

# **Developing Programming Environments to Support Data Science Education**

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David Mayer



# Clinical Data Science Specialization

**Created By:**



University of Colorado  
Anschutz Medical Campus

**Industry Partner:**

**Google Cloud**

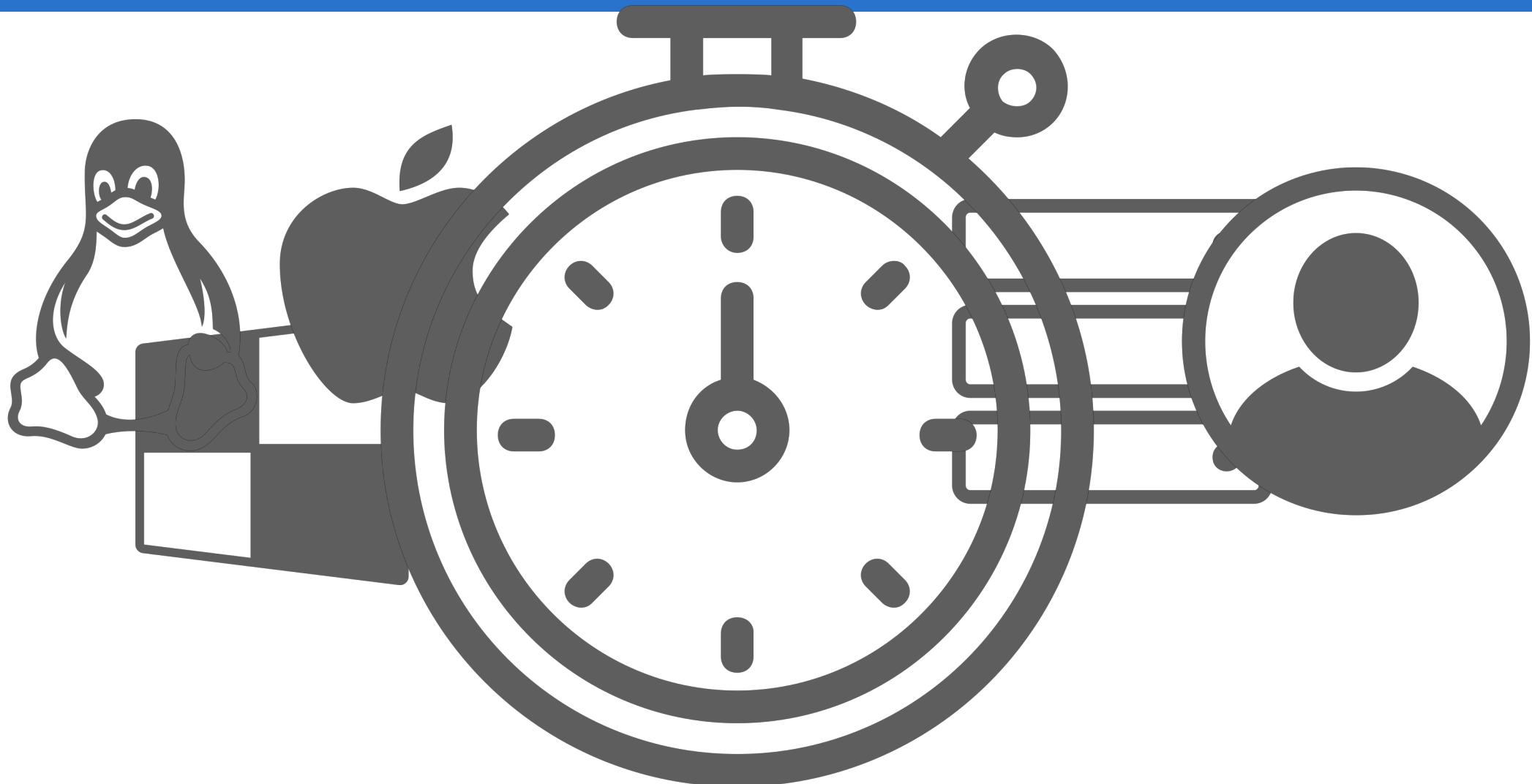
 [LearnClinicalDataScience.org](http://LearnClinicalDataScience.org)

**Hosted By:**

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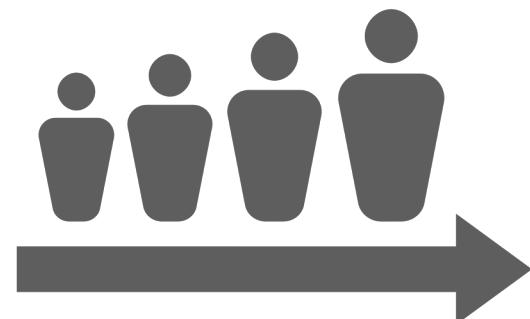
# Challenges – Traditional Classroom

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# Challenges - MOOC

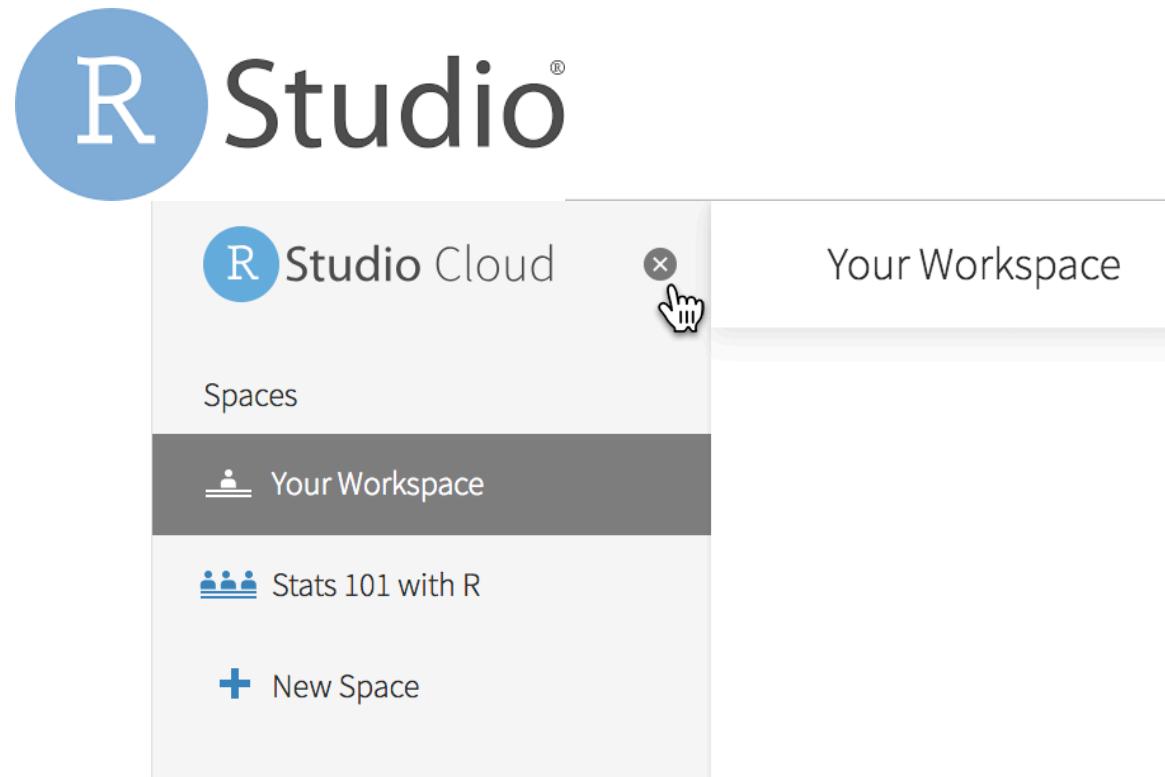
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# How do you do it?



# Possible Resources



The screenshot shows the R Studio Cloud interface. On the left, a sidebar lists "Spaces" with options: "Your Workspace" (selected, highlighted in dark grey), "Stats 101 with R", and "New Space". On the right, the main area is titled "Your Workspace". A hand cursor is hovering over the "x" icon in the top right corner of the workspace header.

## AWS Educate

AWS Educate is Amazon's global initiative to provide students and educators with the resources needed to greatly accelerate cloud-related learning endeavors and to help power the entrepreneurs, workforce, and researchers of tomorrow.

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Please note that AWS in Education Teaching Grant  
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## Get credits for your students

Apply for GCP credits for you and your students to give them real, hands-on experience with Google Cloud Platform. It is the intent of the program that the credits are used by students to learn about how to use the cloud. Review our [program FAQs](#) to learn more.



**Google Cloud**

# Resources

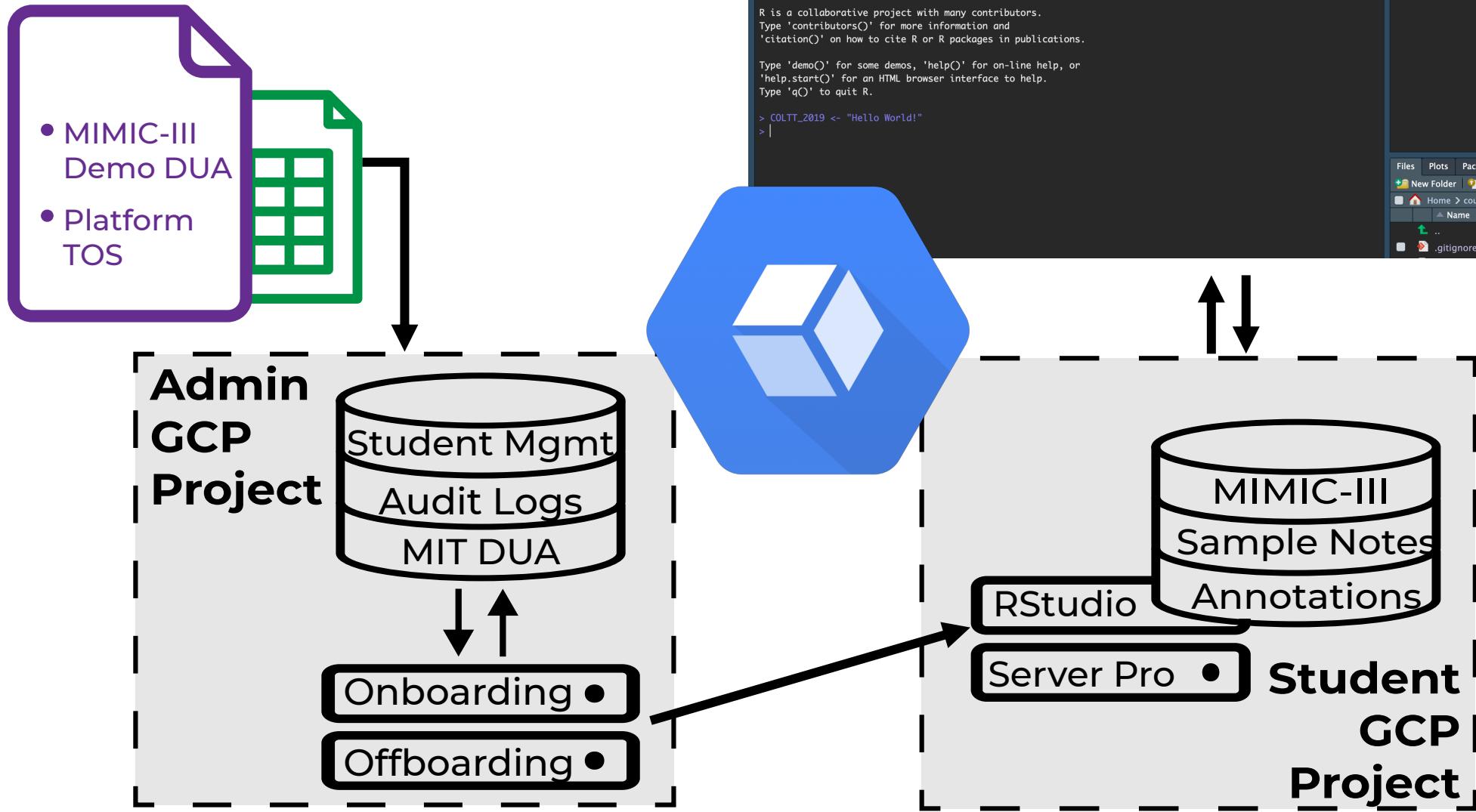
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Google Cloud



R Studio®

# Architecture



R version 3.6.0 (2019-04-26) -- "Planting of a Tree"  
Copyright (C) 2019 The R Foundation for Statistical Computing  
Platform: x86\_64-pc-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

```
> COLTT_2019 <- "Hello World!"
```

# Student's Perspective

tech-registration.  
learnclinicaldatascience.org

## Technology Platform Registration

Welcome to the Coursera Clinical Data Science Specialization created by the University of Colorado Anschutz Medical Campus and supported by our industry partner Google Cloud! We are excited to be able to provide a completely free online technology environment and facilitate access to a real clinical data set (MIMIC-III, [mimic.physionet.org](https://mimic.physionet.org)) to support your learning in this specialization.

To access the materials you MUST:

- 1) Provide a valid google account (i.e., an email address that ends in @[gmail.com](mailto:gmail.com)). You can create a free account at <https://accounts.google.com/SignUp>
- 2) Agree to the Technology Platform Terms of Service
- 3) Agree to the MIMIC-III Data Use Agreement

\*\*If these conditions are not met then you will not be eligible for the specialization or course certificate/s and forfeit any payment made to Coursera!\*\* If you do not agree you may still be able to access all ungraded materials available on the Coursera platform.

In this process we will ask you for some personal information.

- 1) Your gmail account is \*REQUIRED\*. This information allows you to:
  - a) log in to Google BigQuery
  - b) log in to the RStudio server platform
  - c) comply with the MIMIC-III data access policies
- 2) Your name, country, and state (where applicable) are \*REQUIRED\*. This information allows you to:
  - a) comply with the MIMIC-III data access policies
  - b) Your city, organization, and department are all OPTIONAL. These are data that MIMIC-III

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R Studio



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Welcome to the Coursera Clinical Data Science Specialization!

Please Sign In to the RStudio Computational Environment with your Google Account!

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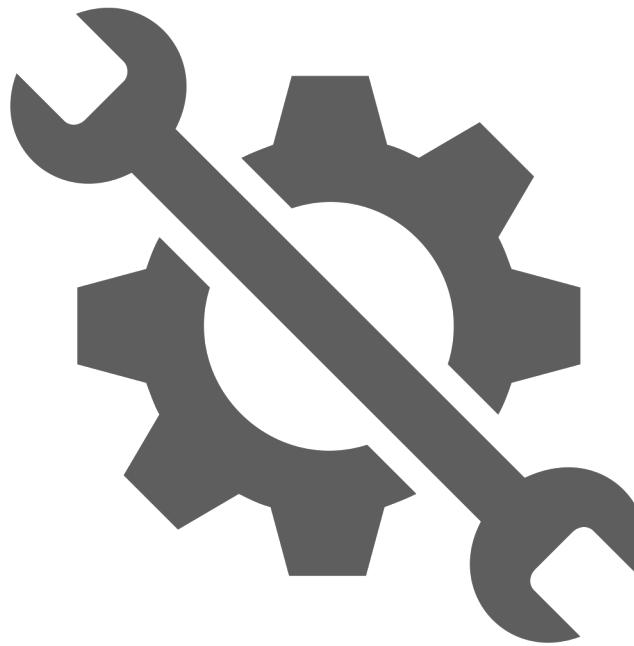
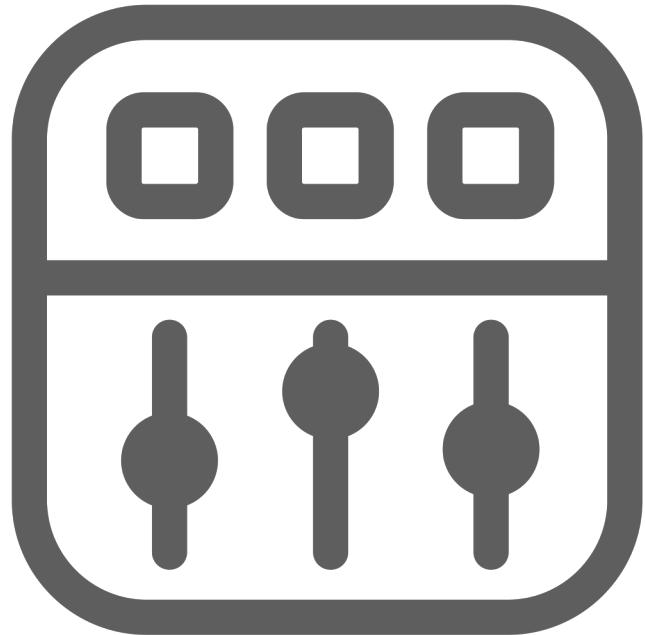
Google Email:

Remember me on this computer

 Sign in with Google

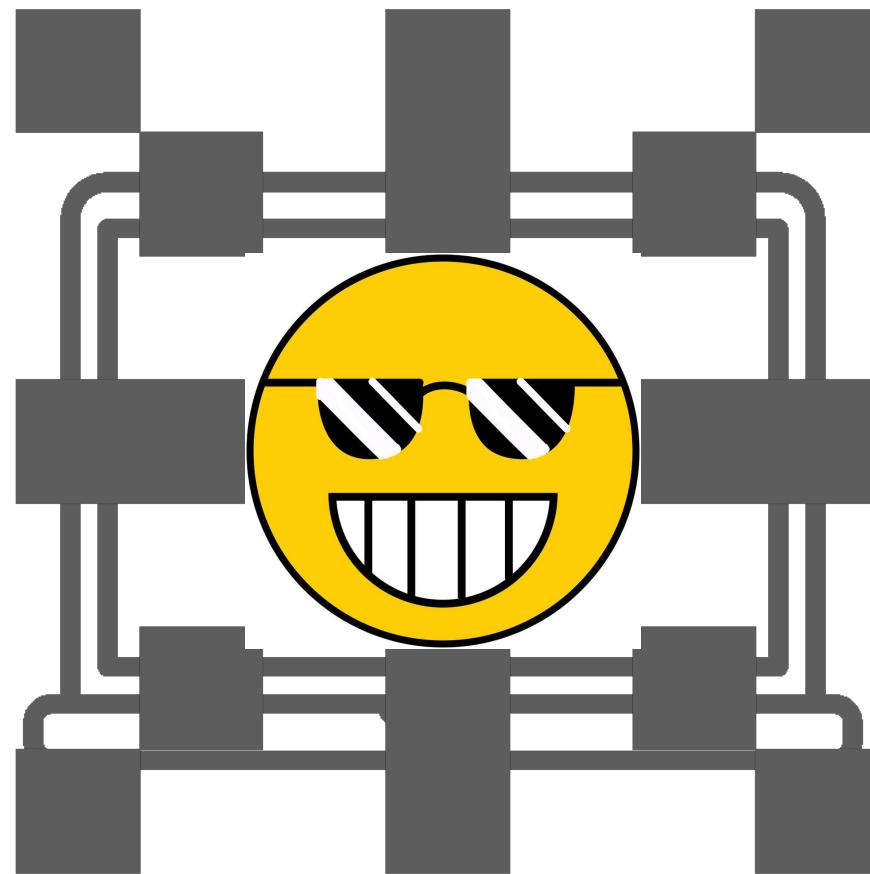
# Educator's Perspective

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# Performance

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# Acknowledgements

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Laura Wiley



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Chan Voong



Seth Russell

CU System Office for Digital Education  
Colorado Center for Personalized Medicine

Health Data Compass  
Data Science 2 Patient Value,

**Supported by:**

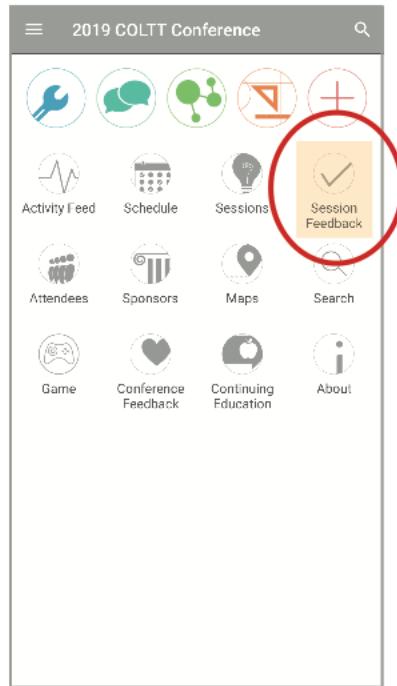
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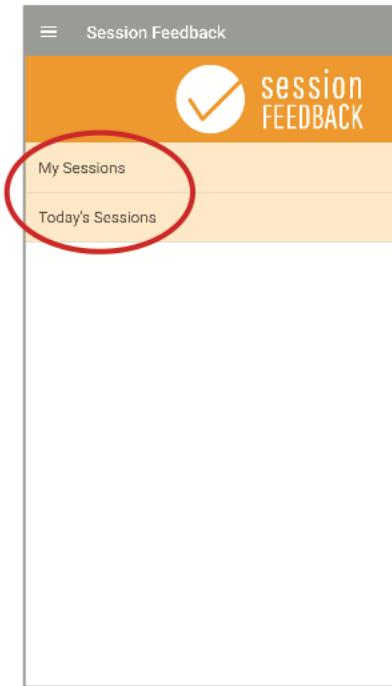
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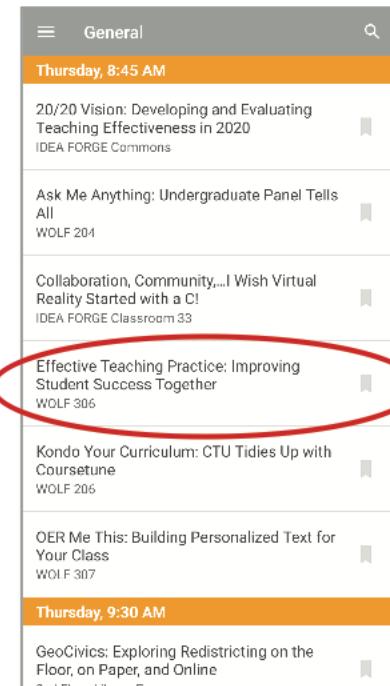
# Session Feedback



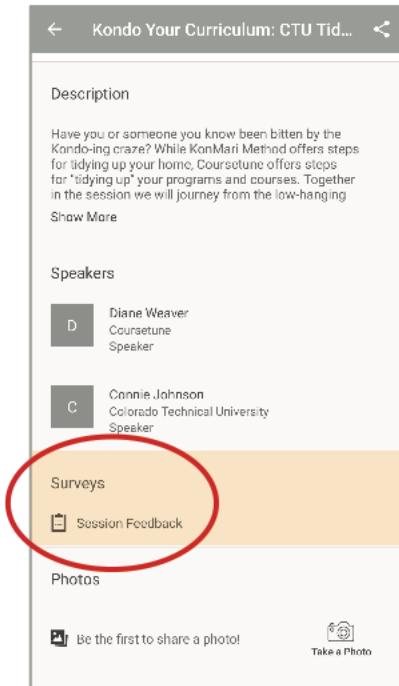
1. Session Feedback on CrowdCompass app main page



2. My Sessions OR Today's Session



3. Select session



4. Select surveys