrong serial number. If a the instructor determines that the student appears to have registered correctly then the student should call the elnstruction tech support number (below) and request for a form to be sent to their email allowing them to exchange the remote for a new one at the bookstore.
3. Sometimes the remote will join at all. This typically happens when the student tries to join during a question. Students will not be able to join until the question has ended—in other words, they cannot join during a question but they can between questions.
4. Sometimes the student joins successfully but does not see their cell light up on the answer grid. This is usually due to the student looking for the wrong cell to light up. Many students who are new to CPS will think that they are #18 for every class. They will need to be informed that they are a different number for each class. You can look them up on the CPS roster and let them know what number they are.
5. Lastly, they may have joined successfully and they may have been able to send their responses in for some of the initial questions but their remote turns off or gets kicked off and they have trouble rejoining. This could be a battery issue and they can replace the batteries rather easily. However, if the problem persists then it is a technical issue and the CTE should be contacted—especially if this is happening to multiple students during the same lesson.

Common Faculty Problems

1. You may experience a problem where no student is able to send a response. First, check to make sure that you have pulled up the appropriate class for the lesson. Second, to check to make sure that the receiver is still working, go to the **Settings** option on the uppermost menu bar in the CPS software and select **Delivery Options**, then select the **Receiver** tab, then **Detect CPS Receiver**. The program will automatically begin to look for the receiver in one of its ports. You will see a green check mark when the receiver has been detected or a red X if it doesn't detect one. Please contact Media Support Services (828-1098) if the receiver cannot be detected
2. If you use PowerPoint inside of CPS and you get an error message that the file cannot be found, then you probably imported the ppt. file in your office from your PC and CPS cannot locate the file. When you are using Powerpoint inside of CPS, always save the powerpoint to the same memory stick (flashdrive) that contains your CPS database. I also recommend establishing the link when you get to the classroom and not in your office.
3. If CPS locks up on you, you may be running the database off of your flashdrive. When you get to the classroom, always click and drag the files (CPS database and/or Powerpoint) from your flash drive to the desktop and run the computer and not your flash drive. Also, always use the USB port that is on the front of the computer and not the one at the podium. The one on the podium is attached to the computer via a cable they may have shaken loose or has become disconnected.
4. If you are using the CPS for PowerPoint software, you will need to have PowerPoint 2003 or higher on your computer prior to the installation or the files will not be compatible.
5. We are currently phasing out the old (Gen 1) remotes that are blue and orange and have not LCD display. However, there are still a number of them still in circulation. Both types of remotes will work with CPS. However, Troubleshooting with students who have these older remotes is a little different. The following bullets are for Troubleshooting with the older remotes only:
 - a. When you turn on the remotes, you should see two solid lights (one green and one red) come on, immediately remove your finger and then you should see a slow blinking red light. This means the remote is on and the batteries are in reasonable condition. If you get solid lights that remain solid, first change the batteries. If this doesn't help, call the einstruction tech support number and ask

them for the form that will allow you to exchange the remote for a new one at the bookstore at no cost.

- b. With the older remotes, you have to manually join a channel. Select join, then select the channel number, then send. You should see a fast blinking red light. The red light will continue to blink rapidly until it gets a signal from the receiver in the room. Once this occurs, you should see a slow blinking green light. Now the remote is on and communicating with the receiver.
- c. The remote should remain on and in contact with the receiver for the duration of the class period. If the remote should turn itself off before the end of the class period, then your batteries are probably low. If you have success sending in responses at the beginning of the class but have difficulty sending in responses at the end of the period, you probably have weak batteries.
- d. If students cannot join the channel (as indicated by a continuous fast blinking red light), then they are probably failed to properly register for your course. Check your roster to verify that they are indeed registered for your class and that their serial number matches the one you have on your roster.

eInstruction Tech Support Contact Info

- **Tech Support phone # 1-888-333-4988**
- **Online Tech Support <http://www.einstruction.com/Support/index.cfm>**