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Technical and Administration User Guide for the ED School Climate Surveys (EDSCLS)

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1. Introduction

Welcome to the ED School Climate Surveys (EDSCLS)!

The EDSCLS offers a platform that includes a suite of survey instruments developed for schools, districts, and states by the U.S. Department of Education. Through the EDSCLS, schools nationwide will have access to survey instruments and a survey platform that enable the collection and reporting of school climate data across stakeholders at the state or local level. The surveys can be used to produce school-, district-, and state-level scores on various indicators of school climate from the perspectives of students, instructional staff, noninstructional staff and principals, and parents and guardians. These scores are reported relative to psychometric benchmarks that help users interpret the meaning of their data.

The EDSCLS platform provides education agencies with the ability to survey students, their parents, instructional staff, and noninstructional staff, including principals, to provide a comprehensive picture of a school's climate.

The EDSCLS platform allows education leaders to seek the viewpoints of multiple respondent groups. A multi-perspective approach is important because each of the stakeholders experience school climate differently. The EDSCLS includes four surveys. The "student survey" is intended for students in grades 5–12. The "instructional staff survey" seeks input from teachers and other staff who provide instruction to students in schools serving grades 5–12. The "noninstructional staff survey" was developed for noninstructional staff (e.g., administrators, counselors, coaches, and librarians) who provide services to students in schools serving grades 5–12. The final instrument, the "parent survey," is for parents and guardians of students in grades 5–12. For more information on the background and purpose of the EDSCLS, see Appendix A.

Features of the EDSCLS Platform

The U.S. Department of Education's primary goal in the development of the EDSCLS platform is to provide a no-cost, user-friendly, high-functioning platform that schools, school districts, and states throughout the United States can use to administer the suite of school climate surveys. To achieve these goals, the EDSCLS platform

- does not require education agencies to incur licensing fees or other costs;
- can be installed and administered using a "basic"[1] network infrastructure;
- minimizes risks to data confidentiality; and
- allows for the decentralized storage of data, accessible only to authorized users within the education agency that is administering the data collection.

The EDSCLS is also designed to minimize the effort required to conduct the survey, compile and analyze the data, and produce reports on the results. The EDSCLS platform allows administrators to create linkages to external data sources for the student survey and add more questions to each of the four surveys.

2. Technical Guide

This section provides information about how to use the EDSCLS web-based platform, from installation and configuration through starting data collections and producing reports. The section includes two parts:

[1] Please see the minimum requirements in 2.1 System Setup in Virtual Environment (for IT Staff).

- **Section** 2.1 System Setup in Virtual Environment (for IT Staff) **is intended for the education agency's IT staff** who will be in charge of downloading, installing, and configuring the EDSCLS web-based platform. Step-by-step instructions for IT staff are included in 2.1.1 Installation and Configuration. IT staff must install and configure the EDSCLS platform before the Survey Administrator can access it. In addition, the EDSCLS platform is open-source; therefore, 2.1.3 Source Code and Database Access provides the option to allow web developers and database administrators to view and make any changes to the existing PHP source code and MySQL database.
- **Section** 2.2 EDSCLS Administration **is intended for Survey Administrators,** who oversee the survey data collection through the EDSCLS dashboard. The dashboard contains all the tools necessary to manage EDSCLS data collections, including initiating and monitoring data collections and producing reports. It is strongly recommended that Survey Administrators become familiar with the dashboard (along with this guide) in order to address any issues that may arise during live data collections.

2.1 System Setup in Virtual Environment (for IT Staff)

This section provides instructions to IT staff on how to download and configure the EDSCLS platform package; set up the URL and e-mail; update your server with the latest version of the source code; and access the PHP code and MySQL database. The instructions in this section should be performed by IT staff with administrative permissions to a web server.

The EDSCLS package is a virtual disk to be used to create a virtual machine.[2] VirtualBox is the recommended virtualization application for creating and hosting virtual machines using this virtual disk. This guide will provide instructions using VirtualBox, which is free software.

NOTE: VirtualBox must be installed on a physical server, not another virtual machine. Running a virtual machine within another virtual machine, or nested virtualization, is neither supported nor recommended. If VMWare is used, then VirtualBox cannot be used, and that installation is outside the scope of this guide.

The image of the EDSCLS platform consists of a Linux operating system, Apache web server, MySQL Relational Database Management System, PHP server-side scripting language,[3] and the EDSCLS application.

W A R N I N G

The EDSCLS platform requires MySQL to function properly. Changing the database management system to MS SQL server, for instance, will corrupt the platform.

The following are the key technical requirements, followed by more specific instructions, for the platform's installation:

- Windows (Server 2008 or later, Windows 7 or later), Linux (kernel 2.6 or later), or Mac OS X (10.9 or later);

[2] A virtual machine is a software implementation of a computing environment in which an operating system or program can be installed and run.

[3] Linux, Apache, MySQL, and PHP (or LAMP) are freely available and distributed under open-source licenses.

- at least 8 GB of RAM;
- at least 20 GB of free hard disk space, plus additional space depending upon the number of total respondents (about 1 MB per 100 respondents);
- a high-speed internet connection with at least 2 Mbps upload and download speeds;
- a static IP and URL to which to bind the website; and
- a Secure Sockets Layer (SSL) certificate[4]

NOTE: These are the basic requirements for hosting the EDSCLS. Servers that meet these requirements are capable of using the EDSCLS platform for data collection and reporting; however, some additional configurations or permissions are required in order to use the platform's e-mail function for dissemination of usernames (see 2.2.8 Respondent Usernames Dissemination) or to access the surveys from devices outside of your network. The following decision trees may help you decide how the EDSCLS platform can be installed and configured at your education agency.

The EDSCLS can accommodate up to 500 concurrent[5] respondents using the minimum requirements as detailed above. Please note that a single server may not be able to support 500 concurrent users if there are network bandwidth restrictions, limited operating system capacity, and insufficient RAM. Up to 500 additional concurrent respondents can be supported if dual servers are used with the following server settings: 8 vCPU, 16GB Memory, 100GB disk.

If a user wishes to support more than 500 concurrent respondents, multiple copies of the EDSCLS platform can be installed and results from the multiple copies can be combined (see 2.2.10 Exporting and Importing Respondent-Level Survey Results). Due to these load limitations it is recommended that large education agencies (for example, State Education Agencies) install multiple copies of the platform. Large education agencies may also wish to reduce the load on the EDSCLS platform by staggering their survey administration such that a limited number of students attempt to access the platform at once.

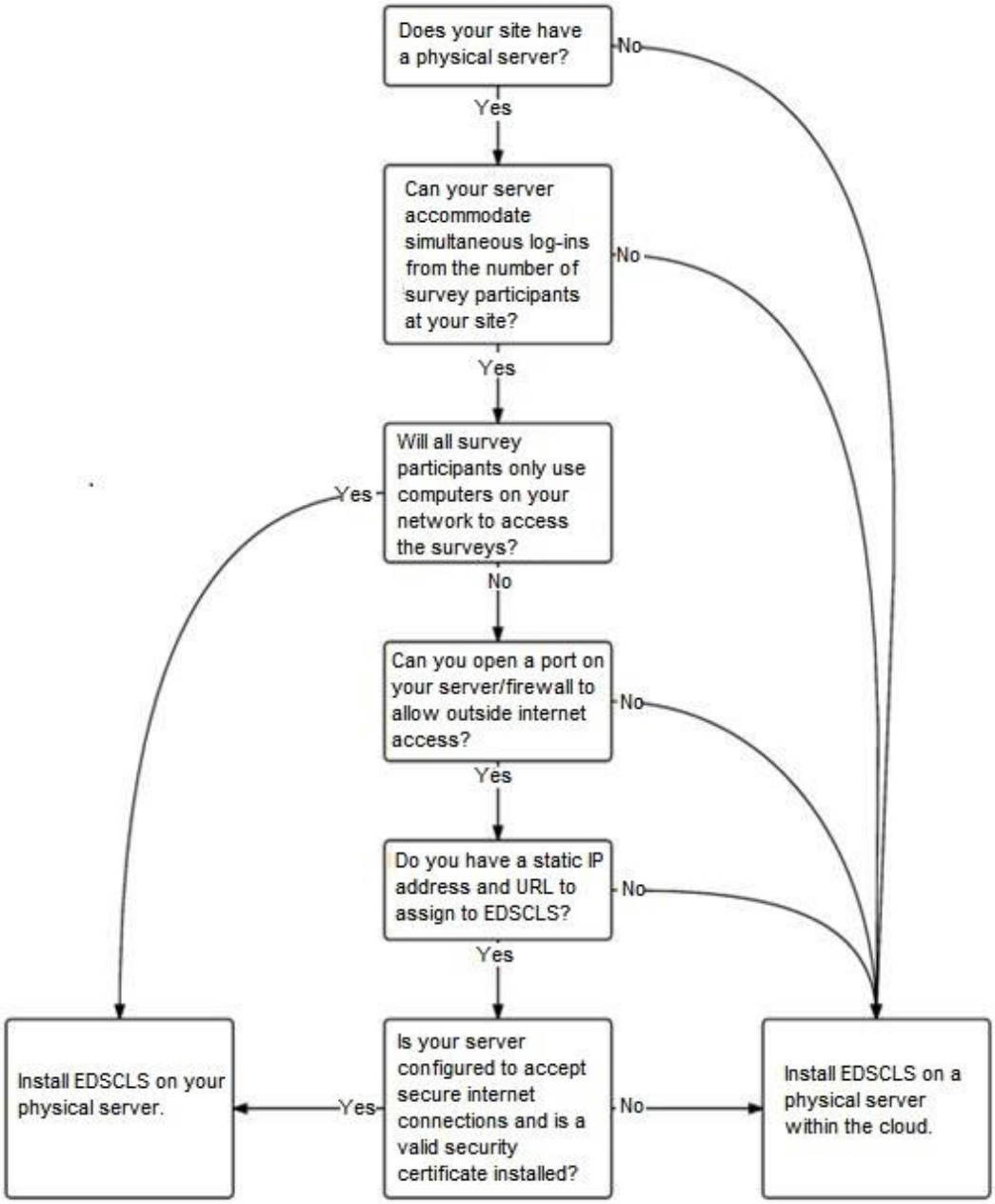
N O T E

If you are a large agency and plan to install multiple copies of the platform, it is useful to think strategically about how participants will be divided between the multiple copies. For instance, if you are a State Education Agency, perhaps you assign specific districts to a platform based on their size. Or, if you are a large school district, perhaps you assign your middle schools to one platform and your high schools to another, so that you don't exceed the 500-participant limit.

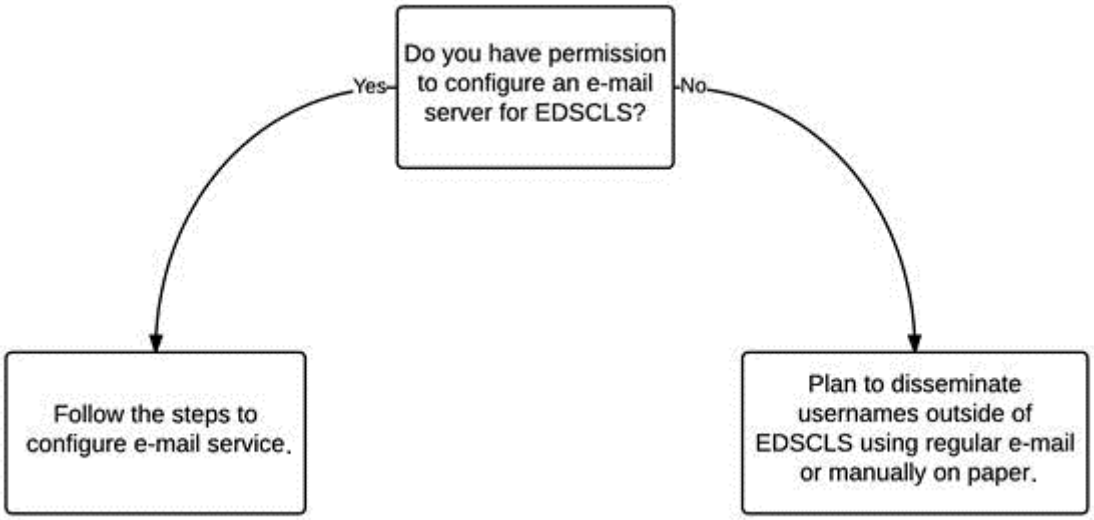
[4] A SSL certificate establishes a secure connection between the web server and the browser.

[5] Concurrent respondents are defined as all respondents answering all items in the EDSCLS survey within a 30 minute period of time. Load testing assumes that all respondents log in within the first 5 minutes, with 5 respondents logging in every 3 seconds, and each respondent spending 16-25 seconds to answer an item. For the load test, the EDSCLS VM 3.0 was loaded into local PC, running as EC2 instance with the following server configuration: 2 vCPU, 16 GB Memory, and 100 GB disk.

Installation



Username Dissemination



Before beginning the download and installation steps, you should first save your current work and exit from all other programs that might be running.

The estimated time for each step is listed below:

- Download the 7 GB Virtual Machine Disk (VMDK) of the EDSCLS platform from the NCSSLE website (10 minutes).
- Download and install Oracle VM VirtualBox (5 minutes).
- Configure the EDSCLS virtual machine (15 minutes).
- Create the URL and make it accessible via the web (5 minutes) and configure the virtual machine to send e-mail (5 minutes).
- Access the PHP source code (optional). This step is needed only when you want to view or modify the EDSCLS source code.
- Access the MySQL database (optional). This step is needed only when you want to view or modify the EDSCLS database.

The following section provides step-by-step instructions for installing and configuring the EDSCLS on a physical machine.

2.1.1 Installation and Configuration

Updates to the EDSCLS virtual machine, including source code changes and security patches, will be released periodically and posted on the NCSSLE website at https://safesupportivelearning.ed.gov/edscls. Known platform users will be notified by e-mail.

- Starting with VM 3.2, the version number is located in the bottom right-hand corner of the administrator dashboard. Previous versions of the platform do not display the version number.
- Following the release of VM 4.1, the VM numbering scheme was modified so that users could more easily identify the kind of enhancements made to the platform. The second digit of the VM number will go up when VM releases include source code changes (e.g., 4.**2**.0); when VM releases only include routine security patches, the third digit will go up (e.g., 4.1.**1**).

If you choose to update the version of your survey platform, you have two options:

1. Replace your virtual machine with the newer version.

> **N O T E**
>
> Before replacing the virtual machine with a newer version, you should export the data that have been collected. If you do not export the data before deleting the older version of the virtual machine, you will lose the data that the previous version contains. For instructions on exporting survey data, please see 2.2.10 Exporting and Importing Respondent-Level Survey Results.

2. Download the new EDSCLS virtual machine and house both the new version and the previous version on your server.

> **N O T E**
>
> If you are housing more than one virtual machine on your server, the requirements for memory and disk space should be multiplied by the number of virtual machines you are actively storing.

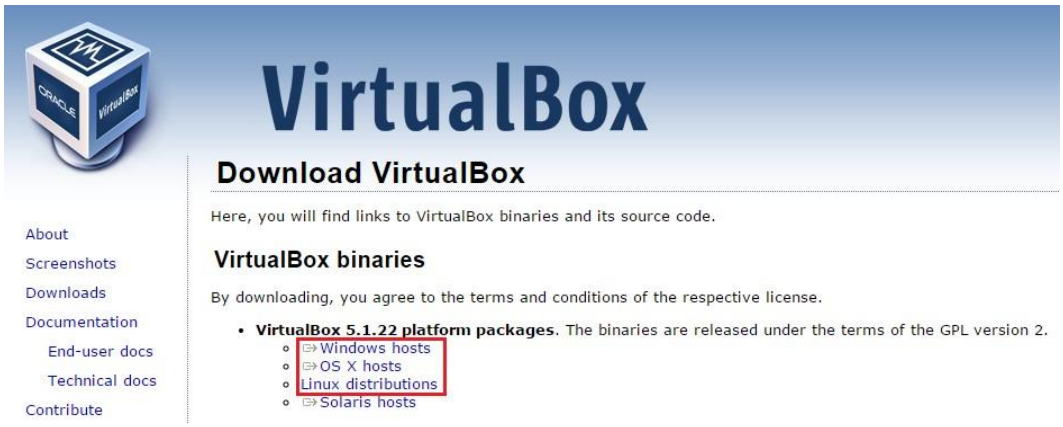
If you are currently collecting data, we recommend you NOT transition to the new EDSCLS VM until your data collection is complete.

A. To download the EDSCLS package:

1. Download the VirtualBox image of the EDSCLS platform from https://safesupportivelearning.ed.gov/edscls.

B. To download and install Oracle VM VirtualBox:

1. Download the latest version of VirtualBox for your server's operating system (either Windows, Linux, or Mac OS X) from https://www.virtualbox.org/wiki/Downloads.



2. Install VirtualBox.

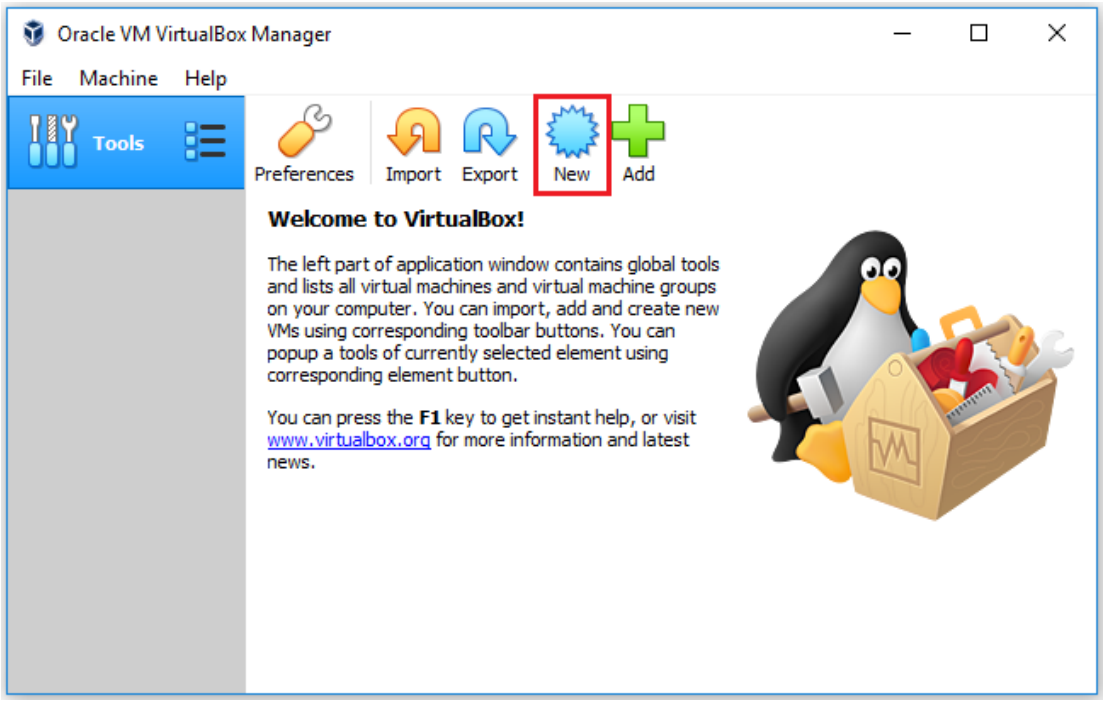
N O T E

For step-by-step installation instructions, refer to https://www.virtualbox.org/manual/ch02.html.

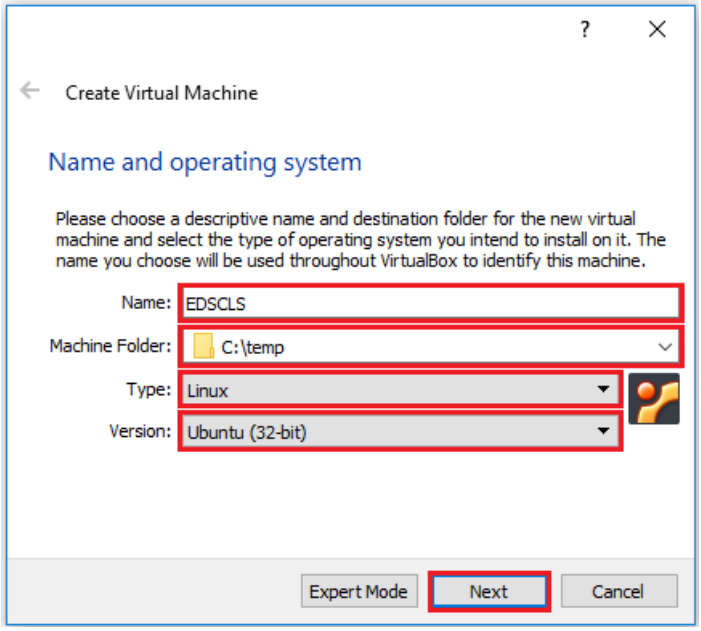
The EDSCLS virtual machine is scanned and updated periodically. It is recommended that users check the NCSSLE webpage at least once a month for updates.

C. To configure the virtual machine:

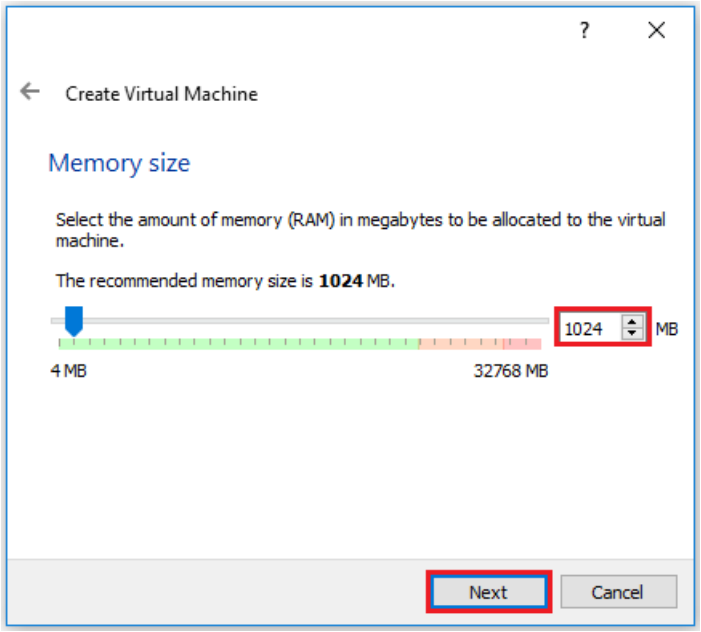
1. Open Oracle VM VirtualBox and click on the "New" button on the main tool bar.



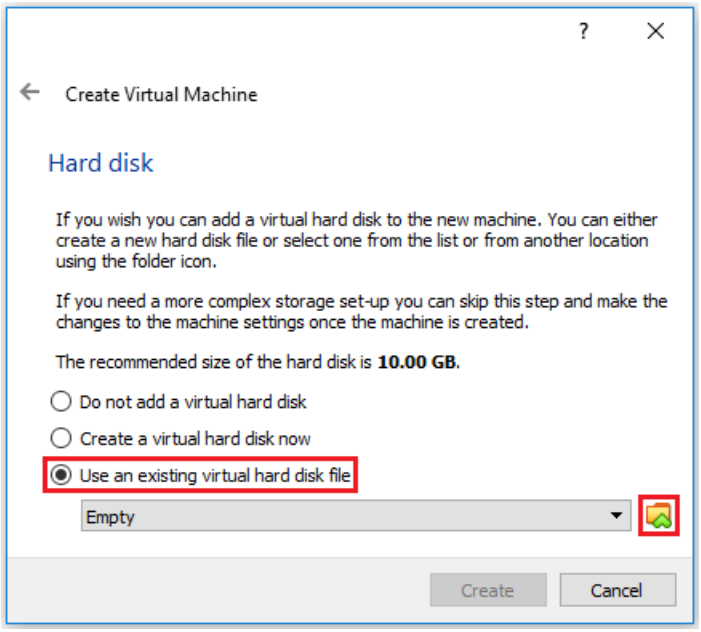
2. Enter a descriptive name in the “Name” text box (e.g., “EDSCLS”) and select a destination folder in the “Machine Folder” drop-down box for the new virtual machine. Regardless of your own server’s operating system, select “Linux” from the “Type” drop-down box. Select “Ubuntu (32 bit)” from the “Version” drop-down box. Then click on the “Next” button.



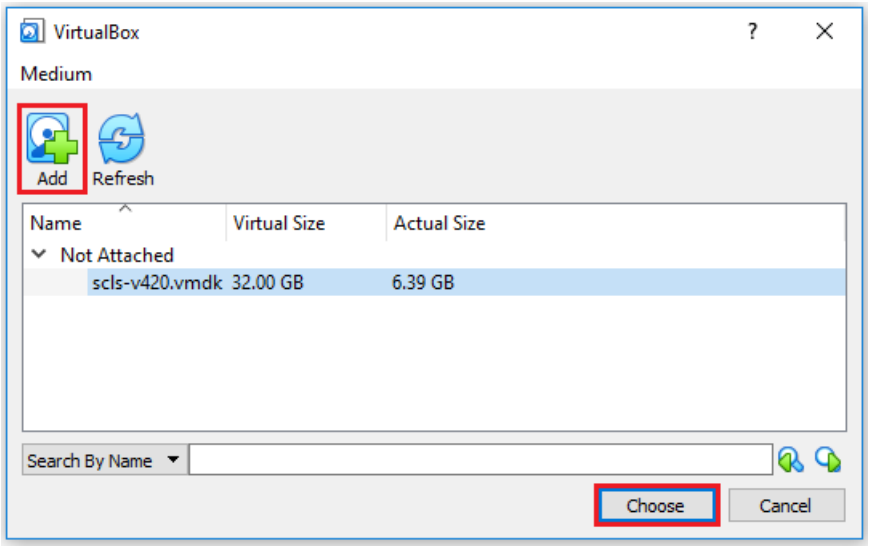
3. For the memory size, specify at least 1,024 MB, and preferably 2,000 MB, depending on your server’s specifications. Then click on the “Next” button.



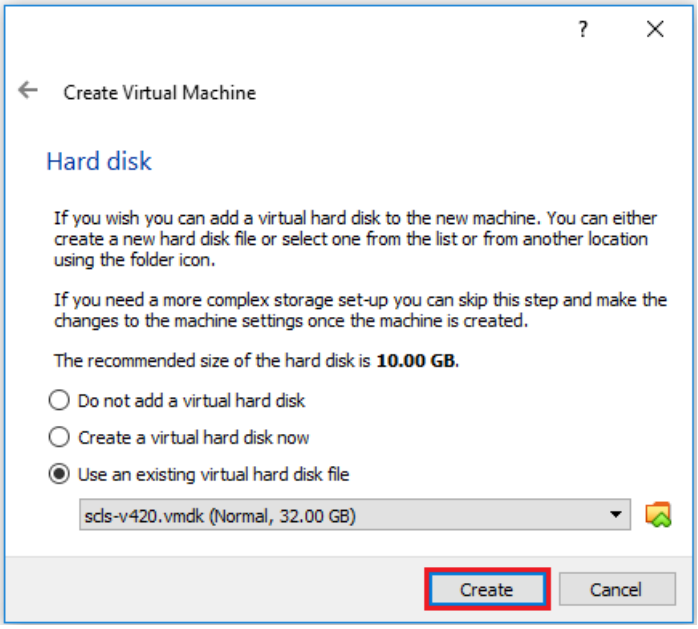
4. Select the "Use an existing virtual hard disk file" option button. Click on the *Folder* icon button.



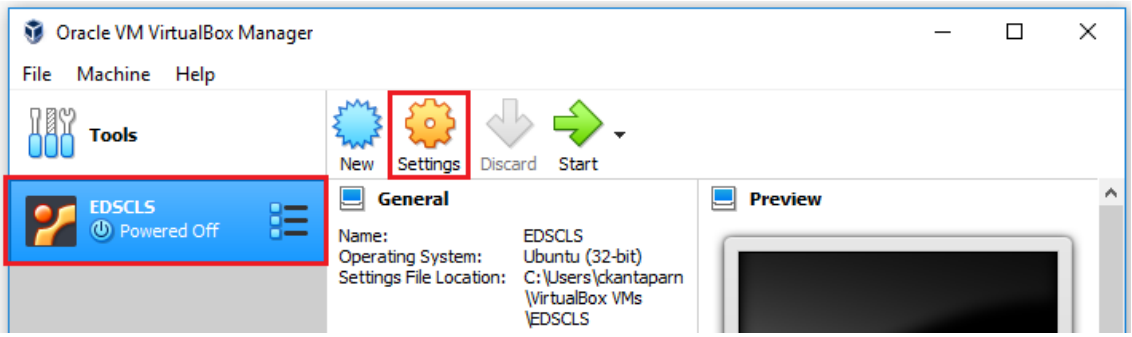
Click on the "Add" button and open the downloaded EDSCLS VirtualBox image. Then click on the "Choose" button.



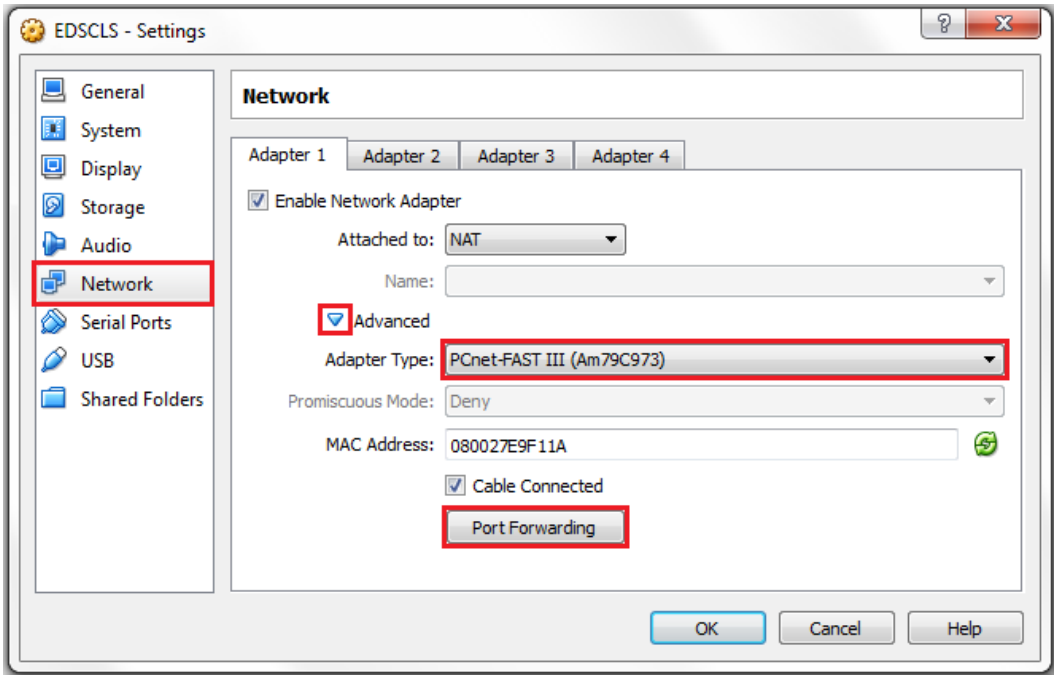
Click on the “Create” button. The new virtual machine should now appear on the left side of the window.



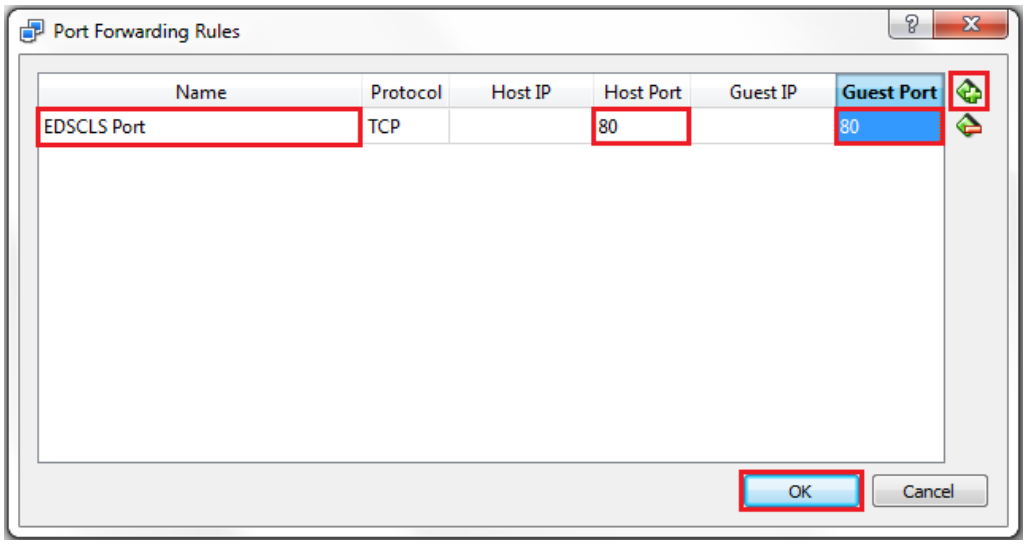
5. Make sure the EDSCLS virtual machine is selected on the left, then click on the “Settings” button on the main tool bar.



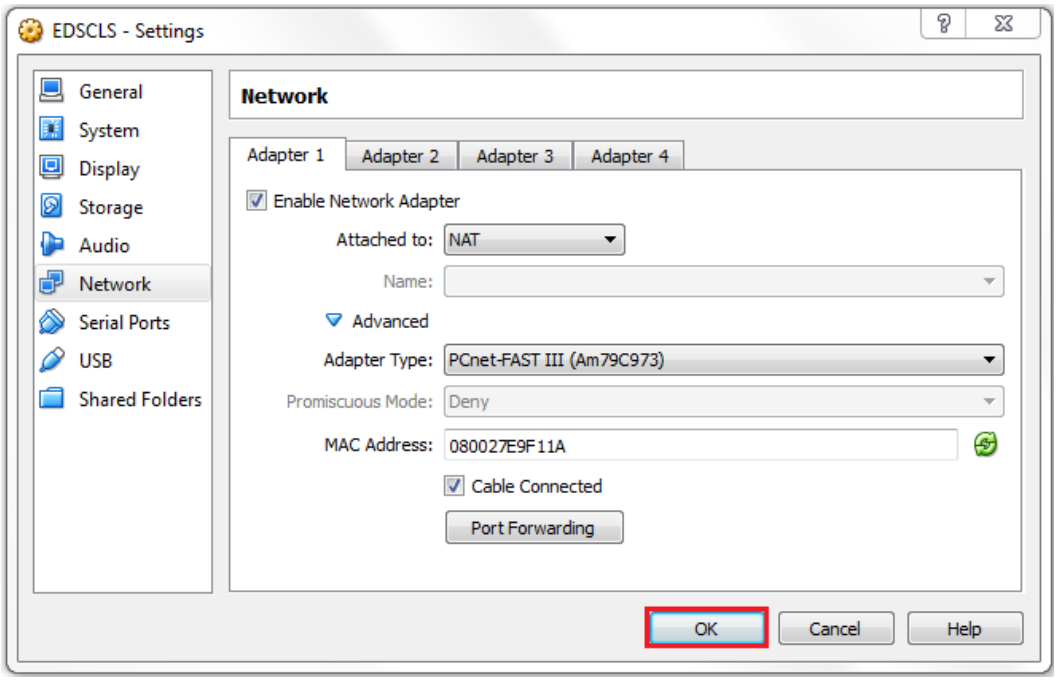
6. From the Settings window, select “Network” on the left side and click on the “Advanced” *Expand* icon. Select “PCnet-FAST III (Am79C973)” from the “Adapter Type” drop-down box. Click on the “Port Forwarding” button, which will open the Port Forwarding Rules window.



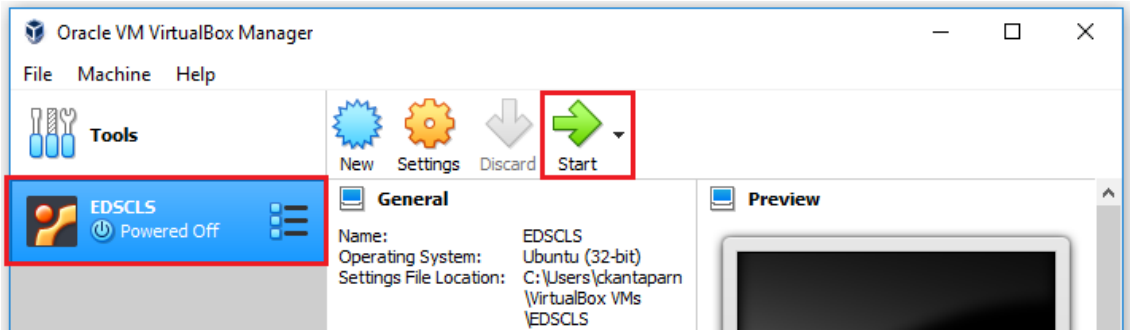
7. From the Port Forwarding Rules window, click on the *Add* icon on the far right to add a new record. Under the “Name” column, enter a descriptive name (e.g., “EDSCLS Port”). Under “Host Port,” enter “80” or specify a different port of your choosing. Under “Guest Port,” enter “80”. Then click on the “OK” button to close the window.



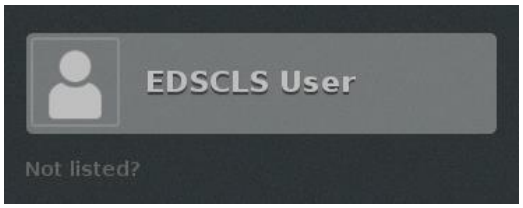
8. Click on the “OK” button to close the Settings window.



9. To start the EDSCLS virtual machine, make sure it is selected on the left, and then click on the "Start" button on the main tool bar. The machine will take about a minute to boot up.



10. To log in to the EDSCLS virtual machine, press the *Enter* key.



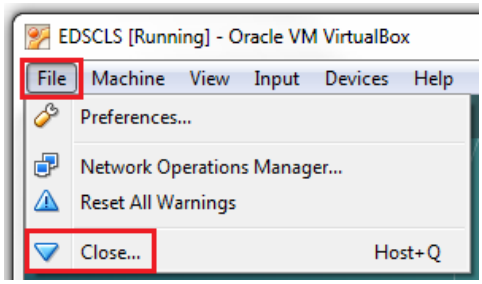
11. If you're logging on to the EDSCLS virtual machine for the first time, enter "OsunXiboGyP4x" in the "Password" text box. Otherwise, enter the new password you have chosen. The password will be hidden. Then press the *Enter* key.

12. If you're logging on to the EDSCLS virtual machine for the first time, enter "OsunXiboGyP4x" again in the "(current) UNIX password" text box. The password will be hidden. Then press the *Enter* key.

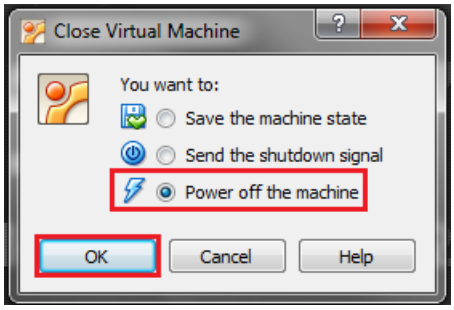
Enter a new password in the "Enter new UNIX password" text box. The password will be hidden. Then press the *Enter* key.

Enter the same new password in the "Retype new UNIX password" text box. The password will be hidden. Then press the *Enter* key.

13. Click on the "File" menu, then select "Close" to power off the EDSCLS virtual machine.



From the Close Virtual Machine window, select "Power off the machine", then click on the "OK" button.



Once the EDSCLS virtual machine has been downloaded, installed, and configured, the following instructions should be performed by a Network/System Administrator, as there may be security and firewall issues involved.

D. To set up the URL and e-mail:

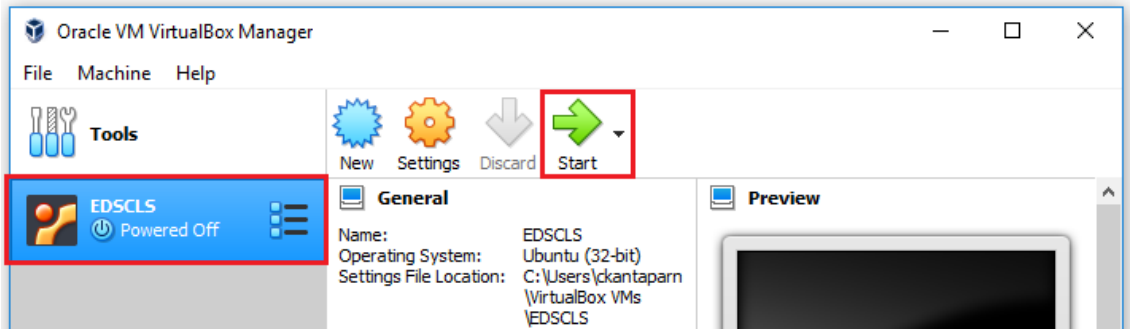
1. Log in to your hosting provider's web portal and navigate to the DNS section. Create a new record with your domain name without "www" (e.g., "edagency.edu") and the static IP address of the computer hosting the EDSCLS virtual machine.

2. To make the domain accessible with “www” at the beginning as well, create a CNAME record with “www” and “@”.

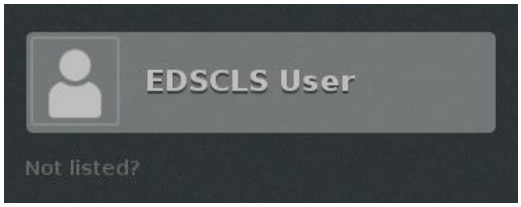
3. To configure your server to send e-mail, create MX records containing information about your e-mail service provider.

4. To configure the hostname and DNS, first, launch Midori to load Webmin.

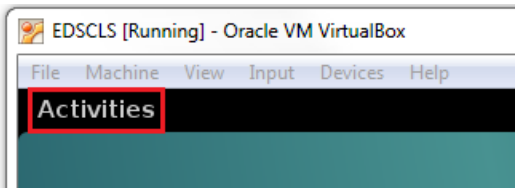
a. Restart the virtual machine from VirtualBox Manager.



b. Log in to the EDSCLS virtual machine.



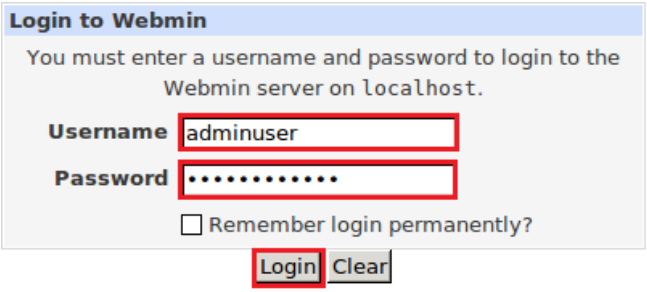
c. Click on the “Activities” link on the upper left-hand corner of the desktop.



d. Then click on the *Midori* icon button.

The browser should load Webmin at URL "localhost:10000". If not, then type it in manually. NOTE: If Midori fails to load Webmin, refer to section 2.1.2 Troubleshooting.

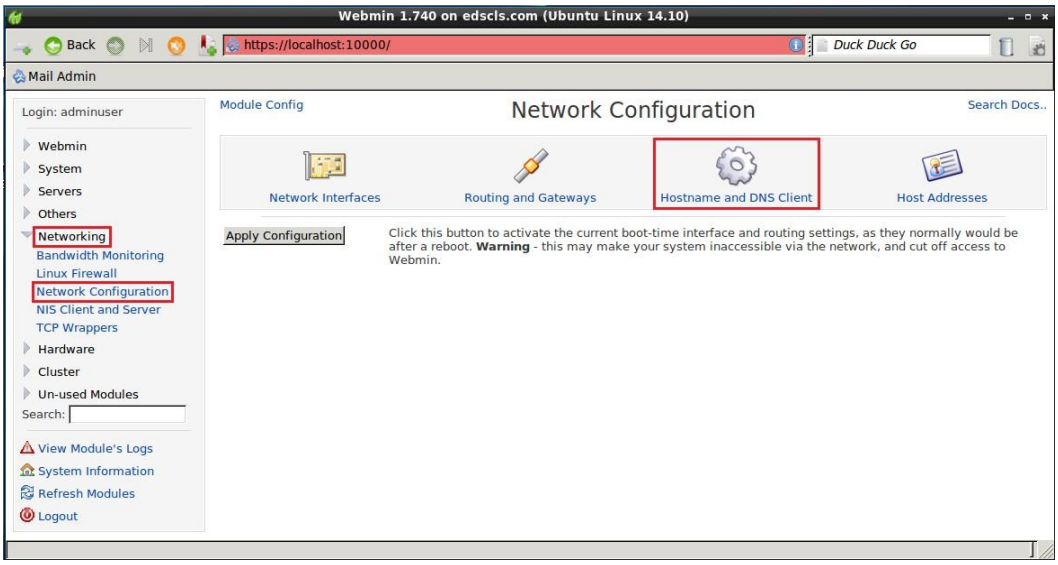
From the Login to Webmin window, enter "adminuser" in the "Username" text box and enter the new password you have chosen in the "Password" text box. The password will be hidden. Then click on the "Login" button.



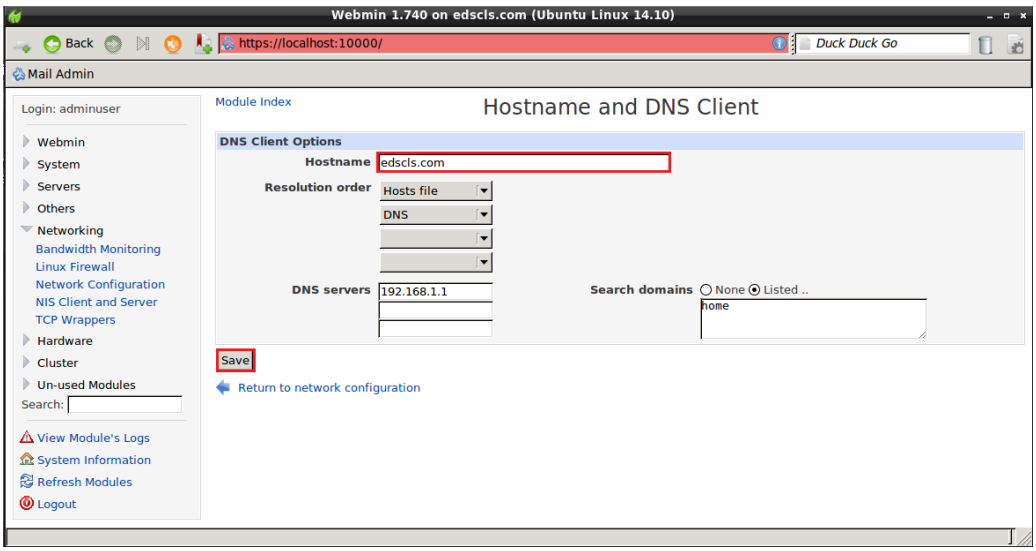
If you are configuring EDSCLS 2.7, click on the "Update Detected Operation System" button.

We do NOT recommend clicking on the “Upgrade Webmin Now” button.

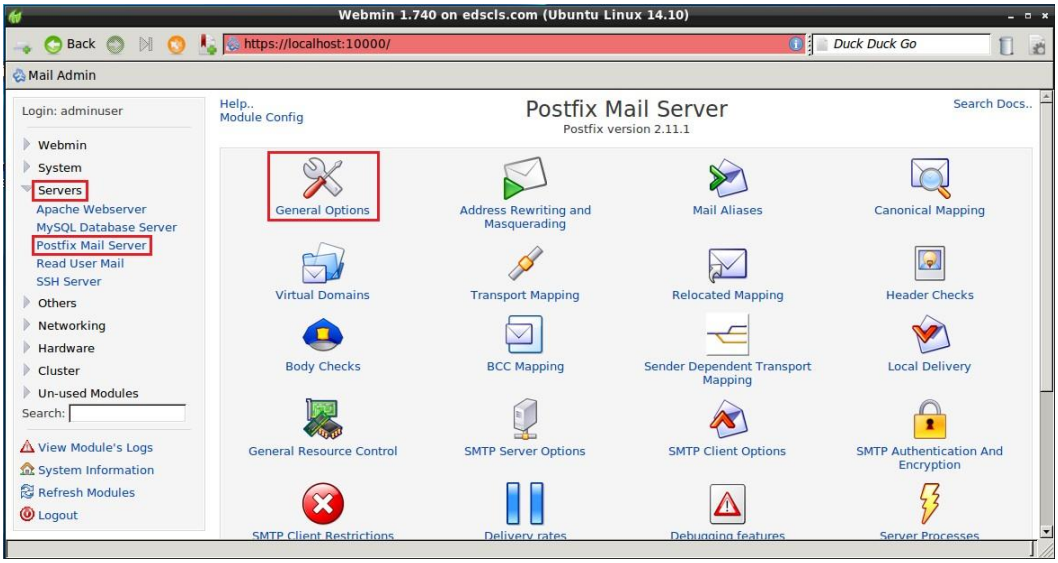
Select “Networking” on the left side; then select “Network Configuration.” Then click on the “Hostname and DNS Client” button.



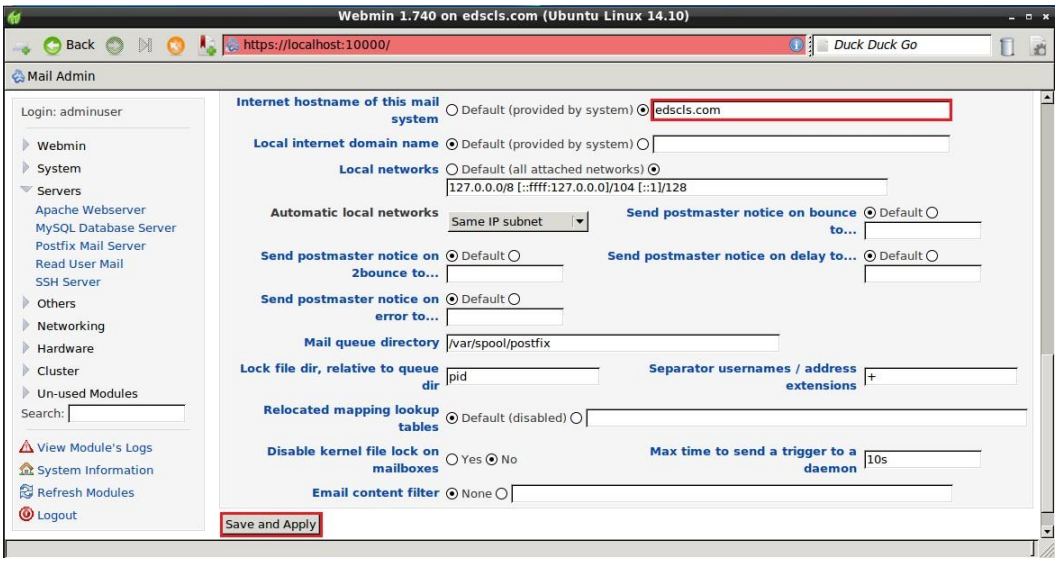
In the “Hostname” text box, replace “edscls.com” with your URL without the “www”. Then click on the “Save” button.



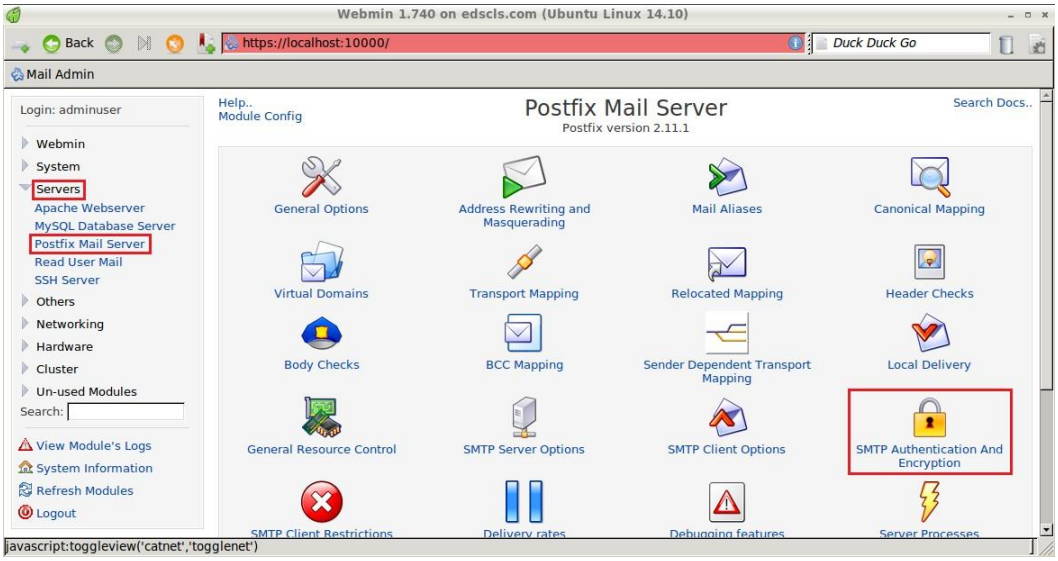
To set the hostname of the mail system, select “Servers” from the menu on the left side of the window; then select “Postfix Mail Server.” Then click on the “General Options” button.



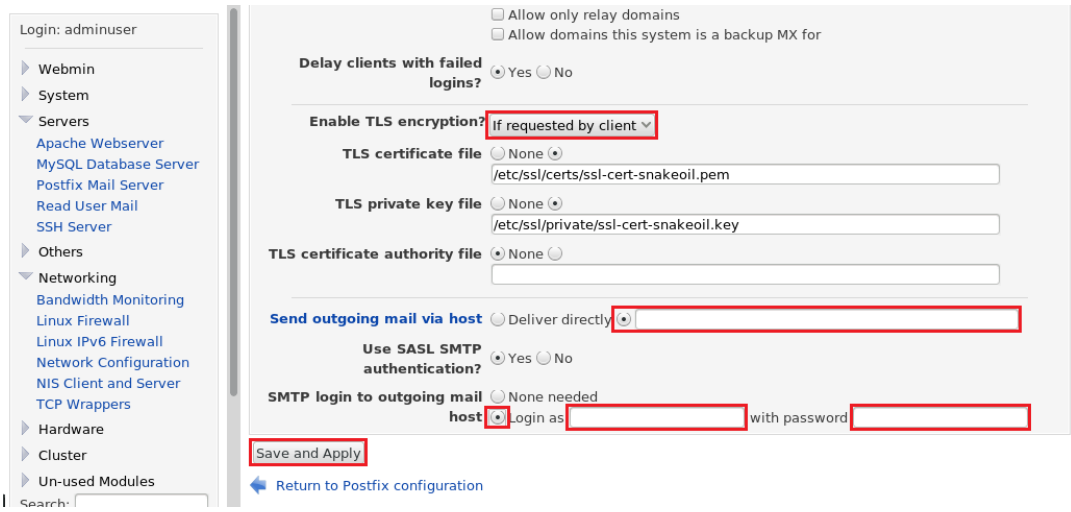
Scroll down and replace “edscls.com” with your URL without the “www” in the “Internet hostname of this mail system” text box. Then click on the “Save and Apply” button.



To configure SMTP mail with your existing mail server, select “Servers” on the left side; then select “Postfix Mail Server.” Then click on the “SMTP Authentication And Encryption” button.



Scroll down. For the “Enable TLS encryption?” drop-down box, select “if requested by client”. For the “Send outgoing mail via host” radio button, select the second option and enter the SMTP hostname. For the “SMTP login to outgoing mail host” radio button, select the second option. Enter the SMTP host username in the “Login as” text box and enter your SMTP host password in the “with password” text box. Then click on the “Save and Apply” button. If this step is unsuccessful, revert back to the default configuration (i.e., “Deliver directly”, “None needed”).



5. Make sure to provide the Survey Administrator with the URL and e-mail address you created in the steps above.

2.1.2 Troubleshooting

Once installation and configuration are complete, please work closely with the Survey Administrator to ensure that the EDSCLS platform is functioning properly. You may encounter the following issues, and here are some suggested solutions.

A. If usernames are not being generated:

2.1.2.1 Delete the data collection in question from the system (see 2.2.4 Data Collection).

6. Restart your server and/or the EDSCLS virtual machine.

7. Recreate the data collection and generate the usernames again.

8. In older versions of the platform, problems generating usernames may be due to the length of a school name. When you add a new school and enter a school name that is more than 50 characters long to an older platform, it is unable to generate usernames. Newer versions of the platform, VM 4.0 and later, include a 60-character limit on school name.

B. If e-mails are not being sent:

1. Repeat the steps under 2.1.1 D. To set up the URL and e-mail: to verify the information entered is correct.

2. Verify your settings with your e-mail service provider.

   a. You might need to use an IP address if no DNS name is available or resolves.

   b. Make sure you include the port number they require if not standard. For example, smtp.gmail.com uses port 587.

   c. You might need to enable (or disable) SASL for use with your provider. In Webmin > Servers > Postfix Mail Server > SMTP Auth & Encryption, for "Use SASL SMTP authentication?" select Yes (or No).

3. Make sure your firewall and virus scanner on the host allows e-mails to be sent from the virtual machine. For example, McAfee needs to have an exception for not preventing Virtualbox.exe to send e-mail.

4. If you are running EDSLS VM version 4.2.1 or higher, and are trying to use it along with Microsoft Exchange Server, you must apply patches provided by Microsoft to allow Exchange to support TLS version 1.2.

C. If Midori reports problems with the signing certificate when loading Webmin:

1. Close and restart the EDSCLS virtual machine. Alternatively, open a terminal inside the virtual machine and type "reboot".

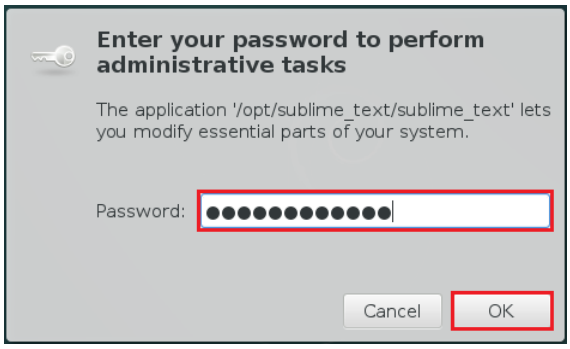
   NOTE: There is an intermittent problem reported with Midori that is usually cleared up after a reboot. This will reset the network communications and fix minor filesystem corruption that can happen in a virtual machine that is interrupted by power outage or sudden shutdown.

2.1.3 Source Code and Database Access

A. To access the PHP source code:

1. Click on the "Activities" link on the upper right-hand corner of the EDSCLS virtual machine desktop, then click on the *Sublime* icon button.

2. Enter the new password you have chosen in the "Password" text box. The password will be hidden. Then click on the "OK" button.

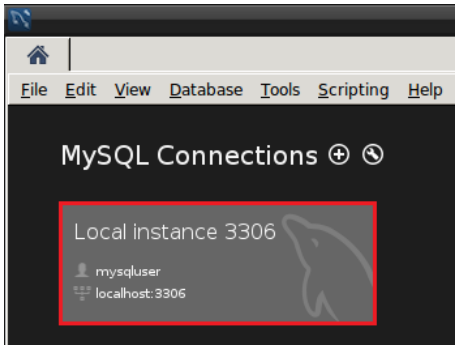


3. Navigate to the files in /var/www/app.

B. To access the MySQL database:

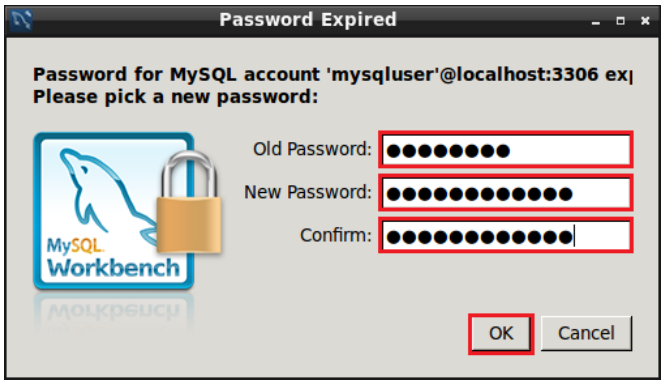
1. Click on the "Activities" link on the upper right-hand corner of the EDSCLS virtual machine desktop, then click on the *MySQL* icon button.

2. Click on the "Local instance 3306" MySQL connection.



3. If you're connecting to "Local instance 3306" for the first time, enter "PpkzDcnj" in the "Password" text box from the connect to MySQL Server window. Otherwise, enter the new password you have chosen. The password will be hidden. Click on the "OK" button to close the window.

4. If you're connecting to "Local instance 3306" for the first time, enter "PpkzDcnj" in the "Old Password" text box from the Password Expired window. Enter a new password in the "New Password" text box. Enter the same new password in the "Confirm" text box. The passwords will be hidden. Then click on the "OK" button.

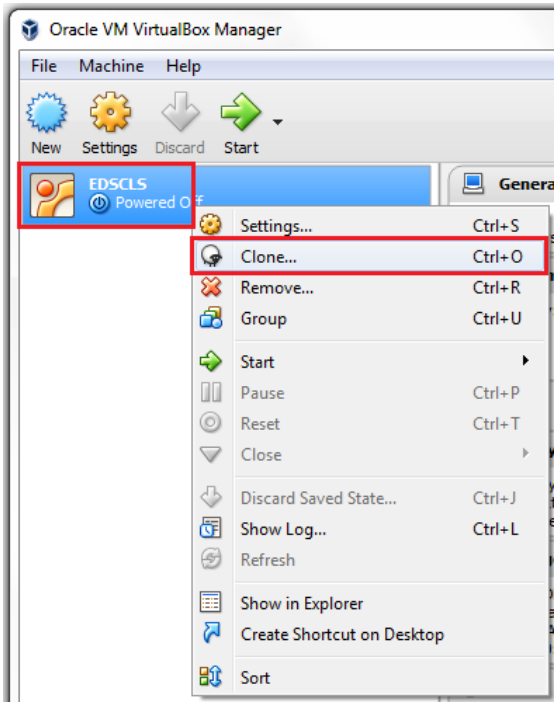


From the Connect to MySQL Server window, enter the new password you have chosen in the "Password" text box. The password will be hidden. Then click on the "OK" button.

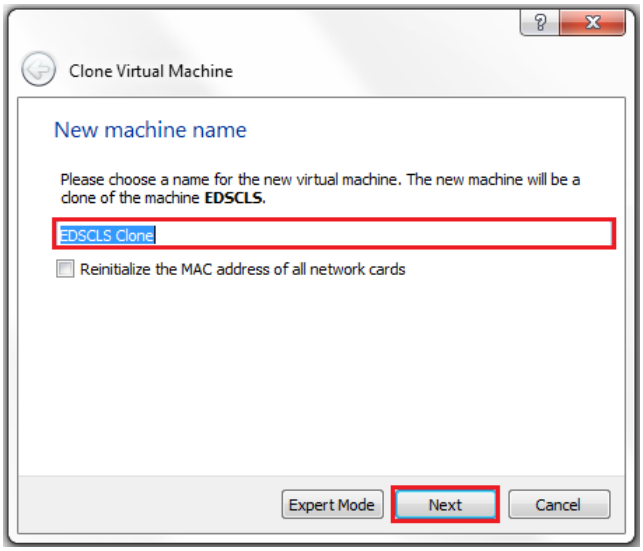
2.1.4 Virtual Machine Back-up

A. To create a back-up/clone of the EDSCLS virtual machine:

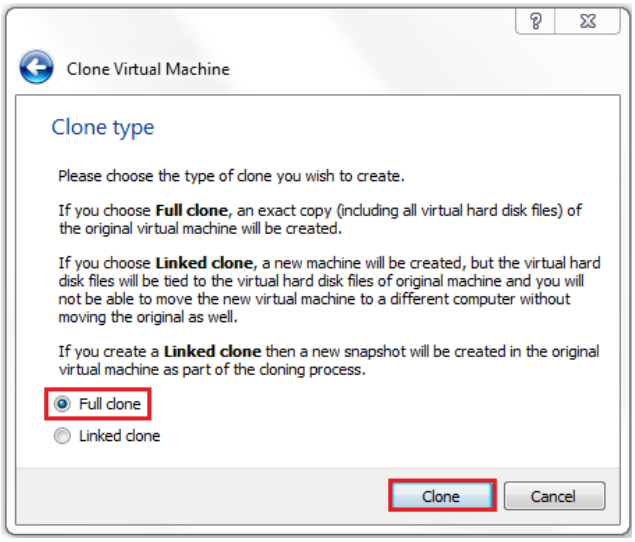
1. From VirtualBox Manager, make sure that the EDSCLS virtual machine has been powered off. Right-click the virtual machine name on the left, then select "Clone".



2. From the Clone Virtual Machine window, enter a descriptive name for the virtual machine clone (e.g., "EDSCLS Clone"), then click on the "Next" button.



Select “Full clone” for the clone type, then click on the “Clone” button.



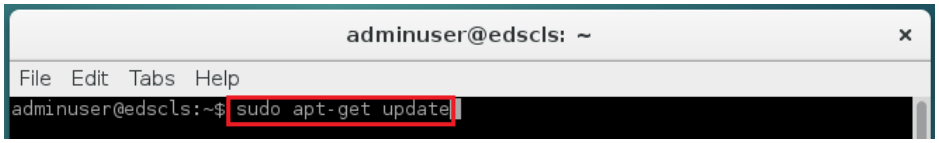
2.1.5 Security Patches and Upgrades

A. To manually apply security patches and upgrades:

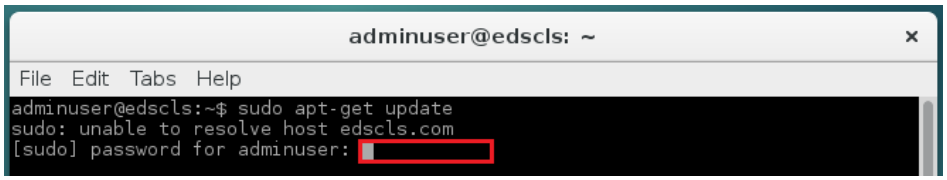
1. Click on the “Activities” link on the upper right-hand corner of the EDSCLS virtual machine desktop, then click on the Show Applications icon button.

Then click on the LXTerminal button.

2. From the terminal window, enter “sudo apt-get update” at the command line and press the Enter key.



3. Enter the new password you have chosen at the command line and press the Enter key.

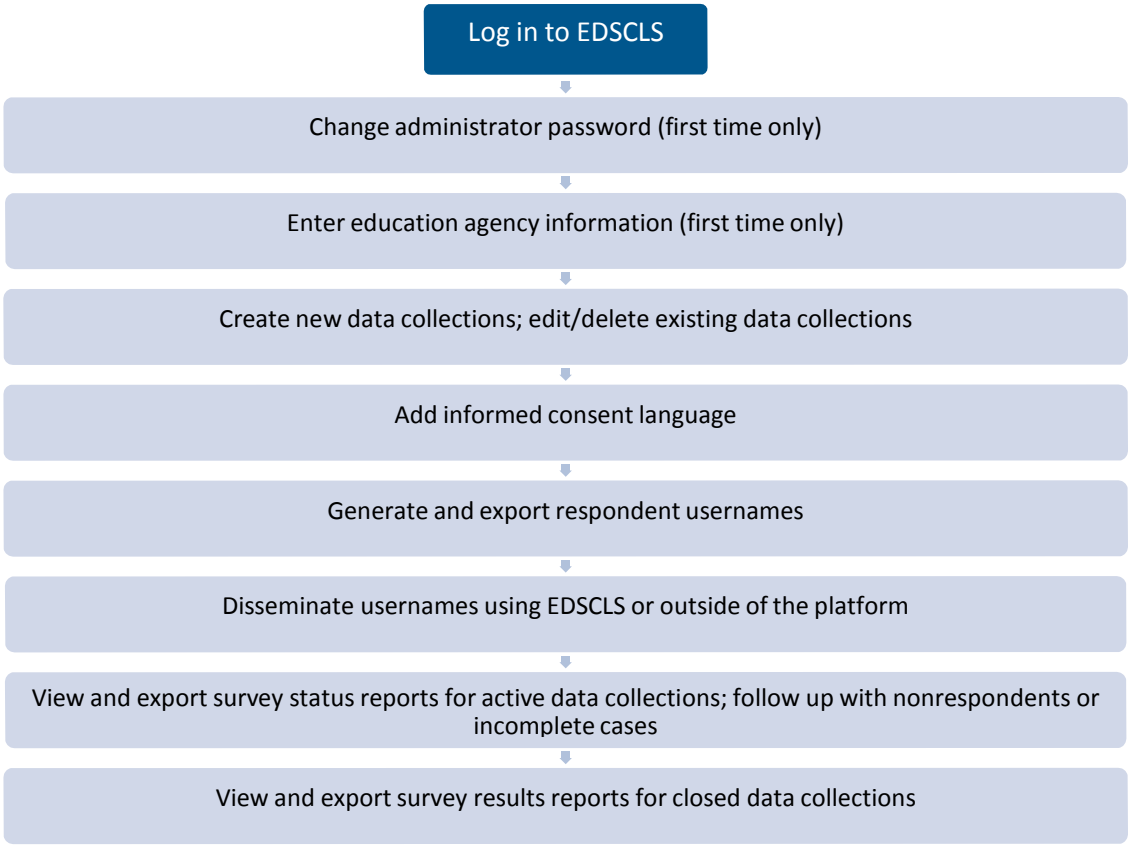


4. Enter "sudo apt-get upgrade" at the command line and press the Enter key.
5. Enter "sudo apt-get dist-upgrade" at the command line and press the Enter key.
6. When asked "Do you want to continue? [Y/n], enter "Y" at the command line and press the Enter key.

2.2 EDSCLS Administration

This section is intended for EDSCLS Survey Administrators and covers how to administer the suite of school climate surveys to students, parents/guardians, instructional staff, and noninstructional staff (including principals). Figure 1 below displays the various tasks that Survey Administrators will use the dashboard to carry out during the survey planning, administration, and post-administration phases of the EDSCLS. Each of these tasks is explained in more detail throughout this section.

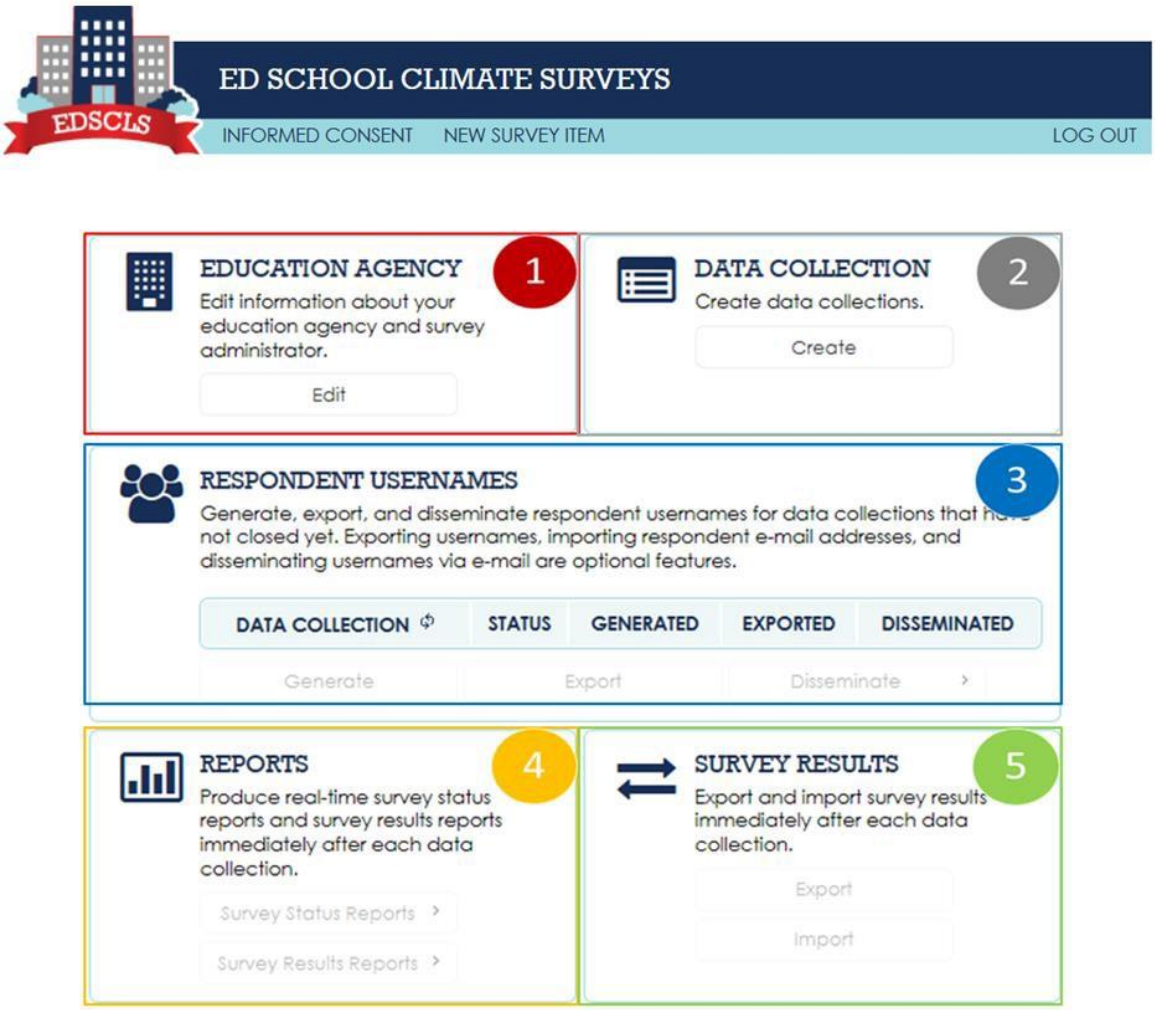
Figure 1. EDSCLS Survey Administrator Tasks



2.2.1 EDSCLS Administrator Dashboard

Once the survey platform has been installed and configured by IT staff, Survey Administrators will have access to the "Survey Administrator dashboard," which will be their control center throughout the survey process and where each of the tasks displayed in figure 1 can be executed. Figure 2 below displays the dashboard.

Figure 2. EDSCLS Survey Administrator Dashboard



The Survey Administrator dashboard is divided into five main boxed sections. The dashboard allows the Survey Administrator to perform the following tasks:

1 edit information about the education agency administering the survey and the Survey Administrator;

2 create, edit, and delete data collections;

3 generate, export, and disseminate random usernames for each respondent group;

4. produce various types of reports, including real-time survey status reports during data collection and survey results reports immediately after data collection; and
5. export and import survey results.

Additionally, the dashboard allows Survey Administrators to add appropriate informed consent language directly into the EDSCLS surveys. The EDSCLS includes default informed consent language to provide respondents with information about the study and their rights to participate. They can also choose to not participate after reading the information. Survey Administrators can modify the prefilled language based on the needs of their education agency. For the student survey, Survey Administrators need to add confidentiality language that is consistent with the Family Educational Rights and Privacy Act (FERPA) and state laws and that takes into account whether or not student response data will be linked to external data. This feature can be accessed via the "INFORMED CONSENT" link found on the home page of the dashboard.

Survey Administrators also have the ability to add new survey items to the end of the pre-set EDSCLS items by clicking on the "NEW SURVEY ITEM" link found on the home page of the dashboard. Survey results for new items will not be displayed in any reports within the platform; however, Survey Administrators will be able to export the data for analysis outside of the platform.

It is strongly recommended that Survey Administrators conduct a test run of the survey process prior to survey administration. Test runs should be done for all surveys, but more planning is needed for the student survey (securing rooms in which to administer the survey, assigning proctors, distributing log-in information, etc.). Please see more details in 3.4 Test Runs Prior to Administration. The test run familiarizes Survey Administrators with the full capabilities of the dashboard and equips them to address any issues that may arise during active data collections. For example, the survey status reports function allows Survey Administrators to monitor real- time submission rates,[6] a useful feature that can be used to identify respondent groups with low submission rates. Nonresponse follow-up efforts (e.g., e-mail reminders) can then be implemented to increase participation rates.

Administrators may want to use figure 2 above to follow along with the directions below. Alternatively, if IT staff have already downloaded and installed the EDSCLS package, administrators may want to follow along with the real dashboard open on their computer.

[6] The submission rate is calculated as the number of surveys completed (i.e., submitted to the EDSCLS system) divided by the number of usernames randomly generated by the system.

The icon button key below shows the icon symbols that are referenced throughout this guide.

ICON BUTTON KEY:	
	Save
	Delete
	Information
	Expand
	Collapse
+	Add
	Refresh

2.2.2 Authentication

Before beginning to use the features of the dashboard, the Survey Administrator must first log in. Step-by-step instructions on how to log in to the dashboard are provided in this section.

A. To log in to the Survey Administrator Dashboard:

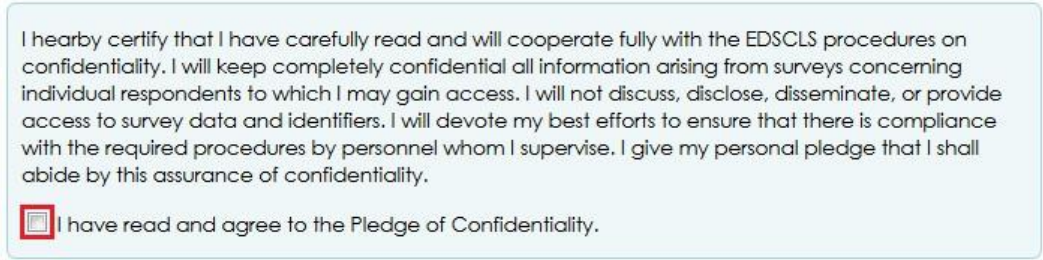
1. Open the EDSCLS website from a browser. Your IT staff will have created this website for you and should have provided you with the URL.
2. From the home page, click on the ">> ADMINISTRATOR LOG IN" link from the toolbar on the home page.

Alternatively, users can enter "sclsadmin" in the "Username" text box and click on the "LOG IN" button.

3. Enter "sclsadmin" in the "Username" text box.

4. If you are logging in for the first time, enter the temporary password "2@Password" in the "Password" text box. Otherwise, enter the new password you have chosen.

5. If you are logging in for the first time, read the Pledge of Confidentiality. Then check the "I have read and agree to the Pledge of Confidentiality" check box.



6. Click on the "LOG IN" button.

After logging in for the first time, you will be redirected to the Change Password page and required to specify a password that is different from the default administrator password.

B. To change the password:

1. Enter a new password in the "New Password" text box.
2. Enter the same new password in the "Retype New Password" text box.
3. Passwords will automatically be hidden when entered. To reveal the password characters, check the "Show Password" check box.
4. Click on the "SAVE" button.

Administrator passwords must be between 8 and 14 characters in length and contain

- 1 uppercase English character,
- 1 lowercase English character,
- 1 numeric character, and
- 1 special character

C. To reset the password or if you have forgotten your password:

1. Click on the ">> ADMINISTRATOR LOG IN" link from the toolbar on the home page.
2. Enter "sclsadmin" in the "Username" text box.
3. Click on the "Reset Password" link.
4. An e-mail with a URL to reset the password will be sent to the e-mail address of the Survey Administrator specified on the Education Agency page (see 2.2.3 Education Agency below). Click on the URL or copy and paste the URL directly from the e-mail into a browser address bar to be taken to the Reset Password page.
5. Follow the instructions in the "To change the password" section above.

D. To log out:

1. Click on the "LOG OUT" link in the toolbar.

2.2.3 Education Agency

After logging in for the first time and changing your temporary password, you will be directed to the Education Agency page and prompted to enter information about the education agency that is hosting the EDSCLS surveys. This only needs to be done once, regardless of how many data collections are opened.

A. To enter the education agency information:

1. Select the level of the education agency from the "Level" drop-down box (state, school district, or school).

N O T E

If your education agency spans multiple schools in one district, select the "District" level. If your education agency crosses district lines, select the "State" level.

2. If a state education agency is hosting the EDSCLS survey, select the state from the "State" drop-down box.

N O T E

At the state level, the level and state cannot be changed once the "SAVE" button has been clicked.

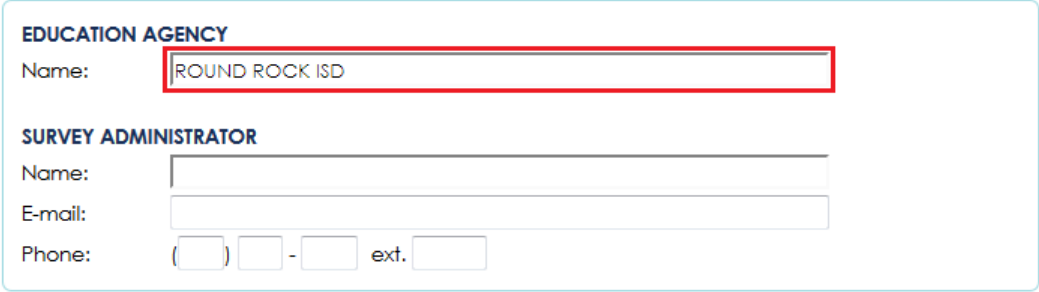
If a school district is hosting the EDSCLS survey, enter the school district's 7-digit NCES district ID in the "NCES ID" text box. If you do not know the district's NCES ID, click on the "Find Your District ID" link to be redirected to the NCES Public School District Locator.

If an individual school is hosting the EDSCLS survey, enter the school's 12-digit NCES school ID in the "NCES ID" text box. If you do not know the ID, click on the "Find Your School ID" link to be redirected to the NCES Public School Locator. This function is not available for private schools.

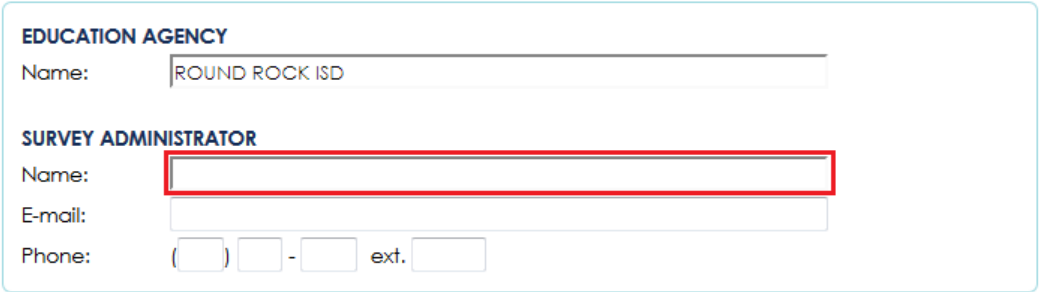
If your education agency does not show up in the NCES Public School District Locator or the NCES Public School Locator, please set up the data collection at the "District" level and select the district nearest to yours, and then manually change the name of the education agency.[7] Please see section 2.2.7 B. To add a school to the data collection for more details about adding schools not included in the NCES public school directory.

[7] Note that you also can use this workaround to create custom data collections. For example, if you have a school spanning middle and high school students, you may want to create a district-level collection and treat the middle school students and their teachers as a separate school from the high school students and teachers. You can also use this workaround if your school is a private institution or newly formed.

3. In the Education Agency section, the name of the education agency is automatically prefilled. To modify the name of the education agency, enter another name in the "Name" text box.



4. In the Survey Administrator section, enter the name of the Survey Administrator in the "Name" text box.



5. Enter the e-mail address of the Survey Administrator in the "E-mail" text box.

N O T E

It is recommended that you use an e-mail address that was created specifically for the purpose of administering the survey (e.g., EDSCLS@edagency.edu).

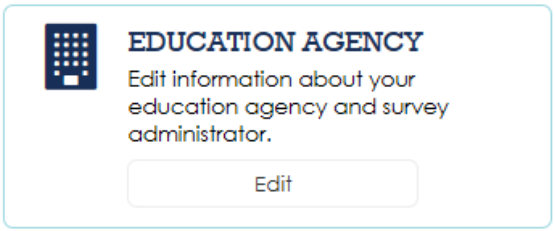
6. Enter the phone number of the Survey Administrator in the "Phone" text box.

N O T E

The Survey Administrator's name, e-mail address, and phone number will be displayed on the home page for all survey participants. Participants rely on this information to contact the Survey Administrator. Please make sure it is accurate.

7. Click on the "SAVE" button to save information about the education agency.

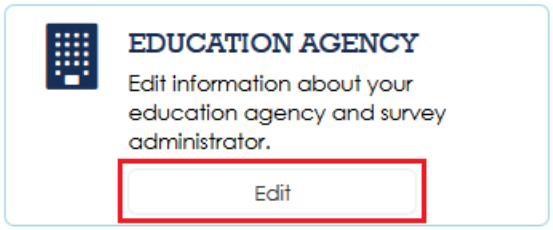
Once the education agency information has been saved for the first time, you will be directed to the dashboard. On the top left of the dashboard, you will see a section called "Education Agency."



The Survey Administrator can use this section to edit information about the education agency at any time. For example, the name and contact information for the Survey Administrator that is provided to respondents can be updated. If an education agency administers the EDSCLS multiple times (for example, once each year), the Survey Administrator information should be reviewed for currency and accuracy prior to each round of data collection.

B. To edit the education agency information:

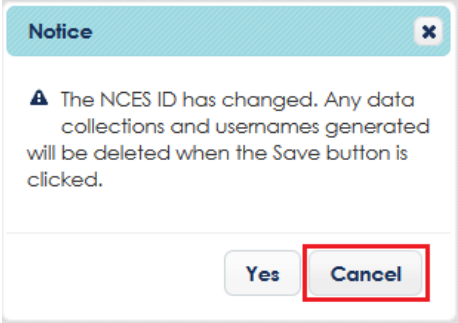
1. In the Education Agency section, click on the "Edit" menu button.



2. Edit the education agency and/or Survey Administrator information as instructed above in 2.2.3 Education Agency A. To enter the education agency information.

W A R N I N G

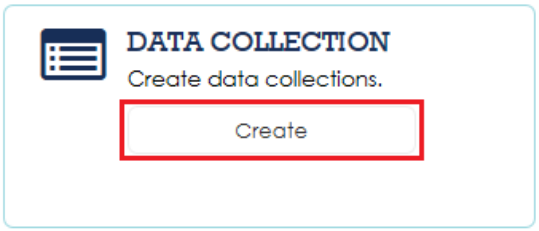
At the district and school levels, if the NCES ID is changed, any data collections, usernames generated, and data collected will be deleted when the "SAVE" button is clicked. A warning box will pop up asking the user to confirm the change. Click "Cancel" in the warning box if the change was accidental. Click "Yes" if you want to delete the old data collection and start afresh.

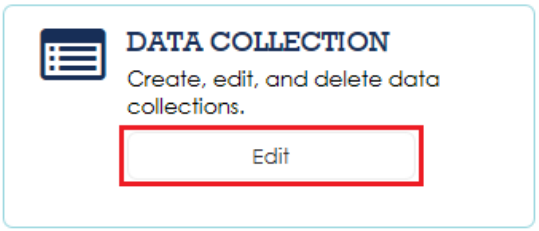


3. Click on the "SAVE" button.

2.2.4 Data Collection

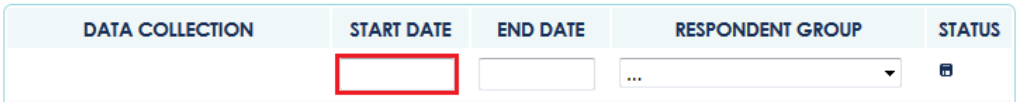
On the top right of the dashboard, you will see a section called "Data Collection." This is the part of the dashboard that Survey Administrators can use to open, close, and delete data collections. Note that, if there are no open data collections, only one data collection box will appear in your platform and it will have a "Create" button. However, if one or more data collections have already been created, an additional data collection box will be present, and it will have an "Edit" button, as shown below.





A. To create a new data collection:

1. In the Data Collection section, click on the "Create" button.
2. Click on the "START DATE" text box/date selector located on the top blank row. Enter the start date of the data collection or select the start date from the date selector.



N O T E

The start date must be today's date or later.

Refer to section 3.2 Setting Dates for the Survey Administration Window for guidelines to consider when setting the data collection start and end dates.

3. Click on the "END DATE" text box/date selector. Then enter the end date of the data collection or select the end date from the date selector.

N O T E

The end date cannot be earlier than the start date. A data collection will close on the end date at 11:59 p.m.

4. Select the respondent group from the "RESPONDENT GROUP" drop-down box. A unique data collection name is created based on the start date, end date, and respondent group.

5. Click on the *Save* icon.

N O T E

Once a data collection has been created, the status is marked as "Not Started" until the date entered as the start date arrives, at which time the status will show as "Started." The status will change to "Closed" at 11:59 p.m. on the specified end date.

Multiple data collections can be created; however, the start date, end date, and respondent group must be unique. For example, two student surveys cannot be opened at the same time with the same start date and same end date.

B. To edit a data collection:

1. Edit the start date and/or end date of a data collection.

2. Click on the *Save* icon of the data collection to save the changes.

C. To delete a data collection:

1. Click on the *Delete* icon of the data collection to be deleted.

2.2.5 Informed Consent

The EDSCLS includes default informed consent language to provide respondents with information about the study and their rights to choose to participate or not to participate. Survey Administrators can modify the language on this page based on the needs of their school, district, or state. For the student survey, Survey Administrators need to add confidentiality language that is consistent with FERPA and state laws and that takes into account whether or not student response data will be linked to external data.

N O T E

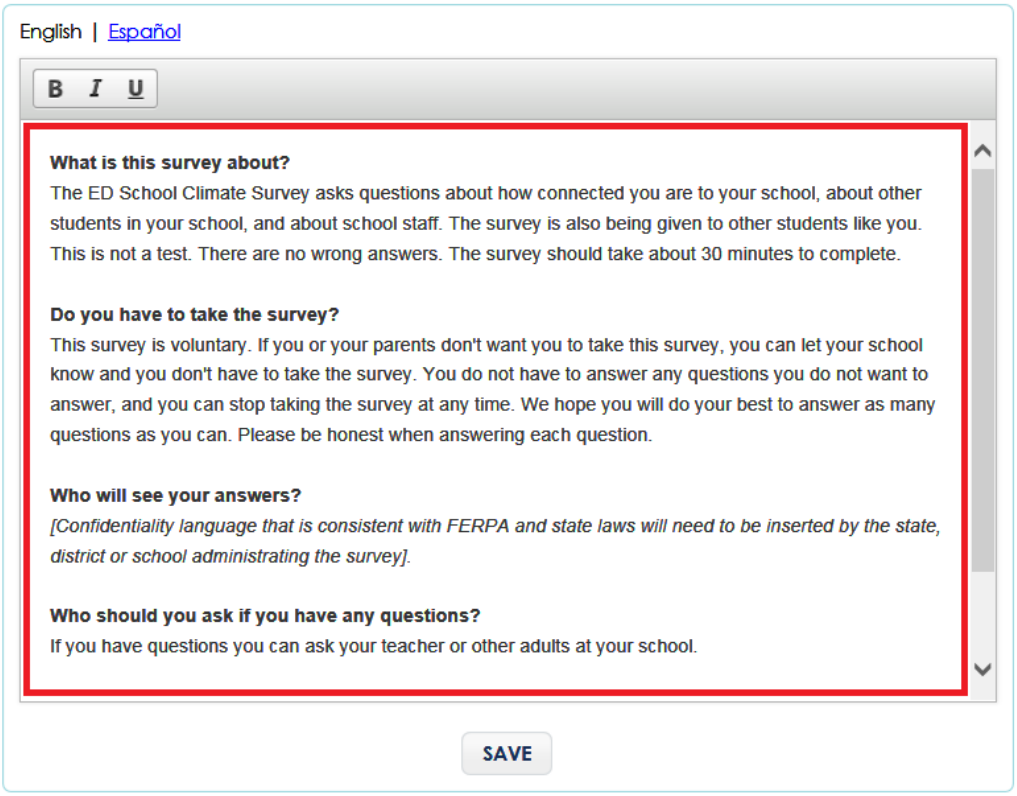
The Protection of Pupil Rights Amendment's (PPRA) active consent requirement applies only to data collections conducted by the federal government. While the EDSCLS was developed by the U.S. Department of Education (ED), ED does not collect the data, nor does it have access to the data. Therefore, only state and local consent requirements apply.

A. To edit the informed consent language:

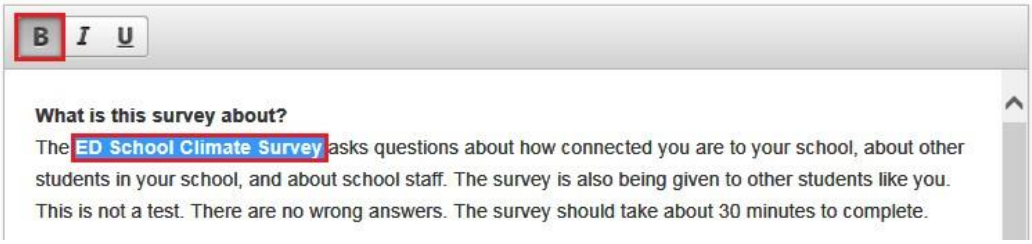
1. Click on the "INFORMED CONSENT" link on the toolbar of the dashboard.

2. Select the respondent group from the "Respondent Group" drop-down box.

3. Edit the prefilled informed consent language in the text area.[8] For the student respondent group, replace "[Confidentiality language that is consistent with FERPA and state laws will be inserted by the district or school administrating the survey]" with confidentiality language that is consistent with FERPA and state laws.

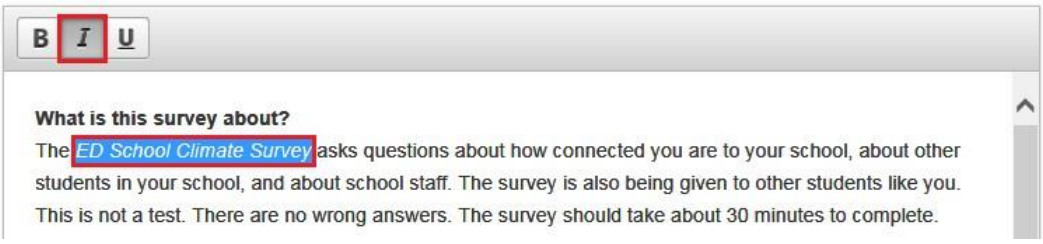


4. To set text in bold, select the text and click on the *Bold* icon.

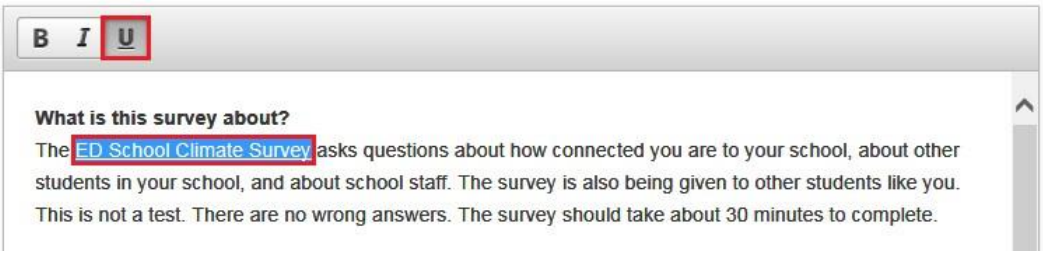


[8] Only one version of the consent language can be used in surveys for the same respondent groups conducted during the same data collection window.

5. To italicize text, select the text and click on the *Italicize* icon.



6. To underline text, select the text and click on the *Underline* icon.



7. To toggle between the English and Spanish versions of the consent language for student and parent respondent groups, click on the "English" and "Español" links.

8. Click on the "SAVE" button to save the informed consent language.

2.2.6 New Survey Items[9]

Additional survey items can be inserted at the end of the EDSCLS survey items, edited, and deleted as long as there are **no open data collections** for a specified respondent group. The data for new survey items will not be included in the survey results reports (2.2.9.2 Survey Results Reports). To access new survey item data, you will need to export respondent level results (2.2.10 Exporting and Importing Respondent-Level Survey Results). Also, new survey item data cannot be imported into other data collections.

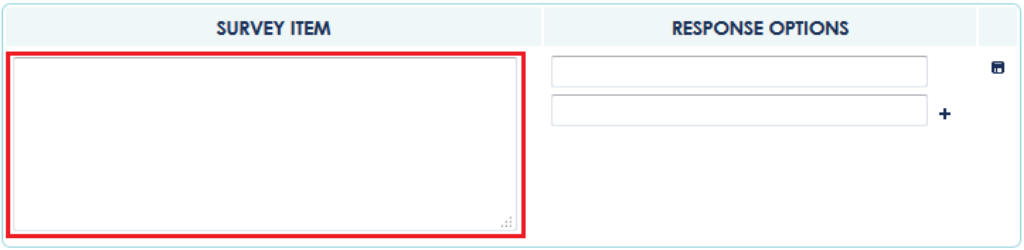
A. To add a new survey item:

1. Click on the "NEW SURVEY ITEM" link on the toolbar of the dashboard.

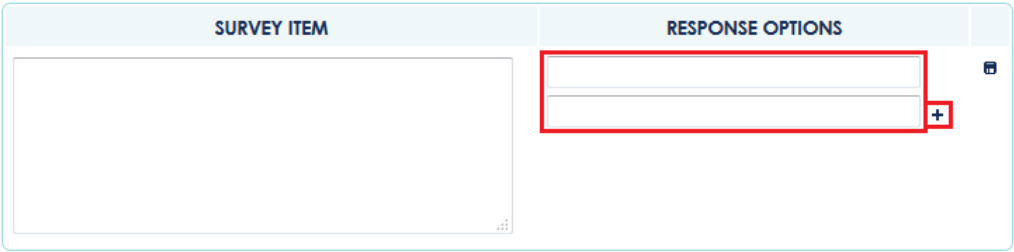
2. Select the respondent group from the "Respondent Group" drop-down box.

[9] "Item" is the standard term used in place of "question" in survey parlance.

3. Enter the new survey item in the "SURVEY ITEM" text area.



4. Enter at least 2 response options in the "RESPONSE OPTIONS" text boxes. To insert additional response options, click on the *Add* icon.



N O T E

Response options that are left blank will be removed when the new survey item is saved.

Within the EDSCLS platform's student and parent surveys, respondents can choose whether to complete the survey in either English or Spanish using a toggle feature. When survey administrators add an item to either survey, the toggle feature is not available. If you want to add an item in English and Spanish, add the survey item and response options in both languages in the same text box. Respondents will then see the item you added in both English and Spanish simultaneously.

5. Click on the *Save* icon to save the new survey item.

B. *To edit a survey item:*

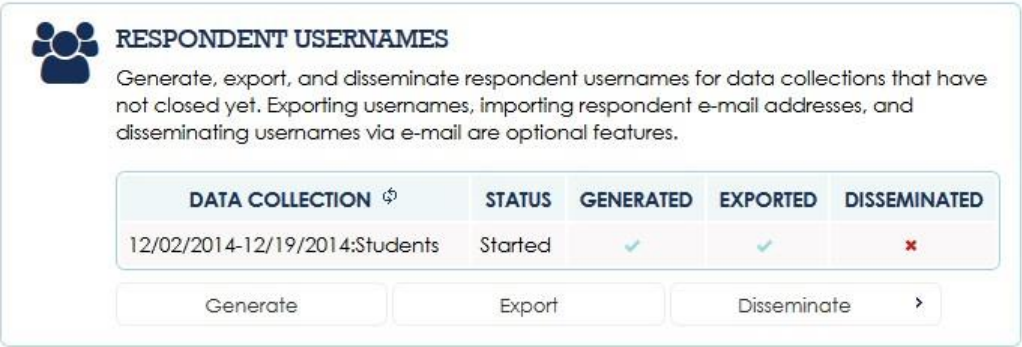
1. To edit the survey item, delete the current text and retype the new text in the "SURVEY ITEM" text area.
2. To edit the response options, delete the current text and retype the new text. Enter at least 2 response options in the "RESPONSE OPTIONS" text boxes. To insert additional response options, click on the *Add* icon.
3. Click on the *Save* icon.

C. *To delete a survey item:*

Click on the *Delete* icon of the survey item to be deleted.

2.2.7 Respondent Usernames Generation

In the center of the dashboard's main page, you will see a box titled "RESPONDENT USERNAMES." Respondent usernames are generated randomly from the EDSCLS platform for each respondent group such that, when a respondent enters the username into the survey platform, he or she will be directed automatically to the appropriate survey (i.e., student, instructional staff, noninstructional staff including principals, or parent/guardian). Through this section of the Survey Administrator dashboard, these random usernames can be generated and exported.



The dashboard also provides Survey Administrators with an option to disseminate these random usernames to respondents' e-mail addresses. To use this option, Survey Administrators must upload respondent e-mail addresses into the EDSCLS platform and use the EDSCLS to send individual survey invitations to respondents.

For each data collection, administrators will need to generate usernames for each respondent group in each school. This allows the EDSCLS platform to track and display survey submission statuses by school, which is an important tool in ensuring the success of a data collection.

The Respondent Usernames section of the dashboard includes the following functionalities:

- **Generate** – Create usernames for a data collection
- **Export** – Save the list of generated usernames as a single CSV (comma-separated or character-separated values) file or multiple CSV files
- **Disseminate** – Import usernames and e-mail addresses into the EDSCLS platform for a data collection and disseminate survey invitations via the e-mail tool in the EDSCLS

The general process works as follows. Survey Administrators use the EDSCLS to generate a certain number of usernames for each school. If multiple schools in a district or state are participating in the EDSCLS, usernames are generated for each school. Survey Administrators then export the randomly generated usernames in a CSV file(s), which can be opened with a text editor or Excel, where each username can be paired with a respondent's e-mail address. With that done, Survey Administrators can then import the newly appended CSV file back into the EDSCLS platform. The end result is that the administrator can use the platform to send each respondent an e-mail with a unique username and an invitation to participate in the EDSCLS.

This section of the dashboard also provides the status of each data collection that has not yet closed, and tracks whether usernames have been generated, exported, and disseminated.

See Appendix B for more information on the role of the username dissemination feature in an EDSCLS administration.

A. To generate usernames:

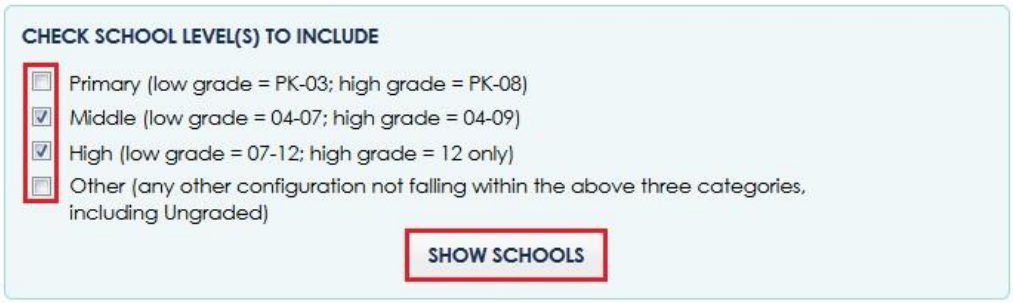
1. In the Respondent Usernames section, click on the "Generate" menu button.

Alternatively, click on the "GENERATE" link from the toolbar on any Respondent Usernames page.

2. First, identify the data collection for which usernames are being generated. Select the data collection from the "Data Collection" drop-down box.

3. Create a list of participating schools (district- or state-level Survey Administrators only[10]):

a. To generate a prefilled list of schools within the state or district, check at least one school level. Click on the "SHOW SCHOOLS" button.



[10] If an individual school is hosting the EDSCLS, the school name, NCES school ID, and school grade level will be prefilled; additional schools cannot be added.

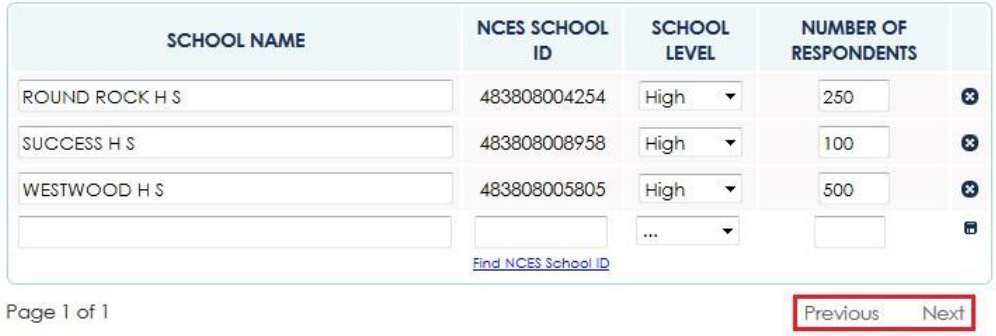
b. Because the EDSCLS contains a database of all public schools in the United States based on the Common Core of Data (CCD) (http://nces.ed.gov/ccd/), the school name, NCES School ID, and school level will be automatically prefilled for every school displayed.

To edit the school name at the state or district level, enter another name in the "SCHOOL NAME" text box.[11]

To change the school level (e.g., middle school, high school), select another school level from the "SCHOOL LEVEL" drop-down box that appears to the right of the school name and NCES school ID.

4. To change the school level (e.g., middle school, high school), select another school level from the "SCHOOL LEVEL" drop-down box that appears to the right of the school name and NCES school ID.

5. To navigate between the pages of schools, click on the "Previous" or "Next" links.



6. Determine how many respondents are in each population and enter that number into the "NUMBER OF RESPONDENTS" text box for each school. For example, if 450 students enrolled in a school will be invited to take the survey, 450 usernames should be requested for that school.

N O T E

A number greater than zero must be entered. Schools that do not have at least one respondent will be removed from the database once the usernames are generated.

7. Click on the "GENERATE" button to generate usernames.

[11] Note that you can use this method to add your school if it is a private institution or newly formed and so does not appear in the NCES Public School Locator. Please see section 2.2.7 B. To add a school to the data collection (district- and state-level hosts only): for more details for adding a school not included in the CCD. You can modify any school's information to match yours or add your school at the end of the school list. Then you can either delete other schools or leave their "Number of Respondents" field as "0" to exclude them from the database.

N O T E

Username Format: Respondent usernames are 8 characters long and are made up of lowercase letters and numbers. Student usernames begin with the letter "s"; teacher/instructional staff usernames begin with "t"; noninstructional staff usernames begin with "n"; principal usernames begin with "np"; and parent/guardian usernames begin with "p".

Time to Generate Usernames: It may take up to 10 seconds to generate 500 usernames, and 90 seconds to generate 5,000 usernames.

Dashboard Information: On the dashboard, the Generated and Exported columns will be marked with check marks once all usernames for the data collection have been generated and exported. By default, usernames are exported into a single CSV file for each data collection.

Increasing Number of Usernames (All Respondents): To add additional usernames, you must ***increase*** the total number of usernames for that school by the number of additional usernames required (e.g., if you have 100 usernames for a school and would like to add 25 additional usernames, you would enter 125 in the box next to that school). Reducing the number of usernames (e.g., using the previous example, if you replace 100 with 25) will result in the loss of data. A pop-up message on the "Generate Usernames" page will alert users when the total number of usernames is reduced.

Increasing Number of Usernames for Noninstructional Staff: When generating usernames for noninstructional staff, one principal username is generated for each school in the noninstructional staff data collection. If additional noninstructional staff usernames are generated, the platform will also generate another principal username.

If the additional principal username is not needed, administrators must be sure to (1) discard this additional principal username and (2) increase the number of noninstructional staff usernames required to account for this one username that will not be used. Note that principals answer all items in the noninstructional staff survey and several principal-specific items. **Please do not assign principal usernames to other noninstructional staff.**

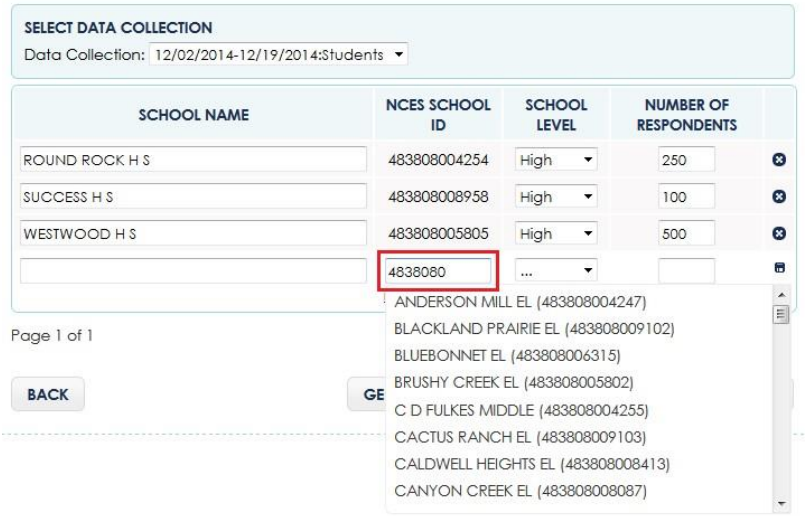
B. To add a school to the data collection (district- and state-level hosts only):

1. Enter the NCES school ID into the "NCES SCHOOL ID" auto-completer text box.

   If you do not know the ID, click on the "Find NCES School ID" link to be redirected to the NCES Public School Locator. If the school does not have an ID, because it is newly formed or a private institution, select a public school from the list, preferably one nearby, and manually modify the school information to reflect the correct information.

N O T E

At the state level, the first 2 digits of the NCES school ID must match the American National Standards Institute (ANSI) Code of the state education agency. At the district level, the first 7 digits of the NCES school ID must match the NCES ID of the district.



2. Select a school from the "NCES SCHOOL ID" auto-completer list or enter another NCES school ID.

If a school was selected from the "NCES SCHOOL ID" auto-completer list, the school name and school level will be prefilled. Otherwise, the school name will be blank, and the school level will be unselected.

N O T E

The prefilled school level is calculated from the school's corresponding low and high grade span values in the NCES Common Core of Data (CCD): primary (low grade = PK–03; high grade = PK–08); middle (low grade = 04–07; high grade = 04–09); high (low grade = 07– 12; high grade = 12 only); other (any other configuration not falling within the above three categories, including ungraded).

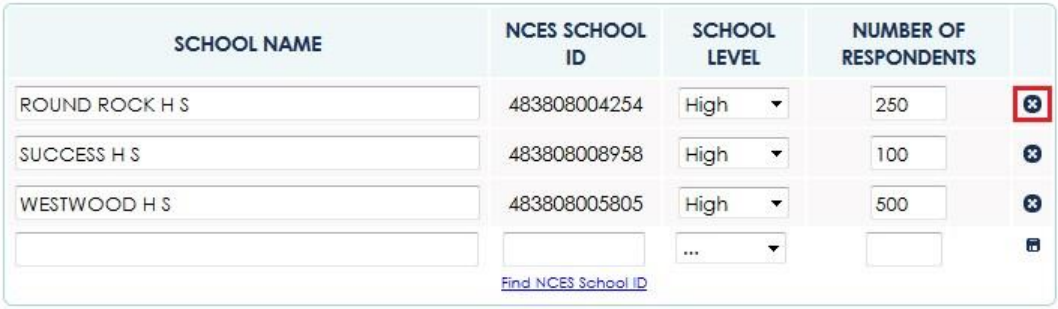
3. To edit or specify the school name, enter the name in the "SCHOOL NAME" text box.

4. To change or specify the school grade level, select a level from the "SCHOOL LEVEL" drop-down box.

5. Click on the *Save* icon.

C. To delete a school (district- and state-level hosts only):

1. Click on the *Delete* icon of the school to be deleted.



Usernames can be exported in CSV file format. This file type can be opened with text editors (e.g., NotePad, WordPad, or TextEdit), Excel, and many programming applications. Once the usernames are in CSV file format, the Survey Administrator can hand them off to Survey Coordinators in each school,[12] or the administrator can take the steps needed to e-mail survey invitations through the platform, as described below.

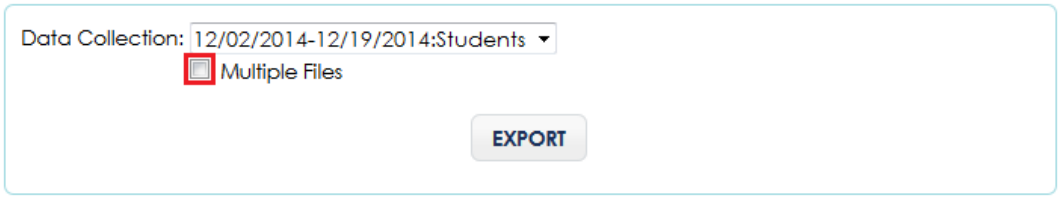
D. To export usernames (file will be in CSV format):

1. Under the Respondent Usernames section, click on the "Export" menu button.

Alternatively, click on the "EXPORT" link from the toolbar on any Respondent Usernames page.

2. Select the data collection from the "Data Collection" drop-down box.

3. To generate multiple export files by school at the state or district level, check the "Multiple Files" check box.



4. Click on the "EXPORT" button.

[12] If an education agency does not have the e-mail addresses of a respondent group, it will need to use other means of getting each invitee a unique username. For example, follow the instructions to export the usernames in 2.2.7 Respondent Usernames Generation; then print out the usernames and distribute them on paper. Also consider the guidance offered in 3.1 Preparing for the Survey Administration.

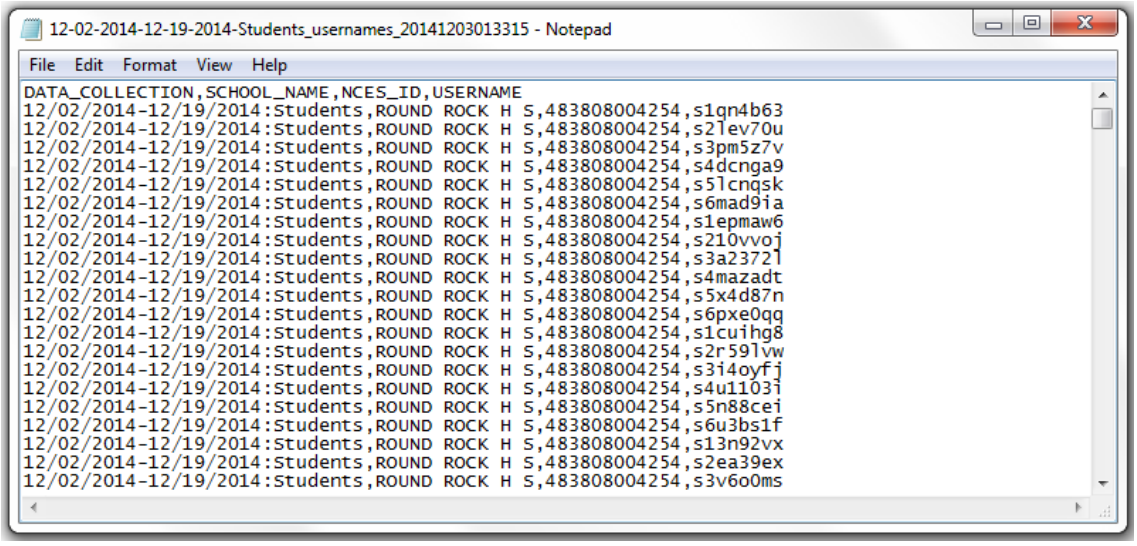
2.2.8 Respondent Usernames Dissemination

The following instructions explain how to disseminate usernames through the EDSCLS e-mail function. Please note that if your IT staff is not able to set up the e-mail service for the EDSCLS platform, you will not able to use this feature. You will need to either disseminate usernames using your regular e-mail system or disseminate them manually, by printing them out on paper.

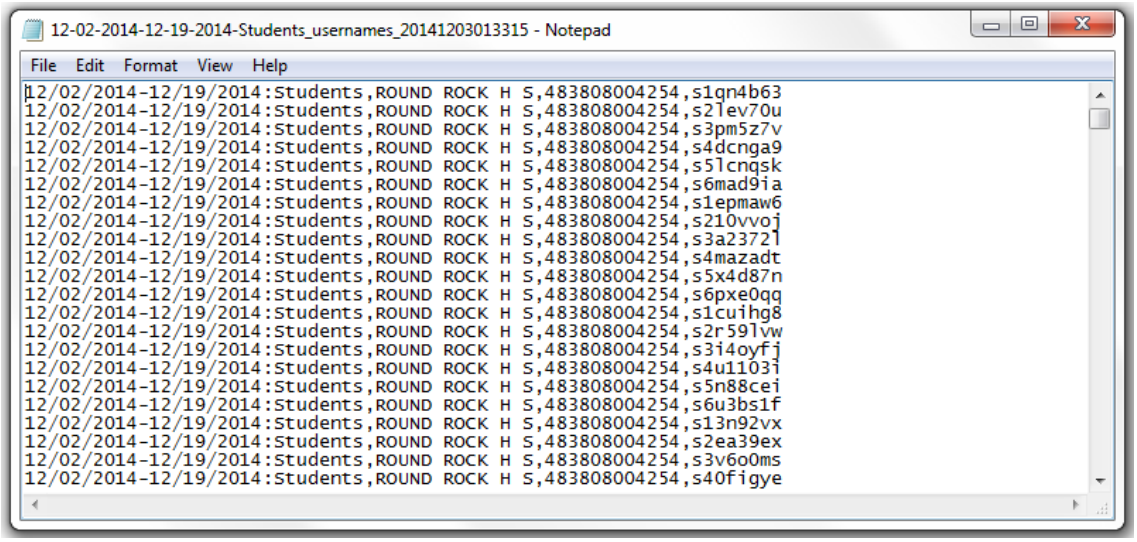
E-mail addresses and usernames can be merged using either a text editor or Excel.

A. To merge e-mail addresses with usernames using a text editor:

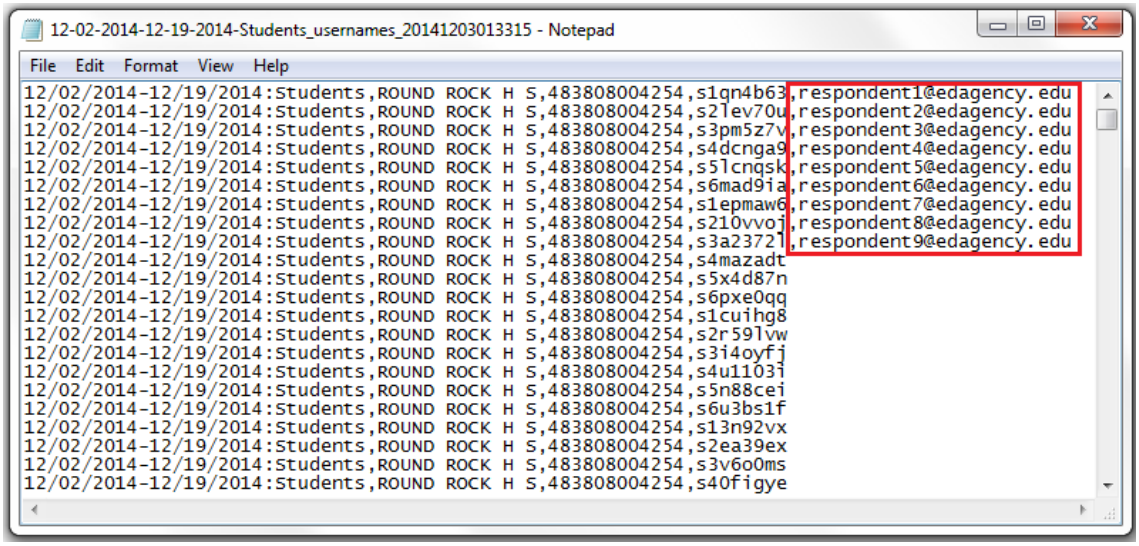
1. Open the exported usernames CSV file in a text editor like Notepad, WordPad, or TextEdit.



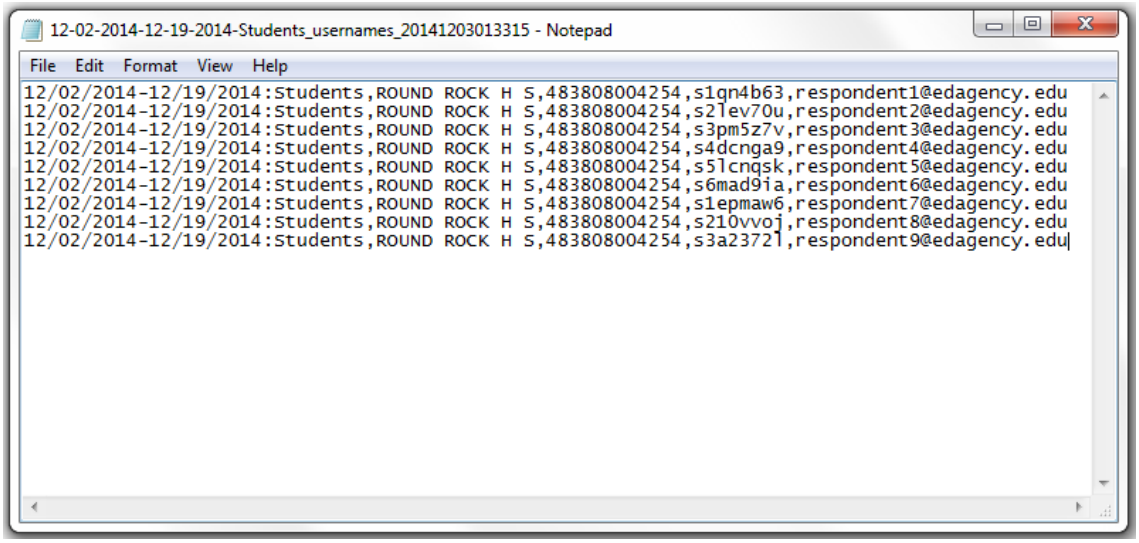
2. Delete the first row, which contains the column headers (i.e., DATA_COLLECTION, SCHOOL_NAME, etc.).



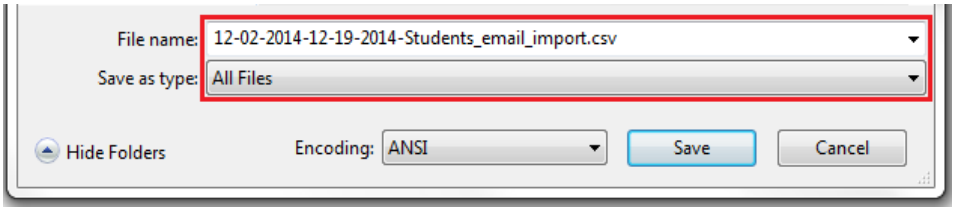
3. After each username, enter "," and the e-mail address.



4. Delete any rows that do not have an e-mail assigned to a username.



5. When saving the file, enter a file name, followed by ".csv", and select "All Files" from the "Save as type" drop-down box.



6. Click on the "Save" button.

B. To merge e-mail addresses with usernames using Excel:

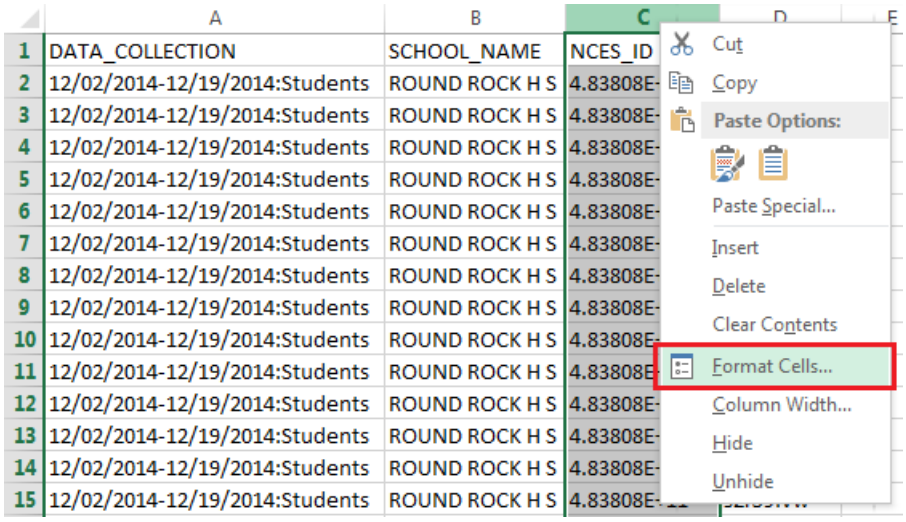
1. Open the exported usernames CSV file in a Microsoft Excel document.

	A	B	C	D
1	DATA_COLLECTION	SCHOOL_NAME	NCES_ID	USERNAME
2	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s1qn4b63
3	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s2lev70u
4	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s3pm5z7v
5	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s4dcnga9
6	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s5lcnqsk
7	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s6mad9ia
8	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s1epmaw6
9	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s210vvoj
10	12/02/2014-12/19/2014:Students	ROUND ROCK H S	4.83808E+11	s3a2372l

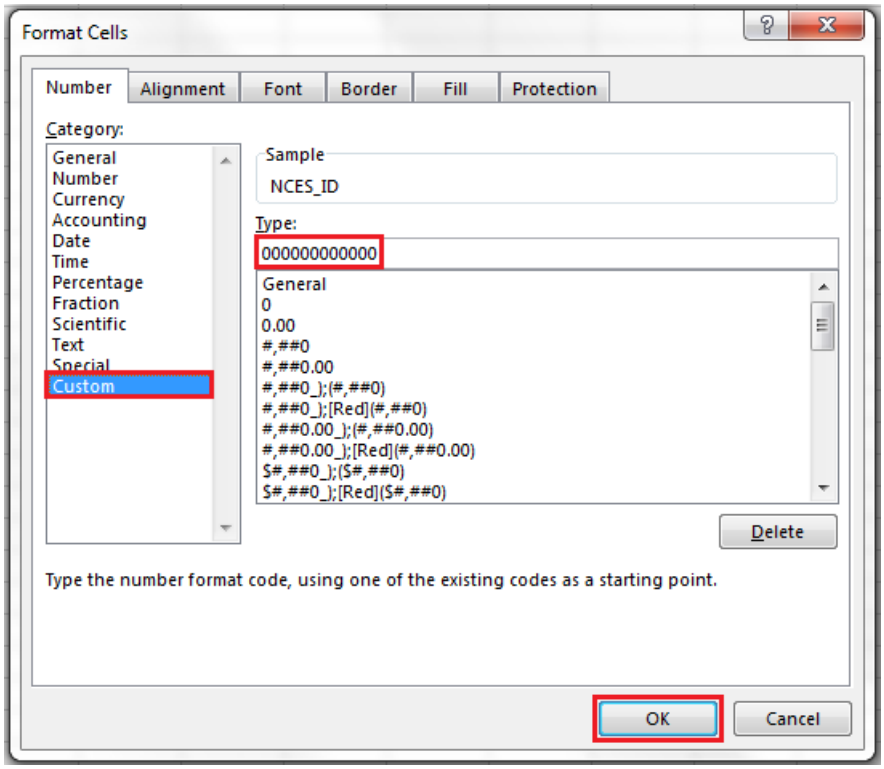
N O T E

The NCES ID will be shown in scientific notation in Excel by default. The administrator will have to complete step 2 below to change it back to its original form. The file cannot be imported back into the EDSCLS platform in usable form without completing this step.

2. To convert the NCES ID to a text column, select column C (NCES_ID), right-click, and select "Format Cells…".



3. From the "Format Cells" window, select "Custom" for the "Category" and type 12 zeroes (i.e., "000000000000") directly into the "Type" text box. Then click the on "OK" button.



4. Delete the first row, which contains the column headers (i.e., DATA_COLLECTION, SCHOOL_NAME, etc.). The end result should be raw data, like the sample seen below.

	A	B	C	D
1	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s1qn4b63
2	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s2lev70u
3	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s3pm5z7v
4	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s4dcnga9
5	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s5lcnqsk
6	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s6mad9ia
7	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s1epmaw6
8	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s210vvoj
9	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s3a2372l
10	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s4mazadt

5. Enter the e-mail addresses in column E.

	A	B	C	D	E
1	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s1qn4b63	respondent1@edagency.edu
2	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s2lev70u	respondent2@edagency.edu
3	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s3pm5z7v	respondent3@edagency.edu
4	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s4dcnga9	respondent4@edagency.edu
5	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s5lcnqsk	respondent5@edagency.edu
6	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s6mad9ia	respondent6@edagency.edu
7	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s1epmaw6	respondent7@edagency.edu
8	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s210vvoj	respondent8@edagency.edu
9	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s3a2372l	respondent9@edagency.edu
10	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s4mazadt	
11	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s5x4d87n	
12	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s6pxe0qq	
13	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s1cuihg8	
14	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s2r59lvw	
15	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s3i4oyfj	

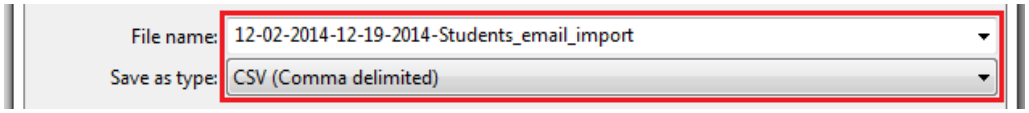
N O T E

District- and state-level Survey Administrators may need to establish their own logistics chains to acquire respondents' e-mail lists from school and/or districts, depending on where such data are stored. Consider the logistics chain recommended in 3.1 Preparing for the Survey Administration.

6. Delete any rows that do not have an e-mail assigned to a username.

	A	B	C	D	E
1	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s1qn4b63	respondent1@edagency.edu
2	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s2lev70u	respondent2@edagency.edu
3	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s3pm5z7v	respondent3@edagency.edu
4	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s4dcnga9	respondent4@edagency.edu
5	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s5lcnqsk	respondent5@edagency.edu
6	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s6mad9ia	respondent6@edagency.edu
7	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s1epmaw6	respondent7@edagency.edu
8	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s210vvoj	respondent8@edagency.edu
9	12/02/2014-12/19/2014:Students	ROUND ROCK H S	483808004254	s3a2372l	respondent9@edagency.edu
10					
11					
12					
13					
14					
15					

7. When saving the file, enter a file name and select "CSV (Comma delimited)" from the "Save as type" drop-down box to import back into the EDSCLS platform.

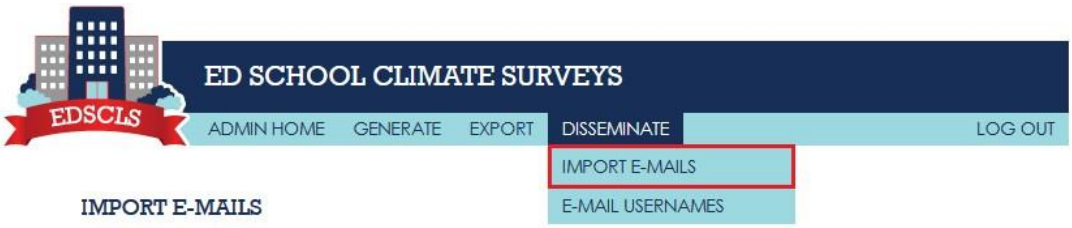


8. Click on the "Save" button.

C. To import the merged usernames-with-e-mails CSV file:

1. Under the Respondent Usernames section, click on the "Import E-mails" option from the "Disseminate" menu.

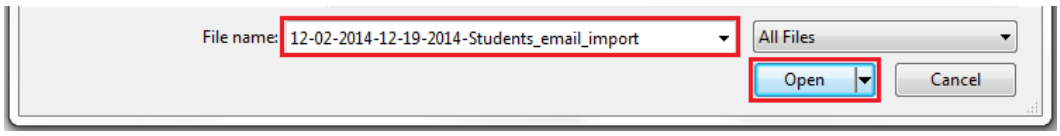
Alternatively, click on the "IMPORT E-MAILS" link under the "DISSEMINATE" menu from the toolbar on any Respondent Usernames page.



2. Select the data collection from the "Data Collection" drop-down box.

3. Click on the "Browse…" button to open the File Upload window.

4. From the File Upload window, select the e-mail CSV file to import and click on the "Open" button.

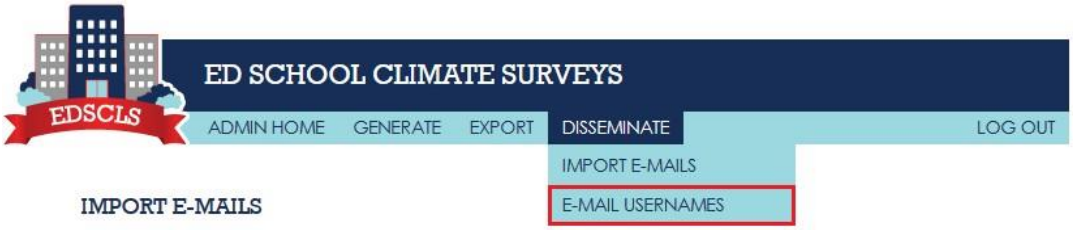


5. Click on the "IMPORT FILE" button.

D. To disseminate the usernames via the e-mail tool in the EDSCLS:

1. Under the Respondent Usernames section, click on the "E-mail Usernames" option from the "Disseminate" menu.

Alternatively, click on the "E-MAIL USERNAMES" link under the "DISSEMINATE" menu from the toolbar on any Respondent Usernames page.



2. Select the data collection from the "Data Collection" drop-down box.

3. The "Send to new recipients only" check box is checked by default. Uncheck to send follow-up or reminder e-mails to recipients who have previously received e-mails.

4. Enter the e-mail subject in the "Subject" text box.

5. Modify the e-mail message in the "Message" text area, including replacing "{Please insert the link to your survey}".

6. Click on the "SEND" button.

N O T E

On the dashboard, the "Disseminated" column will be marked with a check mark once all usernames for the data collection have been disseminated via the e-mail tool in the EDSCLS platform. Please note that the platform does not know if the e-mails have been successfully delivered. Survey Administrators will need to coordinate with their IT staff to track any e-mails that may be returned as undeliverable.

Administrators will need to refresh the Data Collection table to check the latest status of the usernames.

E. To refresh the data collection table after usernames have been generated, exported, and/or disseminated:

1. Click on the *Refresh* icon.

2.2.9 Reports

On the bottom left of the dashboard home page, you will see a section of the dashboard titled "REPORTS". This is where Survey Administrators can produce real-time survey status reports during a data collection and survey results reports immediately after the close of data collection.

2.2.9.1 Survey Status Reports

Once a data collection has started, two types of real-time survey status reports can be viewed and exported:

1. Submission Rate Reports
2. Case Disposition Reports

Submission Rate Reports:

Survey submission rate reports show the number of usernames generated, the number of submitted surveys, the number of incomplete surveys, the number of unused usernames, the number of refusals, and the overall submission rate. Survey Administrators can use these reports to monitor data collections and make informed decisions about needed follow-up efforts. Refer to 3.5 During the Survey Administration Window to learn how survey submission rate reports can be used to provide continued communication during administration and optimize response rates.

Case Disposition Reports:

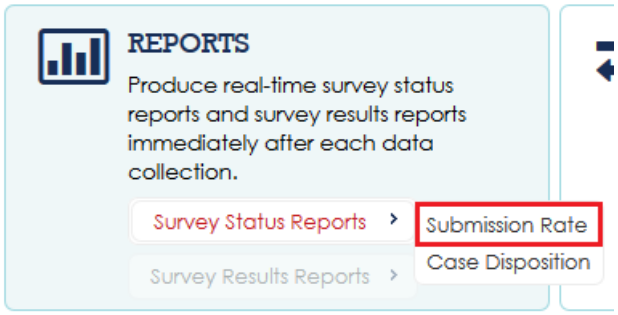
It may be useful for Survey Administrators to have access to more granular information about individual case dispositions to supplement the information displayed in submission status reports. For

example, if an education agency chooses to keep track of which usernames were given to which students, detailed information on the status of individual usernames (e.g., complete, partial, unused, refusal) can help to target the agency's nonresponse follow-up efforts.

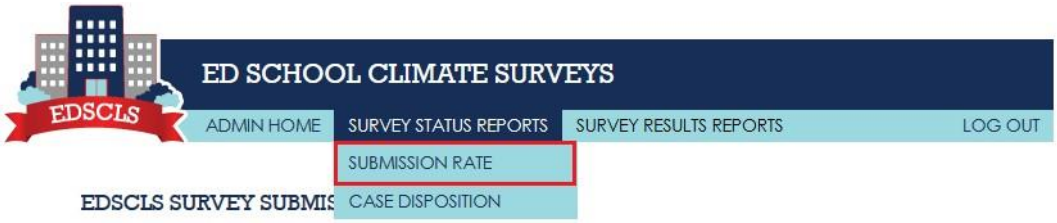
Case disposition reports can be generated in one of three ways: (1) directly through the submission status report tables, (2) through the reporting section on the main page of the Survey Administrator dashboard, or (3) through the "survey status reports" button on the toolbar of any Reports page.

A. To view the submission rate report:

1. Under the Reports section of the dashboard, click on the "Submission Rate" option from the "Survey Status Reports" menu.



Alternatively, click on the "SUBMISSION RATE" option under the "SURVEY STATUS REPORTS" menu from the toolbar on any Reports page.



2. To show submission status information for all data collections at the state or district level, click on the *Expand* icon on the header row.

	DATA COLLECTION	TOTAL USERNAMES GENERATED	NUMBER OF SUBMITTED SURVEYS	NUMBER OF INCOMPLETE SURVEYS	NUMBER OF UNUSED USERNAMES	NUMBER OF REFUSALS	SURVEY SUBMISSION RATE
	12/02/2014-12/19/2014: Students	850	8	18	824	0	0.94%
	12/05/2014-12/19/2014: Teachers/Instructional Staff	80	0	0	80	0	0.00%

3. To show data for a single data collection at the state or district level, click on the *Expand* icon for that data collection.

	DATA COLLECTION	TOTAL USERNAMES GENERATED	NUMBER OF SUBMITTED SURVEYS	NUMBER OF INCOMPLETE SURVEYS	NUMBER OF UNUSED USERNAMES	NUMBER OF REFUSALS	SURVEY SUBMISSION RATE
	12/02/2014-12/19/2014: Students	850	8	18	824	0	0.94%
	12/05/2014-12/19/2014: Teachers/Instructional Staff	80	0	0	80	0	0.00%

N O T E

The definition of each column header in the Submission Rate Report is as follows:

Total Usernames Generated: For each survey being administered (i.e., student, parent, instructional staff, and noninstructional staff [including principals]), the number of usernames that have been generated will be shown. Depending on the level of the education agency that is hosting the surveys (school, district, or state), the total number of usernames will be displayed at the school, district, or state level.

The sum of the number of unused usernames, the number of incomplete surveys, the number of refusals, and the number of submitted surveys equals the total number of usernames generated.

Number of Submitted Surveys: Cases that are assigned a disposition status of "submitted" include those where a respondent has logged in to the survey, consented to participate, and responded to all survey items, thereby completing the survey. ***Submitted surveys also include finalized cases that do not meet the EDSCLS definition of a completed interview, including those where a respondent viewed all survey items and proceeded to the "thank you" screen without providing valid responses to a sufficient number of items to be classified as a completed interview. The number of refusals is excluded from the number of submitted surveys.*** This number will provide Survey Administrators with a count of the number of respondents who have finalized their survey.

Number of Incomplete Surveys: Once a username is used to log in to a survey, the case will be assigned a disposition status of "logged in, not submitted." This status will include cases typically considered "partial completes." Cases assigned this status may include those where respondents have logged in to the survey but not yet consented to participate, where respondents have consented to participate but not yet responded to any survey items, and where respondents have responded to survey items, but have not yet viewed the final "thank you" screen. This number will provide Survey Administrators with a count of the number of respondents who have started, but not yet finalized the survey.

Number of Refusals: The number of respondents who declined to participate at the consent page (i.e., opted out of the survey).

Number of Unused Usernames: Usernames that have been generated but not used to access the survey will be displayed in the survey status report. This will provide administrators with an estimate of the number of respondents who have not yet attempted to take the survey. This number will be inflated if the number of usernames generated exceeds the number of potential respondents to the survey (i.e., if "extra" usernames are generated).

Survey Submission Rate: To provide Survey Administrators with an estimate of the percentage of respondents who have finalized the survey, the survey status report will also compute and display a survey submission rate.[13] The survey submission rate is calculated as

$$100 * (S / C),$$

where S = the total number of survey submissions and C = the total number of usernames generated for the survey.

[13] Submission rates will not be calculated by respondent demographic subgroups, as survey log-in and submission status will not be linked to survey data containing demographic information.

4. To hide detailed data for a single data collection at the state or district level, click on the *Collapse* icon on the header row.

	DATA COLLECTION	TOTAL USERNAMES GENERATED	NUMBER OF SUBMITTED SURVEYS	NUMBER OF INCOMPLETE SURVEYS	NUMBER OF UNUSED USERNAMES	NUMBER OF REFUSALS	SURVEY SUBMISSION RATE
	12/02/2014-12/19/2014: Students	850	8	18	824	0	0.94%
	ROUND ROCK H S	250	5	6	239	0	2.00%
	SUCCESS H S	100	0	2	98	0	0.00%
	WESTWOOD H S	500	3	10	487	0	0.60%
	12/05/2014-12/19/2014: Teachers/Instructional Staff	80	0	0	80	0	0.00%
	ROUND ROCK H S	30	0	0	30	0	0.00%
	SUCCESS H S	15	0	0	15	0	0.00%
	WESTWOOD H S	35	0	0	35	0	0.00%

5. To export the case disposition details, click on a link on the submission rate table; then click on the "EXCEL," "CSV," or "PDF menu option.

	DATA COLLECTION	TOTAL USERNAMES GENERATED	NUMBER OF SUBMITTED SURVEYS	NUMBER OF INCOMPLETE SURVEYS	NUMBER OF UNUSED USERNAMES	NUMBER OF REFUSALS	SURVEY SUBMISSION RATE
	12/02/2014-12/19/2014: Students	850	8	18	824	0	0.94%
	ROUND ROCK H S	250	5	6	239	0	2.00%
	SUCCESS H S	100	0	2	98	0	0.00%
	WESTWOOD H S	500	3	10	487	0	0.60%
	12/05/2014-12/19/2014: Teachers/Instructional Staff	80	0	0	80	0	0.00%
	ROUND ROCK H S	30	0	0	30	0	0.00%
	SUCCESS H S	15	0	0	15	0	0.00%
	WESTWOOD H S	35	0	0	35	0	0.00%

EXCEL
CSV
PDF

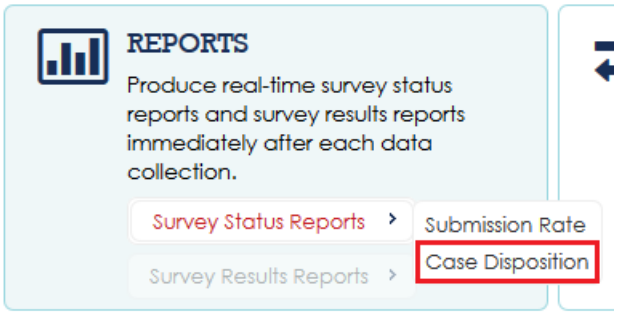
N O T E

Whenever the Excel, CSV, or PDF file format option is offered, choose based on what you intend to do with the file. The PDF format is ideal for printing out. The Excel format can be used to create your own graphics, such as pie charts or graphs (as recommended in 3.5 During the Survey Administration Window), to share with respondents and increase participation rates. The CSV format is offered because it works in many programming applications, allowing Survey Administrators to conduct their own analyses beyond those offered in the EDSCLS.

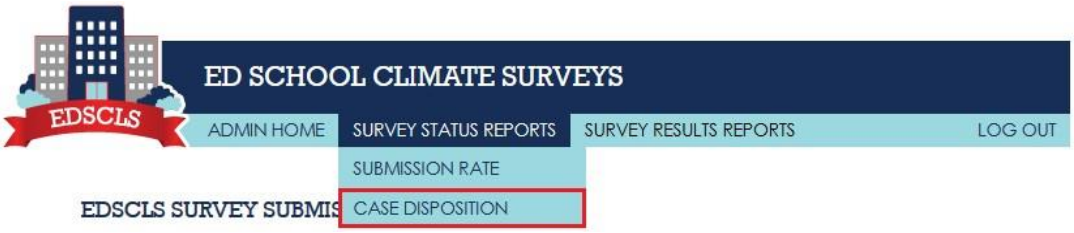
6. To refresh the report to show the very latest real-time data, click on the *Refresh* icon.

B. To view and export the case disposition status report:

1. Under the Reports section of the Survey Administrator dashboard, click on the "Case Disposition" option from the "Survey Status Reports" menu.



Alternatively, click on the "CASE DISPOSITION" option under the "SURVEY STATUS REPORTS" menu from the toolbar on any Reports page.



2. Click on the data collection from the "Data Collection" drop-down box.

3. To filter by case disposition status, select a status from the "Status" drop-down box.

N O T E

The status can be "Unused," "Partial," "Complete," or "Refusal." "Unused" usernames have never been used to log in to the system. "Partial" usernames have been used to log in and begin the survey but have not been completed and submitted. "Complete" usernames have been used to complete and submit the survey. "Refusal" usernames have been used to opt out of the survey at the consent page.

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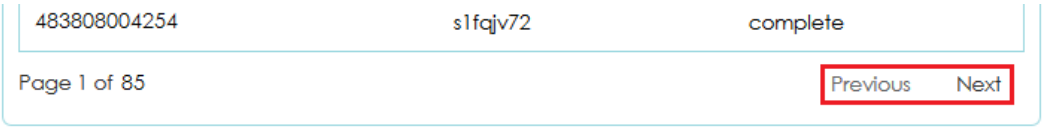
4. To navigate between the pages of cases, click on the "Previous" or "Next" links.



5. To export the report, click on the "Excel", "CSV", or "PDF" option from the "Export" menu.

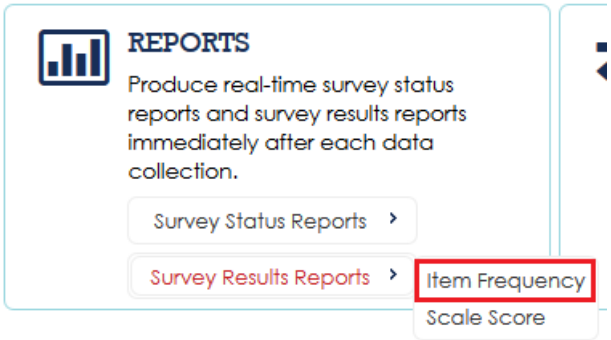
2.2.9.2 Survey Results Reports

Once a data collection has closed, survey results reports, including graphical displays (bar graphs) of item-level frequencies and benchmarked scale scores, can be viewed. The current version of the EDSCLS does not allow graphical displays to be exported, so administrators who want visual representations of the results will need to rely on screen captures or create their own graphical displays from the exported raw data (see 2.2.10 Exporting and Importing Respondent-Level Survey Results for instructions on how to export raw data). If you have trouble generating reports, see the Reporting section of the Frequently Asked Questions on the EDSCLS website or contact the EDSCLS Help Desk.

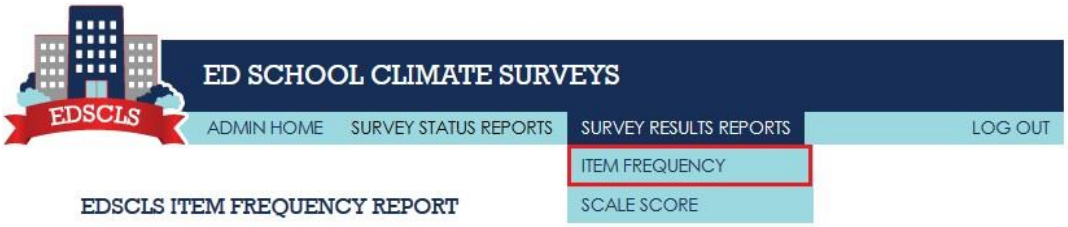
Univariate and cross-tabulation distributions for demographic variables, such as grade (students only), gender, and race/ethnicity, are available for the student, instructional staff, and noninstructional staff data collections. Cross-tabulation distributions cannot be exported.

A. To view and export the item frequency report:

1. Under the Reports section, click on the "Item Frequency" option from the "Survey Results Reports" menu.



Alternatively, click on the "ITEM FREQUENCY" option under the "SURVEY RESULTS REPORTS" menu from the toolbar on any Reports page.



N O T E

Item frequencies refer to the distribution of responses for each item.

2. States hosting the EDSCLS surveys will have the option of filtering by district or school levels. Districts hosting the EDSCLS will have the option of filtering by the school level. To filter by district (or school), select the district (or school) from the drop-down box.

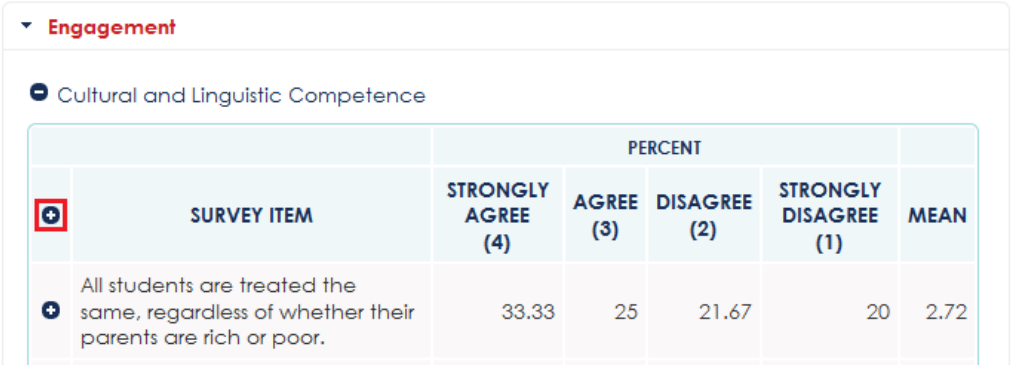
NOTE

If you want to generate a report for all districts or all schools, make sure the "…" option is selected in the drop-down menu where you select the district or the school.

3. Click on the "GENERATE REPORT" button.

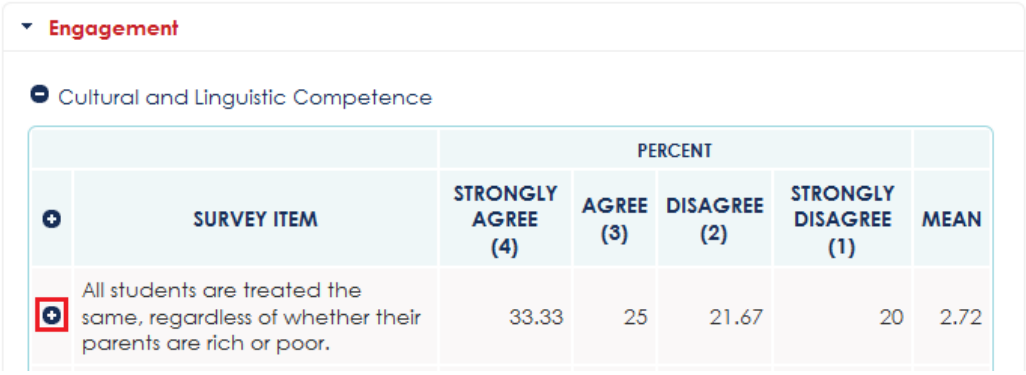
4. To show item frequencies and graphical displays for a topical area within a domain, click on the *Expand* icon.

To show graphical data for all survey items within a topical area, click on the *Expand* icon in the header row.



		PERCENT				
	SURVEY ITEM	STRONGLY AGREE (4)	AGREE (3)	DISAGREE (2)	STRONGLY DISAGREE (1)	MEAN
	All students are treated the same, regardless of whether their parents are rich or poor.	33.33	25	21.67	20	2.72

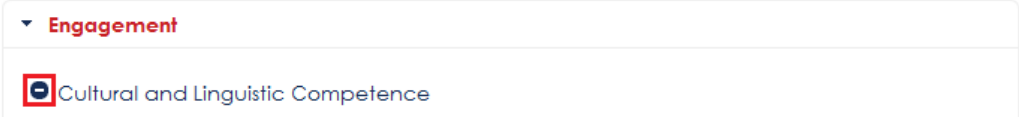
To show the graphical display for a single survey item within a topical area, click on the *Expand* icon for the survey item.



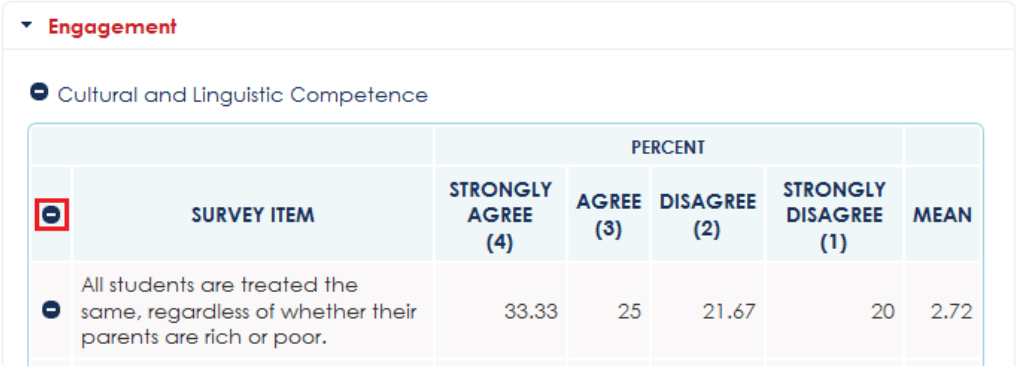
N O T E

To protect the confidentiality of respondents, and to provide meaningful data, frequency distributions will not be shown for an item with fewer than 10 respondents. Instead, "Item not shown due to disclosure risk" is displayed.

5. To hide item frequencies and graphical displays for a topical area, click on the *Collapse* icon.



To hide frequencies and graphical displays for all survey items within a topical area, click on the collapse icon button on the header row.



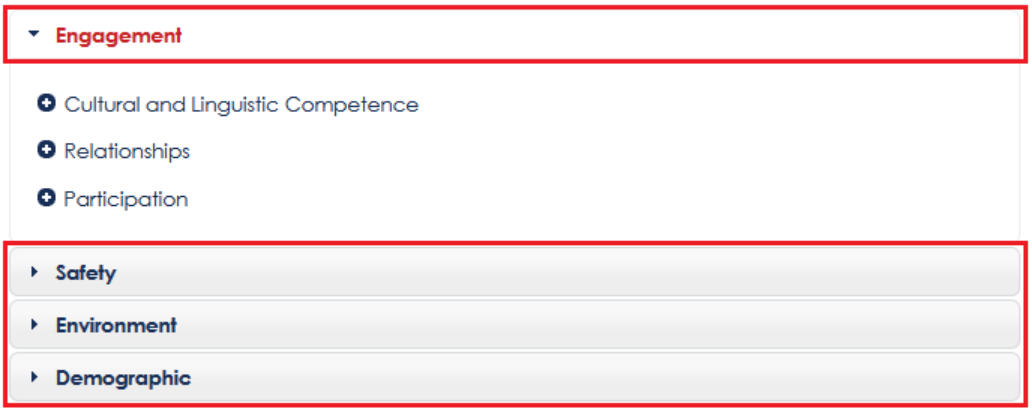
Engagement

Cultural and Linguistic Competence

		PERCENT				
	SURVEY ITEM	STRONGLY AGREE (4)	AGREE (3)	DISAGREE (2)	STRONGLY DISAGREE (1)	MEAN
	All students are treated the same, regardless of whether their parents are rich or poor.	33.33	25	21.67	20	2.72

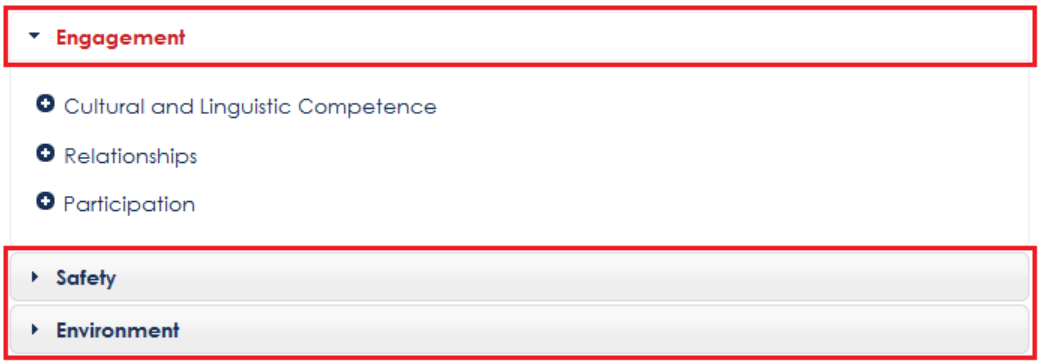
To hide the graphical display for a single survey item within a topical area, click on the *Collapse* icon for the survey item.

6. To view data for a domain, click on a domain header.



N O T E

The demographic domain, available for the student, instructional staff, and noninstructional staff (including principals) data collections, is not available for the parent data collection.



7. To export the report, click on the "Excel," "CSV," or "PDF" option from the "Export" menu.

N O T E

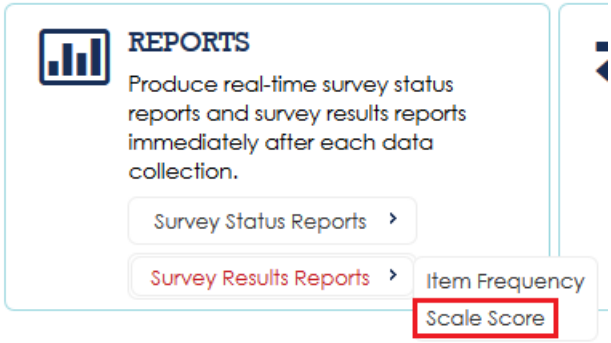
The export feature is available when valid data (i.e., not suppressed because of disclosure risk) have been collected for at least one survey item. The data exported will be in raw format regardless of the file type chosen.

B. To view and export the benchmarked scale score report: [14]

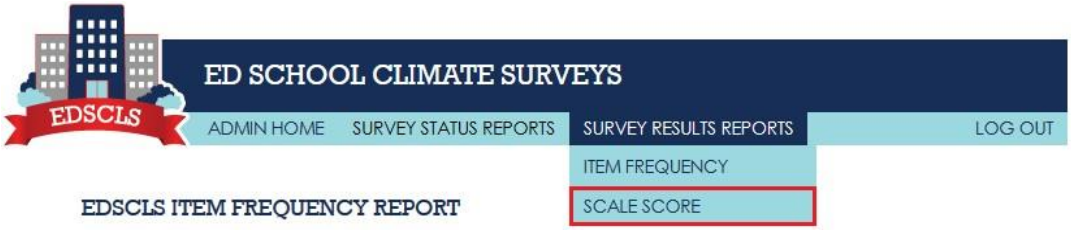
NOTE

This section has been updated to reflect how the EDSCLS platform now produces benchmarked scale scores. If you want to measure school climate survey data trends (e.g., compare school year 2016-17 data to what you will collect for school year 2017-18), you will need to convert your previous "legacy" scale scores to the benchmarked scale scores. For detailed information about converting legacy scores to benchmarked scores, please see https://safesupportivelearning.ed.gov/edscls/benchmarks.

1. Under the Reports section of the Survey Administrator dashboard, click on the "Scale Score" option from the "Survey Results Reports" menu.



Alternatively, click on the "SCALE SCORE" option under the "SURVEY RESULTS REPORTS" menu from the toolbar on any Reports page.



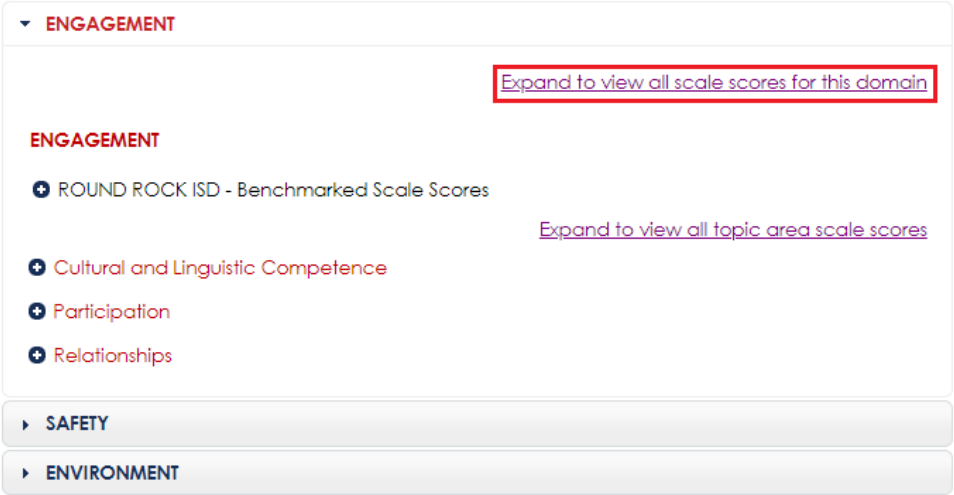
2. Select the data collection from the "Data Collection" drop-down box.
3. To filter by district at the state level, select the district from the "District" drop-down box.
4. To filter by school at the state or district level, select the school from the "School" drop-down box.
5. Click on the "GENERATE REPORT" button.

[14] Parent surveys do not appear as an option when selecting scale score reports since parent surveys should only be examined at the item level.

6. To see all benchmarked scale scores and levels at once for a domain for your districts and schools (if you are a State), or for all schools (if you are a district), click on the "Expand to view all scale scores for this domain" link.

N O T E

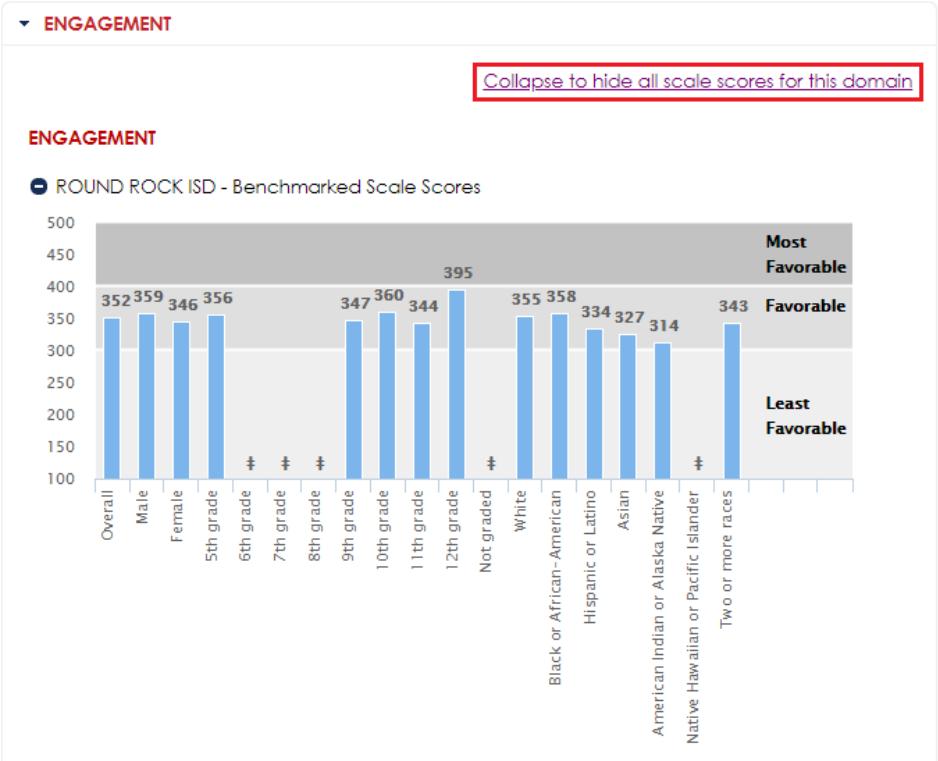
This section has been updated to reflect how the EDSCLS VM now produces benchmarked scale scores. See the Frequently Asked Questions (FAQs) for information on and definitions of the benchmark performance levels.



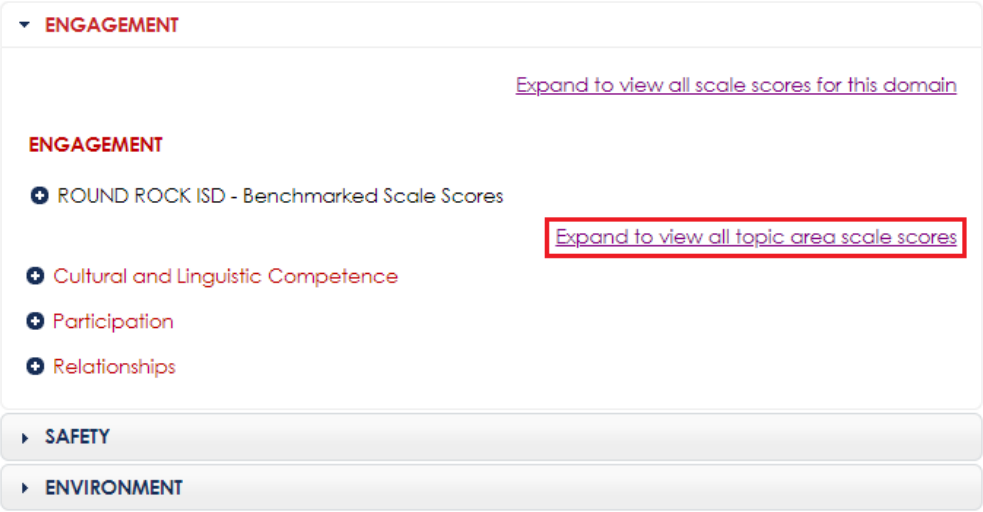
7. To collapse all benchmarked scale scores and levels at once for a domain, click on the "Collapse to hide all scale scores for this domain" link.

N O T E

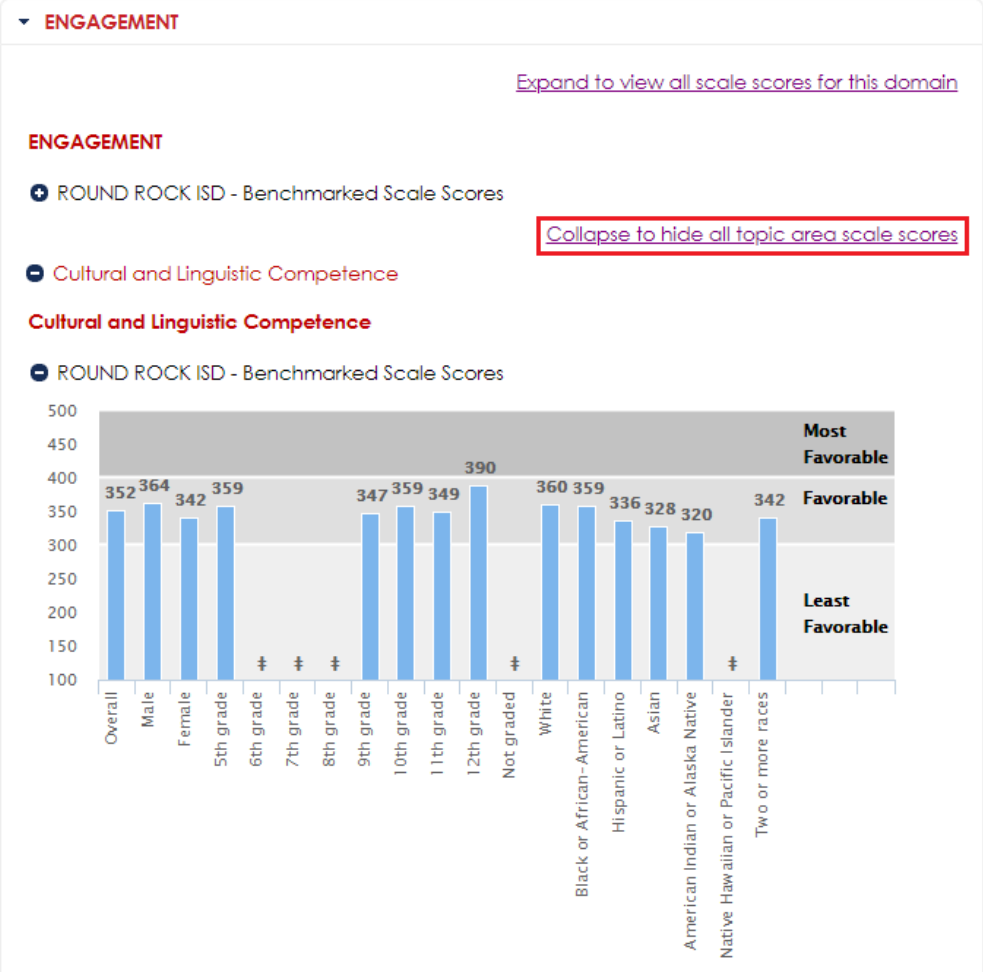
This section has been updated to reflect how the EDSCLS platform now produces benchmarked scale scores. See the Frequently Asked Questions (FAQs) information on and definitions of the benchmark performance levels.



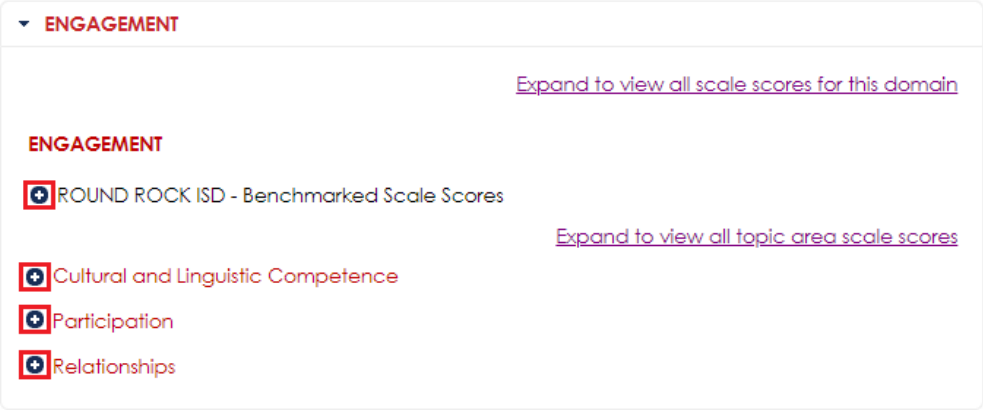
8. To see benchmarked scale scores and levels for topic areas within this domain for your districts and schools (if you are a State), or for all schools (if you are a district), click on "Expand to view all topic area scale scores" link.



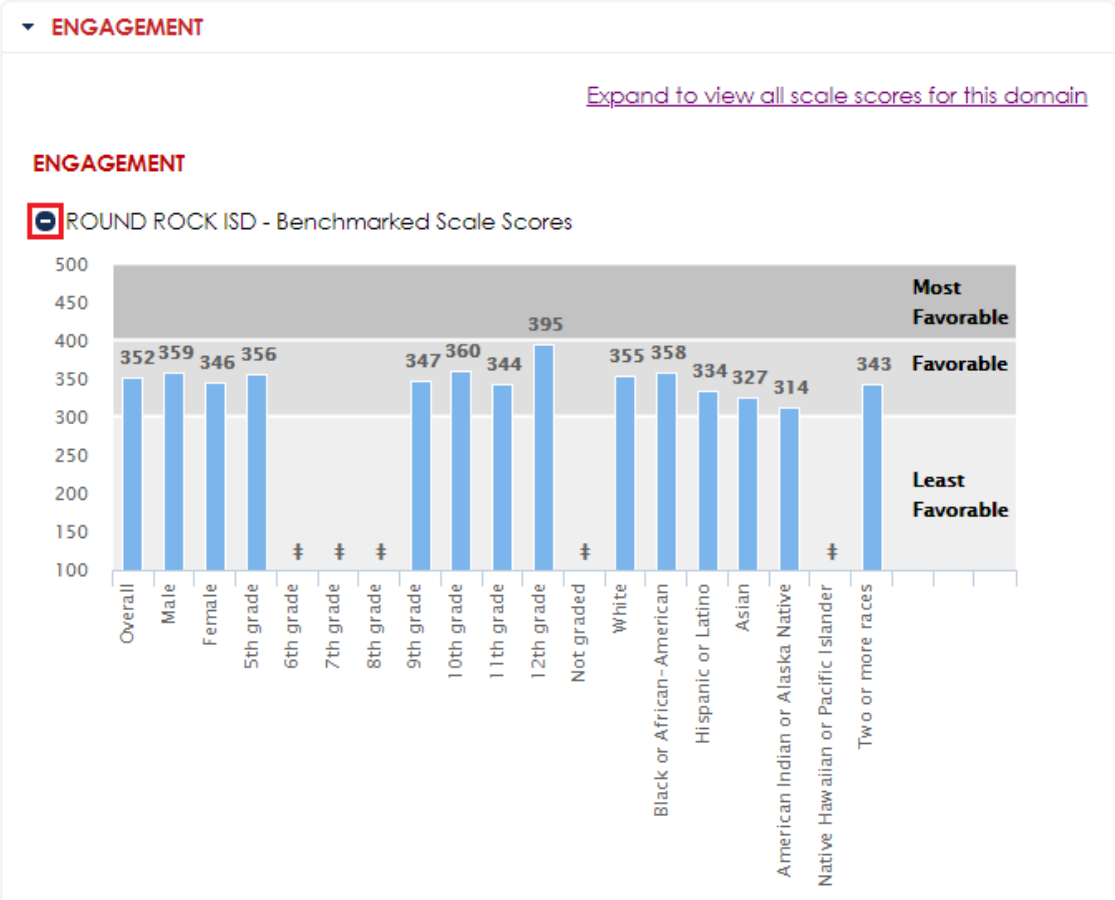
9. To collapse benchmarked scale scores and levels for topic areas within the domain, click on "Collapse to view all topic area scale scores" link.



10. To show benchmarked scale scores for a state, district, or school; or topic area, click on the *Expand* icon (⊕).



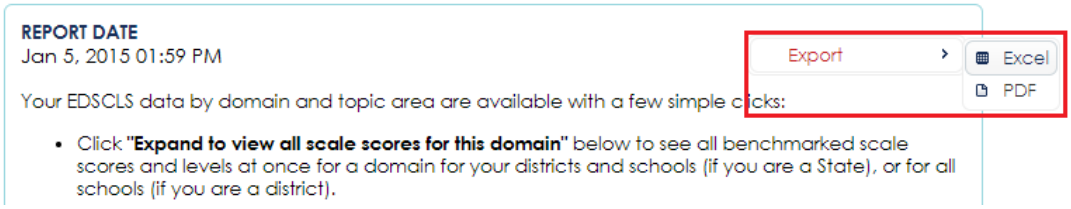
11. To hide scale scores for a state, district, or school; or topic area, click on the *Collapse* icon ( )



12. To export the report, click on the "Excel" or "PDF" option from the "Export" menu

N O T E

Exported reports must be saved outside of the platform. The platform does not retain a copy of these exported reports.



2.2.10 Exporting and Importing Respondent-Level Survey Results

On the bottom right of the dashboard there is a section titled "SURVEY RESULTS." Respondent-level survey results can be exported and imported to allow schools to provide data to districts and to allow districts to provide data to states. This is also useful for schools, districts, and states that are using multiple copies of the platform. It allows users to combine data into one platform for reporting purposes.

The exported data will contain the original system-generated usernames for student respondents—in order to allow student response data to be linked to student records—if the education agency chooses to keep track of which students were given which usernames. Such tracking must occur outside of the EDSCLS platform and is not directly supported by it. The original usernames for parents/guardians, instructional staff, and noninstructional staff (including principals) are replaced with new random usernames to prevent any linkages.

If you have trouble importing reports, see the Reporting section of the Frequently Asked Questions (FAQs) on the EDSCLS website or contact the EDSCLS Help Desk at edscls@air.org or (866) 730-6735.

WARNINGS

Respondent-level data are exported and imported in CSV file format. For many users, the default program for opening CSV files is Microsoft Excel. When you export respondent-level data, open it with Excel and save it, the format of the data in certain columns is altered (e.g., Start Date, End Date, and NCES ID). This alteration will prevent files from being imported correctly into the EDSCLS platform. To avoid errors in importing and exporting data, always open and save exported data files in a text editor like WordPad or NotePad to ensure data remains in the original format.

The underlying database of EDSCLS VM versions 2.7 and higher has a slightly different structure for the staff surveys than the EDSCLS VM 2.6 database because a new survey item was added to the staff surveys. Therefore, raw response data to staff surveys exported from EDSCLS VM 2.6 cannot be imported into EDSCLS VM 2.7 or any other subsequent versions of the VM.

The platform will automatically regenerate the item frequency and scale score reports once data results have been imported, which may negatively impact server performance. Data imports should be avoided during survey administration.

A. *To export survey results to a CSV file:*

1. In the Survey Results section, click on the "Export" button.

Alternatively, click on the "EXPORT SURVEY RESULTS" link from the toolbar on any Survey Results page.

2. Select the data collection from the "Data Collection" drop-down box.
3. Check the "I have read and agree to the Pledge of Confidentiality" check box.
4. Click on the "EXPORT" button. Refer to the EDSCLS codebook to view the definitions and valid values for each variable name.

B. *To import a survey results CSV file:*[15]

1. Under the Survey Results section, click on the "Import" button.

Alternatively, click on the "IMPORT SURVEY RESULTS" link from the toolbar on any Survey Results page.

2. Select the data collection from the "Data Collection" drop-down box.
3. Click on the "Browse…" button to open the File Upload window.

W A R N I N G S

Do not import the same data file more than once. Exporting and importing the same staff or parent data collection more than once will duplicate respondents when generating reports.

4. From the File Upload window, select the survey results CSV file to import and click on the "Open" button. Please note that the CSV file to import must be in exactly the same format as the survey results CSV file exported from the platform.[16]

[15] This feature is not available for school-level administrations of the EDSCLS. See WARNING about importing data files from VM 2.6 on 2.2.10 Respondent-Level Survey Results.

[16] Please refer to the WARNING message earlier in this section (2.2.10) on the format of CSV files.

5. Click on the "IMPORT" button. Please note that certain virtual private network (VPN) or Internet service provider (ISP) may also block large file uploads. In those cases, records need to be imported in smaller batches. Also note that depending on the size of the import file, it may take minutes to hours to process the data for the survey results reports.

3. Administration Guide: Recommended Practices

This section of the guide is intended for EDSCLS Survey Administrators. It provides education agencies with an overview of the best practices they should know about prior to launching an EDSCLS administration. Guidance for specific EDSCLS survey populations—students, instructional staff, noninstructional staff (including principals), and parents/guardians—is indicated where appropriate.

Specifically, the following topics are addressed:

- planning how to survey respondent groups: students, instructional staff, noninstructional staff (including principals), and parents/guardians;
- setting the dates of the administration window;
- dissemination of survey usernames;
- conducting a test run of the EDSCLS before taking it live;
- monitoring participation rates and encouraging the participation of potential respondents who have not yet taken the survey; and
- overseeing the data when the administration window closes.

It is the responsibility of the education agency that is administering the EDSCLS to check whether additional approval for a data collection is required by the state or locality (e.g., from an Institutional Review Board).

3.1 Preparing for the Survey Administration

This subsection contains recommended practices for preparing for EDSCLS administrations, beginning with specific recommendations for each survey:

Student survey

a. The school's own technology capacity plays a large part in considering whether computer labs, media centers, or classrooms (with computer or tablet access) are the best options for administering the survey. If multiple options are available, consider which venue in your school affords the most privacy to each student.
b. Regarding parental consent, please use the standard practice of the state/district/school to acquire the proper parental consent for any surveys or testing. The student survey questions are available in paper form in both English and Spanish for parents/guardians to review. It is recommended that parents/guardians be given the opportunity to review the student survey prior to the start of data collection. The student survey questions and parental consent forms can be e-mailed or printed and mailed along with report cards or other school documents. As a reference, two sample parental consent forms (passive and active)[17] are included in Appendix E of this guide.
    - If your state law or school system policies do NOT require parents/guardians to "opt in" for surveys of their child, you can provide them the *passive* Parental Consent Form I found in E.1.
    - If your state law or school system policies do require parents/guardians to "opt in" for surveys of their child, you will need to provide them the *active* Parental Consent Form II found in E.2.[18]

[17] *Passive* consent means parents must notify the school if they want their child to not take (opt out of) the survey. *Active* consent means parents must notify the school if they want their child to take (opt into) the survey.

[18] Note that acquiring active parental consent requires more advance notice than passive consent, as schools need to note which parents have sent in forms and send reminders, as necessary, to maximize the number of students who will take the survey.

Instructional and noninstructional staff surveys

a. If your school does not provide instructional and noninstructional staff access to computers in their classrooms or offices, consider creating a sign-up sheet for the available computers through which staff can rotate.
b. Some noninstructional staff, such as custodians, cafeteria workers, and bus drivers, may need to use school computers at designated times to complete their surveys. Schools should provide personnel to assist with this as necessary.
c. Staff meetings provide an opportune time to both explain the surveys to staff and to have them complete the survey. Consider setting aside time and/or computers during the meeting for staff to use to complete the survey.
d. If staff have designated times in the school day for planning, professional activities, or administrative tasks, consider allowing them to use that time to complete the survey.

Parent/guardian surveys

a. In-person explanations may be more effective than letters and e-mails at increasing parent response rates. If a significant number of parents/guardians do not have e-mail addresses or computer access, then letters and in-person explanations become even more important. In such an instance, consider making the EDSCLS a cornerstone of orientation and parent-teacher conferences. Allocate more computers for EDSCLS participation during these meetings, provide personnel to assist, and have plenty of paper versions of the student survey questions on hand for those who request to review them.
    - Orientation is ideal for describing the surveys to parents/guardians.
    - Consider setting aside a room with computers for parents/guardians to use while they are waiting to start their conference or after they are finished with their conference.

The importance of standardized procedures:

a. Whether your aim is to compare your school climate results to other schools in your district or state, or to establish your own trend data, applying standardized procedures is critical to producing reliable data. Accurate measurement of the differences between two populations, or the change over time in a single population, cannot be achieved if the measurement process itself is changed in any significant way.

In the context of the EDSCLS, this means maintaining uniform procedures for administering the survey to respondents. For the student survey, this includes the selection and training of Survey Proctors, using the proctor scripts (see Appendix D), and applying strict protocols to ensure privacy. Training sessions should familiarize Survey Proctors with the scripts, procedures, and use of the FAQs to answer students' questions (see Frequently Asked Questions (FAQs)).

Documentation:

a. It is critical to document decisions made throughout the data collection (e.g., data collection windows, eligibility of respondents, methods used to engage respondents). Whatever procedural decisions are made, the same procedures may need to be followed in subsequent administrations in order to establish valid trend data.

The logistics of administering the EDSCLS:

The EDSCLS platform has been developed to be usable at the school, district, and state levels. Depending on the size and complexity of the population and the education institution, the logistics of administration may require different divisions of labor.

a. *For state-level administrations*, consider the following configuration of key staff:
    - **State Survey Administrator**: The person leading the EDSCLS administration at the *state* level. This person controls the generation and dissemination of usernames for all respondents,

monitors the real-time submission rates of each respondent group, and orchestrates the activities of the District and School Survey Coordinators.

- **District Survey Coordinator(s)**: The people managing the EDSCLS administration at the *district* level. They act as liaisons between the State Survey Administrator and the School Survey Coordinators.
- **School Survey Coordinators**: The people managing the EDSCLS administration at the *school* level. They answer respondents' questions about the EDSCLS, remind all respondents to answer their surveys, and reserve space during the administration window for students to take the surveys.
    i. Depending on the size and complexity of the district, either the District Survey Coordinators or the School Survey Coordinators are tasked with recruiting Survey Proctors and with organizing and conducting their training.
- **Survey Proctors**: The people supervising the in-school student surveys. They prepare the rooms and computer access for students, read the Survey Proctor Script to the students, take note of absentees, and provide support to students having trouble accessing the survey.

b. *For district-level administrations*, consider the following configuration of key staff:
- **District Survey Administrator**: The person leading the EDSCLS administration at the *district* level. This person controls the generation and dissemination of usernames for all respondents, monitors the real-time response rates of each respondent group, and orchestrates the activities of the School Survey Coordinators.
- **School Survey Coordinator(s)**: The people managing the EDSCLS administration at the *school* level. They answer respondents' questions about the EDSCLS, remind respondents to answer their surveys, and reserve space for students to take surveys during the administration window.
    i. Depending on the size and complexity of the district, District Survey Coordinators may be necessary. Either the District Survey Coordinators or the School Survey Coordinators are tasked with recruiting proctors and with organizing and conducting their training.
- **Survey Proctors**: The people supervising the in-school student surveys. They prepare the rooms and computer access for students, read the Survey Proctor Script to the students, take note of absentees, and provide support to students having trouble accessing the survey.

c. *For school-level administrations*, consider the following configuration of key staff:
- **School Survey Administrator**: The person leading the EDSCLS administration at the school. This person controls the generation and dissemination of usernames for all respondents and monitors the real-time response rates of each respondent group. This person also answers respondents' questions about the EDSCLS, reminds all respondents to answer their surveys, and reserves space for students to take surveys. This person also recruits Survey Proctors and organizes and conducts the Survey Proctor Training.
    i. Depending on the size of the school and the workload of the School Survey Administrator, a School Survey Coordinator may be necessary.
- **Survey Proctors**: The people supervising the in-school student surveys. They prepare the rooms and computer access for students, read the Survey Proctor Script to the students, take note of absentees, and provide support to students having trouble accessing the survey.

Selecting Survey Proctors for the Student Survey:

a. EDSCLS student survey administrations must be supervised, necessitating Survey Proctors. The Survey Administrator or Survey Coordinator should select the Survey Proctors and furnish them with student usernames (which the Survey Administrator will randomly generate through the EDSCLS platform) and the proctor script. Depending on the size and complexity of your administration, this task can either be accomplished by a school- or district-level Survey Coordinator.

b. Eligible Survey Proctors may include teachers, student teachers, noninstructional staff, school counselors, school nurses, computer lab technicians, or outside consultants. If instructional staff are used, please consider having them proctor for classes of students that they do not teach. Despite overt privacy procedures, students may not be as open to providing honest responses in the vicinity of their regular class teacher.

Training Survey Proctors:

a. Training the Survey Proctors is critical to ensuring that the students finish the survey within a single class period. Provide the Survey Proctors with the Survey Proctor Script (see Appendix D) and the Frequently Asked Questions (FAQs), and hold an in-person or virtual meeting prior to the start of the administration window to review the materials and field any questions the proctors may have.

b. All individuals involved in administering the EDSCLS, including the Survey Proctors, should sign a Confidentiality Pledge (see the sample in Appendix C). This reinforces the commitment to confidentiality, and the signed form can be shown to parents/guardians to address privacy concerns.

Determining Respondent Eligibility/Ineligibility:

a. It is recommended that data be collected from all eligible respondents at a school to obtain a full picture of the school climate. This is called a universe or census data collection.

b. Even with a census or universe data collection, decisions should be made by the education agency regarding respondent eligibility. For example, consider:
   - Students who are new to the school. Students may need time to experience the school building before accurately answering questions about building-level conditions. Consider whether students must be enrolled in the school for a certain number of days prior to being eligible for the survey.
   - Students who are eligible for alternative assessment. The EDSCLS survey is not specifically designed to accommodate students with severe cognitive disabilities who typically require alternative assessments. Consider whether these students should be ineligible.
   - For the instructional staff and noninstructional staff surveys, consider which staff will be invited. Some important questions to consider are as follows: Should only full-time and part-time staff be included, or would you also include occasional staff and substitute teachers? Should noninstructional staff who interact with students in nonacademic ways, such as janitors, bus drivers, and cafeteria staff, be included?

   Make sure to document these decisions. Future administrations of the EDSCLS need to replicate these decisions to establish valid trend data.

Information on Response Rates:

a. A response rate is the number of those eligible for the survey who respond divided by the number of those eligible for the survey. Achieving high response rates is very important for obtaining valid and unbiased data. Education agencies should decide the acceptable minimal response rate for a respondent group's data to be included when reporting results.

Overcoming the Challenges Around Communicating with Parents/Guardians:

a. Parents'/guardians' opinions about a school's climate are very important. However, obtaining their interest and support can be challenging. Parents/guardians may not have the technology to access the survey or have enough technical skills to answer the online survey. They may also feel they are too busy to respond to the survey.

b. Given these challenges, we recommend reaching out to parents/guardians early, informing them about the goals of the survey and providing opportunities to ask questions. Schools may need to employ creative strategies to interest them in the survey. It is important to note that the parent survey is short, and it can be answered on desktops and laptops as well as on any mobile device, such as tablets or smart phones. Those parents/guardians who are not familiar with computers can be invited to use school computers, with assistance provided by school personnel.

3.2 Setting Dates for the Survey Administration Window

Setting the dates of the administration involves early planning. Spring administrations are recommended because they give respondents a chance to reflect and report on their perceptions of the school over the course of the school year. The dates you select for the survey administration window can affect participation rates, the perceptions of certain school climate factors, and future administrations. Consider the following guidelines:

a. Establishing trend data
   - If your state or district is interested in comparing school scores across the state or district, your state or district should administer the surveys to all participating schools during the same time frame.
   - If you intend to use the EDSCLS to establish trend data across time, repeated administrations should be conducted cyclically, during the same 2-week to 1-month window, annually or biannually. This prevents conflation of cyclical factors with structural factors.

b. School year schedule
   - The EDSCLS is best administered in the spring, but no later than April, if possible. Later administrations face the challenge of competing for time with standardized tests, increasingly busy school schedules, and higher absentee rates (an especially acute problem when surveying 12th-grade students).
   - We recommend that sites avoid conducting the survey at the same time as state testing.
   - Both efforts aim to measure school characteristics that have matured over a school year, but past experience suggests that a significant number of schools do not have the administrative and/or technological capacity to conduct concurrent universal data collections. As such, we recommend that sites carefully examine the calendar of activities for all participating schools and select the optimal time for administration.
   - If it is not possible to schedule concurrent data collections—at multiple schools, to different respondent groups, or to students at multiple grades—consider using slightly different data collection windows for different sites or populations.

c. Other considerations
   - ***Holidays***. It is best to avoid conducting the EDSCLS after long school breaks, especially after the winter holiday and spring break. In general, surveys should not be conducted on the day immediately before or after a holiday because absentee rates may spike.
   - ***Days of the Week.*** If possible, avoid administering the student survey on Mondays and Fridays, as they often have unusually low attendance rates. This is particularly prevalent on Fridays before a Monday holiday.
   - ***Submission Rates.*** If submission rates[19] are low, the Survey Administrator may want to consider extending the data collection window in the EDSCLS platform (see 2.2.4 Data Collection). This is a particularly attractive feature when a large number of respondents have

[19] The submission rate is the number of surveys completed (i.e., submitted to the EDSCLS system) divided by the number of usernames randomly generated by the system. Submission rates can be different from response rates. For example, a Survey Administrator may generate extra usernames, resulting in a higher denominator for the submission rate calculation. Since the EDSCLS platform cannot produce response rates, submission rates should be used as a proxy for response rates.

logged in to the survey but not have submitted it or a large number of potential respondents have not been used (see 2.2.7 Respondent Usernames Generation). Those in both groups may be convinced to finish the survey, if reminded and given a little more time. For students, this may mean scheduling a make-up time to respond to or finish up surveys (this is especially helpful for slow readers).

Closed data collections cannot be reopened. If during a data collection, you decide that the length of the window should be increased, try to implement the change before the original window expires. If the original end date is reached, you can employ a workaround by creating a new data collection and then importing the results of the second data collection into the first one (See 2.2.10 Exporting and Importing Respondent-Level Survey Results).

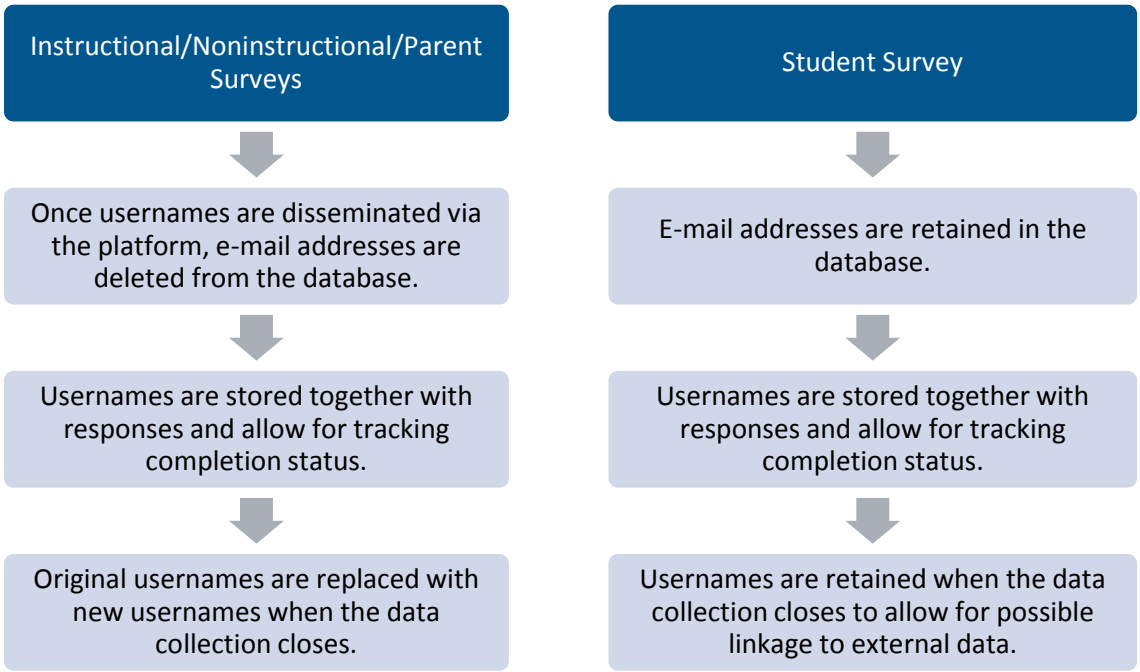
3.3 Dissemination of Survey Usernames

Section 2.2.8 above provides instructions for disseminating usernames through the e-mail function of the EDSCLS platform. This is the most efficient method and is particularly useful for large data collections. However, if your host server is not configured to send out e-mails, your site will need to consider the option of manually distributing the usernames on paper or using regular e-mail services outside of the platform.

Manual distribution should also be considered if your site experiences pushback from respondents concerned about the confidentiality of their responses. This process involves generating the usernames in the standard way, exporting the usernames to a PDF or EXCEL file, and then printing them out instead of e-mailing them. Printed usernames can be distributed anonymously by, for example, having respondents pick one username from a stack of paper strips on which the usernames have been printed. This will ensure that responses cannot be linked back to specific respondents and that the same usernames will not be distributed to multiple persons.

Please note that the instructional, noninstructional (including principal), and parent survey responses cannot be linked back to respondents. Even if usernames are disseminated via the platform, the original usernames are replaced with randomly generated usernames as soon as the data collection closes and the results are made available. Figure 3 shows how usernames are retained or deleted for different respondents.

Figure 3. Username Retention or Deletion in the EDSCLS



3.4 Test Runs Prior to Administration

Survey Administrators should conduct a test run of the platform and logistics chain to make sure that the platform has been installed properly and the system works. Conducting a test run can also help you become familiar with the survey administration process. The test run should include the following steps:

1. Set the Data Collection start and end dates.
2. Generate at least one random username for each respondent group.
3. Use the usernames to log in and answer the first few questions.
4. Use the "REPORTS" boxed section of the dashboard to make sure it is showing your username as "Partial."
5. Complete the remainder of the survey begun in step 3.
6. Check the *Survey Status Reports/Case Disposition* section to make sure it is showing your username as "Completed."
7. After the data collection end date, check the *Survey Status Reports* section to make sure it reflects question-level data (i.e., item frequencies, scale scores). Please note that results will only be shown if there are 10 or more responses due to concerns of disclosure risk.

Survey Administrators, Survey Coordinators, and Survey Proctors should do a test run to access and log in to the survey prior to the start of the data collection. For efficiency, consider folding this test run into the training of Survey Coordinators and/or Survey Proctors.

At least three school days before the survey window starts, the Survey Administrator should distribute the following materials related to the student survey to each Survey Proctor (usually through the school-level Survey Coordinators):

- classroom number(s) and period(s) of their administrations;
- class roster (to keep track of absentees);
- student usernames randomly generated by the EDSCLS platform;
- proctor instructions; and Survey Proctor Script (see Appendix D)

3.5 During the Survey Administration Window

Several different kinds of activities and considerations are important when a data collection is open; these include communication with respondents and survey personnel, monitoring submission rates and incentivizing participation and evaluating potential nonresponse bias.

Guidelines for communication during administration:

- The EDSCLS platform reports the number of the usernames generated for each data collection, and the number used to log in as well as the submission rate (see 2.2.9.1 Survey Status Reports). Survey Administrators can use submission rates to motivate nonrespondents to participate. For example, they can be included in the reminders sent to participants. We recommend displaying the numbers in a visual format (e.g., pie graphs) for added effect. If you are conducting the survey in multiple schools, you can imbue the reporting with a competitive aspect by publicizing the submission rates of each school. The same concept can be applied to a whole district or state, depending on the size of your administration.

Monitoring submission rates:

- Achieving a high response rate is important in order to avoid nonresponse bias. Nonresponse bias occurs when the views expressed by those who respond do not reflect the views of the entire population. For example, the first responders to a school's parent survey may be the parents who have most frequent contacts with the school and thus have the most positive view of the schools. If no effort is made to get the rest of the parents respond to the survey (i.e., increase response rate), the final parent survey results may be skewed toward more positive views of the school's climate.
- Please note that response rates and submission rates are often different from one another, for a variety of reasons. For example, a Survey Administrator may generate extra usernames, resulting in a higher denominator for the submission rate calculation. Since the EDSCLS platform cannot produce response rates, submission rates should be used as a proxy for response rates.

Increasing submission rates:

- Reminder e-mails and/or letters can be sent to respondent groups to increase participation.
- Who sends the reminders to which respondent groups is best determined by relationship immediacy. As such, instructional staff are the best contact points for reaching out to parents/guardians, principals are best suited to influencing instructional and noninstructional staff, and district leaders are best suited to achieving full participation from principals.

Lackluster submission rates are most acute in parent surveys of school climate. Consider the following strategies to optimize parents'/guardians' submission rates:

- Emphasize the value/actionability of the data gathered and ensure confidentiality. The randomly generated usernames are not connected to any particular individual. The parents'/guardians' input is valuable because they are the only adult stakeholders in the school system who are not directly part of that school system.
- Teacher-parent conferences provide an opportune venue for parents/guardians to complete the survey. The instructional staff give feedback on the child's progress to the parents/guardians, and the parents/guardians can then provide feedback to the school about its climate. We recommend designating a room with computers or tablets where parents/guardians can fill out the survey while they wait for their turn with the teacher or when they are finished with their conference. Provide personnel to assist those parents/guardians who are not familiar with computers or tablets.
    a. Be careful about soliciting parent input from only certain groups of parents/guardians (e.g., the parents at a PTA meeting). Such programs draw a narrower band of parents/guardians who are likely to be far more involved in their child's school than the average parent, leading to an overrepresentation of a subset of the population.

Nonresponse bias:

- When the response rate, by proxy of the submission rate,[20] is below 80 percent, a nonresponse bias analysis is recommended to determine whether or not the respondents to your study are representative of the population in your school, district, or state and to assess the potential magnitude of nonresponse bias. The analysis will help evaluate whether the data, or the reports based on the data, are biased by the missing respondents.
- EDSCLS administrators can use the frequency distributions of the demographic variables (grade, student only; race/ethnicity, and sex) that are included in the reports and compare them to a data source that includes the frequencies of these demographic variables for the total population. The nonresponse bias worksheet with embedded formulas is included in the EDSCLS package and can be used to carry out basic analysis. A worksheet for the student survey will look like this:

Figure 4. Nonresponse bias worksheet for the student survey

Student Characteristic	Percent of respondents	Percent of students	Estimated bias	Relative bias
Grade				
5th Grade	12.5	12.0	0.5	0.0
6th Grade	11.9	12.0	-0.1	0.0
7th Grade	12.5	12.0	0.5	0.0
8th Grade	13.8	12.0	1.8	0.1
9th Grade	12.5	12.0	0.5	0.0
10th Grade	11.3	12.0	-0.7	-0.1
11th Grade	11.9	12.0	-0.1	0.0
12th Grade	12.5	12.0	0.5	0.0
Ungraded	1.3	4.0	-2.7	-2.1
Gender				
Male	50.0	45.0	5.0	0.1
Female	50.0	55.0	-5.0	-0.1
Race/Ethnicity				
American Indian or Alaska Native	10.0	2.0	8.0	0.8
Asian	5.0	7.0	-2.0	-0.4
Black/African-American	15.0	15.0	0.0	0.0
Native Hawaiian or Pacific Islander	5.0	5.0	0.0	0.0
Hispanic	20.0	20.0	0.0	0.0
Two or more races	5.0	1.0	4.0	0.8
White	40.0	50.0	-10.0	-0.3

- The "Percent of respondents" column indicates the characteristics of the respondents to the survey. The "Percent of students" column is extant information from the administrative data of the school or school system. The EDSCLS administrator should enter the demographic characteristics included at the end of the item frequency report into the "Percent of respondents" column, and comparable data from the administrator's records should be entered into the "Percent of students"

[20] Note that submission rates can differ from response rates (see footnote 16 above). The EDSCLS platform is only capable of tracking submission rates. Users who want to track response rates will need to determine the requirements for defining respondent status and calculate the response rates using the raw data.

column. The "Estimated bias" column indicates, in percentage point terms, differences between the respondent and the overall student population. The "Relative bias column" indicates how large the bias is relative to the estimates from the "Percent of respondents" column. This analysis should also be done for other respondents – instructional staff, noninstructional staff and parents.

- In those cases, in which the administrator has elected to preserve the link between the usernames and the identity of the students, student survey responses can be linked to other data sources the school/district/state may have to conduct more detailed bias analyses (using the additional student data to measure bias within the responding population as compared to the full population). Additionally, if the data are being collected at the district or state level, the administrator can add additional school and district data for additional analyses. If these additional data are used, the administrator would add the additional variables to the "Student Characteristic" column and drag the formulas in the "Estimated bias" and "Relative bias" columns to the row corresponding to the end of the list of characteristics.
- The bias is computed by subtracting each value in the "Percent of students" column (e.g., 12.0 for grade 5 students in the table above) from the comparable value in the "Percent of respondents" column (e.g., 12.5 for grade 5 students). The relative bias is the bias estimate for each row divided by the "Percent of respondents." For any group of respondents, if the estimated bias is larger than 1 percentage point (greater than 1.0 or less than -1.0), the survey data should be used with caution (e.g., 1.8 for grade 8 students). Administrators should also be cautious if the relative bias is larger than 0.3 or less than -0.3 (e.g., 0.4 for Asian students).

3.6 After the Data Collection Window Closes

The EDSCLS platform automatically produces a report of the results when the data collection window closes. However, if you wish to further analyze the data, you may export the raw data into a CSV file, accessible via Excel and many programming applications, to further analyze the data as needed.

Storage of the Data

The education agency that conducts the EDSCLS is responsible for storing the data in a secure manner. Any materials that directly or indirectly identify respondents should be kept in a locked compartment in a locked room when not in use.

Deletion or Preservation of the Data

The EDSCLS platform can be used for multiple cycles without deleting prior data collections, and the platform's tools allow the data to be sorted by administration. Keeping the data makes multi-administration comparisons easier by establishing trend lines. However, the data are ultimately the responsibility of the education agency that collected them and deleting or preserving them is at the discretion of that agency.

4. Instructions for in-School Administration of the Student Survey

Survey Administrators, School Survey Coordinators, and Survey Proctors should read the instructions in this section in advance of the first day of the administration window. The instructions in this section should be used as a guide in how to effectively and consistently administer the EDSCLS student survey. Note that students should take the EDSCLS survey in the controlled environment of a school, not at home or in any other uncontrolled environment.

Scheduling resources (e.g., time in computer labs; survey support staff)

The student survey portion of the EDSCLS has been designed to be completed in a single 50- to 60-minute class period. This includes the time needed for the Survey Proctor to read the script to students (see Appendix D), to log in, and complete the survey. The survey administration procedures are designed so that Survey Administrators and School Survey Coordinators can follow typical computer lab/media center reservation procedures at their respective schools.

Accommodations for students

- The EDSCLS surveys are 508 compliant[21] and schools should provide the same accommodations for students as are usually provided for student testing. These accommodations include magnifying devices, bilingual dictionaries, extended time, and small group administration.
- The EDSCLS student survey is provided in both English and Spanish. Other language accommodations, such as small group administrations with translators, should be offered to students who are not fluent in either English or Spanish.

Make-up dates for absent students and those needing additional time

- For student surveys, it is important to fold make-up dates into the data collection window, especially for large school-, district-, and state-level administrations. Absentees are inevitable, and a large enough number of them could introduce a nonresponse bias; for example, students who are frequently absent may not be as engaged in the school as others. Have at least one make- up day set aside for absent students as well as those who are not able to complete the survey in one class session. If possible, consider setting aside multiple make-up dates for larger administrations.

Setting the ground rules of the administration

- Students should be instructed to take a seat at a computer terminal of their choice and should be provided with a username for logging in to the survey.
- Students should be reminded to write down their password. If they lose it, they will not be able to get back to the survey.
- Students should be reminded to stay quiet throughout the survey to avoid distracting fellow classmates. If they have a problem logging in to the survey, they should raise their hands. If they have a question about the meaning of language used in the survey, they should do their best to figure out the intent—to ensure privacy and standardized administration, proctors cannot provide individualized help.

When the above instructions have been given, the proctor should begin reading the Proctor Script (see Appendix D).

Assigning usernames and ensuring all students can log in to the survey platform

- It should be clear to students whether or not the proctor will be able to connect usernames to specific students. If the linkage to other student data is not planned, we recommend placing a username at each computer before the students arrive, and then allowing them to choose where they sit. If you prefer assigned seating, we recommend having students pick up a username from a stack as they walk into the room. If the linkage to other student data is planned, usernames will need to be handed out after students' names are verified. Use the standard administration procedures and conduct the survey in setting that ensure students' privacy.
- The proctor should be free to move around the room until every student has successfully logged in and reached the welcome page. If a student has trouble, ask him or her to try the username again, paying careful attention to special characters and capitalization.
- Once a student logs in, the system will generate a PIN that can be used for re-entry to the survey. ***The PIN cannot be recovered by the Survey Administrator.*** Please instruct students to write down their PIN so that they can re-enter the survey at a later time. It is important that they write down the PIN, whether they think they will need it or not, because of the possibility of unforeseen circumstance, such as fire drills or the class period ending before a student can finish.

[21] The survey instrumentation adheres to the requirements in Section 508 of the Rehabilitation Act of 1973, as amended in 1998, which includes a set of standards by which electronic forms of governmental publications are made more easily accessible to people with disabilities.

Accessing the survey in Spanish

- The EDSCLS platform has a bilingual toggle feature for the student (and parent) surveys. Students can click on the "English/Español" links above each question to select their preferred language.

Answering students' questions

- The proctor should help students log in, but not answer any questions about the wording of the survey items, since proctors cannot provide individualized help. If students are confused, please tell them to respond based on their best guess.

Closing out when the survey period ends

- It is best not to allow students to leave the class or surf the web upon finishing the survey as this may incentivize them to rush through it too quickly. Either ask them to sit quietly or give them an activity that will not disturb others (e.g., a reading assignment).

5. Frequently Asked Questions (FAQs)

Please visit the EDSCLS website for a list of Frequently Asked Questions (FAQs). These FAQs are questions and answers that have been asked or may potentially be asked about the EDSCLS. These FAQs are updated as the EDSCLS is updated.

6. Understanding the EDSCLS Scales

This section provides education agencies with some basic information about the EDSCLS scales. The EDSCLS surveys measure three domains—Engagement, Safety, and Environment—and 13 subdomain topical areas (see figure 4 in Appendix A). For the student, instructional staff, and noninstructional staff surveys, the aim is to measure most of the topical areas with scales; these topical area scale scores are consolidated into the domain scores (Engagement, Safety, and Environment). **Not all of the survey items are included in the scale score calculations**. The items that are not included in the scale scores are noted in the Survey Item Lists and Code Books available online on the EDSCLS administration page. No scales were created for the emergency readiness and management topical area in all three surveys and the physical health topical area in the student survey. No scales were created for any of the topical areas in the parent survey.

For each domain and topical area in the EDSCLS surveys, scale score reports in the EDSCLS system are available for each respondent group immediately after the close of data collection. For each respondent group, individual responses of all completed surveys will be aggregated by topical area and graphically presented at the education agency level. The scale scores are also reported by subgroups (e.g., race, gender, grade) within each category of respondent.

The EDSCLS platform will produce graphical displays of scale scores for domains and topical areas. The graphical presentation of these scores will show the average score across a particular respondent group on the scale and the school average (see 2.2.9.2 Survey Results Reports). Beginning with VM 3.0 (released in December 2017), the scale scores are benchmarked into three performance levels. The platform now produces graphs showing the scale scores imbedded into three performance levels. The benchmarking allows users to compare all scale scores no matter the topic or domain. For example, if students in a school are in benchmark level 1 (Least Favorable) for Engagement and benchmark level 2 (Favorable) for Safety, it suggests that they perceive the school is not doing as well in engaging students as it is in providing for safety. For the definitions of the three performance levels and basic information on the benchmarks, please see https://safesupportivelearning.ed.gov/edscls/benchmarks. For more technical details on how the benchmarks were developed, please see the benchmarking report in Appendix G.

If there are very few respondents overall or in a subgroup (for example, if there is only one respondent of a certain race/ethnicity), reporting might result in indirect disclosure of a respondent's identity. To minimize the risk of disclosure to respondents while providing as much usable information as possible, scale scores for any respondent group or subgroup with fewer than 10 respondents will be suppressed.[22]

[22] In place of the graph, a note will be displayed: "Item not shown due to disclosure risk."

Appendix A: What Does the EDSCLS Measure?

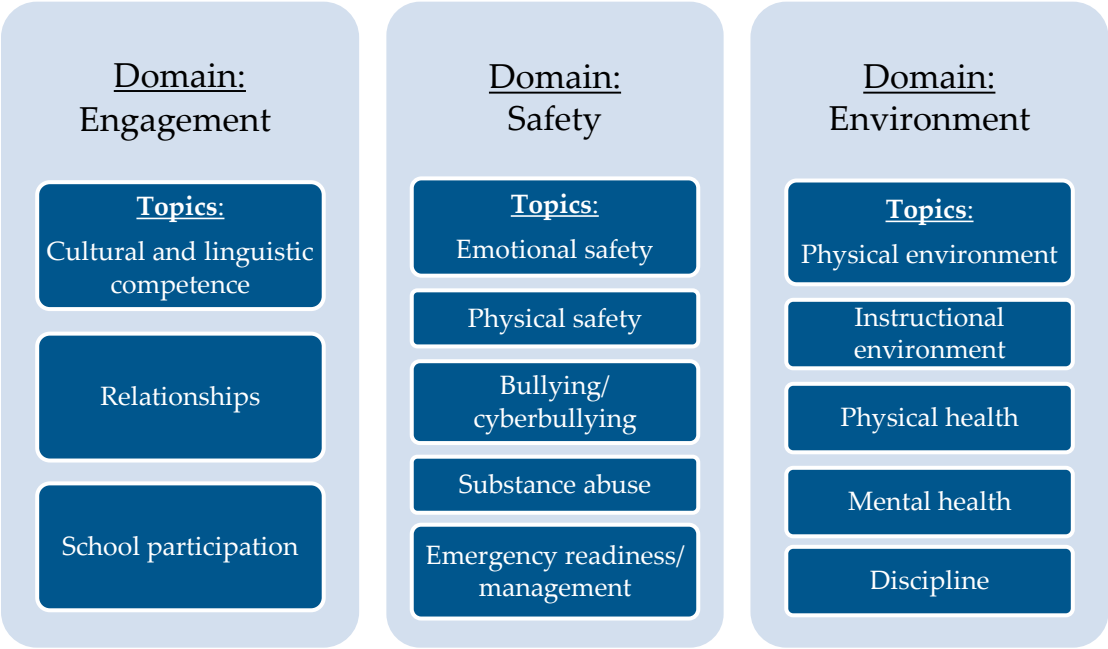
Appendix A.1 – EDSCLS Research Base (content)

Appendix A.2 – EDSCLS Research Base (references)

A.1 EDSCLS Research Base (content)

Three domains—Engagement, Safety, and Environment, and their associated topical areas—form the EDSCLS model of school climate (figure 4). Each of these domains and topical areas is measured in each of the four survey instruments. Some of these domains and topical areas are closely related to one another and include similar concepts—EDSCLS takes a panoramic approach in order to fully map the composition and influences of a school's climate. The remainder of this section provides a brief description of each domain and topical area and demonstrates its connection to the broader construct of school climate.

Figure 1. EDSCLS model of school climate



Engagement

Engagement includes several components of "school connectedness," such as the amount of effort students expend in the work of learning, their sense of belonging, and their emotional involvement with the school (Marks 2000). The amount of effort students devote to schoolwork is critical to their academic success because grades encapsulate not just mastery of content, but also labor invested (e.g., homework assignments, class participation, and extra-credit assignments) (Willingham, Pollock, and Lewis 2002). The rapport built between students and the important people in their lives at school establishes an important foundation for students' perceptions of academia. As Blum (2005b, p. 4) observed, "people connect with people before they connect with institutions"—thus, positive relationships with instructors can contribute significantly to how much students value instruction. Data from the National Education Longitudinal Study of 1988 (NELS:88) also lend significant credence to the power of teacher-student relationships: they show that positive student beliefs about how much their teachers support their efforts to succeed in school are related to a reduction in the probability of students dropping out (Croninger and Lee 2001).

In the EDSCLS, engagement constitutes three topical areas: cultural and linguistic competence, relationships, and participation.

Cultural and Linguistic Competence

Cultural and linguistic competence involves the degree to which students and families from diverse backgrounds feel welcome and connected to their school. When teachers seek to engage in unbiased instruction and to learn about their students, they can better respond to their students' needs (Gay 2010; Richards, Brown, and Forde 2004; Villegas and Lucas 2002). Ruus et al. (2007) found that the school value system and students' perceptions of teacher attitudes were significantly associated with students' optimistic acceptance of life, psychological and physical well-being, and academic success.

Relationships

Positive relationships between students, adults, and peers are characterized by affirmative social interactions, leading to a nurturing environment of trust and support. When coupled with a consistent emphasis on academic performance, a strong sense of support and school community has been positively associated with improved academic achievement (Lee et al. 1990). The quality of relationships is also important to faculty job satisfaction. A qualitative study by Hargreaves (2000) found that teachers cite their relationships with their students as one of the most important aspects of their work. In addition, teachers say that their job satisfaction is also contingent on their relationships with parents (Shann 1998).

School Participation

Participation encompasses all of students' efforts in the school context, ranging from class participation to extracurricular activities. Parents and staff also participate in school in various ways, such as through collective decision making and student instruction. Strong interconnectedness between staff, students, families, and school—as demonstrated by student participation in self-directed or cooperative activities—can contribute to a positive climate (Cohen 2006; Cohen et al. 2009). Meaningful participation at school cultivates students' self-efficacy, decision-making and leadership skills, and personal talents and strengths (Jennings 2003; Holland and Andre 1987).

Safety

Emotional and physical safety are fundamental characteristics of high-quality schools; in these schools, students feel a sense of belonging and are free to focus on learning (Dwyer and Osher 2000). Conversely, unsafe schools are associated with student and teacher victimization, increased truancy, lower levels of school attachment, decreased graduation rates, and increased disciplinary problems (Arseneault et al. 2006; Astor, Guerra, and Van Acker 2010; Bowen and Bowen 1999; Chen 2007; Henrich et al. 2004; Juvonen, Nishina, and Graham 2000; Neild, Furstenberg, and Stoner-Eby 2002; Mayer and Furlong 2010). Current research also suggests that the perception of physical and emotional safety is directly related to academic achievement (Glew et al. 2005; Osher and Kendziora 2010; Ripski and Gregory 2009). The positive effects of safe schools influence school staff as well. Gregory and colleagues found that cumulative daily stress—forged by disrespectful behavior and obscene remarks from students—has serious implications on teachers' mental health (Gregory, Cornell, and Fan 2012); such abuse is directly linked to, and may be an important cause of, their premature retirement (Bauer et al. 2006).

In the EDSCLS, the safety domain includes five topics: emotional safety, physical safety, bullying, substance abuse, and emergency readiness and management.

Emotional Safety

Emotional safety is the actual and perceived experience of feeling safe to express emotions and the confidence to take appropriate academic risks (Blum 2005a; Osher and Kendziora 2010). This aspect of safety contributes to a school's climate of mutual respect, trust, and equitable treatment among all members of the school community. Perceptions of respect, trust, and fairness are linked with school interconnectedness (i.e., a sense of community) (Blum 2005a; Resnick et al. 1997; Chapman et al. 2011). The experience of interconnectedness bonds students to schools, enhances well-being, and reduces risky

and antisocial behavior (Battistich and Hom 1997; Frey et al. 2009; Libbey, Ireland, and Resnick 2002; McGraw et al. 2008).

Physical Safety

Physical safety is predicated on protecting students from being victims of or witnesses to violence. There is a long history of research on the importance of safety to individuals' social and emotional growth, including Abraham Maslow's (1954) hierarchy of needs, wherein safety and security are ranked second only to basic physiological needs. In order for students to focus on and learn about abstract concepts, they must be free from worry about their physical safety. In schools where students reported higher levels of safety, a higher percentage of students passed standardized tests, even after controlling for free or reduced-price lunch status (Milam, Furr-Holden, and Leaf 2010).

Bullying

Bullying constitutes unwanted and aggressive actions directed from one person to another; the definition of bullying also involves a real or perceived power imbalance between the two parties, with the actions being repeated or having the potential to be repeated (Olweus 1997). C*yber-bullying* is a recent permutation, wherein electronic devices—such as cell phones, computers, and tablets—are used to target the victim. Bullying undermines perceptions of safety (Sampson 2009, p. 1), and student-student and student-teacher relationships (Swearer et al. 2010), making bullying prevention important for fostering a positive school climate (Cohen and Freiberg 2013; Thapa et al. 2013).

Substance Abuse

Substance abuse is a harmful pattern of using substances such as alcohol, tobacco, illicit drugs, or prescription drugs. This behavior carries the risk of directly causing or aggravating physical and mental health issues, impeding the cognitive growth necessary for academic success, and fomenting substance dependence. According to the National Center on Addiction and Substance Abuse (2001), "it is estimated that each year substance abuse costs schools at least $41 billion in truancy, special education, and disciplinary problems; disruption; teacher turnover; and property damage."[23]

Emergency Readiness and Management

Emergency readiness entails a school's preparedness to respond to a crisis or to an emergency such as a natural disaster, a violent incident, or an act of terrorism (National Child Traumatic Stress Network 2013).

According to the U.S. Department of Education (2013), emergency readiness includes prevention, protection, mitigation, response, and recovery. Fostering a positive school climate can help prevent emergencies—because it can reduce the incidence of behaviors that contribute to crises (e.g., violence, bullying, harassment, substance abuse)—and help students respond to and recover from emergencies (U.S. Department of Education 2013). Additionally, Cornell and colleagues found that having a threat assessment program was associated with having a more positive and supportive school climate (Cornell et al. 2009).

Environment

Positive school environments are characterized by appropriate and well-maintained facilities; well-managed classrooms with high levels of engagement, rigor, productivity, and inclusion; a range of available school-based health supports; clear, fair disciplinary policies; and explicit policies and procedures governing various school practices (Hamre and Pianta 2005; Welsh 2001). In addition to the resources and beneficial normative experiences provided to students through support staff, positive school environments also afford faculty varied and diverse opportunities to meet students' physical and mental health needs during the regular and extended school day (Hoagwood and Erwin 1997; Physical Activity Guidelines Advisory Committee 2008; Stevens et al. 2008; Telford et al. 2012). A significant body of

[23] This is equivalent to $54.2 billion in 2014 dollars.

research suggests that different characteristics of the school environment (including elements of order, facilities, school rules, and discipline) influence student, adult, and school outcomes, both directly and indirectly (Buckley, Schneider, and Shang 2005; Gottfredson et al. 2005; LeBlanc et al. 2007; Lo et al. 2011; Payne 2008; Payne, Gottfredson, and Gottfredson 2003; Planty and DeVoe 2005; Roque and Paternoster 2011; Tillyer, Wilcox, and Gialopsos 2010; Wang and Dishion 2011).

In the EDSCLS, the environment domain consists of five topical areas: physical environment, instructional environment, physical health, mental health, and discipline.

Physical Environment

A school's physical environment encompasses the physical appearance and functioning of the building, including lighting (artificial and natural), thermal comfort, air quality and ventilation, acoustics and noise control, size and configuration of rooms, permanent versus portable rooms, safety measures (cameras, signage, metal detectors, etc.), location, and neighborhood surrounding it (Earthman 2004; National School Boards Association 1996; O'Sullivan 2006; Planty and DeVoe 2005; Schneider 2002). The condition of school facilities is highly correlated with teacher retention (Buckley, Schneider, and Shang 2005), as well as student health and academic achievement (Earthman and Lemasters 2011; Uline and Tschannen-Moran 2008). Studies show that children are more susceptible to environmental disease than are adults, increasing the importance of maintaining clean facilities (Jasper, Thanh-Tam, and Bartram 2012).

Instructional Environment

The instructional environment refers to the interconnectedness of the academic, social, and emotional aspects of learning as they relate to student achievement (Bronfenbrenner 1979; Ma et al. 2009), including such things as the quality of instruction, the quality and availability of materials and resources, the level of expectations for academic achievement, a shared sense of responsibility, student engagement and connection with the curriculum, positive classroom management strategies, and a focus on building strong teacher-student relationships (Ladson-Billings 1995; Cohen 2006). Extensive research by the Organization for Economic Cooperation and Development and others has linked positive instructional environments to higher student test scores and graduation rates, higher reading scores, and lower dropout rates (Haahr et al. 2005; Organization for Economic Cooperation and Development 2009).

Physical Health

In the EDSCLS, physical health refers to the physical well-being of a school community and its members. Poor health obstructs children's education by driving excessive absenteeism, impeding completion of homework, and inhibiting teacher-student relationship growth (Needham, Crosnoe, and Muller 2004). Given the amount of time that students spend on school grounds, school health programs have the potential to be one of the most efficient means to prevent or reduce health risk behaviors and serious health problems among students (Centers for Disease Control 2011).

Mental Health

Mental health is more than just being psychologically well; it includes emotional and social well-being and is affected by many different factors (mentalhealth.gov). Mentally healthy students attend school ready to learn, are actively engaged in school activities, form supportive and caring relationships with adults and peers, apply problem-solving skills in a nonaggressive manner, and contribute to positive school culture (Freeman 2011; National Research Council and Institute of Medicine 2009).

Discipline

School discipline is defined as the rules and strategies applied in school to manage student behavior and the practices used to encourage self-discipline (Osher et al. 2010). Approaches to school discipline range from positive (e.g., improvements in school climate and the use of restorative justice practices) to punitive(e.g., suspension, expulsion, and corporal punishment) (Gottfredson et al. 2005; Mayer 1995; Skiba et al. 2011). Emerging research supports focusing on the former more than the latter, because punitive school discipline has not been shown to improve student behavior or academic achievement (Fabelo et al. 2011; Rebora 2013; Shah 2011). Schoolwide positive approaches have been associated with reduced disciplinary referrals and improvements in student academic achievement (Lassen, Steele, and Sailor 2006). Using positive approaches when discipline issues arise is hypothesized to reconnect students to their peers and teachers, improving the school experience for the community.

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Appendix B: Features of the EDSCLS Platform

The EDSCLS will not be used to establish a national data collection and reporting system. Through the EDSCLS platform, school, district, and state education agencies independently administer the EDSCLS surveys, which means that there is no one organization (e.g., NCES) overseeing the data collection and ensuring that consistent procedures are implemented across schools. This lack of centralized oversight has the potential to threaten the validity of the results and interpretation of scale scores. Therefore, the EDSCLS platform has been programmed with a focus on building in key features that should be implemented in a uniform manner across all collections.

B.1 Availability of Survey Link and Automated Dissemination of Usernames

The platform allows respondents to access their survey through a URL that can be accessed from any location with internet access and from all standard operating systems and browsers. However, the student surveys are intended to be administered in schools to help control the environment of the student respondents.

To allow potential respondents to follow a link to the survey platform, the platform offers education agencies the option of disseminating usernames by e-mail directly from the platform. The e-mails can be generated and sent directly from the platform; they contain log-in information for each e-mail address and/or a link to the log-in page of the survey (the link will be the same for every respondent). Although e-mail addresses are matched with randomly generated usernames, these e-mail addresses are deleted from the database after the data collections are closed and, therefore, will not be linked to respondents within the platform to protect respondent confidentiality.

B.2 Informed Consent

The EDSCLS is designed as a voluntary survey and incorporates informed consent/assent procedures; therefore, the need to obtain consent was considered during the development of the platform. For adult populations, obtaining consent is generally a straightforward process by which respondents receive information regarding the survey (including the purpose of the study, the extent to which confidentiality will be maintained, and other elements of informed consent) and, upon indicating their agreement to participate, begin the survey. For student populations, however, obtaining informed consent can require additional steps. Local education agencies administering the surveys should follow the appropriate procedures regarding parental consent that are used for any kind of surveys or testing in the school or school system. In the survey platform, students are presented with assent language that is appropriate for their age. This assent process is built into the surveys; similar to the adult populations, students are provided with information about the data collection and asked to participate. The prefilled consent/assent language can be edited by local education agencies based on their situations or practices.

Draft Confidentiality Language for School Climate Survey

Under the Protection of Pupil Rights Amendment, 20 U.S.C. § 1232h(c)(1)(A), any school district that will be administering the School Climate Survey must have developed and adopted policies, in consultation with parents, that allows parents to inspect, upon request, the Survey before it is administered or distributed by a school to a student and have in place procedures for granting such parental requests. The school or school district also should ensure that parents understand how the Survey responses will be used.

For privacy and data quality reasons, the U.S. Department of Education recommends that the Survey responses only be used in an aggregated, de-identified manner. However, if the school or school district administering the Survey decides to link the Survey responses with additional student information in a way that would make the Survey responses identifiable to a student, then the Survey Administrator should clearly indicate in advance that the Survey responses will be maintained in individually identifiable form. Furthermore, the Survey Administrator should clearly indicate that any individually identifiable

information that is so maintained will be protected under the provisions of the Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. § 1232g, and may be disclosed in identifiable form to third parties in accordance with FERPA. For example, as part of the students' education records these linked Survey responses may be disclosed to parents upon request, to school officials with legitimate educational interests, or to other third parties for studies to improve instruction or to evaluate federally or state-supported education programs.

B.3 Spanish/English Bilingual Feature

The EDSCLS platform offers Spanish and English versions of the parent and student surveys. The EDSCLS platform allows these respondents to toggle between English and Spanish versions of questions at any point in the survey, giving them the option to answer different questions in different languages. The instructional staff and principal/noninstructional staff surveys are offered in English only.

B.4 Survey Page Design

An important design issue of web-based surveys, with implications for question-level response rates, is the number of questions displayed on each survey page. If too many questions are included on each survey page (or if the questions are poorly formatted to accommodate different screen sizes and resolutions), it is more likely that a respondent will be required to scroll down or across the page to view the question. This, in turn, can increase the likelihood that a respondent will fail to answer these questions. The EDSCLS platform contains only one question per page to allow for responding to surveys on mobile devices, such as smart phones or tablets.

B.5 Real-Time Submission Rates

The EDSCLS platform provides access to real-time submission rates at the school level. These submission rates are determined based on the number of respondents in each population who have logged in to the survey and the education agencies' reports of the number of expected respondents in each population (i.e., the number of respondent usernames generated).

The need to maintain respondent confidentiality and data security means that the platform cannot supply education agencies access to information about which respondents have completed the survey directly from the platform. The platform does, however, allow authorized users to export a list of usernames by completion status (e.g., a list of usernames not used). This information can be used by education agencies that have linked EDSCLS usernames to respondents to determine completion status at the respondent level and target nonresponse follow up as needed.[24]

B.6 Data Export

To maximize the utility of the EDSCLS data, the platform allows authorized users to download respondent-level data for all questions and scales. The initial usernames are included only with the student data. Those education agencies that have created a crosswalk between usernames and student identifiers can link individual-level student data to extant data (such as student administrative records) for further analyses. The data download process requires that the EDSCLS administrator read and acknowledge a statement that these data contain private, identifiable information and must be handled in accordance with applicable confidentiality and privacy regulations. The data export functionality (and associated data import functionality) also allows schools to send data to districts for the purposes of creating district-level reports and allows districts to send data to states for the same purpose.

[24] The ability to track submission rates does not mean administrators can track individual responses. Upon the completion of a data collection, when the results can be viewed, username credentials for parents, teachers, and noninstructional staff are removed from the data and replaced with random IDs to decouple answers from personally identifiable information. Administrators do have the option of maintaining student usernames so that they can link individual student responses to other datasets, such as achievement levels.

B.7 Platform Features Considered But NOT Included

Based on the recommendations and requests of key informants (and the experience of AIR's staff in administering school climate and other school-based surveys of students, parents, and staff), several design features were considered for integration into the EDSCLS platform. These platform features were considered advantageous but could not be implemented because they conflicted with the platform goals described above or were outside the scope of EDSCLS's objectives. Below we briefly describe these features, their potential advantages, and why they were not directly integrated into the EDSCLS platform.

B.7.1 Preloading of Respondent Data

Education agencies may desire a survey platform that allows respondent data to be preloaded into the platform rather than requiring respondents to enter the information. However, such a design feature could not be implemented for three reasons. First, risk to the confidentiality of responses would increase if EDSCLS responses were linked to identifiable records within the platform. Second, it gives the impression that the EDSCLS surveys and platform can be used to create a federal database of identifiable student information, which, if implemented, would violate federal regulations. Third, accommodating preloaded data to be used during survey administration would require significant custom programming— e.g., not all schools use the same staff role titles, so it would be difficult to ensure that all preloaded data would route staff to the appropriate role-based survey questions—that is outside the scope of EDSCLS's objective.

B.7.2 Reporting of Data by Detailed Respondent Subgroups

Enabling education agencies to break down the survey results by respondent characteristics (such as gender, grade, race/ethnicity, gifted and talented status, special education status, and English language learner status) would allow them to assess perceptions of school climate in more detail and potentially create more targeted programs and policies to improve school climate. However, the potential for a breach in respondent confidentiality and data security outweighs the potential benefit. Additionally, statuses such as gifted and talented, special education, and English language learner may not be reliably reported by respondents. As such, the platform is only designed to allow agencies to view the student survey results by limited demographic characteristics, such as grade, gender, and race/ethnicity. In order to maintain respondent confidentiality and data security, appropriate U.S. Department of Education Disclosure Review Board standards have been applied to resultant reports generated from the EDSCLS platform. If education agencies wish to perform more detailed subgroup student reporting, respondent- level data can be exported from the platform for this purpose, leaving the education agency responsible for ensuring proper confidentiality protections.

B.7.3 Customization of Survey Content

Allowing end users to customize their survey administrations by modifying or deleting questions may be an attractive option to obtain maximum utility from the EDSCLS platform and surveys. However, modification or deletion of survey content could potentially affect the psychometric properties of the EDSCLS scales. Specifically, the questions that are offered in the EDSCLS are intended to produce psychometrically validated scales, and it is crucial for the statistical validity of those scales that all questions remain in the survey. The platform allows users to add questions, in the same multiple-choice form, to the end of the surveys. The platform will not provide any reporting on these additional questions, and it's not possible to import data from additional questions into a data collection. However, users can export the data files and perform additional analysis and reporting outside of the system.

Appendix C: Confidentiality Pledge for Survey Proctors (sample)

I hereby certify that I have carefully read and will cooperate fully with the EDSCLS procedures on confidentiality. I will keep completely confidential all information arising from surveys concerning individual respondents to which I may gain access. I will not discuss, disclose, disseminate, or provide access to survey data and identifiers. I give my personal pledge that I shall abide by this assurance of confidentiality.

My signature below indicates I have read and agree to the Pledge of Confidentiality

Signature: _____ *Date:* _____

Printed Name: _____

Appendix D: Proctor Script for in-School Student Survey (sample)

Good morning/afternoon.

You're here because the [school/district] wants to conduct a survey to hear your opinions about your school. The survey will ask your opinion on questions ranging from student engagement, to bullying, to the conditions of the school building itself. Your answers will be used to improve the school experience for you, your fellow students, and your teachers. Your teachers, and in fact all the staff in your school, will also have the chance to voice their opinions on similar surveys. Even your parents will receive a survey and the chance to have their say.

Your [school/district] wants to hear from everyone, so your participation is very important. But it's also voluntary. You do not have to take the survey and you can skip any question you don't want to answer.

Please answer the questions as best you can. If you are unsure about the meaning of a survey question, do your best to answer it on your own. In order to maintain privacy, I will not be able to help you interpret the meaning of questions. Similarly, you should not ask other students or look at their responses.

When you have finished the survey, please sit quietly and do not disturb your fellow students.

Now, take the username in front of you, and use it to log in to the survey. Write down the PIN number that is given to you on the screen. You will need this to go back and finish the survey if you are interrupted for some reason. You are the only person who has access to this PIN and there is no way to look it up, so make sure you write it down and keep it safe. Do not begin the survey until instructed. Once I have made sure everyone has successfully logged in and written down the PIN displayed on the page, I will move to a part of the room where I cannot see anyone's answers, and at that time I will instruct you to begin.

…

Now that everyone has reached the PIN page, please begin.

Appendix E: Consent Forms (sample)

Please refer to your state's and locality's informed consent laws in deciding which consent form to use.

Appendix E.1 – Parent Consent Form I (Opt-in NOT Required)

Appendix E.2 – Parent Consent Form II (Opt-in Required)

E.1 Parent Consent Form I (Opt-in NOT Required)

Dear parent/guardian:

<Education Agency> is conducting a voluntary survey about school climate. The survey will be administered to students during regular school hours during the week of <WEEK OF ADMINISTRATION>. It will ask students about their perceptions on topics such as student engagement, school environment, and school safety.

The data your child provides may also be used by the school and district to better understand the current climate in their school. The only people who will see your child's answers to individual questions are authorized personnel at their school and district. Your child's answers will be combined with the answers of other students at their school and district and used to create records about the climate of their school. These reports will not identify any person or their responses.

If you do not want your child to participate in this survey, please complete, sign, and postmark this letter using the enclosed postage-paid envelope by <DEADLINE DATE>. If you sign and postmark this letter by <DEADLINE DATE>, it means your child will not participate in the survey and will be asked to report to a designated place in the school (for example, the library) while the survey is being administered.

If you have any questions about this study or about your child's participation or would like to see a copy of the student survey, please contact <ADMINISTRATOR NAME> at <ADMINISTRATOR NUMBER>. If you have any questions about your child's rights as a participant in this study, please contact <SCHOOL CONTACT INFO>.

I understand that by completing and signing the form below and returning this letter, my child will not be allowed to take the School Climate Survey.

Parent/Guardian Signature: _____ *Date:* _____

*Student Signature:*_____ *Date:* _____

Student Printed Name: _____ *Date of birth:* _____

If you agree to allow your child to take the survey, you do not have to sign or send back anything.

Sincerely,

<ADMINISTRATOR NAME>

E.2 Parent Consent Form II (Opt-in Required)

Dear parent/guardian:

<Education Agency> is conducting a voluntary survey about school climate. The survey will be administered to students during regular school hours during the week of <WEEK OF ADMINISTRATION>. It will ask students about their perceptions on topics such as student engagement, school environment, and school safety.

The data your child provides may also be used by the school and district to better understand the current climate in their school. The only people who will see your child's answers to individual questions are authorized personnel at their school and district. Your child's answers will be combined with the answers of other students at their school and district and used to create records about the climate of their school. These reports will not identify any person or their responses.

If you agree to allow your child to participate in this survey, please complete, sign, and postmark this letter using the enclosed postage-paid envelope by <DEADLINE DATE>. If you sign and postmark this letter by <DEADLINE DATE>, it means your child will participate in the survey and will be asked to report to a designated place in the school (for example, the computer lab) where the survey will be administered.

If you have any questions about this study or about your child's participation or would like to see a copy of the student survey, please contact <ADMINISTRATOR NAME> at <ADMINISTRATOR NUMBER>. If you have any questions about your child's rights as a participant in this study, please contact <SCHOOL CONTACT INFO>.

I understand that by completing and signing the form below and returning this letter, my child will be allowed to take the School Climate Survey.

Parent/Guardian Signature: _____ *Date:* _____

*Student Signature:*_____ *Date:* _____

Student Printed Name: _____ *Date of birth:* _____

If you do not want your child to take the survey, you do not have to sign or send back anything.

Sincerely,

<ADMINISTRATOR NAME>

Appendix F: R Code for Calculating Benchmarked Scales Scores

F.1 – R Code for Calculating Benchmarked Student Scale Scores

F.2 – R Code for Calculating Benchmarked Instructional Staff Scale Scores

F.3 – R Code for Calculating Benchmarked Noninstructional Staff Scale Scores

F.1 R Code for Calculating Student Benchmarked Scale Scores

N O T E

For users wanting to preserve legacy trend lines: If you would like to generate scale scores as produced by the platform prior to the release of VM 3.0 in November 2017 (aka "legacy" scale scores), the EDSCLS Help Desk can send you the legacy R code. Please contact the Help Desk at edscls@air.org or (866) 730-6735.

```
##########INSTRUCTION################################
#You only need to specify your data folder and csv dataset name in
the "INPUTS" section below
#The output dataset will be produced in the folder you specify
#Comment: This program calculates scale scores for each survey taker.
The calculated scale scores are just
#         additional analysis variables attached to your input
dataset. If your survey has a complex sample
#         design (e.g., you took a sample from your target
population with stratification, clustering, etc.),
#         you should apply your design specifications
(strata, cluster, weights, etc.) as you would do when
#         analyzing other survey variables.
#####################################################

##########INPUTS#################################
#Specify your data folder and csv dataset name
folder <- "FOLDER PATH"
dataname <- "student data.csv"

##########SCALING PROGROM######################
#Option for decimal places
options(digits=10)

#Rounding function that rounds .5 up to the next integer
round2 = function(x, n) {
  posneg =
  sign(x) z =
  abs(x)*10^n z =
  z + 0.5
  z = trunc(z)
  z = z/10^n
  z*posneg
}

#Scale score calculation function
rasch <- function(scalelist=NULL){
```

```
     #Stepvalues that are estimated from the national benchmarking.
These are the values in Table A4 of the national benchmarking
documentation

#(https://safesupportivelearning.ed.gov/sites/default/files/EDSCLS_Psy
chometric_Benchmarking_Technical_Report.pdf).
  #These three sets of values are used to calculate the scale scores
for any survey takers.
     c0 <-
c("SENGCLC1","SENGCLC2","SENGCLC3","SENGCLC4","SENGCLC7","SENGREL9","S
ENGREL11","SENGREL12","SENGREL14","SENGREL153","SENGREL17","SENGREL20"
,"SENGREL21","SENGREL29",

     "SENGPAR44","SENGPAR45","SENGPAR46","SENGPAR47","SENGPAR48","SSAF
EMO49","SSAFEMO52","SSAFEMO53","SSAFEMO54","SSAFEMO56","SSAFEMO57",

     "SSAFPSAF60","SSAFPSAF63","SSAFPSAF65","SSAFPSAF67","SSAFPSAF68",
"SSAFPSAF69","SSAFPSAF71","SSAFBUL74","SSAFBUL75","SSAFBUL76","SSAFBUL
77B","SSAFBUL73","SSAFBUL83",

     "SSAFSUB88","SSAFSUB91","SSAFSUB92","SSAFSUB93","SSAFSUB94","SENV
PENV100","SENVPENV102","SENVPENV105","SENVPENV106","SENVPENV107",

     "SENVINS111","SENVINS113","SENVINS114","SENVINS115","SENVINS121",
"SENVMEN130","SENVMEN132","SENVMEN133","SENVMEN134","SENVMEN137",

     "SENVDIS142","SENVDIS143","SENVDIS146","SENVDIS147","SENVDIS147C"
)
     c1 <- c(-0.88758,-1.21688,-1.70151,-1.13062,-1.59396,-0.9249,-
1.6756,-1.37546,-1.19418,-1.35606,-1.32961,-0.77372,-1.21581,-
1.45891,-1.02078,-1.15759,-0.83518,-1.57761,-1.54687,-1.19732,-
0.79951,-1.15283,-0.652,-1.1754,-1.21302,-1.40832,-1.53905,-1.71611,-
0.94029,-0.58,-1.03096,-0.72259,-0.98061,-1.18313,-0.94225,-1.00375,-
0.83535,-0.47988,-1.2565,-1.28382,-1.4722,-1.09243,-1.04787,-0.22565,-
0.83049,-1.56286,-1.58736,-1.27968,-1.47932,-1.53159,-1.49103,-
1.57155,-2.2499,-1.45449,-1.49858,-1.42755,-0.20715,-0.59274,-
1.81967,-1.40034,-1.56048,-1.03239,-1.03612)
     c2 <- c(-0.21689,-0.27319,-1.0471,-0.11206,-1.06613,0.07381,-
0.63246,-0.30377,-1.18031,-1.27296,-0.53273,0.42434,-0.11198,-
1.67465,-0.38939,-0.3564,0.19951,-1.54482,-1.21379,-
0.08038,0.6924,0.25698,-0.98285,-0.86814,-1.09519,-1.56709,-1.81347,-
0.96873,0.35623,0.38108,0.19308,0.15162,-0.46344,-0.71079,-0.13648,-
0.29701,0.09477,0.53213,-0.55163,-0.41416,-0.71855,-
0.02012,0.09659,0.46013,0.48755,-0.9234,-0.77854,0.15582,-0.62922,-
0.99408,-0.29674,-1.21026,-2.46508,-1.00195,-1.06141,-
0.88773,1.33389,0.61958,-1.84193,-0.55586,-0.52414,-0.47264,-0.48429)
     c3 <-
c(1.51974,1.64389,1.90232,1.70962,1.54944,2.41102,2.09221,2.13021,1.69
008,1.58491,2.16515,2.91955,2.90247,1.27887,1.40529,1.2542,2.39614,0.9
7705,1.67163,3.05184,2.64666,2.86166,1.31697,1.59058,1.57176,1.39777,0
.00153,0.16629,1.60171,1.49101,1.89466,2.2059,1.23622,1.13569,1.18006,
1.47382,2.16486,2.06854,0.49417,0.54856,0.34286,0.61828,0.57692,2.6698
```

```
3,2.48407,2.10358,2.00146,2.34459,1.70855,1.92133,2.11189,1.09009,0.32
927,1.46992,1.52817,1.52252,2.7488,2.81182,1.31956,1.72246,1.92085,1.2
7339,1.82711)
     Rstepvalues <- as.data.frame(rbind(c1,c2,c3))
     names(Rstepvalues) <- c0

     #Items that are negatively valenced. They are reverse-coded
below.
     negative <-  c("SSAFPSAF63", "SSAFPSAF65", "SSAFPSAF67",
"SSAFPSAF68", "SSAFPSAF69", "SSAFPSAF71", "SSAFBUL74", "SSAFBUL75",
"SSAFBUL76", "SSAFBUL77B",
     "SSAFBUL73",
"SSAFBUL83","SSAFSUB88","SSAFSUB91","SSAFSUB92","SSAFSUB93","SSAFSUB94
")

     #Loop through the scale list
     for (scalename in scalelist) {

       #Stepvalues for the items of the current scale
       stepvalues <- Rstepvalues[eval(as.name(scalename))]
       items <- names(stepvalues)

       #Only use the variables that belong to scales
       tempdata <- indata[c0]

       #Code negative values to missing
       tempdata[tempdata < 0] <- NA

       #Reverse code negatively valenced items
       tempdata[negative] <- 5-tempdata[negative]

       #Use only the variables of the current scale
       tempdata <- tempdata[items]

       #Recode values from the range of 1-4 to 0-3
       tempdata <- tempdata[]-1

       #The algorithm below is based on a Rasch partial credit model.
       #See section 3.1 of the national benchmarking documentation
       referenced above for more details.
       #Further reading: http://www.winsteps.com/a/Linacre-estimation-
       further-topics.pdf
          tdata <- tempdata
          tdata$counts = apply(tdata,1,function(x) sum(!is.na(x[])))
          titems <- names(stepvalues)
          tstepvalues <- stepvalues
          tv1 <- paste("tv1", titems, sep="")
          tv2 <- paste("tv2", titems, sep="")
          tv3 <- paste("tv3", titems, sep="")
          tdata[tv1] <- stepvalues[1,]
          tdata[tv2] <- stepvalues[2,]
          tdata[tv3] <- stepvalues[3,]
```

```
            nm <- paste("nm", titems, sep="")
            tdata[nm] <- tdata[titems]*0+1
            tdata$anm <- rowSums(tdata[nm],na.rm=TRUE)
            tdata[tv1] <- tdata[tv1]*tdata[nm]
            tdata[tv2] <- tdata[tv2]*tdata[nm]
            tdata[tv3] <- tdata[tv3]*tdata[nm]
            tdata$rl <- tdata$anm*0
            tdata$ru <- tdata$anm*3
            tdata$ru[tdata$ru==0] <- 1
            tdata$r <- rowSums(tdata[items],na.rm=TRUE)
            tdata$r[tdata$r==tdata$rl] <-
tdata$rl[tdata$r==tdata$rl]+0.3
            tdata$r[tdata$r==tdata$ru] <- tdata$ru[tdata$r==tdata$ru]-
0.3
            d <- mean(colMeans(tstepvalues[],na.rm=TRUE))
            tdata$t0 <- d + log((tdata$r-tdata$rl)/(tdata$ru-tdata$r))
            tdata$t <- 0
            tdata$t1 <- 1
            iter <- 1
            while(max(abs(tdata$t1-tdata$t),na.rm=TRUE)>0.0000001 &
iter <=100) {
                  if (iter==1) {tdata$t <- tdata$t0
                        } else if (iter>1) {tdata$t <- tdata$t1}
                  iter <- iter+1
                  for (n in 1:ncol(tstepvalues)) {
                        jp <- paste("jp", titems[n], sep="")
                        j2p <- paste("j2p", titems[n], sep="")
                        dj <- paste("dj", titems[n], sep="")
                        tdata$p1 <- exp(1*tdata$t-tdata[,tv1[n]])/
                              (1+exp(1*tdata$t-
tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                              exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]]))
                        tdata$p2 <- exp(2*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]])/
                              (1+exp(1*tdata$t-
tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                              exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]]))
                        tdata$p3 <- exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]])/
                              (1+exp(1*tdata$t-
tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                              exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]]))
                        tdata$p1[is.na(tdata[,tv1[n]])] <- NA
                        tdata$p2[is.na(tdata[,tv1[n]])] <- NA
                        tdata$p3[is.na(tdata[,tv1[n]])] <- NA
                        tdata[jp] <- 1*tdata$p1+2*tdata$p2+3*tdata$p3
                        tdata[j2p] <-
1*1*tdata$p1+2*2*tdata$p2+3*3*tdata$p3
                        tdata[dj] <- tdata[j2p]-tdata[jp]*tdata[jp]
```

```
                }
                tdata$e <- rowSums(tdata[, grep("jp",
names(tdata))],na.rm = TRUE)
                tdata$v <- rowSums(tdata[, grep("dj",
names(tdata))],na.rm = TRUE)
                tdata$t1 <- tdata$t+(tdata$r-
tdata$e)/pmax(2*tdata$v,1,na.rm = TRUE)
           }

     #Set to missing if the algorithm did not converge
     tdata$t1[tdata$t1>30] <- NA

     #Only calculate score scores for those valid responses to at
least three items and more than half of the items
     tdata$t1[tdata$counts<3 | tdata$counts<0.5*ncol(tempdata)] <- NA

     ##########SCALING FACTORS######################
     #These factors are used to recale the scale scores so that the
cut scores are 300 and 400 for all scales.
     #This is a linear transformation so it does not affect the
relative distance between two scores: The distance is inflated by a
constant factor B.
     #See section 3.3 the national benchmarking documentation
referenced above for more details.
     if (scalename == 'eng' ) {
       A <- 325.859
       B <- 40.557
     }
     if (scalename == 'clc' ) {
       A <- 325.697
       B <- 44.614
     }
     if (scalename == 'rel' ) {
       A <- 322.89
       B <- 36.517
     }
     if (scalename == 'par' ) {
       A <- 332.549
       B <- 44.683
     }
     if (scalename == 'saf' ) {
       A <- 320.161
       B <- 60.027
     }
     if (scalename == 'emo' ) {
       A <- 315.079
       B <- 39.663
     }
     if (scalename == 'psaf' ) {
       A <- 328.929
       B <- 59.402
     }
```

```
      if (scalename == 'bul' ) {
        A <- 310.828
        B <- 58.872
      }
      if (scalename == 'sub' ) {
        A <- 338.85
        B <- 119.933
      }
      if (scalename == 'env' ) {
        A <- 326.967
        B <- 40.341
      }
      if (scalename == 'penv' ) {
        A <- 307.241
        B <- 40.106
      }
      if (scalename == 'ins' ) {
        A <- 344.491
        B <- 38.992
      }
      if (scalename == 'men' ) {
        A <- 318.995
        B <- 41.928
      }
      if (scalename == 'dis' ) {
        A <- 333.135
        B <- 41.56
      }

      #Rescale the scores based on the factors above
      tdata$tscore <- round2(tdata$t1*B+A,0)

      #Keep only the calculated scale scores
      score_data <- tdata[c("tscore")]

      #Rename the data using the scale name and save it to the
workspace
      colnames(score_data) <- paste(scalename, colnames(score_data),
sep = "_")
      assign(scalename,score_data,envir = .GlobalEnv)
      }
}

##########SPECIFICATION AND OUTPUT######################
#Read in data
indata <- read.table(file=sprintf("%s\\%s", folder,
dataname),header=TRUE,sep=",")
names(indata) <- toupper(names(indata))

#Item names for each scale
eng <-
c("SENGCLC1","SENGCLC2","SENGCLC3","SENGCLC4","SENGCLC7","SENGREL9","S
```

```
ENGREL11","SENGREL12","SENGREL14","SENGREL153","SENGREL17","SENGREL20"
,"SENGREL21","SENGREL29",
     "SENGPAR44","SENGPAR45","SENGPAR46","SENGPAR47","SENGPAR48")
clc <- c("SENGCLC1", "SENGCLC2", "SENGCLC3", "SENGCLC4", "SENGCLC7")
rel <-
c("SENGREL9","SENGREL11","SENGREL12","SENGREL14","SENGREL153","SENGREL
17","SENGREL20","SENGREL21","SENGREL29")
par <- c("SENGPAR44","SENGPAR45","SENGPAR46","SENGPAR47","SENGPAR48")
saf <-
c("SSAFEMO49","SSAFEMO52","SSAFEMO53","SSAFEMO54","SSAFEMO56","SSAFEMO
57","SSAFPSAF60","SSAFPSAF63","SSAFPSAF65","SSAFPSAF67","SSAFPSAF68","
SSAFPSAF69","SSAFPSAF71",
     "SSAFBUL74","SSAFBUL75","SSAFBUL76","SSAFBUL77B","SSAFBUL73","SSA
FBUL83","SSAFSUB88","SSAFSUB91","SSAFSUB92","SSAFSUB93","SSAFSUB94")
emo <- c("SSAFEMO49", "SSAFEMO52", "SSAFEMO53", "SSAFEMO54",
"SSAFEMO56", "SSAFEMO57")
psaf <- c("SSAFPSAF60", "SSAFPSAF63", "SSAFPSAF65", "SSAFPSAF67",
"SSAFPSAF68", "SSAFPSAF69", "SSAFPSAF71")
bul <-
c("SSAFBUL74","SSAFBUL75","SSAFBUL76","SSAFBUL77B","SSAFBUL73","SSAFBU
L83")
sub <- c("SSAFSUB88","SSAFSUB91","SSAFSUB92","SSAFSUB93","SSAFSUB94")
env <-
c("SENVPENV100","SENVPENV102","SENVPENV105","SENVPENV106","SENVPENV107
","SENVINS111","SENVINS113","SENVINS114","SENVINS115","SENVINS121","SE
NVMEN130","SENVMEN132",
     "SENVMEN133","SENVMEN134","SENVMEN137","SENVDIS142","SENVDIS143",
"SENVDIS146","SENVDIS147","SENVDIS147C")
penv <-
c("SENVPENV100","SENVPENV102","SENVPENV105","SENVPENV106","SENVPENV107
")
ins <-
c("SENVINS111","SENVINS113","SENVINS114","SENVINS115","SENVINS121")
men <- c("SENVMEN130", "SENVMEN132", "SENVMEN133", "SENVMEN134",
"SENVMEN137")
dis <-
c("SENVDIS142","SENVDIS143","SENVDIS146","SENVDIS147","SENVDIS147C")

#Run scaling program for each scale
rasch(scalelist=c("eng","clc","rel","par","saf","emo","psaf","bul","su
b","env","penv","ins","men","dis"))

#Attach the scale score data to the input data
out <-
cbind(indata,eng,clc,rel,par,saf,emo,psaf,bul,sub,env,penv,ins,men,dis
)

#Exclude cases if they did not provide any demographic
information for (v in
c("eng","clc","rel","par","saf","emo","psaf","bul","sub","env","penv",
"ins","phea","men","dis")) {
```

```
  out[which((is.na(out$SDEMO148) | out$SDEMO148 == "" | out$SDEMO148
== -1) & (is.na(out$SDEMO149) | out$SDEMO149 == "" | out$SDEMO149 == -
1) & (is.na(out$SDEMO150) | out$SDEMO150 == "" | out$SDEMO150 == -1)
& (is.na(out$SDEMO151) | out$SDEMO151 == "" | out$SDEMO151 == -
1)),paste(v,"_tscore",sep="")] <- NA
}

##########OUTPUT DATASET WITH SCALE SCORES###############
write.table(out, sprintf("%s\\scale_score_%s", folder, dataname),
col.names=T,row.names=F,sep=",")

##########END OF PROGRAM#################################
```

F.2 R Code for Calculating Instructional Staff Benchmarked Scale Scores

NOTE

For users wanting to preserve legacy trend lines: If you would like to generate scale scores as produced by the platform prior to the release of VM 3.0 in November 2017 (aka "legacy" scale scores), the EDSCLS Help Desk can send you the legacy R code. Please contact the Help Desk at edscls@air.org or (866) 730-6735.

```
##########INSTRUCTION################################
#You only need to specify your data folder and csv dataset name in the
"INPUTS" section below
#The output dataset will be produced in the folder you specify
#Comment: This program calculates scale scores for each survey taker.
The calculated scale scores are just
#         additional analysis variables attached to your input
dataset. If your survey has a complex sample
#         design (e.g., you took a sample from your target population
with stratification, clustering, etc.),
#         you should apply your design specifications (strata,
cluster, weights, etc.) as you would do when
#         analyzing other survey variables.
#####################################################

##########INPUTS#################################
#Specify your data folder and csv dataset name
folder <- "FOLDER PATH"
dataname <- "instructional staff data.csv"

##########SCALING PROGROM######################
#Option for decimal places
options(digits=10)

#Rounding function that rounds .5 up to the next integer
round2 = function(x, n) {
  posneg = sign(x)
  z = abs(x)*10^n
  z = z + 0.5
  z = trunc(z)
  z = z/10^n
  z*posneg
}

#Scale score calculation function
rasch <- function(scalelist=NULL){

  #Stepvalues that are estimated from the national benchmarking. These
are the values in Table A5 of the national benchmarking documentation

#(https://safesupportivelearning.ed.gov/sites/default/files/EDSCLS_Psy
chometric_Benchmarking_Technical_Report.pdf).
```

```
  #These three sets of values are used to calculate the scale scores
for any survey takers.
  c0 <-
c("IENGCLC2","IENGCLC3","IENGCLC4","IENGCLC6","IENGCLC7","IENGCLC8","I
ENGREL9","IENGREL10","IENGREL12","IENGREL14","IENGREL15",

"IENGPAR29","IENGPAR31","IENGPAR32","IENGPAR36","IENGPAR42","IENGPAR48
","ISAFEMO52","ISAFEMO53","ISAFEMO54","ISAFEMO55",

"ISAFEMO56","ISAFEMO58","ISAFPSAF60","ISAFPSAF61","ISAFPSAF62","ISAFPS
AF64","ISAFPSAF66","ISAFPSAF67","ISAFBUL68",

"ISAFBUL69","ISAFBUL71","ISAFBUL73","ISAFBUL79","ISAFBUL80","ISAFBUL81
","ISAFBUL82","ISAFSUB86","ISAFSUB87","ISAFSUB88","ISAFSUB91",

"IENVPENV97","IENVPENV98","IENVPENV100","IENVPENV101","IENVPENV102","I
ENVPENV103","IENVINS105","IENVINS107","IENVINS108",

"IENVINS110","IENVINS115","IENVINS116","IENVPHEA119","IENVPHEA120","IE
NVPHEA121","IENVPHEA122","IENVMEN123","IENVMEN125",

"IENVMEN126","IENVMEN128","IENVMEN137","IENVDIS129","IENVDIS130","IENV
DIS134","IENVDIS134C","IENVDIS135","IENVDIS136")
     c1 <- c(-2.23882,-2.1565,-2.61022,-2.72424,-1.78468,-2.18346,-
3.02788,-3.22684,-4.12339,-2.32472,-2.97012,-1.64759,-1.47893,-
1.83183,-1.11894,-2.28667,-2.70965,-1.42847,-0.92065,-0.92441,-
1.62728,-1.32451,-2.51414,-1.06057,-1.90306,-1.86559,-3.0375,-
2.14065,-0.55663,-0.98262,-0.77695,-2.52361,-2.61231,-2.28638,-
2.09304,-2.17942,-2.01788,-2.00464,-2.09068,-2.06953,-2.41182,-
2.00263,-2.09549,-1.75794,-1.55537,-1.61969,-1.31004,-1.14778,-
1.54741,-2.46068,-2.87387,-3.11921,-2.09029,-2.57512,-2.25692,-
3.02897,-2.43883,-2.07875,-2.19165,-2.21058,-2.17242,-1.99021,-
2.30585,-2.91403,-1.13436,-1.39281,-1.23245,-2.30109)
     c2 <- c(-0.79286,-1.23134,-0.48501,-1.52987,0.14887,-0.80117,-
1.31162,-0.8068,-0.3855,0.08648,-1.66979,-
0.18685,0.23174,0.95631,0.45601,0.09988,-1.61862,-1.18202,-0.08686,-
0.10689,-0.51158,-1.37726,-1.22259,0.00142,-0.25214,-0.38786,-
1.91849,-1.97713,0.62288,0.84634,1.43081,-0.48166,-0.79026,-1.89,-
2.12925,-2.10602,-1.89899,0.08366,0.09402,-0.35578,0.22724,-1.31231,-
1.38865,-0.64084,-1.02356,-0.74721,-0.46397,0.49282,0.38599,-1.08837,-
1.38221,-2.31483,-1.01021,-0.17834,-0.28418,-0.80828,-0.39363,-
1.12673,-0.13682,-0.19846,0.5032,-0.29119,-1.0817,-2.43138,0.16961,-
0.02434,0.14534,-1.50784)
     c3 <-
c(1.63635,1.6155,3.37974,1.8249,2.95479,3.1319,2.68007,2.92047,3.8331,
3.0916,2.16597,3.1684,3.2615,4.79256,3.49956,3.78357,1.54464,1.84011,2
.70973,2.13721,1.98949,2.08055,2.14039,3.10718,2.78974,2.89179,1.35532
,0.98397,2.86862,4.3873,4.28451,3.55645,2.1421,1.04757,1.02448,0.94933
,0.96563,3.3934,3.48374,3.19388,3.39829,1.49996,1.69196,2.34516,2.3859
,2.53191,2.63674,4.44998,4.13798,3.33738,2.09191,1.70813,2.27599,3.113
42,3.19722,3.13805,3.23224,2.2716,3.24814,3.25992,3.93348,3.36141,2.16
889,1.70719,2.46815,2.76214,2.74392,2.24373)
```

```
      Rstepvalues <- as.data.frame(rbind(c1,c2,c3))
      names(Rstepvalues) <- c0

      #Items that are negatively valenced. They are reverse-coded
below.
      negative <-
c("ISAFPSAF60","ISAFPSAF61","ISAFPSAF62","ISAFPSAF64","ISAFPSAF66","IS
AFPSAF67","ISAFBUL68","ISAFBUL69","ISAFBUL79",

"ISAFBUL80","ISAFBUL81","ISAFBUL82","IENVPENV100","IENVPENV101","IENVP
ENV102","IENVPENV103")

      #Loop through the scale list
      for (scalename in scalelist) {

        #Stepvalues for the items of the current scale
        stepvalues <- Rstepvalues[eval(as.name(scalename))]
            items <- names(stepvalues)

            #Only use the variables that belong to scales
            tempdata <- indata[c0]

            #Code negative values to missing
            tempdata[tempdata < 0] <- NA

            #Reverse code negatively valenced items
            tempdata[negative] <- 5-tempdata[negative]

            #Use only the variables of the current scale
            tempdata <- tempdata[items]

            #Recode values from the range of 1-4 to 0-3
            tempdata <- tempdata[]-1

            #The algorithm below is based on a Rasch partial credit
model.
            #See section 3.1 of the national benchmarking documentation
referenced above for more details.
            #Further reading: http://www.winsteps.com/a/Linacre-
estimation-further-topics.pdf
            tdata <- tempdata
            tdata$counts = apply(tdata,1,function(x) sum(!is.na(x[])))
            titems <- names(stepvalues)
            tstepvalues <- stepvalues
            tv1 <- paste("tv1", titems, sep="")
            tv2 <- paste("tv2", titems, sep="")
            tv3 <- paste("tv3", titems, sep="")
            tdata[tv1] <- stepvalues[1,]
            tdata[tv2] <- stepvalues[2,]
            tdata[tv3] <- stepvalues[3,]
            nm <- paste("nm", titems, sep="")
            tdata[nm] <- tdata[titems]*0+1
```

```
            tdata$anm <- rowSums(tdata[nm],na.rm=TRUE)
            tdata[tv1] <- tdata[tv1]*tdata[nm]
            tdata[tv2] <- tdata[tv2]*tdata[nm]
            tdata[tv3] <- tdata[tv3]*tdata[nm]
            tdata$rl <- tdata$anm*0
            tdata$ru <- tdata$anm*3
            tdata$ru[tdata$ru==0] <- 1
            tdata$r <- rowSums(tdata[items],na.rm=TRUE)
            tdata$r[tdata$r==tdata$rl] <-
tdata$rl[tdata$r==tdata$rl]+0.3
            tdata$r[tdata$r==tdata$ru] <- tdata$ru[tdata$r==tdata$ru]-
0.3
            d <- mean(colMeans(tstepvalues[],na.rm=TRUE))
            tdata$t0 <- d + log((tdata$r-tdata$rl)/(tdata$ru-tdata$r))
            tdata$t <- 0
            tdata$t1 <- 1
            iter <- 1
            while(max(abs(tdata$t1-tdata$t),na.rm=TRUE)>0.0000001 &
iter <=100) {
                  if (iter==1) {tdata$t <- tdata$t0
                        } else if (iter>1) {tdata$t <- tdata$t1}
                  iter <- iter+1
                  for (n in 1:ncol(tstepvalues)) {
                        jp <- paste("jp", titems[n], sep="")
                        j2p <- paste("j2p", titems[n], sep="")
                        dj <- paste("dj", titems[n], sep="")
                        tdata$p1 <- exp(1*tdata$t-tdata[,tv1[n]])/
                              (1+exp(1*tdata$t-
tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                              exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]]))
                        tdata$p2 <- exp(2*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]])/
                              (1+exp(1*tdata$t-
tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                              exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]]))
                        tdata$p3 <- exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]])/
                              (1+exp(1*tdata$t-
tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                              exp(3*tdata$t-tdata[,tv1[n]]-
tdata[,tv2[n]]-tdata[,tv3[n]]))
                        tdata$p1[is.na(tdata[,tv1[n]])] <- NA
                        tdata$p2[is.na(tdata[,tv1[n]])] <- NA
                        tdata$p3[is.na(tdata[,tv1[n]])] <- NA
                        tdata[jp] <- 1*tdata$p1+2*tdata$p2+3*tdata$p3
                        tdata[j2p] <-
1*1*tdata$p1+2*2*tdata$p2+3*3*tdata$p3
                        tdata[dj] <- tdata[j2p]-tdata[jp]*tdata[jp]
                  }
```

```
                tdata$e <- rowSums(tdata[, grep("jp",
names(tdata))],na.rm = TRUE)
                tdata$v <- rowSums(tdata[, grep("dj",
names(tdata))],na.rm = TRUE)
                tdata$t1 <- tdata$t+(tdata$r-
tdata$e)/pmax(2*tdata$v,1,na.rm = TRUE)
           }

     #Set to missing if the algorithm did not converge
     tdata$t1[tdata$t1>30] <- NA

     #Only calculate score scores for those valid responses to at
least three items and more than half of the items
     tdata$t1[tdata$counts<3 | tdata$counts<0.5*ncol(tempdata)] <- NA

     ##########SCALING FACTORS######################
     #These factors are used to recale the scale scores so that the
cut scores are 300 and 400 for all scales.
     #This is a linear transformation so it does not affect the
relative distance between two scores: The distance is inflated by a
constant factor B.
     #See section 3.3 the national benchmarking documentation
referenced above for more details.
     if (scalename == 'eng' ) {
       A <- 316.291
       B <- 29.053
     }
     if (scalename == 'clc' ) {
       A <- 325.048
       B <- 31.112
     }
     if (scalename == 'rel' ) {
       A <- 322.095
       B <- 26.592
     }
     if (scalename == 'par' ) {
       A <- 298.823
       B <- 30.178
     }
     if (scalename == 'saf' ) {
       A <- 323.415
       B <- 31.995
     }
     if (scalename == 'emo' ) {
       A <- 327.561
       B <- 33.799
     }
     if (scalename == 'psaf' ) {
       A <- 324.906
       B <- 32.092
     }
     if (scalename == 'bul' ) {
```

```
        A <- 338.35
        B <- 30.829
      }
      if (scalename == 'sub' ) {
        A <- 299.599
        B <- 29.819
      }
      if (scalename == 'env' ) {
        A <- 320.62
        B <- 29.264
      }
      if (scalename == 'penv' ) {
        A <- 330.34
        B <- 31.939
      }
      if (scalename == 'ins' ) {
        A <- 324.968
        B <- 25.403
      }
      if (scalename == 'phea') {
        A <- 311.666
        B <- 27.864
      }
      if (scalename == 'men' ) {
        A <- 307.097
        B <- 28.889
      }
      if (scalename == 'dis' ) {
        A <- 328.255
        B <- 30.631
      }

      #Rescale the scores based on the factors above
      tdata$tscore <- round2(tdata$t1*B+A,0)

      #Keep only the calculated scale scores
      score_data <- tdata[c("tscore")]

      #Rename the data using the scale name and save it to the
workspace
      colnames(score_data) <- paste(scalename, colnames(score_data),
sep = "_")
      assign(scalename,score_data,envir = .GlobalEnv)
      }
}

##########SPECIFICATION AND OUTPUT######################
#Read in data
indata <- read.table(file=sprintf("%s\\%s", folder,
dataname),header=TRUE,sep=",")
names(indata) <- toupper(names(indata))
```

```
#Item names for each scale
eng <-
c("IENGCLC2","IENGCLC3","IENGCLC4","IENGCLC6","IENGCLC7","IENGCLC8","I
ENGREL9","IENGREL10","IENGREL12","IENGREL14","IENGREL15",

"IENGPAR29","IENGPAR31","IENGPAR32","IENGPAR36","IENGPAR42","IENGPAR48
")
clc <-
c("IENGCLC2","IENGCLC3","IENGCLC4","IENGCLC6","IENGCLC7","IENGCLC8")
rel <- c("IENGREL9","IENGREL10","IENGREL12","IENGREL14","IENGREL15")
par <-
c("IENGPAR29","IENGPAR31","IENGPAR32","IENGPAR36","IENGPAR42","IENGPAR
48")
saf <- c("ISAFEMO52","ISAFEMO53","ISAFEMO54","ISAFEMO55",

"ISAFEMO56","ISAFEMO58","ISAFPSAF60","ISAFPSAF61","ISAFPSAF62","ISAFPS
AF64","ISAFPSAF66","ISAFPSAF67","ISAFBUL68",

"ISAFBUL69","ISAFBUL71","ISAFBUL73","ISAFBUL79","ISAFBUL80","ISAFBUL81
","ISAFBUL82","ISAFSUB86","ISAFSUB87","ISAFSUB88","ISAFSUB91")
emo <-
c("ISAFEMO52","ISAFEMO53","ISAFEMO54","ISAFEMO55","ISAFEMO56","ISAFEMO
58")
psaf <-
c("ISAFPSAF60","ISAFPSAF61","ISAFPSAF62","ISAFPSAF64","ISAFPSAF66","IS
AFPSAF67")
bul <-
c("ISAFBUL68","ISAFBUL69","ISAFBUL71","ISAFBUL73","ISAFBUL79","ISAFBUL
80","ISAFBUL81","ISAFBUL82")
sub <- c("ISAFSUB86","ISAFSUB87","ISAFSUB88","ISAFSUB91")
env <-
c("IENVPENV97","IENVPENV98","IENVPENV100","IENVPENV101","IENVPENV102",
"IENVPENV103","IENVINS105","IENVINS107","IENVINS108",

"IENVINS110","IENVINS115","IENVINS116","IENVPHEA119","IENVPHEA120","IE
NVPHEA121","IENVPHEA122","IENVMEN123","IENVMEN125",

"IENVMEN126","IENVMEN128","IENVMEN137","IENVDIS129","IENVDIS130","IENV
DIS134","IENVDIS134C","IENVDIS135","IENVDIS136")
penv <-
c("IENVPENV97","IENVPENV98","IENVPENV100","IENVPENV101","IENVPENV102",
"IENVPENV103")
ins <-
c("IENVINS105","IENVINS107","IENVINS108","IENVINS110","IENVINS115","IE
NVINS116")
phea <- c("IENVPHEA119","IENVPHEA120","IENVPHEA121","IENVPHEA122")
men <-
c("IENVMEN123","IENVMEN125","IENVMEN126","IENVMEN128","IENVMEN137")
dis <-
c("IENVDIS129","IENVDIS130","IENVDIS134","IENVDIS134C","IENVDIS135","I
ENVDIS136")
```

```
#Run scaling program for each scale
rasch(scalelist=c("eng","clc","rel","par","saf","emo","psaf","bul","su
b","env","penv","ins","phea","men","dis"))

#Attach the scale score data to the input data
out <-
cbind(indata,eng,clc,rel,par,saf,emo,psaf,bul,sub,env,penv,ins,phea,me
n,dis)

#Exclude cases if they did not provide any demographic information
for (v in
c("eng","clc","rel","par","saf","emo","psaf","bul","sub","env","penv",
"ins","phea","men","dis")) {
    out[which((is.na(out$IDEMO138) | out$IDEMO138 == "" | out$IDEMO138
== -1) & (is.na(out$IDEMO139) | out$IDEMO139 == "" | out$IDEMO139 == -
1) & (is.na(out$IDEMO140) | out$IDEMO140 == "" | out$IDEMO140 == -
1)),paste(v,"_tscore",sep="")] <- NA
}

##########OUTPUT DATASET WITH SCALE SCORES###############
write.table(out, sprintf("%s\\scale_score_%s", folder, dataname),
col.names=T,row.names=F,sep=",")

##########END OF PROGRAM#################################
```

F.3 R Code for Calculating Noninstructional Staff Benchmarked Scale Scores

NOTE

For users wanting to preserve legacy trend lines: If you would like to generate scale scores as produced by the platform prior to the release of VM 3.0 in November 2017 (aka "legacy" scale scores), the EDSCLS Help Desk can send you the legacy R code. Please contact the Help Desk at edscls@air.org or (866) 730-6735.

```
##########INSTRUCTION################################
#You only need to specify your data folder and csv dataset name in the
"INPUTS" section below
#The output dataset will be produced in the folder you specify
#Comment: This program calculates scale scores for each survey taker.
The calculated scale scores are just
#         additional analysis variables attached to your input
dataset. If your survey has a complex sample
#         design (e.g., you took a sample from your target population
with stratification, clustering, etc.),
#         you should apply your design specifications (strata,
cluster, weights, etc.) as you would do when
#         analyzing other survey variables.
#####################################################

##########INPUTS#################################
#Specify your data folder and csv dataset name
folder <- "FOLDER PATH"
dataname <- "noninstructional staff data.csv"

##########SCALING PROGROM######################
#Option for decimal places
options(digits=10)

#Rounding function that rounds .5 up to the next integer
round2 = function(x, n) {
  posneg = sign(x)
  z = abs(x)*10^n
  z = z + 0.5
  z = trunc(z)
  z = z/10^n
  z*posneg
}

#Scale score calculation function
rasch <- function(scalelist=NULL){

  #Stepvalues that are estimated from the national benchmarking. These
are the values in Table A6 of the national benchmarking documentation

#(https://safesupportivelearning.ed.gov/sites/default/files/EDSCLS_Psy
chometric_Benchmarking_Technical_Report.pdf).
```

```
  #These three sets of values are used to calculate the scale scores
for any survey takers.
  c0 <-
c("NENGCLC2","NENGCLC3","NENGCLC4","NENGCLC6","NENGCLC7","NENGCLC8","N
ENGREL16","NENGREL17","NENGREL18","NENGREL24","NENGREL25","NENGREL30",

"NENGPAR34","NENGPAR37","NENGPAR38","NENGPAR44","NENGPAR47","NSAFEMO51
","NSAFEMO52","NSAFEMO53","NSAFEMO54","NSAFEMO55","NSAFEMO148",

"NSAFPSAF57","NSAFPSAF58","NSAFPSAF59","NSAFPSAF61","NSAFPSAF63","NSAF
PSAF64","NSAFBUL65","NSAFBUL66","NSAFBUL70","NSAFBUL76","NSAFBUL77",

"NSAFBUL78","NSAFBUL79","NSAFSUB83","NSAFSUB84","NSAFSUB85","NSAFSUB87
","NSAFSUB88","NENVPENV97","NENVPENV98","NENVPENV99","NENVPENV100",

"NENVPENV102","NENVPENV103","NENVINS109","NENVINS110","NENVINS111","NE
NVINS140","NENVPHEA115","NENVPHEA117","NENVPHEA118",

"NENVPHEA119","NENVMEN122","NENVMEN125","NENVMEN126","NENVMEN127","NEN
VDIS130","NENVDIS131","NENVDIS132","NENVDIS134","NENVDIS134C",
             "NENVDIS135","NENVDIS136","NENVDIS137")
     c1 <- c(-2.41269,-2.90456,-2.54538,-2.44946,-2.37193,-2.71602,-
2.51626,-3.51999,-2.47435,-3.24542,-2.48313,-3.09321,-1.81246,-
2.66216,-2.32825,-3.02065,-3.21406,-1.0321,-0.96298,-0.91493,-
0.99467,-1.74572,-2.7771,-0.90158,-2.04704,-1.87806,-3.11085,-
1.92372,-0.52093,-1.08067,-0.96739,-1.99696,-1.42134,-1.39773,-
1.99819,-0.85593,-1.4652,-1.7502,-1.95507,-1.37448,-1.48793,-1.31365,-
2.04206,-1.80633,-1.83406,-1.66769,-2.25032,-2.80502,-3.03108,-
1.45675,-3.53932,-2.20742,-2.31603,-2.86615,-2.70978,-1.49341,-
2.46824,-1.7135,-2.22951,-2.26218,-2.98917,-2.50782,-0.79484,-
0.72395,-3.00002,-0.93667,-1.65967)
     c2 <- c(-0.62783,-0.93949,-0.35921,-1.91379,-0.49578,-0.90214,-
1.33325,-0.57221,-0.64719,-1.08817,-0.03373,-
0.94521,0.2645,0.20785,0.96649,-0.16654,-1.66755,-1.26082,-0.37968,-
0.43057,-0.8671,-1.55043,-0.80514,0.26985,-0.5574,-0.67698,-1.76912,-
1.89623,0.55635,0.66543,1.10514,-0.93873,-2.01817,-2.26507,-2.08219,-
2.28479,-0.30073,-0.21784,-0.61555,-0.59265,-0.14093,-0.75334,-
1.53466,-1.47464,-0.83077,-1.64181,-1.1453,-1.10456,-0.14643,-
0.85192,-1.21007,-0.51886,-0.76917,-1.32258,-0.54017,-
0.79424,0.31508,-0.05805,-0.99588,-1.08258,-2.15103,-1.84725,0.24373,-
0.00727,-0.59234,-0.10022,-1.39865)
     c3 <-
c(2.01573,2.21546,3.94359,2.20042,3.0729,3.1253,3.44854,3.47261,3.5087
1,2.71541,3.31846,3.72407,3.79969,3.80338,5.37724,4.01239,2.26929,1.70
307,2.01959,1.7704,1.72993,2.12222,2.22456,3.05953,2.66121,2.70934,1.2
1185,1.02633,2.64525,4.41386,3.90358,2.38629,1.17343,1.03809,0.92795,0
.98601,2.99407,3.24186,3.06233,3.20019,3.40319,2.46686,2.51556,2.54883
,2.84167,2.19677,2.43437,2.80337,3.53325,2.6866,2.43721,3.27185,2.9454
8,3.29168,3.54043,3.55629,4.24422,4.06839,2.78672,2.67435,2.0923,2.355
42,2.72603,3.01571,3.61033,3.33175,2.96215)
     Rstepvalues <- as.data.frame(rbind(c1,c2,c3))
     names(Rstepvalues) <- c0
```

```
      #Items that are negatively valenced. They are reverse-coded
below.
      negative <-
c("NSAFPSAF57","NSAFPSAF58","NSAFPSAF59","NSAFPSAF61","NSAFPSAF63","NS
AFPSAF64","NSAFBUL65","NSAFBUL66","NSAFBUL76","NSAFBUL77",

"NSAFBUL78","NSAFBUL79","NENVPENV97","NENVPENV98","NENVPENV99","NENVPE
NV100")

      #Loop through the scale list
      for (scalename in scalelist) {

        #Stepvalues for the items of the current scale
        stepvalues <- Rstepvalues[eval(as.name(scalename))]
        items <- names(stepvalues)

        #Only use the variables that belong to scales
        tempdata <- indata[c0]

        #Code negative values to missing
        tempdata[tempdata < 0] <- NA

        #Reverse code negatively valenced items
        tempdata[negative] <- 5-tempdata[negative]

        #Use only the variables of the current scale
        tempdata <- tempdata[items]

        #Recode values from the range of 1-4 to 0-3
        tempdata <- tempdata[]-1

        #The algorithm below is based on a Rasch partial credit model.
        #See section 3.1 of the national benchmarking documentation
referenced above for more details.
        #Further reading: http://www.winsteps.com/a/Linacre-estimation-
further-topics.pdf
        tdata <- tempdata
           tdata$counts = apply(tdata,1,function(x) sum(!is.na(x[])))
           titems <- names(stepvalues)
           tstepvalues <- stepvalues
           tv1 <- paste("tv1", titems, sep="")
           tv2 <- paste("tv2", titems, sep="")
           tv3 <- paste("tv3", titems, sep="")
           tdata[tv1] <- stepvalues[1,]
           tdata[tv2] <- stepvalues[2,]
           tdata[tv3] <- stepvalues[3,]
           nm <- paste("nm", titems, sep="")
           tdata[nm] <- tdata[titems]*0+1
           tdata$anm <- rowSums(tdata[nm],na.rm=TRUE)
           tdata[tv1] <- tdata[tv1]*tdata[nm]
           tdata[tv2] <- tdata[tv2]*tdata[nm]
```

```
            tdata[tv3] <- tdata[tv3]*tdata[nm]
            tdata$rl <- tdata$anm*0
            tdata$ru <- tdata$anm*3
            tdata$ru[tdata$ru==0] <- 1
            tdata$r <- rowSums(tdata[items],na.rm=TRUE)
            tdata$r[tdata$r==tdata$rl] <-
 tdata$rl[tdata$r==tdata$rl]+0.3
            tdata$r[tdata$r==tdata$ru] <- tdata$ru[tdata$r==tdata$ru]-
0.3
           d <- mean(colMeans(tstepvalues[],na.rm=TRUE))
           tdata$t0 <- d + log((tdata$r-tdata$rl)/(tdata$ru-tdata$r))
           tdata$t <- 0
           tdata$t1 <- 1
           iter <- 1
           while(max(abs(tdata$t1-tdata$t),na.rm=TRUE)>0.0000001 &
iter <=100) {
                if (iter==1) {tdata$t <- tdata$t0
                      } else if (iter>1) {tdata$t <- tdata$t1}
                iter <- iter+1
                for (n in 1:ncol(tstepvalues)) {
                      jp <- paste("jp", titems[n], sep="")
                      j2p <- paste("j2p", titems[n], sep="")
                      dj <- paste("dj", titems[n], sep="")
                      tdata$p1 <- exp(1*tdata$t-tdata[,tv1[n]])/
                            (1+exp(1*tdata$t-
 tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                             exp(3*tdata$t-tdata[,tv1[n]]-
 tdata[,tv2[n]]-tdata[,tv3[n]]))
                       tdata$p2 <- exp(2*tdata$t-tdata[,tv1[n]]-
 tdata[,tv2[n]])/
                            (1+exp(1*tdata$t-
 tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                             exp(3*tdata$t-tdata[,tv1[n]]-
 tdata[,tv2[n]]-tdata[,tv3[n]]))
                       tdata$p3 <- exp(3*tdata$t-tdata[,tv1[n]]-
 tdata[,tv2[n]]-tdata[,tv3[n]])/
                             (1+exp(1*tdata$t-
 tdata[,tv1[n]])+exp(2*tdata$t-tdata[,tv1[n]]-tdata[,tv2[n]])+
                             exp(3*tdata$t-tdata[,tv1[n]]-
 tdata[,tv2[n]]-tdata[,tv3[n]]))
                       tdata$p1[is.na(tdata[,tv1[n]])] <- NA
                       tdata$p2[is.na(tdata[,tv1[n]])] <- NA
                       tdata$p3[is.na(tdata[,tv1[n]])] <- NA
                       tdata[jp] <- 1*tdata$p1+2*tdata$p2+3*tdata$p3
                       tdata[j2p] <-
 1*1*tdata$p1+2*2*tdata$p2+3*3*tdata$p3
                       tdata[dj] <- tdata[j2p]-tdata[jp]*tdata[jp]
                 }
                 tdata$e <- rowSums(tdata[, grep("jp",
 names(tdata))],na.rm = TRUE)
                 tdata$v <- rowSums(tdata[, grep("dj",
 names(tdata))],na.rm = TRUE)
```

```
                tdata$t1 <- tdata$t+(tdata$r-
tdata$e)/pmax(2*tdata$v,1,na.rm = TRUE)
           }

      #Set to missing if the algorithm did not converge
      tdata$t1[tdata$t1>30] <- NA

      #Only calculate score scores for those valid responses to at
least three items and more than half of the items
      tdata$t1[tdata$counts<3 | tdata$counts<0.5*ncol(tempdata)] <- NA

      ##########SCALING FACTORS######################
      #These factors are used to recale the scale scores so that the
cut scores are 300 and 400 for all scales.
      #This is a linear transformation so it does not affect the
relative distance between two scores: The distance is inflated by a
constant factor B.
      #See section 3.3 the national benchmarking documentation
referenced above for more details.
      if (scalename == 'eng' ) {
        A <- 316.027
        B <- 25.661
      }
      if (scalename == 'clc' ) {
        A <- 324.047
        B <- 27.686
      }
      if (scalename == 'rel' ) {
        A <- 318.803
        B <- 24.114
      }
      if (scalename == 'par' ) {
        A <- 300.916
        B <- 25.772
      }
      if (scalename == 'saf' ) {
        A <- 328.465
        B <- 31.578
      }
      if (scalename == 'emo' ) {
        A <- 332.304
        B <- 35.115
      }
      if (scalename == 'psaf' ) {
        A <- 327.846
        B <- 32.555
      }
      if (scalename == 'bul' ) {
        A <- 342.271
        B <- 32.014
      }
      if (scalename == 'sub' ) {
```

```
        A <- 310.583
        B <- 28.119
      }
      if (scalename == 'env' ) {
        A <- 323.636
        B <- 25.919
      }
      if (scalename == 'penv' ) {
        A <- 333.383
        B <- 26.649
      }
      if (scalename == 'ins' ) {
        A <- 322.626
        B <- 27.086
      }
      if (scalename == 'phea') {
        A <- 319.552
        B <- 24.661
      }
      if (scalename == 'men' ) {
        A <- 309.507
        B <- 24.669
      }
      if (scalename == 'dis' ) {
        A <- 326.977
        B <- 25.694
      }

      #Rescale the scores based on the factors above
      tdata$tscore <- round2(tdata$t1*B+A,0)

      #Keep only the calculated scale scores
      score_data <- tdata[c("tscore")]

      #Rename the data using the scale name and save it to the
workspace
      colnames(score_data) <- paste(scalename, colnames(score_data),
sep = "_")
      assign(scalename,score_data,envir = .GlobalEnv)
      }
}

##########SPECIFICATION AND OUTPUT#####################
#Read in data
indata <- read.table(file=sprintf("%s\\%s", folder,
dataname),header=TRUE,sep=",")
names(indata) <- toupper(names(indata))

#Item names for each scale
eng <-
c("NENGCLC2","NENGCLC3","NENGCLC4","NENGCLC6","NENGCLC7","NENGCLC8","N
ENGREL16","NENGREL17","NENGREL18","NENGREL24","NENGREL25","NENGREL30",
```

```
      "NENGPAR34","NENGPAR37","NENGPAR38","NENGPAR44","NENGPAR47")
clc <-

c("NENGCLC2","NENGCLC3","NENGCLC4","NENGCLC6","NENGCLC7","NENGCLC8")
rel <-
c("NENGREL16","NENGREL17","NENGREL18","NENGREL24","NENGREL25","NENGREL
30")
par <- c("NENGPAR34","NENGPAR37","NENGPAR38","NENGPAR44","NENGPAR47")
saf <-
c("NSAFEMO51","NSAFEMO52","NSAFEMO53","NSAFEMO54","NSAFEMO55","NSAFEMO
148",

"NSAFPSAF57","NSAFPSAF58","NSAFPSAF59","NSAFPSAF61","NSAFPSAF63","NSAF
PSAF64","NSAFBUL65","NSAFBUL66","NSAFBUL70","NSAFBUL76","NSAFBUL77",

"NSAFBUL78","NSAFBUL79","NSAFSUB83","NSAFSUB84","NSAFSUB85","NSAFSUB87
","NSAFSUB88")
emo <-
c("NSAFEMO51","NSAFEMO52","NSAFEMO53","NSAFEMO54","NSAFEMO55","NSAFEMO
148")
psaf <-
c("NSAFPSAF57","NSAFPSAF58","NSAFPSAF59","NSAFPSAF61","NSAFPSAF63","NS
AFPSAF64")
bul <-
c("NSAFBUL65","NSAFBUL66","NSAFBUL70","NSAFBUL76","NSAFBUL77","NSAFBUL
78","NSAFBUL79")
sub <- c("NSAFSUB83","NSAFSUB84","NSAFSUB85","NSAFSUB87","NSAFSUB88")
env <- c("NENVPENV97","NENVPENV98","NENVPENV99","NENVPENV100",

"NENVPENV102","NENVPENV103","NENVINS109","NENVINS110","NENVINS111","NE
NVINS140","NENVPHEA115","NENVPHEA117","NENVPHEA118",

"NENVPHEA119","NENVMEN122","NENVMEN125","NENVMEN126","NENVMEN127","NEN
VDIS130","NENVDIS131","NENVDIS132","NENVDIS134","NENVDIS134C",
         "NENVDIS135","NENVDIS136","NENVDIS137")
penv <-
c("NENVPENV97","NENVPENV98","NENVPENV99","NENVPENV100","NENVPENV102","
NENVPENV103")
ins <- c("NENVINS109","NENVINS110","NENVINS111","NENVINS140")
phea <- c("NENVPHEA115","NENVPHEA117","NENVPHEA118","NENVPHEA119")
men <- c("NENVMEN122","NENVMEN125","NENVMEN126","NENVMEN127")
dis <-
c("NENVDIS130","NENVDIS131","NENVDIS132","NENVDIS134","NENVDIS134C","N
ENVDIS135","NENVDIS136","NENVDIS137")

#Run scaling program for each scale
rasch(scalelist=c("eng","clc","rel","par","saf","emo","psaf","bul","su
b","env","penv","ins","phea","men","dis"))

#Attach the scale score data to the input data
out <-
cbind(indata,eng,clc,rel,par,saf,emo,psaf,bul,sub,env,penv,ins,phea,me
n,dis)
```

```
#Exclude cases if they did not provide any demographic information
for (v in
c("eng","clc","rel","par","saf","emo","psaf","bul","sub","env","penv",
"ins","phea","men","dis")) {
  out[which((is.na(out$NDEMO142) | out$NDEMO142 == "" | out$NDEMO142
== -1) & (is.na(out$NDEMO143) | out$NDEMO143 == "" | out$NDEMO143 == -
1) & (is.na(out$NDEMO144) | out$NDEMO144 == "" | out$NDEMO144 == -
1)),paste(v,"_tscore",sep="")] <- NA
}

##########OUTPUT DATASET WITH SCALE SCORES###############
write.table(out, sprintf("%s\\scale_score_%s", folder, dataname),
col.names=T,row.names=F,sep=",")

##########END OF PROGRAM################################
```

Appendix G: Psychometric Benchmarking Technical Report

ED School Climate Surveys (EDSCLS) Psychometric Benchmarking Technical Report

July 2017
(Revised in May 2018)

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National Center for Education Statistics

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1. Introduction

The ED School Climate Surveys (EDSCLS) are a suite of survey instruments developed for schools, districts, and states by the U.S. Department of Education's (ED) National Center for Education Statistics (NCES). Through the EDSCLS, schools nationwide have access to survey instruments and a survey platform that allow for the collection and reporting of school climate data at the local level. The surveys can be used to produce school-, district-, and state-level scores on various indicators of school climate from the perspectives of students, teachers, noninstructional staff and principals, and parents and guardians.

The development of the EDSCLS survey instruments started in 2013 with a review of the existing school climate literature and survey items. A Technical Review Panel (TRP) meeting was held in early 2014 to recommend items to be included in the EDSCLS. Then the EDSCLS draft survey items were created, building on existing items and recommendations from the TRP. In the summer of 2014, cognitive interviews were conducted on the new and revised items in one-on-one settings with 78 individual participants: students, parents, teachers, principals, and noninstructional staff from the District of Columbia, Texas, and California. In addition to cognitive interviews, usability testing of the survey platform was performed with 32 individual participants: students, parents, teachers, principals, and noninstructional staff from the District of Columbia, Maryland, and Virginia. Changes to both the survey items and platform were made based on these interviews and testing.

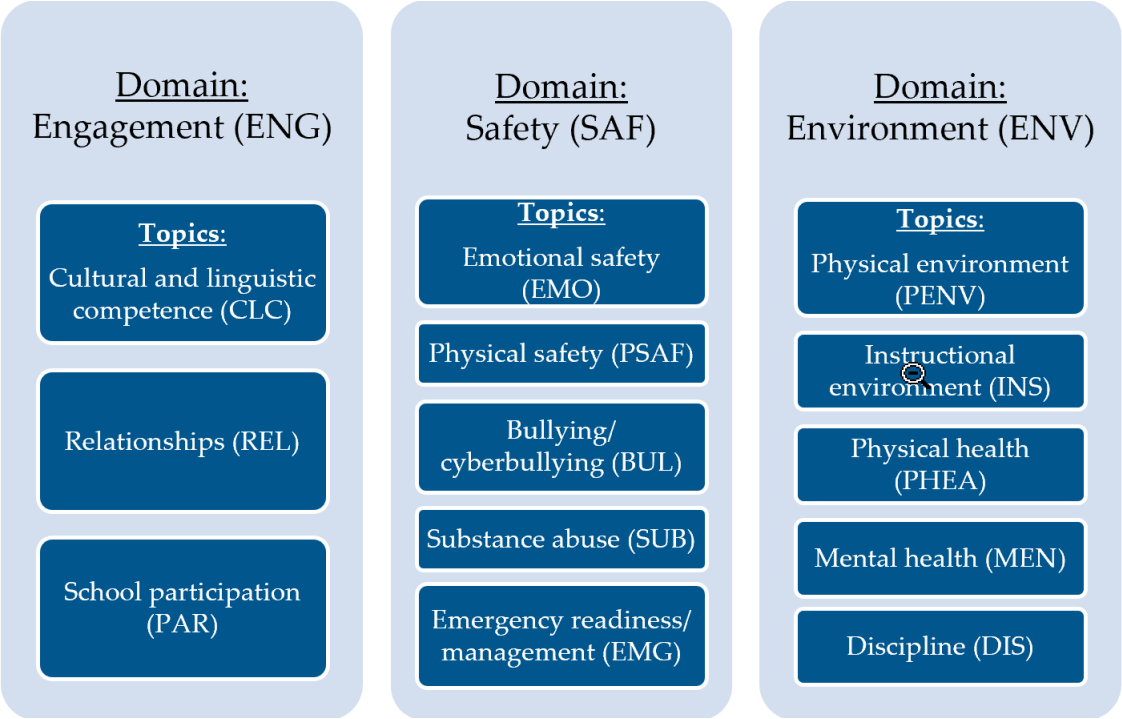
The pilot test of the EDSCLS took place in 2015. The administration was conducted under "live" conditions of all components of the survey system (i.e., the survey instruments and the data collection, processing, and reporting tools). A convenience sample of 50 public schools that varied across key characteristics (region, locale, and racial composition) participated in the pilot test. The EDSCLS platform was tested at the state level (containing multiple districts in one platform), the district level (containing multiple schools in one platform), and the school level (containing only one school in the platform). All survey questionnaires were administered online through the EDSCLS platform. The data from the pilot test were used to refine the EDSCLS survey items and about one-third of the items were dropped after the pilot test. The final EDSCLS instruments have 74 items for students, 83 items for instructional staff and noninstructional staff (with 21 additional principal-only items[1]), and 40 items for parents.

Based on the pilot data, school climate scales were created for 12 of the 13 topics[2] and three domains covered by the EDSCLS for students,[3] instructional staff, and noninstructional staff/principals (see appendix tables A1-A3 for a complete list of scaled items[4] in each survey). Because most of the pilot schools did not administer the parent survey and those that did experienced low response rates, school

[1] Principal-only items are not included in the noninstructional staff scales.
[2] A scale is not planned for the emergency readiness/management topic.
[3] Items for the physical health topic are not included in the student survey due to poor item performance in the pilot study.
[4] Domains or topics may also include stand-alone items that are not part of any scales.

climate scales were not created for the parent survey. Figure 1 shows the EDSCLS domains and topics, with their abbreviations in parentheses.

Figure 1. EDSCLS model of school climate



The EDSCLS platform allows the comparison of scale scores among schools within districts if a data collection is hosted at the district level and among districts within a state when a collection is at the state level. Schools, districts, and states can also compare their scores with those of other EDSCLS school, district, and state users. To further enhance the utility of the scale scores, an effort was also made to provide comparisons to performance standards based on psychometric modeling. The psychometric method uses item parameters based on a Rasch model to set the standards.

Before the psychometric method was selected, both a norm-based method and a criterion-based method (Cizek 2012) were considered. The norm-based method establishes reference points from a normative sample, enabling one school's ratings to be compared to those of other schools. This approach was attempted using a nationally representative data collection of eligible schools in 2016 and 2017. However, the participation of schools in this data collection was voluntary, and it was cancelled due to a low participation rate. The criterion-based method uses expert judges to set arbitrary standards based on the content. However, unlike the use of criterion-based benchmarks in achievement tests (where there are often established measures of content proficiency), the school climate measures are not as well established and it would be difficult for school climate experts to determine standards for schools.

This technical report describes the datasets used in the psychometric benchmarking analysis; provides details for the methodology used to create benchmarks for EDSCLS scales; presents the results of item calibration, benchmark selection, and evaluation; and provides general guidelines for interpretation of the EDSCLS scale scores and benchmarks.

2. Analysis Data

The psychometric benchmarking uses all data collected by the EDSCLS, which includes completed student, instructional staff, and noninstructional staff data collections from 47 schools in 2015, 20 schools in 2016, and 25 schools in 2017. Although parameter estimation is sample-independent in the Rasch model (i.e., the data used in the model need not be a representative sample of the reference population), a bigger sample of participating schools increases the precision of the estimates and provides a more powerful fit analysis. A bigger sample can also mitigate the distortion of the estimates due to accidental errors. Therefore, item parameters calibrated using the 2015 pilot data were recalibrated in 2017 using data from all three survey years. The distribution of the schools by participation year and by various school characteristics are shown in table 1. The total number of student, instructional staff, and noninstructional staff respondents are 27,485, 1,659, and 472, respectively (table 2).

Table 1. Number and percentage of schools in the EDSCLS sample, by participation year and various school characteristics

School Characteristic	2015		2016		2017		Total	
	n	%	n	%	n	%	n	%
School level								
Primary school	14	29.8	2	10.0	5	20.0	21	22.8
Middle school	17	36.2	6	30.0	13	52.0	36	39.1
High school	15	31.9	11	55.0	5	20.0	31	33.7
Other school	1	2.1	1	5.0	2	8.0	4	4.3
Free/reduced-price lunch eligibility								
90 percent or more students eligible	2	4.3	1	5.0	2	8.0	5	5.4
50 percent or more but less than 90 percent students eligible	37	78.7	7	35.0	12	48.0	56	60.9
Less than 50 percent students eligible	8	17.0	11	55.0	10	40.0	29	31.5
Missing	0	0.0	1	5.0	1	4.0	2	2.2
Locale								
City	25	53.2	2	10.0	3	12.0	30	32.6
Suburb	4	8.5	6	30.0	7	28.0	17	18.5
Town	12	25.5	4	20.0	0	0.0	16	17.4
Rural	6	12.8	8	40.0	15	60.0	29	31.5
Primary race/ethnicity at school								
White	19	40.4	16	80.0	22	88.0	57	62.0
Black	26	55.3	2	10.0	3	12.0	31	33.7
Hispanic or Latino	2	4.3	2	10.0	0	0.0	4	4.3

SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017; U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), 2014–15.

Table 2. Number and percentage of respondents in the EDSCLS sample, by participation year and respondent type

Respondent Type	2015		2016		2017		Total	
	n	%	n	%	n	%	n	%
Student	17,630	64.1	5,106	18.6	4,749	17.3	27,485	100
Instructional staff	993	59.9	303	18.3	363	21.9	1,659	100
Noninstructional staff	230	48.7	101	21.4	141	29.9	472	100

SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

3. Psychometric Benchmarking Methodology

The school climate items in the EDSCLS use a 4-point Likert response option scale. Instead of using the average value of the responses within a school climate topic as the topic's score, Rasch-based methodologies statistically adjust and convert original responses onto a common scale that accounts for differences in item difficulty.[5]

In a Rasch model, the item difficulty and the person ability (or a person's other latent traits, such as perception of school climate) are placed on a common scale, and the item difficulty is defined as the point at which people with the same level of perception of school climate have a 0.5 probability of selecting a specific response category instead of its lower category.

3.1 Item Calibration

The Rasch partial credit model (PCM) (Masters 1982) was used instead of the Rasch rating scale model (RSM) (Andrich 1978) for item calibration because PCM does not assume equal category thresholds across items. To be consistent with the coding in the mathematical calculations, from this point on, the four response categories used for the EDSCLS school climate items are referred to as category 0, category 1, category 2, and category 3 (most negative to most positive, taking into consideration the item valence). The PCM provides a mathematical function to describe the relationship between a person's perception of school climate and the difficulty of items in a scale as defined below:

$$P_{jk} = \frac{exp\sum_{t=0}^{k}(\theta - b_{jt})}{\sum_{r=0}^{3} exp\sum_{t=0}^{r}(\theta - b_{jt})}, \qquad k \in \{0,1,2,3\} \qquad (1)$$

where P_{jk} is the probability of selecting response *k* to item *j*, θ is the person's perception of school climate (ability), and b_{jk} is the difficulty threshold of category *k* for item *j*. The computer software Winsteps was used to estimate the parameters of the mathematical function.

As stated in section 2, the parameter estimation used all data collected by the EDSCLS between 2015 and 2017 to recalibrate the item parameters. The new step values for each scaled item are presented in figures 2-4 below, along with the step values from the 2015 calibration (the lists of step values by survey for the two calibrations can be found in appendix tables A4-A6). As shown in the figures, the step values for the 2017 recalibration and the 2015 calibration are very similar. The step values for the 2017 recalibration and the 2015 calibration for the student survey items are almost the same.

[5] Item difficulty refers to how easy or difficult it is for respondents to provide a positive response (e.g., "I feel socially accepted" is an easier item than "I feel loved and wanted"). If an item has negative valence, it refers to how easy or difficult it is for respondents to provide a negative response (e.g., "Students at this school think it is okay to try drugs" is an easier item than "Students at this school think it is okay to get drunk").

The step values for the staff survey items show a little more variation, presumably as a result of almost doubled sample sizes. Based on the recalibration results, one item was dropped from the environment (domain) and the instructional environment (topic) scales in the noninstructional staff survey (NENVINS141: Staff at this school expect students to do their best all the time) because no respondents provided a "Strongly Disagree" response.[6] The survey has a similar item in terms of wording and the response distribution (NENVINS140: Staff at this school feel that it is a part of their job to prepare students to succeed in college. The distributions of the responses to the two items are shown in table 3. Dropping this item from the environment and the instructional environment scales did not affect the step values of other items in the scales (see figure 5),[7] and the reliability (Cronbach's alpha) of the environment and the instructional environment scales showed only a slight decrease (from 0.948 to 0.946 and from 0.804 to 0.771, respectively). See table 4 for Cronbach's alpha for each scale in each survey.[8] All of the results presented in the remainder of the report focus only on those items included in the scales (and thus exclude item NENVINS141).

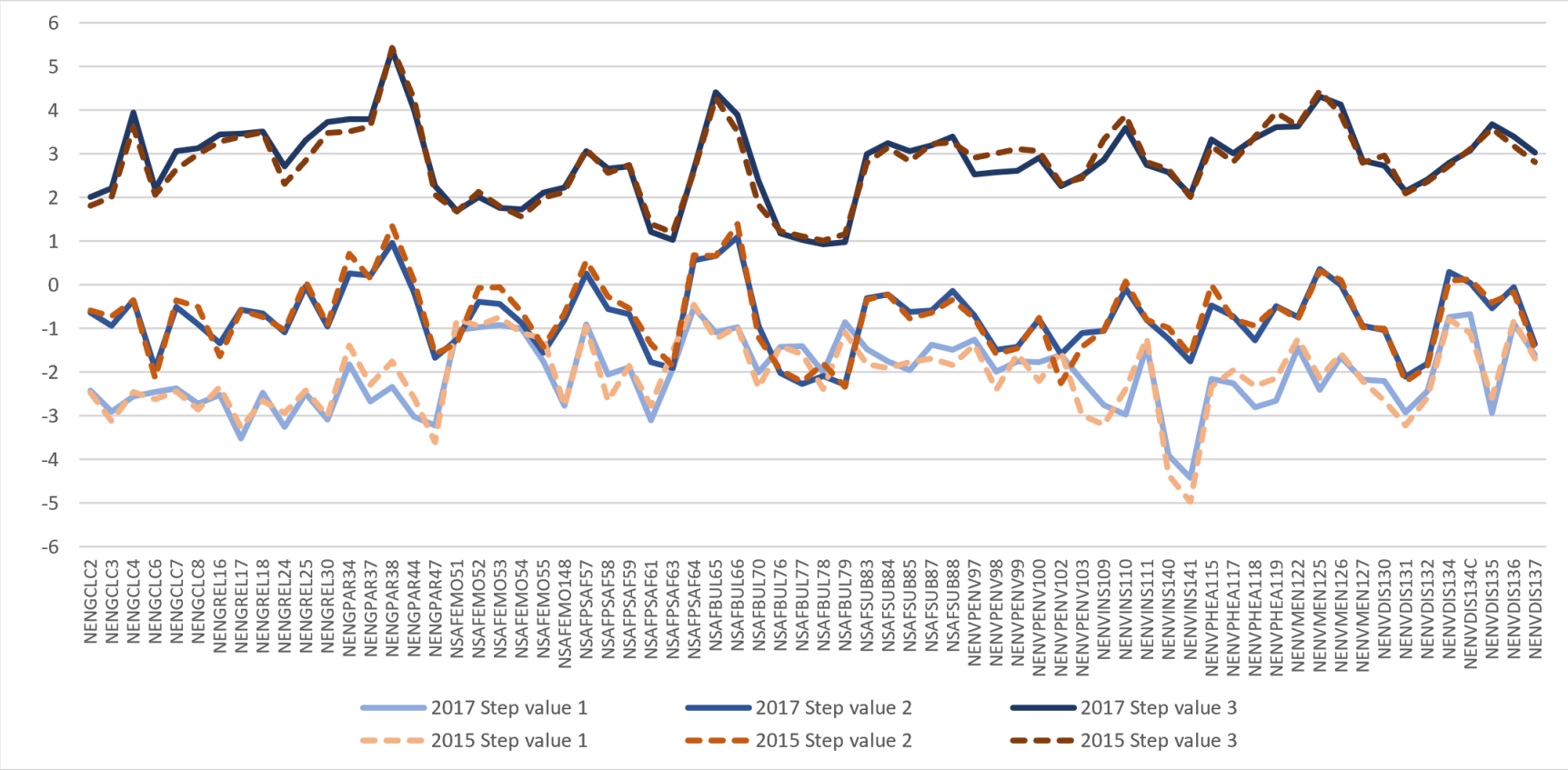
---

[6] Low response selection was one of the criteria for dropping an item after the pilot study. However, due to the small sample size obtained for the noninstructional staff survey in the pilot study, we were more conservative with this survey and primarily removed items that are parallel to the items dropped from the instructional staff survey.

[7] Items in the same domain are calibrated together and the topics within the domain use the step values for their items from the same calibration.

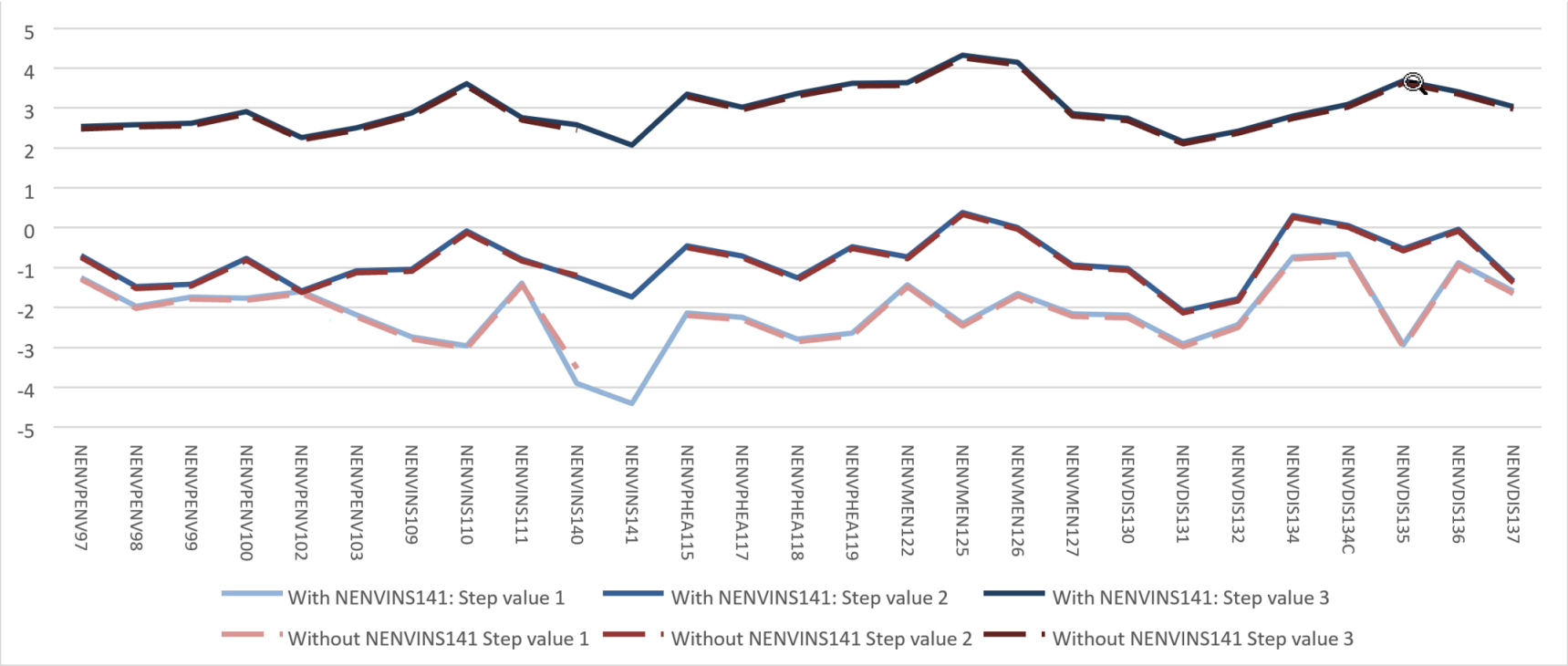
[8] Item NENVINS141 was dropped from the environment domain and the instructional environment topic of the noninstructional staff survey.

Figure 4. Step values for each scaled item from the 2015 calibration and the 2017 recalibration: Noninstructional staff survey



SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Figure 5. Step values (2017 recalibration) for each scaled item in the environment domain with and without item NENVINS141: Noninstructional staff survey



SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table 3. Distribution of responses to item NENVINS141 and item NENVINS140: Noninstructional staff survey

NENVINS141	Frequency	Percent	NENVINS140	Frequency	Percent
Strongly Disagree	0	0	Strongly Disagree	3	0.7
Disagree	27	6.28	Disagree	46	10.8
Agree	241	56.05	Agree	242	56.81
Strong agree	162	37.67	Strong agree	135	31.69

SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table 4. Cronbach's alpha, by scale and survey

	Student		Instructional staff		Noninstructional staff	
Scale	Alpha	Number of items	Alpha	Number of items	Alpha	Number of items
ENG	0.893	19	0.914	17	0.928	17
CLC	0.721	5	0.804	6	0.830	6
REL	0.861	9	0.797	5	0.851	6
PAR	0.691	5	0.861	6	0.836	5
SAF	0.924	24	0.916	24	0.911	24
EMO	0.808	6	0.870	6	0.870	6
PSAF	0.827	7	0.851	6	0.844	6
BUL	0.857	6	0.840	8	0.826	7
SUB	0.891	5	0.854	4	0.910	5
ENV	0.909	20	0.947	27	0.946	26
PENV	0.763	5	0.814	6	0.814	6
INS	0.754	5	0.783	6	0.771	4
PHEA	†	†	0.863	4	0.852	4
MEN	0.770	5	0.912	5	0.877	4
DIS	0.783	5	0.898	6	0.918	8

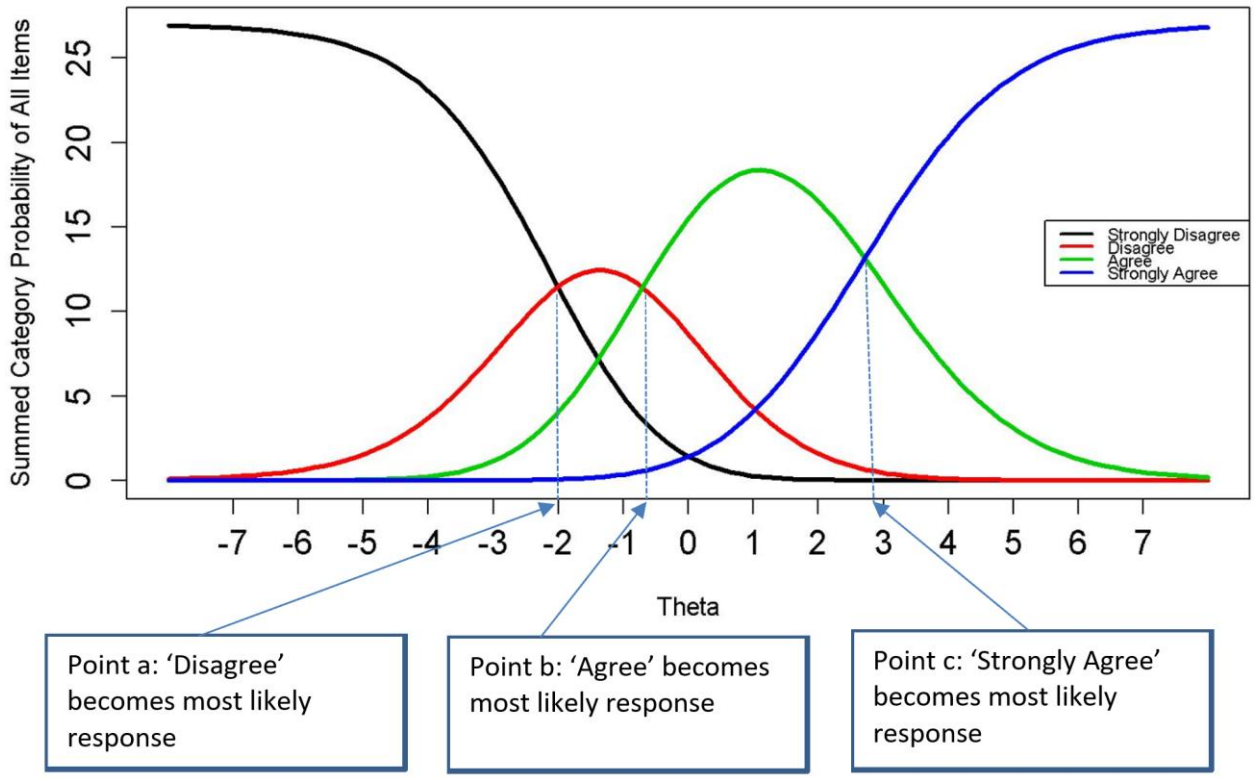
† The student survey does not include the physical health scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

3.2 Category Response Functions and Performance Level Cut Points

In equation 1, b_jk is the point on the latent scale θ where the probability of selecting either category k or category k-1 is equal, that is, when θ=b_jk, P_jk (θ)=P_j(k-1) (θ). A person with a greater theta would have a greater probability of selecting category k than of selecting category k-1 in a positively valenced item.

Figure 6 presents example Category Probability Curves for a positively valenced item with the four response categories used in the EDSCLS: Strongly Disagree, Disagree, Agree, and Strongly Agree. The curves are a function of the item parameters b_jk and θ. The scale along the x axis of the graph represents the underlying latent construct θ. The y axis is the probability of selecting a response category conditional on θ. The most likely response for persons with a theta (θ) below point a, where category 0 and category 1 intersect on the x axis, is Strongly Disagree, as the category 0 curve is above the other three curves in this range. Between this intersection and point b, the most likely response is Disagree. Between points b and c, Agree, and above point c, Strongly Agree, are the most likely responses.

Figure 6. Example Category Probability Curves for an item with four response categories



The cut values for each scale were computed by first summing up the curves in a scale and then finding the intersections so that the value at point *a* was set as the cut value separating categories 0 (Strongly Disagree) and 1 (Disagree). Similarly, the value at point *b* was set as the cut value separating categories 1 (Disagree) and 2 (Agree), and the value at point *c* was set as the cut value separating categories 2 (Agree) and 3 (Strongly Agree). This analytical approach allows the EDSCLS to define the benchmarks in direct relation to the response scale used in the survey questions, enhancing the ease of interpreting the benchmark categories.

The analysis results show that relatively small percentages of respondents, especially staff, would be classified into the lowest performance level (see table 5). Furthermore, as shown in figures 2 to 5, the distances between the lowest category and the second lowest category is relatively small and sometimes in the reversed direction which means the second lowest category does not provide additional measurement information that the lowest category has already provided. As a result, the psychometric benchmarking collapsed the two lowest performance levels of school climate, and the performance levels were defined as follows:

- Level 3 (Most Favorable): The most likely answer to each positively valenced question in the scale is Strongly Agree. Likewise, the most likely answer to a negatively valenced question is Strongly Disagree.
- Level 2 (Favorable): The most likely answer to each positively valenced question in the scale is Agree. Likewise, the most likely answer to a negatively valenced question is Disagree.
- Level 1 (Least Favorable): The most likely answer to each positively valenced question in the scale is Disagree or Strongly Disagree. Likewise, the most likely answer to a negatively valenced question is Agree or Strongly Agree.

Table 5. Percentage of respondents mostly likely to select the lowest response category, by scale and survey

Scale	Student	Instructional staff	Noninstructional staff‡
ENG	4.5	0.2	0.7
CLC	8.0	0.7	1.1
REL	7.3	0.2	0.9
PAR	6.3	2.2	1.1
SAF	8.3	0.3	0.4
EMO	15.3	2.8	3.7
PSAF	11.2	1.8	1.6
BUL	19.3	0.6	2.7
SUB	13.1	2.4	4.2
ENV	7.9	0.8	0.7
PENV	12.3	2.1	1.4
INS	6.1	1.4	0.5
PHEA	†	2.0	1.7
MEN	16.0	5.0	3.5
DIS	10.3	4.2	3.5

† The student survey does not include the physical health scale.
‡ Includes principals as well as other noninstructional staff who provided responses to the items in the scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Summing up the category response curves in a scale first and then finding the intersections as described above, the cut values and confidence intervals for each scale in each survey are shown in tables 6A, 6B, and 6C. The standard error of measurement (SEM) for each cut value was calculated using the item step values of the items in the scale and the SEMs were then used to calculate the 95 percent confidence interval for the cut values.

Specifically,

$$SEM = \sqrt{\frac{1}{I(\theta)}} = \sqrt{\frac{1}{\sum_{j=1}^{J} I_j(\theta)}}$$

and

$$I_j(\theta) = \left(\frac{\sum_{m=1}^{K_j} m^2 \mathrm{Exp}(\sum_{t=1}^{m}(\theta - b_{jt}))}{1 + \sum_{m=1}^{K_j} \mathrm{Exp}(\sum_{t=1}^{m}(\theta - b_{jt}))} - \left[\frac{\sum_{m=1}^{K_j} m \mathrm{Exp}(\sum_{t=1}^{m}(\theta - b_{jt}))}{1 + \sum_{m=1}^{K_j} \mathrm{Exp}(\sum_{t=1}^{m}(\theta - b_{jt}))} \right]^2 \right)$$

where θ is the cut value, j is the number of items in the scale, K_j is the *j*th item's maximum score (i.e., 3), b_{jt} are the item step values for the *j*th item. The confidence interval for the cut value θ is calculated as

$$(\theta - 1.96 \times SEM, \theta + 1.96 \times SEM).$$

Table 6A. Cut values and confidence intervals, by scale: Student survey

		95% confidence interval			95% confidence interval	
Scale	Cut value 1	Lower	Upper	Cut value 2	Lower	Upper
ENG	-0.638	-1.212	-0.063	1.828	1.054	2.602
CLC	-0.576	-1.682	0.530	1.665	0.224	3.107
REL	-0.627	-1.477	0.224	2.112	0.947	3.276
PAR	-0.728	-1.824	0.367	1.510	0.073	2.946
SAF	-0.336	-0.821	0.150	1.330	0.714	1.946
EMO	-0.380	-1.401	0.640	2.141	0.726	3.556
PSAF	-0.487	-1.423	0.449	1.196	0.089	2.304
BUL	-0.184	-1.141	0.774	1.515	0.305	2.724
SUB	-0.324	-1.292	0.644	0.510	-0.564	1.584
ENV	-0.668	-1.246	-0.091	1.810	1.072	2.549
PENV	-0.181	-1.364	1.003	2.313	0.829	3.796
INS	-1.141	-2.264	-0.018	1.424	-0.116	2.963
PHEA	†	†	†	†	†	†
MEN	-0.453	-1.633	0.727	1.932	0.516	3.348
DIS	-0.797	-1.902	0.308	1.609	0.130	3.088

† The student survey does not include the physical health scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table 6B. Cut values and confidence intervals, by scale: Instructional survey

		95% confidence interval			95% confidence interval	
Scale	Cut value 1	Lower	Upper	Cut value 2	Lower	Upper
ENG	-0.561	-1.312	0.190	2.881	1.938	3.824
CLC	-0.805	-1.986	0.376	2.409	0.849	3.969
REL	-0.831	-2.319	0.658	2.930	1.213	4.646
PAR	0.039	-1.221	1.299	3.353	1.757	4.948
SAF	-0.732	-1.314	-0.150	2.394	1.619	3.169
EMO	-0.815	-1.866	0.235	2.143	0.707	3.580
PSAF	-0.776	-1.946	0.394	2.340	0.840	3.840
BUL	-1.244	-2.243	-0.245	2.000	0.630	3.370
SUB	0.013	-1.568	1.595	3.367	1.528	5.206
ENV	-0.705	-1.267	-0.142	2.713	1.977	3.448
PENV	-0.950	-2.003	0.103	2.181	0.686	3.676
INS	-0.983	-2.213	0.248	2.954	1.283	4.624
PHEA	-0.419	-2.012	1.174	3.170	1.311	5.030
MEN	-0.246	-1.639	1.148	3.216	1.523	4.909
DIS	-0.922	-2.102	0.257	2.342	0.891	3.793

† The student survey does not include the physical health scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table 6C. Cut values and confidence intervals, by scale: Noninstructional staff survey

		95% confidence interval			95% confidence interval	
Scale	Cut value 1	Lower	Upper	Cut value 2	Lower	Upper
ENG	-0.625	-1.416	0.167	3.272	2.309	4.236
CLC	-0.869	-2.112	0.375	2.743	1.152	4.335
REL	-0.780	-2.102	0.542	3.367	1.802	4.933
PAR	-0.036	-1.590	1.519	3.845	2.026	5.663
SAF	-0.901	-1.444	-0.359	2.265	1.495	3.035
EMO	-0.920	-1.932	0.092	1.928	0.503	3.352
PSAF	-0.855	-2.008	0.298	2.216	0.741	3.691
BUL	-1.320	-2.272	-0.369	1.803	0.381	3.226
SUB	-0.376	-1.622	0.869	3.180	1.516	4.843
ENV	-0.912	-1.474	-0.350	2.946	2.192	3.700
PENV	-1.253	-2.295	-0.210	2.500	0.970	4.030
INS	-0.835	-2.354	0.684	2.857	0.960	4.753
PHEA	-0.793	-2.324	0.738	3.262	1.359	5.165
MEN	-0.385	-1.896	1.125	3.668	1.713	5.623
DIS	-1.050	-2.070	-0.030	2.842	1.511	4.173

† The student survey does not include the physical health scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table 7 shows the percentage of respondents categorized at each performance level for each scale in each survey. The substance abuse scale in the student survey has the largest proportion in level 3, while all other scales in all surveys has the largest proportion in level 2. This suggests students were very positive on school's performance on the substance abuse scale.

Table 7. Percentage of respondents classified at each performance level, by scale and survey

	Student survey			Instructional staff survey			Noninstructional staff survey		
Scale	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
ENG	14.8	76.5	8.7	7.6	71.8	20.6	7.8	73.2	19.0
CLC	20.1	67.5	12.5	8.1	60.2	31.7	7.7	57.9	34.3
REL	18.6	71.4	10.0	10.7	67.4	21.9	9.8	64.6	25.7
PAR	16.4	62.6	21.0	19.8	61.4	18.8	20.6	62.6	16.8
SAF	27.5	58.9	13.6	5.6	76.1	18.3	3.8	78.4	17.8
EMO	27.9	64.0	8.1	8.4	61.1	30.4	6.2	61.1	32.7
PSAF	27.4	54.6	18.0	8.9	64.1	27.0	10.0	64.0	26.0
BUL	36.4	47.3	16.3	5.1	65.4	29.4	2.7	58.8	39.4
SUB	32.8	27.0	40.1	22.1	62.4	15.5	15.9	69.9	14.2
ENV	21.8	70.5	7.7	10.7	73.8	15.5	5.3	76.4	18.3
PENV	38.2	57.1	4.7	8.2	66.5	25.3	3.6	67.4	28.9
INS	15.2	70.2	14.6	13.4	70.8	15.8	8.4	63.9	27.6
PHEA	†	†	†	20.0	61.9	18.0	10.7	67.1	22.2
MEN	34.3	55.7	10.0	27.6	57.9	14.5	16.4	64.4	19.2
DIS	22.9	64.6	12.6	12.8	62.3	24.8	7.7	68.1	24.1

† The student survey does not include the physical health scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

3.3 Transforming Theta Estimates to Scale Scores

Theoretically, the measures estimated from the Rasch partial credit model are standardized with the mean at 0 and the standard deviation at 1. However, because many people do not find negative values and decimals convenient to use, the estimates are usually transformed to a range consisting only of positive integers. Furthermore, since each EDSCLS scale includes the same performance levels, it is desirable to anchor the cut scores at the same numbers across scales.

During the initial scaling in 2015, the EDSCLS scale scores were transformed into scale scores with a range of 100 to 500. The estimated measure ($\hat{\theta}$) was linearly transformed into an integer scale score (SS) using the following linear formula:

$$SS_i = A + B \times \hat{\theta}_i \qquad (2)$$

where SS_i is the scale score of person *i* in the survey for a specific scale and $\hat{\theta}_i$ is the estimated measure for person *i* in the survey for the scale. The scaling factors A and B were found by solving the following two equations simultaneously by setting the lowest scale score to 100 and the highest scale score to 500 for each domain in a survey:

$$\begin{cases} A + B \times \hat{\theta}_L = 100 \\ A + B \times \hat{\theta}_H = 500 \end{cases} \qquad (3)$$

where $\hat{\theta}_L$ is the lowest school climate perception measure and $\hat{\theta}_H$ is the highest measure.

However, in the current psychometric benchmark analysis, it is preferable to set the cut score at a fixed value. Therefore, the cutoff scores were set to 300 and 400 for points *b* and *c*, respectively. These cutoff scale scores were used to find scaling factors A and B by solving the following two equations simultaneously for each scale:

$$\begin{cases} A + B \times \hat{\theta}_1 = 300 \\ A + B \times \hat{\theta}_2 = 400 \end{cases} \quad (4)$$

where $\hat{\theta}_1$ is the cut value between level 1 and level 2, and $\hat{\theta}_2$ is the cut value between level 2 and level 3.

The individual respondent scale scores are not restricted to the range of 100 to 500; however, in the EDSCLS reporting, school-level scale scores will be restricted to the range of 100 to 500 for consistency and ease of interpretation (i.e., if the score is below 100, it will be reported as 100; if the score is above 500, it will be reported as 500). The procedure does not affect schools' benchmarking categories. Using the EDSCLS data as an example, among the 92 schools included in the sample,[9] none have school scores that would be trimmed in the reporting for either the instructional or the noninstructional staff survey. For the student survey, 26 schools have one scale score, for substance abuse, which is higher than 500 and that would be capped at 500 in reporting, which still indicates the most positive level. Table 8 reports the scaling factors A and B for each scale in each survey.

Table 8. Scaling factors, by scale and survey

	Student survey		Instructional staff survey		Noninstructional staff survey	
Scale	Factor A	Factor B	Factor A	Factor B	Factor A	Factor B
ENG	325.859	40.557	316.291	29.053	316.027	25.661
CLC	325.697	44.614	325.048	31.112	324.047	27.686
REL	322.890	36.517	322.095	26.592	318.803	24.114
PAR	332.549	44.683	298.823	30.178	300.916	25.772
SAF	320.161	60.027	323.415	31.995	328.465	31.578
EMO	315.079	39.663	327.561	33.799	332.304	35.115
PSAF	328.929	59.402	324.906	32.092	327.846	32.555
BUL	310.828	58.872	338.350	30.829	342.271	32.014
SUB	338.850	119.933	299.599	29.819	310.583	28.119
ENV	326.967	40.341	320.620	29.264	323.636	25.919
PENV	307.241	40.106	330.340	31.939	333.383	26.649
INS	344.491	38.992	324.968	25.403	322.626	27.086
PHEA	†	†	311.666	27.864	319.552	24.661
MEN	318.995	41.928	307.097	28.889	309.507	24.669
DIS	333.135	41.560	328.255	30.631	326.977	25.694

† The student survey does not include the physical health scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

[9] Each school receives up to a total of 44 scale scores for all domains and scales if the student and two staff surveys are administered and the minimum reporting criterion (at least 10 respondents for a specific domain or scale) is met.

4. Evaluation of the Performance Level Classification

The Livingston and Lewis procedure (Livingston and Lewis 1995) was used to estimate the accuracy and reliability of the performance level classification based on the psychometric benchmarks. The evaluation was conducted on the categorization of different levels of performance, not on the characteristics of the survey items themselves. For more information about the survey item evaluation and selection, please see the EDSCLS pilot study report (U.S. Department of Education 2015). The benchmarking can be considered accurate if the performance level classification based on the psychometric benchmarks matches the classification based on true scores.

As with any measurements, the estimates produced from the EDSCLS data contain measurement error and, since the true scores are unknown, require the accuracy to be estimated. Similarly, the benchmarking would be considered reliable if the performance classification was consistent with that based on scale scores from a parallel survey (i.e., with the same content, time frame, respondents, and survey environment). Given that such a parallel survey does not exist, the consistency was estimated.

The Livingston and Lewis procedure is appropriate for a level classification with more than two classification categories based on polytomous items (Brennan 2004). The Livingston and Lewis procedure assumes that the proportional true score follows a four-parameter beta distribution and a binomial error model for two independent administrations (observed and reconstructed) and computes the true score distribution based on the first four moments of the observed score distribution.

To assess the classification accuracy, the Livingston and Lewis procedure compares the actual observed score distribution with the true score distribution predicted from the model. An accuracy index of 0.7 for a scale would be interpreted as meaning that among the respondents who would be placed in a certainty level based on their true scores, 70 percent would be expected to be placed in this level when the decision is based on their observed scores.

For the classification consistency, the Livingston and Lewis procedure compares the actual observed score distribution with a reconstructed alternate score distribution. A consistency index of 0.7 for a scale would be interpreted as meaning that among the respondents placed in a certain level based on their observed scores, 70 percent would be expected to be placed in this level again based on scores obtained in a replication administration using the exact same procedure. Based on the classifications from the Livingston and Lewis procedure, the proportions for false positives and false negatives are also computed.

Table 9 shows the results for each scale in each survey. The accuracy and consistency measures for the staff surveys are slightly lower than are those for the student survey, especially for the substance abuse topic. Overall, the accuracy measures are mostly above 0.8 (staff surveys) or close to 0.8 (student survey), and the consistency measures are all above 0.8. The accuracy and consistency measures are similar to the measures reported in some standard tests (e.g., the Massachusetts English Proficiency Assessment [Chester 2009]).

Table 9. Accuracy and consistency measures, by scale and survey

	Student survey		Instructional staff survey		Noninstructional staff survey	
Scale	Accuracy	Consistency	Accuracy	Consistency	Accuracy	Consistency
ENG	0.817	0.857	0.828	0.884	0.834	0.885
CLC	0.777	0.839	0.813	0.882	0.822	0.869
REL	0.801	0.851	0.798	0.868	0.815	0.865
PAR	0.774	0.835	0.782	0.842	0.813	0.866
SAF	0.773	0.839	0.870	0.921	0.903	0.950
EMO	0.800	0.855	0.802	0.873	0.842	0.896
PSAF	0.740	0.821	0.801	0.865	0.808	0.862
BUL	0.732	0.822	0.863	0.917	0.883	0.929
SUB	0.713	0.837	0.800	0.857	0.788	0.844
ENV	0.827	0.870	0.816	0.864	0.875	0.931
PENV	0.806	0.858	0.817	0.890	0.900	0.952
INS	0.776	0.836	0.827	0.888	0.815	0.866
PHEA	†	†	0.764	0.829	0.796	0.836
MEN	0.787	0.847	0.779	0.847	0.810	0.860
DIS	0.769	0.836	0.755	0.806	0.828	0.888

† The student survey does not include the physical health scale.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

5. Interpretation of Scale Scores and Benchmarks

Scale scores are the primary metric used by the EDSCLS, as well as many other school climate surveys, to measure school climate. A scale score, which combines multiple survey items related to different aspects of a topic area, is a more robust measure than one that attempts to measure that topic using a single item. In the EDSCLS reporting, scale scores are produced for each scale by averaging all respondents in that group (e.g., school overall, male, White).

Note that before creating the benchmark scores, individuals' EDSCLS scale scores are centered at 300, within a range of 100 to 500, by trimming scores at the 4th or 5th standard deviation for the staff and student surveys, respectively. This psychometric benchmarking fixes the cut scores at 300 and 400 for the points separating performance levels 1 and 2, and performance levels 2 and 3, respectively. In order to maintain the full spectrum of the variation, the individual scores are not trimmed within the range of 100 to 500. However, for consistency and ease of understanding in the reporting, we recommend reporting the aggregate scale scores in the range of 100 to 500, as under Rasch modeling, extreme scores are measured with a much larger variance and thus differences between extreme scores are not that meaningful.

The aggregate scale scores are categorized into three performance levels based on this psychometric benchmarking. Performance level 1 (least favorable) indicates that respondents perceive the specific school climate aspect as negative because they are most likely selecting one of the two lowest response categories for the items in this scale. Performance level 2 (favorable) indicates respondents perceive the specific school climate aspect as positive because they are most likely selecting the second highest response category for the items in this scale, and performance level 3 (most favorable) indicates respondents perceive the specific school climate aspect as most positive because they are most likely selecting the highest response category for all of the items in this scale.

Since the item parameters were recalibrated, scale scores calculated using the new item parameters should not be compared with those calculated using the previous item parameters (i.e., the “legacy” scores). If a comparison is desired, the raw data from previous administrations need to be used to recalculate the scale scores using the new item parameters. The raw data can be imported to an updated EDSCLS platform. An R program based on the new item parameters is also provided to calculate scale scores outside the platform. Please note that because the performance levels were not identified through averaging scores of a national sample, the performance levels should not be used as national benchmarks.

Just as we would not compare students’ mathematics scores with their reading scores, comparisons should not be made across domains based on scale scores, although comparisons can be made across different scales or across different subgroups within the same domain. However, users can compare the three “performance” levels across the EDSLCS domains. For example, if a school is in performance level 1 (Least Favorable) for engagement and performance level 2 (Favorable) for safety based on the student survey results, it suggests that students in the school feel the school is not doing as well in engaging students as it is in providing safety to students.

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Appendix

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Table A1. Scaled school climate items in the EDSCLS student survey

Name	Question wording
SENGCLC1	All students are treated the same, regardless of whether their parents are rich or poor.
SENGCLC2	Boys and girls are treated equally well.
SENGCLC3	This school provides instructional materials (e.g., textbooks, handouts) that reflect my cultural background, ethnicity, and identity.
SENGCLC4	Adults working at this school treat all students respectfully.
SENGCLC7	People of different cultural backgrounds, races, or ethnicities get along well at this school.
SENGREL9	Teachers understand my problems.
SENGREL11	Teachers are available when I need to talk with them.
SENGREL12	It is easy to talk with teachers at this school.
SENGREL14	My teachers care about me.
SENGREL153	At this school, there is a teacher or some other adult who students can go to if they need help because of sexual assault or dating violence.
SENGREL17	My teachers make me feel good about myself.
SENGREL20	Students respect one another.
SENGREL21	Students like one another.
SENGREL29	If I am absent, there is a teacher or some other adult at school that will notice my absence.
SENGPAR44	I regularly attend school-sponsored events, such as school dances, sporting events, student performances, or other school activities.
SENGPAR45	I regularly participate in extra-curricular activities offered through this school, such as, school clubs or organizations, musical groups, sports teams, student government, or any other extra-curricular activities.
SENGPAR46	At this school, students have lots of chances to help decide things like class activities and rules.
SENGPAR47	There are lots of chances for students at this school to get involved in sports, clubs, and other school activities outside of class.
SENGPAR48	I have lots of chances to be part of class discussions or activities.
SSAFEMO49	Students at this school get along well with each other.
SSAFEMO52	At this school, students talk about the importance of understanding their own feelings and the feelings of others.
SSAFEMO53	At this school, students work on listening to others to understand what they are trying to say.
SSAFEMO54	I am happy to be at this school.
SSAFEMO56	I feel like I am part of this school.
SSAFEMO57	I feel socially accepted.

Name	Question wording
SSAFPSAF60	I feel safe going to and from this school.
SSAFPSAF63	I sometimes stay home because I don't feel safe at this school.[1]
SSAFPSAF65	Students at this school carry guns or knives to school.[1]
SSAFPSAF67	Students at this school threaten to hurt other students.[1]
SSAFPSAF68	Students at this school steal money, electronics, or other valuable things while at school.[1]
SSAFPSAF69	Students at this school damage or destroy other students' property.[1]
SSAFPSAF71	Students at this school fight a lot.[1]
SSAFBUL74	Students at this school are teased or picked on about their race or ethnicity.[1]
SSAFBUL75	Students at this school are teased or picked on about their cultural background or religion.[1]
SSAFBUL76	Students at this school are teased or picked on about their physical or mental disability.[1]
SSAFBUL77B	Students at this school are teased or picked on about their real or perceived sexual orientation.[1]
SSAFBUL73	Students at this school are often bullied.[1]
SSAFBUL83	Students often spread mean rumors or lies about others at this school on the internet (i.e., Facebook™, email, and instant message).[1]
SSAFSUB88	Students use/try alcohol or drugs while at school or school-sponsored events.[1]
SSAFSUB91	It is easy for students to use/try alcohol or drugs at school or school-sponsored events without getting caught.[1]
SSAFSUB92	Students at this school think it is okay to smoke one or more packs of cigarettes a day.[1]
SSAFSUB93	Students at this school think it is okay to get drunk.[1]
SSAFSUB94	Students at this school think it is okay to try drugs.[1]
SENVPENV100	The bathrooms in this school are clean.
SENVPENV102	The temperature in this school is comfortable all year round.
SENVPENV105	The school grounds are kept clean.
SENVPENV106	I think that students are proud of how this school looks on the outside.
SENVPENV107	Broken things at this school get fixed quickly.
SENVINS111	My teachers praise me when I work hard in school.
SENVINS113	My teachers give me individual attention when I need it.
SENVINS114	My teachers often connect what I am learning to life outside the classroom.

Name	Question wording
SENVINS115	The things I'm learning in school are important to me.
SENVINS121	My teachers expect me to do my best all the time.
SENVMEN130	My teachers really care about me.
SENVMEN132	I can talk to my teachers about problems I am having in class.
SENVMEN133	I can talk to a teacher or other adult at this school about something that is bothering me.
SENVMEN134	Students at this school stop and think before doing anything when they get angry.
SENVMEN137	Students at this school try to work out their disagreements with other students by talking to them.
SENVDIS142	My teachers make it clear to me when I have misbehaved in class.
SENVDIS143	Adults working at this school reward students for positive behavior.
SENVDIS146	Adults working at this school help students develop strategies to understand and control their feelings and actions.
SENVDIS147	School rules are applied equally to all students.
SENVDIS147C	Discipline is fair.

[1] Item is negatively valenced and needs to be reverse-coded.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table A2. Scaled school climate items in the EDSCLS instructional staff survey

Name	Question wording
IENGCLC2	At this school, all students are treated equally, regardless of whether their parents are rich or poor.
IENGCLC3	This school encourages students to take challenging classes no matter their race, ethnicity, nationality, and/or cultural background (e.g., honor level courses, gifted courses, AP or IB courses).
IENGCLC4	This school provides instructional materials (e.g., textbooks, handouts) that reflect students' cultural background, ethnicity and identity.
IENGCLC6	This school emphasizes showing respect for all students' cultural beliefs and practices.
IENGCLC7	This school provides effective resources and training for teaching students with Individualized Education Programs (IEPs) across different languages and cultures.
IENGCLC8	This school provides effective supports for students needing alternative modes of communication (e.g., manual signs, communication boards, computer-based devices, picture exchange systems, Braille).
IENGREL9	Staff do a good job helping parents to support their children's learning at home.
IENGREL10	Staff do a good job helping parents understand when their child needs to learn social, emotional, and character skills.
IENGREL12	If a student has done something well or makes improvement, staff contact his/her parents.
IENGREL14	This school asks families to volunteer at the school.
IENGREL15	This school communicates with parents in a timely and ongoing basis.
IENGPAR29	My level of involvement in decision making at this school is fine with me.
IENGPAR31	Staff at this school have many informal opportunities to influence what happens within the school.
IENGPAR32	At this school, students are given the opportunity to take part in decision making.
IENGPAR36	Administrators involve staff in decision-making.
IENGPAR42	This school provides students with opportunities to take a lead role in organizing programs and activities.
IENGPAR48	Students are encouraged to get involved in extra-curricular activities.
ISAFEMO52	I feel like I belong.
ISAFEMO53	I feel satisfied with the recognition I get for doing a good job.
ISAFEMO54	I feel comfortable discussing feelings, worries, and frustrations with my supervisor.
ISAFEMO55	This school inspires me to do the very best at my job.
ISAFEMO56	People at this school care about me as a person.
ISAFEMO58	I can manage almost any student behavior problem.
ISAFPSAF60	The following types of problems occur at this school often: physical conflicts among students.[1]
ISAFPSAF61	The following types of problems occur at this school often: robbery or theft.[1]

Name	Question wording
ISAFPSAF62	The following types of problems occur at this school often: vandalism.[1]
ISAFPSAF64	The following types of problems occur at this school often: student possession of weapons.[1]
ISAFPSAF66	The following types of problems occur at this school often: physical abuse of teachers.[1]
ISAFPSAF67	The following types of problems occur at this school often: student verbal abuse of teachers.[1]
ISAFBUL68	I think that bullying is a frequent problem at this school.[1]
ISAFBUL69	I think that cyberbullying is a frequent problem among students at this school.[1]
ISAFBUL71	Students at this school would feel comfortable reporting a bullying incident to a teacher or other staff.
ISAFBUL73	Staff at this school always stop bullying when they see it.
ISAFBUL79	Staff at this school are teased or picked on about their race or ethnicity.[1]
ISAFBUL80	Staff at this school are teased or picked on about their cultural background or religion.[1]
ISAFBUL81	Staff at this school are teased or picked on about their physical or mental disability.[1]
ISAFBUL82	Staff at this school are teased or picked on about their sexuality.[1]
ISAFSUB86	This school collaborates well with community organizations to help address youth substance use problems.
ISAFSUB87	This school has adequate resources to address substance use prevention.
ISAFSUB88	This school provides effective confidential support and referral services for students needing help because of substance abuse (e.g., a Student Assistance Program).
ISAFSUB91	This school has programs that address substance use among students.
IENVPENV97	This school looks clean and pleasant.
IENVPENV98	This school is an inviting work environment.
IENVPENV100	My teaching is hindered by poor heating, cooling, and/or lighting systems at this school.[1]
IENVPENV101	My teaching is hindered by a lack of instructional space (e.g., classrooms) at this school.[1]
IENVPENV102	My teaching is hindered by a lack of textbooks and basic supplies at this school.[1]
IENVPENV103	My teaching is hindered by inadequate or outdated equipment or facilities at this school.[1]
IENVINS105	The students in my class(es) come to class prepared with the appropriate supplies and books.
IENVINS107	Once we start a new program at this school, we follow up to make sure that it's working.
IENVINS108	The programs and resources at this school are adequate to support students' learning.
IENVINS110	Teachers at this school feel responsible to help each other do their best.
IENVINS115	Teachers at this school feel that it is a part of their job to prepare students to succeed in college.
IENVINS116	The programs and resources at this school are adequate to support students with special needs or disabilities.

Name	Question wording
IENVPHEA119	This school provides the materials, resources, and training necessary for me to support students' physical health and nutrition.
IENVPHEA120	This school places a priority on making healthy food choices.
IENVPHEA121	This school places a priority on students' health needs.
IENVPHEA122	This school places a priority on students' physical activity.
IENVMEN123	This school provides quality counseling or other services to help students with social or emotional needs.
IENVMEN125	This school provides the materials, resources, and training necessary for me to support students' social or emotional needs.
IENVMEN126	This school places a priority on addressing students' mental health needs.
IENVMEN128	This school places a priority on teaching students strategies to manage their stress levels.
IENVMEN137	This school places a priority on helping students with their social, emotional, and behavioral problems.
IENVDIS129	Staff at this school are clearly informed about school policies and procedures.
IENVDIS130	Staff at this school recognize students for positive behavior.
IENVDIS134	School rules are applied equally to all students.
IENVDIS134C	Discipline is fair.
IENVDIS135	This school effectively handles student discipline and behavior problems.
IENVDIS136	Staff at this school work together to ensure an orderly environment.

[1] Item is negatively valenced and needs to be reverse-coded.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table A3. Scaled school climate items in the EDSCLS noninstructional staff survey

Name	Question wording
NENGCLC2	At this school, all students are treated equally, regardless of whether their parents are rich or poor.
NENGCLC3	This school encourages students to take challenging classes no matter their race, ethnicity, nationality, and/or cultural background (e.g., honor level courses, gifted courses, AP or IB courses).
NENGCLC4	This school provides instructional materials (e.g., textbooks or handouts) that reflect students' cultural background, ethnicity and identity.
NENGCLC6	This school emphasizes showing respect for all students' cultural beliefs and practices.
NENGCLC7	This school provides effective resources and training for teaching students with Individualized Education Programs (IEPs) across different languages and cultures.
NENGCLC8	This school provides effective supports for students needing alternative modes of communication (e.g., manual signs, communication boards, computer-based devices, picture exchange systems, Braille).
NENGREL16	This school helps parents find community supports for their students who need them.
NENGREL17	Staff at this school do a good job helping parents to support their children's learning at home.
NENGREL18	Staff at this school do a good job helping parents understand when their child needs to learn social and emotional skills.
NENGREL24	At this school the staff get along well.
NENGREL25	At this school there is a feeling of trust among the staff.
NENGREL30	At this school students get along well with the staff.
NENGPAR34	Administrators ask staff to be involved in making decisions.
NENGPAR37	Staff at this school have many informal opportunities to influence what happens within the school.
NENGPAR38	At this school, students are given the opportunity to take part in decision making.
NENGPAR44	This school provides students with opportunities to take a lead role in organizing programs and activities.
NENGPAR47	Students are encouraged to get involved in extra-curricular activities.
NSAFEMO51	I feel like I belong.
NSAFEMO52	I feel satisfied with the recognition I get for doing a good job.
NSAFEMO53	I feel comfortable discussing feelings, worries, and frustrations with my supervisor.
NSAFEMO54	This school inspires me to do the very best at my job.
NSAFEMO55	People at this school care about me as a person.
NSAFEMO148	I can manage almost any student behavior problem.
NSAFPSAF57	The following types of problems occur at this school often: Physical conflicts among students.[1]

Name	Question wording
NSAFPSAF58	The following types of problems occur at this school often: robbery or theft.[1]
NSAFPSAF59	The following types of problems occur at this school often: vandalism.[1]
NSAFPSAF61	The following types of problems occur at this school often: student possession of weapons.[1]
NSAFPSAF63	The following types of problems occur at this school often: physical abuse of teachers.[1]
NSAFPSAF64	The following types of problems occur at this school often: student verbal abuse of teachers.[1]
NSAFBUL65	I think that bullying is a frequent problem at this school.[1]
NSAFBUL66	I think that cyberbullying is a frequent problem among students at this school.[1]
NSAFBUL70	Staff at this school always stop bullying when they see it.
NSAFBUL76	Staff at this school are teased or picked on about their race or ethnicity.[1]
NSAFBUL77	Staff at this school are teased or picked on about their cultural background or religion.[1]
NSAFBUL78	Staff at this school are teased or picked on about their physical or mental disability.[1]
NSAFBUL79	Staff at this school are teased or picked on about their sexuality.[1]
NSAFSUB83	This school collaborates well with community organizations to help address youth substance use problems.
NSAFSUB84	This school has adequate resources to address substance use prevention.
NSAFSUB85	This school provides effective confidential support and referral services for students needing help because of substance abuse (e.g., a Student Assistance Program).
NSAFSUB87	This school has programs, resources, and/or policies to prevent substance abuse.
NSAFSUB88	This school has programs that address substance use among students.
NENVPENV97	My work is hindered by poor heating, cooling, and/or lighting systems at this school.[1]
NENVPENV98	My work is hindered by insufficient workspace at this school.[1]
NENVPENV99	My work is hindered by a lack of materials and basic supplies at this school.[1]
NENVPENV100	My work is hindered by inadequate or outdated equipment or facilities at this school.[1]
NENVPENV102	This school looks clean and pleasant.
NENVPENV103	This school is an inviting work environment.
NENVINS109	Staff at this school feel responsible to help each other do their best.
NENVINS110	Staff at this school feel responsible when students at this school fail.
NENVINS111	The programs and resources at this school are adequate to support students with special needs or disabilities.
NENVINS140	Staff at this school feel that it is a part of their job to prepare students to succeed in college.

Name	Question wording
NENVINS141	Staff at this school expect students to do their best all the time.
NENVPHEA115	This school provides the materials, resources, and training necessary for me to support students' physical health and nutrition.
NENVPHEA117	This school places a priority on making healthy food choices.
NENVPHEA118	This school places a priority on students' health needs.
NENVPHEA119	This school places a priority on students' physical activity.
NENVMEN122	This school places a priority on addressing students' mental health needs.
NENVMEN125	This school places a priority on teaching students strategies to manage their stress levels.
NENVMEN126	This school provides the materials, resources, and training necessary for me to support students' social or emotional needs.
NENVMEN127	This school provides quality counseling or other services to help students with social or emotional needs.
NENVDIS130	Staff at this school are clearly informed about school policies and procedures.
NENVDIS131	Staff at this school recognize students for positive behavior.
NENVDIS132	Staff at this school encourage students to think about how their actions affect others.
NENVDIS134	School rules are applied equally to all students.
NENVDIS134C	Discipline is fair.
NENVDIS135	Staff at this school help students develop strategies to understand and control their feelings and actions.
NENVDIS136	This school effectively handles student discipline and behavior problems.
NENVDIS137	Staff at this school work together to ensure an orderly environment.

[1] Item is negatively valenced and needs to be reverse-coded.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table A4. Step values for scaled school climate items in the EDSCLS student survey

	2017 recalibration			2015 calibration		
Name	Step value 1	Step value 2	Step value 3	Step value 1	Step value 2	Step value 3
SENGCLC1	-0.888	-0.217	1.520	-0.789	-0.217	1.577
SENGCLC2	-1.217	-0.273	1.644	-1.055	-0.281	1.670
SENGCLC3	-1.702	-1.047	1.902	-1.624	-0.935	1.773
SENGCLC4	-1.131	-0.112	1.710	-1.063	-0.081	1.758
SENGCLC7	-1.594	-1.066	1.549	-1.558	-1.070	1.552
SENGREL9	-0.925	0.074	2.411	-0.852	0.081	2.344
SENGREL11	-1.676	-0.632	2.092	-1.566	-0.643	2.052
SENGREL12	-1.375	-0.304	2.130	-1.294	-0.303	2.114
SENGREL14	-1.194	-1.180	1.690	-1.163	-1.120	1.714
SENGREL153	-1.356	-1.273	1.585	-1.399	-1.261	1.589
SENGREL17	-1.330	-0.533	2.165	-1.316	-0.584	2.101
SENGREL20	-0.774	0.424	2.920	-1.001	0.279	2.815
SENGREL21	-1.216	-0.112	2.902	-1.266	-0.302	2.747
SENGREL29	-1.459	-1.675	1.279	-1.505	-1.625	1.424
SENGPAR44	-1.021	-0.389	1.405	-0.966	-0.316	1.526
SENGPAR45	-1.158	-0.356	1.254	-1.139	-0.316	1.348
SENGPAR46	-0.835	0.200	2.396	-0.902	0.043	2.315
SENGPAR47	-1.578	-1.545	0.977	-1.529	-1.649	0.927
SENGPAR48	-1.547	-1.214	1.672	-1.460	-1.299	1.700
SSAFEMO49	-1.197	-0.080	3.052	-1.319	-0.210	3.041
SSAFEMO52	-0.800	0.692	2.647	-0.944	0.643	2.558
SSAFEMO53	-1.153	0.257	2.862	-1.262	0.181	2.726
SSAFEMO54	-0.652	-0.983	1.317	-0.637	-1.001	1.308
SSAFEMO56	-1.175	-0.868	1.591	-1.160	-0.878	1.536
SSAFEMO57	-1.213	-1.095	1.572	-1.242	-1.191	1.478
SSAFPSAF60	-1.408	-1.567	1.398	-1.377	-1.601	1.441
SSAFPSAF63	-1.539	-1.813	0.002	-1.500	-1.867	0.049
SSAFPSAF65	-1.716	-0.969	0.166	-1.795	-1.029	0.206
SSAFPSAF67	-0.940	0.356	1.602	-0.974	0.409	1.554
SSAFPSAF68	-0.580	0.381	1.491	-0.463	0.602	1.523
SSAFPSAF69	-1.031	0.193	1.895	-0.983	0.279	1.875
SSAFPSAF71	-0.723	0.152	2.206	-0.710	0.223	2.252
SSAFBUL74	-0.981	-0.463	1.236	-0.933	-0.431	1.195
SSAFBUL75	-1.183	-0.711	1.136	-1.087	-0.668	1.113
SSAFBUL76	-0.942	-0.136	1.180	-0.887	-0.074	1.127
SSAFBUL77B	-1.004	-0.297	1.474	-0.991	-0.239	1.460
SSAFBUL73	-0.835	0.095	2.165	-0.750	0.128	2.186
SSAFBUL83	-0.480	0.532	2.069	-0.487	0.665	2.064
SSAFSUB88	-1.257	-0.552	0.494	-1.438	-0.536	0.401
SSAFSUB91	-1.284	-0.414	0.549	-1.265	-0.312	0.468
SSAFSUB92	-1.472	-0.719	0.343	-1.458	-0.671	0.296
SSAFSUB93	-1.092	-0.020	0.618	-1.113	0.092	0.557

	2017 recalibration			2015 calibration		
Name	Step value 1	Step value 2	Step value 3	Step value 1	Step value 2	Step value 3
SSAFSUB94	-1.048	0.097	0.577	-0.993	0.302	0.538
SENVPENV100	-0.226	0.460	2.670	-0.268	0.644	2.764
SENVPENV102	-0.830	0.488	2.484	-0.769	0.619	2.466
SENVPENV105	-1.563	-0.923	2.104	-1.756	-1.038	2.067
SENVPENV106	-1.587	-0.779	2.001	-1.682	-0.846	1.896
SENVPENV107	-1.280	0.156	2.345	-1.311	0.147	2.238
SENVINS111	-1.479	-0.629	1.709	-1.458	-0.652	1.588
SENVINS113	-1.532	-0.994	1.921	-1.503	-1.127	1.788
SENVINS114	-1.491	-0.297	2.112	-1.518	-0.373	2.006
SENVINS115	-1.572	-1.210	1.090	-1.566	-1.320	0.974
SENVINS121	-2.250	-2.465	0.329	-2.176	-2.440	0.287
SENVMEN130	-1.454	-1.002	1.470	-1.367	-0.990	1.420
SENVMEN132	-1.499	-1.061	1.528	-1.434	-1.057	1.467
SENVMEN133	-1.428	-0.888	1.523	-1.330	-0.833	1.497
SENVMEN134	-0.207	1.334	2.749	0.018	1.435	2.610
SENVMEN137	-0.593	0.620	2.812	-0.551	0.697	2.689
SENVDIS142	-1.820	-1.842	1.320	-1.856	-1.711	1.420
SENVDIS143	-1.400	-0.556	1.722	-1.337	-0.502	1.669
SENVDIS146	-1.560	-0.524	1.921	-1.530	-0.497	1.883
SENVDIS147	-1.032	-0.473	1.273	-0.977	-0.389	1.418
SENVDIS147C	-1.036	-0.484	1.827	-1.014	-0.445	1.916

SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table A5. Step values for scaled school climate items in the EDSCLS instructional staff survey

	2017 calibration			2015 calibration		
Name	Step value 1	Step value 2	Step value 3	Step Value 1	Step value 2	Step Value 3
IENGCLC2	-2.239	-0.793	1.636	-1.998	-0.779	1.609
IENGCLC3	-2.157	-1.231	1.616	-2.391	-1.210	1.550
IENGCLC4	-2.610	-0.485	3.380	-2.807	-0.470	3.543
IENGCLC6	-2.724	-1.530	1.825	-3.434	-1.562	1.775
IENGCLC7	-1.785	0.149	2.955	-1.816	0.096	2.986
IENGCLC8	-2.183	-0.801	3.132	-2.104	-0.877	3.256
IENGREL9	-3.028	-1.312	2.680	-2.778	-1.310	2.937
IENGREL10	-3.227	-0.807	2.920	-3.181	-0.774	3.002
IENGREL12	-4.123	-0.386	3.833	-4.278	-0.550	3.693
IENGREL14	-2.325	0.086	3.092	-2.276	0.119	3.266
IENGREL15	-2.970	-1.670	2.166	-2.800	-1.785	2.260
IENGPAR29	-1.648	-0.187	3.168	-1.720	-0.174	3.259
IENGPAR31	-1.479	0.232	3.262	-1.603	0.343	3.390
IENGPAR32	-1.832	0.956	4.793	-1.909	1.037	4.642
IENGPAR36	-1.119	0.456	3.500	-1.150	0.594	3.527
IENGPAR42	-2.287	0.100	3.784	-2.479	0.217	4.029
IENGPAR48	-2.710	-1.619	1.545	-2.587	-1.840	1.508

	2017 calibration			2015 calibration		
Name	Step value 1	Step value 2	Step value 3	Step Value 1	Step value 2	Step Value 3
ISAFEMO52	-1.428	-1.182	1.840	-1.732	-1.217	1.904
ISAFEMO53	-0.921	-0.087	2.710	-0.971	-0.115	2.616
ISAFEMO54	-0.924	-0.107	2.137	-0.921	-0.188	2.020
ISAFEMO55	-1.627	-0.512	1.989	-1.949	-0.552	1.902
ISAFEMO56	-1.325	-1.377	2.081	-1.437	-1.437	2.185
ISAFEMO58	-2.514	-1.223	2.140	-2.991	-1.337	2.239
ISAFPSAF60	-1.061	0.001	3.107	-0.989	0.169	3.562
ISAFPSAF61	-1.903	-0.252	2.790	-1.742	-0.071	2.999
ISAFPSAF62	-1.866	-0.388	2.892	-1.676	-0.214	3.095
ISAFPSAF64	-3.038	-1.918	1.355	-2.907	-1.667	1.784
ISAFPSAF66	-2.141	-1.977	0.984	-2.229	-1.793	1.218
ISAFPSAF67	-0.557	0.623	2.869	-0.444	0.805	3.125
ISAFBUL68	-0.983	0.846	4.387	-0.833	0.924	4.510
ISAFBUL69	-0.777	1.431	4.285	-0.661	1.665	4.332
ISAFBUL71	-2.524	-0.482	3.556	-2.476	-0.485	3.682
ISAFBUL73	-2.612	-0.790	2.142	-2.705	-0.857	1.975
ISAFBUL79	-2.286	-1.890	1.048	-3.087	-1.923	1.153
ISAFBUL80	-2.093	-2.129	1.024	-2.406	-2.242	1.094
ISAFBUL81	-2.179	-2.106	0.949	-2.374	-2.044	1.027
ISAFBUL82	-2.018	-1.899	0.966	-2.381	-1.847	1.063
ISAFSUB86	-2.005	0.084	3.393	-2.123	0.070	3.231
ISAFSUB87	-2.091	0.094	3.484	-2.177	0.055	3.408
ISAFSUB88	-2.070	-0.356	3.194	-2.106	-0.364	3.075
ISAFSUB91	-2.412	0.227	3.398	-2.593	0.108	3.267
IENVPENV97	-2.003	-1.312	1.500	-2.221	-1.416	1.495
IENVPENV98	-2.095	-1.389	1.692	-2.300	-1.384	1.752
IENVPENV100	-1.758	-0.641	2.345	-1.619	-0.600	2.420
IENVPENV101	-1.555	-1.024	2.386	-1.448	-0.985	2.674
IENVPENV102	-1.620	-0.747	2.532	-1.508	-0.714	2.766
IENVPENV103	-1.310	-0.464	2.637	-1.132	-0.346	2.870
IENVINS105	-1.148	0.493	4.450	-1.217	0.591	4.531
IENVINS107	-1.547	0.386	4.138	-1.676	0.348	4.038
IENVINS108	-2.461	-1.088	3.337	-2.543	-1.167	3.396
IENVINS110	-2.874	-1.382	2.092	-3.059	-1.446	2.140
IENVINS115	-3.119	-2.315	1.708	-2.910	-2.413	1.924
IENVINS116	-2.090	-1.010	2.276	-2.024	-1.123	2.243
IENVPHEA119	-2.575	-0.178	3.113	-2.689	-0.146	3.123
IENVPHEA120	-2.257	-0.284	3.197	-2.327	-0.436	3.154
IENVPHEA121	-3.029	-0.808	3.138	-2.741	-0.791	3.204
IENVPHEA122	-2.439	-0.394	3.232	-2.495	-0.419	3.386
IENVMEN123	-2.079	-1.127	2.272	-2.320	-1.358	2.445
IENVMEN125	-2.192	-0.137	3.248	-2.189	-0.202	3.414
IENVMEN126	-2.211	-0.198	3.260	-2.359	-0.213	3.442

	2017 calibration			2015 calibration		
Name	Step value 1	Step value 2	Step value 3	Step Value 1	Step value 2	Step Value 3
IENVMEN128	-2.172	0.503	3.933	-2.337	0.365	4.040
IENVMEN137	-1.990	-0.291	3.361	-2.317	-0.386	3.500
IENVDIS129	-2.306	-1.082	2.169	-2.403	-1.272	2.128
IENVDIS130	-2.914	-2.431	1.707	-3.013	-2.748	1.673
IENVDIS134	-1.134	0.170	2.468	-1.109	0.228	2.573
IENVDIS134C	-1.393	-0.024	2.762	-1.521	0.120	3.012
IENVDIS135	-1.232	0.145	2.744	-1.349	0.186	3.004
IENVDIS136	-2.301	-1.508	2.244	-2.457	-1.682	2.344

SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.

Table A6. Step values for scaled school climate items in the EDSCLS noninstructional staff survey

	2017 recalibration			2015 calibration		
Name	Step value 1	Step value 2	Step value 3	Step value 1	Step value 2	Step value 3
NENGCLC2	-2.413	-0.628	2.016	-2.473	-0.592	1.813
NENGCLC3	-2.905	-0.939	2.215	-3.121	-0.712	2.019
NENGCLC4	-2.545	-0.359	3.944	-2.449	-0.358	3.620
NENGCLC6	-2.449	-1.914	2.200	-2.625	-2.129	2.062
NENGCLC7	-2.372	-0.496	3.073	-2.441	-0.345	2.645
NENGCLC8	-2.716	-0.902	3.125	-2.856	-0.496	2.992
NENGREL16	-2.516	-1.333	3.449	-2.344	-1.634	3.288
NENGREL17	-3.520	-0.572	3.473	-3.265	-0.593	3.400
NENGREL18	-2.474	-0.647	3.509	-2.652	-0.743	3.507
NENGREL24	-3.245	-1.088	2.715	-2.933	-1.034	2.310
NENGREL25	-2.483	-0.034	3.318	-2.412	0.086	2.855
NENGREL30	-3.093	-0.945	3.724	-3.001	-0.920	3.476
NENGPAR34	-1.812	0.265	3.800	-1.392	0.718	3.514
NENGPAR37	-2.662	0.208	3.803	-2.289	0.156	3.636
NENGPAR38	-2.328	0.966	5.377	-1.745	1.347	5.438
NENGPAR44	-3.021	-0.167	4.012	-2.582	0.091	4.271
NENGPAR47	-3.214	-1.668	2.269	-3.596	-1.584	2.072
NSAFEMO51	-1.032	-1.261	1.703	-0.788	-1.334	1.688
NSAFEMO52	-0.963	-0.380	2.020	-0.930	-0.067	2.139
NSAFEMO53	-0.915	-0.431	1.770	-0.728	-0.048	1.791
NSAFEMO54	-0.995	-0.867	1.730	-1.098	-0.622	1.557
NSAFEMO55	-1.746	-1.550	2.122	-1.216	-1.423	2.001
NSAFEMO148	-2.777	-0.805	2.225	-2.778	-0.648	2.137
NSAFPSAF57	-0.902	0.270	3.060	-0.948	0.552	3.122
NSAFPSAF58	-2.047	-0.557	2.661	-2.661	-0.268	2.567
NSAFPSAF59	-1.878	-0.677	2.709	-1.855	-0.532	2.754
NSAFPSAF61	-3.111	-1.769	1.212	-2.767	-1.352	1.391
NSAFPSAF63	-1.924	-1.896	1.026	-1.510	-1.849	1.190
NSAFPSAF64	-0.521	0.556	2.645	-0.452	0.678	2.604

	2017 recalibration			2015 calibration		
Name	Step value 1	Step value 2	Step value 3	Step value 1	Step value 2	Step value 3
NSAFBUL65	-1.081	0.665	4.414	-1.242	0.665	4.285
NSAFBUL66	-0.967	1.105	3.904	-0.952	1.406	3.522
NSAFBUL70	-1.997	-0.939	2.386	-2.355	-1.199	1.832
NSAFBUL76	-1.421	-2.018	1.173	-1.404	-1.957	1.230
NSAFBUL77	-1.398	-2.265	1.038	-1.585	-2.212	1.119
NSAFBUL78	-1.998	-2.082	0.928	-2.388	-1.800	1.022
NSAFBUL79	-0.856	-2.285	0.986	-1.086	-2.335	1.168
NSAFSUB83	-1.465	-0.301	2.994	-1.817	-0.338	2.793
NSAFSUB84	-1.750	-0.218	3.242	-1.909	-0.221	3.148
NSAFSUB85	-1.955	-0.616	3.062	-1.762	-0.774	2.834
NSAFSUB87	-1.374	-0.593	3.200	-1.685	-0.629	3.232
NSAFSUB88	-1.488	-0.141	3.403	-1.836	-0.329	3.260
NENVPENV97	-1.314	-0.753	2.467	-1.369	-0.774	2.919
NENVPENV98	-2.042	-1.535	2.516	-2.400	-1.583	3.014
NENVPENV99	-1.806	-1.475	2.549	-1.590	-1.455	3.116
NENVPENV100	-1.834	-0.831	2.842	-2.202	-0.746	3.068
NENVPENV102	-1.668	-1.642	2.197	-1.526	-2.257	2.316
NENVPENV103	-2.250	-1.145	2.434	-2.981	-1.412	2.453
NENVINS109	-2.805	-1.105	2.803	-3.195	-1.040	3.327
NENVINS110	-3.031	-0.146	3.533	-2.382	0.076	3.879
NENVINS111	-1.457	-0.852	2.687	-1.225	-0.807	2.823
NENVINS140	-3.539	-1.210	2.437	-4.347	-0.983	2.640
NENVINS141	†	†	†	-4.965	-1.601	2.023
NENVPHEA115	-2.207	-0.519	3.272	-2.334	0.001	3.185
NENVPHEA117	-2.316	-0.769	2.945	-1.954	-0.779	2.814
NENVPHEA118	-2.866	-1.323	3.292	-2.326	-0.934	3.401
NENVPHEA119	-2.710	-0.540	3.540	-2.129	-0.494	3.947
NENVMEN122	-1.493	-0.794	3.556	-1.244	-0.778	3.641
NENVMEN125	-2.468	0.315	4.244	-2.135	0.311	4.448
NENVMEN126	-1.714	-0.058	4.068	-1.564	0.113	3.905
NENVMEN127	-2.230	-0.996	2.787	-2.201	-0.964	2.791
NENVDIS130	-2.262	-1.083	2.674	-2.661	-0.998	2.959
NENVDIS131	-2.989	-2.151	2.092	-3.217	-2.218	2.095
NENVDIS132	-2.508	-1.847	2.355	-2.588	-1.875	2.361
NENVDIS134	-0.795	0.244	2.726	-0.787	0.095	2.727
NENVDIS134C	-0.724	-0.007	3.016	-1.108	0.135	3.112
NENVDIS135	-3.000	-0.592	3.610	-2.582	-0.410	3.581
NENVDIS136	-0.937	-0.100	3.332	-0.812	-0.167	3.174
NENVDIS137	-1.660	-1.399	2.962	-1.694	-1.467	2.812

† Item is excluded from the environment and the instructional environment scales.
SOURCE: ED School Climate Surveys (EDSCLS), 2015-2017.