

## Syllabus

### Course Overview

Quality physicians base their decisions on how to treat patients through gathering and analyzing data from multiple sources. They conduct observations, patient interviews, and tests, and pull from past experience, published research, and patient historical records. Their determinations and prescriptions for treatment, while contextualized for each individual, are based on hard facts.

As educators, we are charged with helping all of our students reach standard proficiency. However, no two students have the same background, experiences, or needs, and none are at the same developmental level. Therefore, basing instructional decisions solely on opinion is simply not good enough (Mandinach & Jackson, 2012). We must begin to employ diagnostic techniques similar to those used by physicians to design and implement effective instruction. This course is designed to help you to become better acquainted with how to use technology and data to inform decision making in the classroom.

The concepts we will cover in this course will hopefully lead you to a more diagnostic approach in tackling instructional problems that get in the way of student learning and engagement. Collecting and analyzing data may sound like a complicated endeavor, but it does not have to be. In fact, most teachers collect data all the time, through observation, conversations with students, tests, quizzes, and so on. Learning how to appropriately and accurately record and analyze that data is key to addressing the needs of students and helping them achieve instructional standard proficiency. Therefore, in this course, you will gather and analyze quantitative data (numerical: test, quiz, attendance data, et cetera) and qualitative data (narrative: interview, observation, et cetera), examine technology tools to collect or analyze data, and compare (triangulate) datasets.

Hopefully, after completing this course you will be better equipped to gather and analyze classroom data using technology tools, consult the larger body of scholarly research to inform instructional practice, and communicate data using technology in a manner that supports high levels of learning growth and engagement in your classroom.

#### Reference

Mandinach, E. B., & Jackson, S. S. (2012). *Transforming teaching and learning through data-driven decision making*. Thousand Oaks, CA: Corwin.

### Course Competencies

(Read Only)

To successfully complete this course, you will be expected to:

- 1 Describe effective classroom data collection and analysis strategies to inform instructional practice.
- 2 Analyze student data to identify and address educational problems.
- 3 Apply technology tools to collect valid, reliable assessment data on student learning and engagement.
- 4 Apply methods for communicating information with stakeholders using appropriate digital tools.

### Course Prerequisites

*There are no prerequisites for this course.*

## Syllabus >> Course Materials

### Required

The materials listed below are required to complete the learning activities in this course.

### Library

The following required readings are provided in the Capella University Library or linked directly in this course. To find specific readings by journal or book title, use [Journal and Book Locator](#). Refer to the [Journal and Book Locator library guide](#) to learn how to use this tool.

- Abbott, W., Donaghey, J., Hare, J., & Hopkins, P. (2013). [An Instagram is worth a thousand words: An industry panel and audience Q&A](#). *Library Hi Tech News*, 30(7), 1–6.
- Auerbach, C. F., & Silverstein, L. B. (2003). *Qualitative data: An introduction to coding and analysis*. New York, NY: New York University Press.
- Carscaddon, L., & Harris, C. S. (2009). [Working the social: Twitter and FriendFeed](#). *Library Journal*, 134(11), 24–26.
- Caruso, N. (2015, Apr 29). [Students use clickers to get things to "click" in the classroom](#). *University Wire*.
- Dann, C., & Richardson, T. (2015). [Deepening understanding of "pedagogical outcomes" through video data collection: A catalyst for guided reflective learning conversations](#). *International Journal of Pedagogies and Learning*, 10(1), 62–80.
- Hinduja, S., & Patchin, J. (2008). [Personal information of adolescents on the Internet: A quantitative content analysis of MySpace](#). *Journal of Adolescence*, 31(1), 125–146.
- McFarland, M. (2014, September 12). [What is Twitter, as explained by its evolving tagline](#). [Blog post]. *Washington Post*.
- Pilgrim, J., & Bledsoe, C. (2011). [Learning through Facebook: A potential tool for educators](#). *Delta Kappa Gamma Bulletin*, 78(1), 38–42.
- Reimers, S., & Stewart, N. (2009). [Using SMS text messaging for teaching and data collection in the behavioral sciences](#). *Behavior Research Methods*, 41(3), 675–681.
- Sullivan, G. M. (2011). [A primer on the validity of assessment instruments](#). *Journal of Graduate Medical Education*, 3(2), 119–120.
- Wilkinson, Z. (2013). [Oh, how Pinteresting! An introduction to Pinterest](#). *Library Hi Tech News*, 30(1), 1–4.
- Williamson, G. R. (2005). [Illustrating triangulation in mixed-methods nursing research](#). *Nurse Researcher*, 12(4), 7–18.

### External Resource

Please note that URLs change frequently. While the URLs were current when this course was designed, some may no longer be valid. If you cannot access a specific link, contact your instructor for an alternative URL. Permissions for the following links have been either granted or deemed appropriate for educational use at the time of course publication.

- Borno, S. E. (2014). [Tools to collect and analyze field data](http://www.techsoup.org/support/articles-and-how-tos/tools-to-collect-and-analyze-field-data). Retrieved from <http://www.techsoup.org/support/articles-and-how-tos/tools-to-collect-and-analyze-field-data>
- Burns, M. (2015). [Empowering teachers with tech-friendly formative assessment tools](https://www.edutopia.org/blog/tech-friendly-formative-assessment-tools-monica-burns). Retrieved from <https://www.edutopia.org/blog/tech-friendly-formative-assessment-tools-monica-burns>
- Center for Instructional Innovation and Assessment. (n.d.). [Using assessment to improve instruction](https://www.youtube.com/watch?v=BZ3USs16J3Y) [Video]. Retrieved from <https://www.youtube.com/watch?v=BZ3USs16J3Y>
- Common Sense Education. (n.d.). [Apps and websites for improving parent-teacher communication](https://www.commonsense.org/education/top-picks/apps-and-websites-for-improving-parent-teacher-communication). Retrieved from <https://www.commonsense.org/education/top-picks/apps-and-websites-for-improving-parent-teacher-communication>
- Dyer, K. (2013, July 15). [Digital technology tools for implementing formative assessment – Post one](https://www.nwea.org/blog/2013/digital-technology-tools-for-implementing-formative-assessment-post-one/) [Blog post]. Retrieved from <https://www.nwea.org/blog/2013/digital-technology-tools-for-implementing-formative-assessment-post-one/>
- Dyer, K. (2016, May 24). [Take three! Fifty-five digital tools and apps for formative assessment success](https://www.nwea.org/blog/2016/take-three-55-digital-tools-and-apps-for-formative-assessment-success/). Retrieved from <https://www.nwea.org/blog/2016/take-three-55-digital-tools-and-apps-for-formative-assessment-success/>
- Education World. (2013). [Parent communication: Using social media](http://www.educationworld.com/a_curr/stenhouse/classroom-communication-social-media-tips.shtml). Retrieved from [http://www.educationworld.com/a\\_curr/stenhouse/classroom-communication-social-media-tips.shtml](http://www.educationworld.com/a_curr/stenhouse/classroom-communication-social-media-tips.shtml)
- Gallicano, T. (2013, July 22). [An example of how to perform open coding, axial coding and selective coding](https://prpost.wordpress.com/2013/07/22/an-example-of-how-to-perform-open-coding-axial-coding-and-selective-coding/) [Blog post]. Retrieved from <https://prpost.wordpress.com/2013/07/22/an-example-of-how-to-perform-open-coding-axial-coding-and-selective-coding/>
- Gilgore, S. (2015). [Probing the impact of parent-teacher digital communication](http://www.edweek.org/ew/articles/2015/09/16/probing-the-impact-of-parent-teacher-digital-communication.html). Retrieved from <http://www.edweek.org/ew/articles/2015/09/16/probing-the-impact-of-parent-teacher-digital-communication.html>
- Hoddinott, S. N., & Bass, M. J. (1986). [The Dillman Total Design Survey Method: A sure-fire way to get high survey return rates \[PDF\]](#). *Canadian Family Physician*, 32.
- Kahn Academy. (n.d.). [Statistics intro: Mean, median, and mode](https://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/statistics-intro-mean-median-and-mode) [Video]. Retrieved from [https://www.khanacademy.org/math/probability/descriptive-statistics/central\\_tendency/v/statistics-intro-mean-median-and-mode](https://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/statistics-intro-mean-median-and-mode)
- Mazza, J. (2012). [Live stream school events to boost community outreach](https://www.edutopia.org/blog/live-streaming-schools-joe-mazza). Retrieved from <https://www.edutopia.org/blog/live-streaming-schools-joe-mazza>
- Oliver-Hoyo, M., & Allen, D. (2005). [The use of triangulation methods in qualitative educational research](http://www.nsta.org/publications/news/story.aspx?id=51319). Retrieved from <http://www.nsta.org/publications/news/story.aspx?id=51319>
- Ramasubbu, S. (2015, March 17). [Using technology to enable parent teacher communication](http://www.huffingtonpost.com/suren-ramasubbu/using-technology-to-enabl_b_6479766.html) [Blog post]. Retrieved from [http://www.huffingtonpost.com/suren-ramasubbu/using-technology-to-enabl\\_b\\_6479766.html](http://www.huffingtonpost.com/suren-ramasubbu/using-technology-to-enabl_b_6479766.html)
- Sheninger, E. (2015). [Transforming your school with digital communication](http://www.ascd.org/publications/educational-leadership/apr15/vol72/num07/Transforming-Your-School-with-Digital-Communication.aspx). *Educational Leadership*, 72(7). Retrieved from <http://www.ascd.org/publications/educational-leadership/apr15/vol72/num07/Transforming-Your-School-with-Digital-Communication.aspx>
- Taylor-Powell, E. (1996). [Analyzing quantitative data \[PDF\]](#) (Publication No. G3658-6). Madison, WI: Cooperative Extension Publications.
- Taylor-Powell, E. (1998). [Questionnaire design: Asking questions with a purpose \[PDF\]](#) (Publication No. G3658-2). Madison, WI: Cooperative Extension Publications.
- Taylor-Powell, E., & Renner, M. (2003). [Analyzing qualitative data \[PDF\]](#) (Publication No. G3658-12). Madison, WI: Cooperative Extension Publications.
- Tibbs, C. (n.d.). [Digital communication for teachers](http://www.livebinders.com/play/play?id=1584179#anchor). Retrieved from <http://www.livebinders.com/play/play?id=1584179#anchor>
- Trochim, W. M. K. (2006). [Introduction to validity](http://www.socialresearchmethods.net/kb/introval.php). Retrieved from <http://www.socialresearchmethods.net/kb/introval.php>
- Trochim, W. M. K. (2006). [Types of reliability](http://www.socialresearchmethods.net/kb/relytypes.php). Retrieved from <http://www.socialresearchmethods.net/kb/relytypes.php>
- Westat, J. F. (2002). [Section III: An overview of quantitative and qualitative data collection methods \[PDF\]](#). In *The 2002 user-friendly handbook for project evaluation* (NSF 02-057) (pp. 43–62). Arlington, VA: National Science Foundation.
- Williams, S. (2015, October 26). [Six key school communication channels and how to use them](https://www.campussuite.com/6-key-school-communication-channels-and-how-to-use-them/). Retrieved from <https://www.campussuite.com/6-key-school-communication-channels-and-how-to-use-them/>

## Suggested

The following materials are recommended to provide you with a better understanding of the topics in this course. These materials are not required to complete the course, but they are aligned to course activities and assessments and are highly recommended for your use.

## Optional

The following optional materials are offered to provide you with a better understanding of the topics in this course. These materials are not required to complete the course.

## Library

The following optional readings may be available in the Capella University Library. To find specific readings by journal or book title, use [Journal and Book Locator](#). Refer to the [Journal and Book Locator library guide](#) to learn how to use this tool. If the full text is not available, you may be able to request a copy through the [Interlibrary Loan](#) service.

- Bates, C. C. (2013). How do Wii know: Anecdotal records go digital. *Reading Teacher*, 67(1), 25–29.
- Culture and assessment: Discovering what students really know. (2011). *The Education Digest*, 76(8), 43–46.
- Frambach, J. M., Driessen, E. W., Beh, P., & van der Vleuten, C. P. M. (2014). Quiet or questioning? Students' discussion behaviors in student-centered education across cultures. *Studies in Higher Education*, 39(6), 1001–1021.
- Galvin, N. (2011, June 19). [What are...YouTube channels: Out of the box](#). *Sun Herald*.
- Molnar, M. (2014). Formative-assessment tools shape personalized lessons: Educators are evaluating an array of testing and curricular products and services to see what works. *Education Week*, 34(9), 20, 23.
- Parkin, H. J., Hepplestone, S., Holden, G., Irwin, B., & Thorpe, L. (2012). A role for technology in enhancing students' engagement with feedback. *Assessment and Evaluation in Higher Education*, 37(8), 963–973.
- Smith, B., & Mader, J. (2015). Formative assessment with online tools. *The Science Teacher*, 82(4), 10.

### External Resource

Please note that URLs change frequently. While the URLs were current when this course was designed, some may no longer be valid. If you cannot access a specific link, contact your instructor for an alternative URL. Permissions for the following links have been either granted or deemed appropriate for educational use at the time of course publication.

- Ado, P. (2013). [Qualitative analysis coding and categorizing](#). Retrieved from <https://www.slideshare.net/kontorphilip/qualitative-analysis-coding-and-categorizing>
- American Association of School Librarians. (n.d.). [Best websites for teaching and learning](#). Retrieved from <http://www.ala.org/aasl/standards/best/websites/tools>
- Center for Evaluation and Research. (n.d.). [Tips and tools #18: Coding qualitative data \[PDF\]](#). Retrieved from [http://programeval.ucdavis.edu/documents/Tips\\_Tools\\_18\\_2012.pdf](http://programeval.ucdavis.edu/documents/Tips_Tools_18_2012.pdf)
- Common Sense Education. (n.d.). [Top tech tools for formative assessment](#). Retrieved from <https://www.common sense.org/education/top-picks/top-tech-tools-for-formative-assessment>
- EdSurge. (n.d.). [MasteryConnect](#). Retrieved from <https://www.edsurge.com/product-reviews/masteryconnect>
- [EdTechTeacher](#). (n.d.). Retrieved from <http://edtechtteacher.org/>
- U.S. Department of Education. (2009). [Engaging stakeholders: Including the parents and the community to sustain improved reading outcomes \[PDF\]](#). Retrieved from <http://www2.ed.gov/programs/readingfirst/support/stakeholderlores.pdf>
- U.S. Department of Health & Human Services. (2013). [Summary of the HIPAA Privacy Rule](#). Retrieved from <https://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html>

## Unit 1 >> Identifying an Inquiry

### Introduction

Data-driven decision making largely entails exploring a local problem to determine the root cause of the problem and to find solutions to address it. Such initiatives can be large-scale formal endeavors or an informal gathering and analysis of data to make quick but sound decisions. Such initiatives can be one-time projects or ongoing investigations.

The first step in designing a plan for collecting and analyzing data is to identify a problem that needs further exploration. In this unit, you will identify a problem and formulate a research question to drive your inquiry. In addition, you will explore why data-driven decision making is important and how to identify or determine validity and reliability of a data collection instrument.

When determining validity, you might consider asking colleagues to look over test, survey, or interview questions. Another way to test for both validity and reliability is to do a small pilot of a particular test or survey. This test is used to determine if scores or survey findings are consistent among the respondents or if respondents are interpreting test or survey questions as they are meant to be perceived.

### Learning Activities

#### u01s1 - Data Collection

## Readings

The resources below provide helpful information on data collection.

- Westat, J. F. (2002). [Section III: An overview of quantitative and qualitative data collection methods \[PDF\]](#). In *The 2002 user-friendly handbook for project evaluation* (NSF 02-057) (pp. 43–62). Arlington, VA: National Science Foundation.

- This is an overview of both quantitative and qualitative data collection techniques. Information in this resource includes the appropriate applications for collecting data via surveys, interviews, focus groups, observations, tests, document studies, and key informants.
- Hoddinott, S. N., & Bass, M. J. (1986). [The Dillman Total Design Survey Method: A sure-fire way to get high survey return rates \[PDF\]](#). *Canadian Family Physician*, 32.
  - This resource provides best practice strategies for designing and administering a survey to procure accurate data and high response rates.
- Taylor-Powell, E. (1998). [Questionnaire design: Asking questions with a purpose \[PDF\]](#) (Publication No. G3658-2). Madison, WI: Cooperative Extension Publications.

## Optional Resources

These resources are optional but may lend clarity to the topic of qualitative data collection and analysis. You may choose to use the Capella library and the Internet to read the following:

- Culture and assessment: Discovering what students really know. (2011). *The Education Digest*, 76(8), 43–46.
- Frambach, J. M., Driessen, E. W., Beh, P., & van der Vleuten, C. P. M. (2014). Quiet or questioning? Students' discussion behaviors in student-centered education across cultures. *Studies in Higher Education*, 39(6), 1001–1021.
- Center for Evaluation and Research. (n.d.). [Tips and tools #18: Coding qualitative data \[PDF\]](#). Retrieved from [http://programeval.ucdavis.edu/documents/Tips\\_Tools\\_18\\_2012.pdf](http://programeval.ucdavis.edu/documents/Tips_Tools_18_2012.pdf)
- Ado, P. (2013). [Qualitative analysis coding and categorizing](#). Retrieved from <https://www.slideshare.net/kontorphilip/qualitative-analysis-coding-and-categorizing>

### u01s1 - Learning Components

- Determine when and why to choose quantitative or qualitative data to solve your problem.
- Distinguish whether quantitative or qualitative data will serve best to find solutions to specific problems.
- Evaluate your educational environment to choose a problem to be solved.

### u01s2 - Your Online ePortfolio

Online ePortfolios serve two key purposes: 1) to support learning and reflection, and 2) to be used as a showcase tool. Your learning journey can be documented, and ePortfolios contribute to lifelong learning and growth through reflection and sharing. Online ePortfolios can also be shared with employers and peers to present artifacts that demonstrate your accomplishments at Capella.

## Using ePortfolio to Prepare for Your Capstone

Your program may culminate in a capstone course. At that time you may be required to show evidence of your learning throughout the program by referring to multiple assessments that you have created. You will be telling a story about your learning throughout the program using artifacts you have collected during many of these courses.

## Using ePortfolio to Build Your Career

As you are preparing to tell your story in the professional world, leverage your ePortfolio artifacts to demonstrate the knowledge and competencies you have gained through your program in professional conversations, performance reviews, and interviews.

To do that, reflect on the knowledge and skills you have gained from your courses and the elements you have put in your portfolio, along with how you have already applied these things to your professional life or how you might apply them in the future.

Next, create your story or talking points to tell your professional story.

## Saving Your Documents to ePortfolio

You will need a place to store your documents in an organized fashion so that you can access them at a later date. Do not rely on the courseroom to store your assignments for you as you will lose access to the courseroom after you have completed the course. Capella uses a cloud-based portfolio platform to facilitate your organization of the artifacts you create throughout your program.

To make an online portfolio useful, it is essential that it is organized clearly and that important files of any format are accessible. Read the [Online ePortfolio Guidelines \[PDF\]](#) to ensure you set up your online portfolio correctly. For more information on ePortfolio visit the Campus [ePortfolio](#) page.

## Privacy Statement

Capella complies with privacy laws designed to protect the privacy of personal information. While you may voluntarily share your own information publicly, you are obligated to protect the personal information of others that may be associated with your academic or professional development. Before sharing information and material in any ePortfolio that is set up to be shared externally to your program at Capella, please consider privacy obligations in relation to protected populations who may be included or referenced in your academic or clinical work. Refer to the [Family Educational Rights and Privacy Act \(FERPA\)](#) and/or the [Health Insurance Portability and Accountability Act \(HIPAA\)](#) if you have specific questions or concerns about your choices.

### u01s3 - Activity: Developing Research Questions in an Educational Setting

Click **Developing Research Questions in an Educational Setting** to view a presentation that walks you through the steps of identifying an instructional problem and creating research questions from the instructional problem. You may use this media piece as an example of the work you should do in the second discussion in this unit.

Course Resources

---

Developing Research Questions in an Educational Setting

### u01d1 - The Value of Data-Driven Decision Making

After completing the activities and readings in this unit's studies, provide your best responses to the following questions:

- Why is data-driven decision making important?
- What types of data do you currently use to inform decision making in your own classroom (and in other settings)?
- If you do not use data to make decisions, what types of data do you already collect (but do not use) or could you collect to inform decision making? How might doing so help you to improve instruction and engagement in your classroom?
- What benefits and drawbacks can collaborating with colleagues bring to data collection and analysis? How can collaboration inform instructional decision making?

## Response Guidelines

Respond to the post of one other learner; try to choose a post that has not had a response thus far. In your response, do one of the following:

- Offer a suggestion for data collection that would fit the learner's classroom.
- Recommend a strategy for analyzing data that you have found useful in a similar setting.
- Provide one or two strategies to overcome potential challenges related to collaboration.
- Present some considerations that may be useful as the learner thinks about incorporating more data collection into the classroom.

u01d1 - Learning Components

- Distinguish whether quantitative or qualitative data will serve best to find solutions to specific problems.
- Determine how to collect accurate data.

### u01d2 - Identifying a Problem to Drive Inquiry

Review the Developing Research Questions in an Educational Setting media activity in the studies, and discuss the following:

- Identify an instructional problem in your organization, school, or district.
- Explain why it is a problem and why it requires analysis and needs to be addressed.

- Write a goal for your inquiry.
- Identify 1–2 instructional sub-problems.
- Write 1–2 guiding questions for your inquiry .

## Response Guidelines

Respond to the post of at least one other learner; try to choose a post that has not had a response thus far. Provide constructive feedback on the quality and focus of the learner's instructional problem and guiding questions. Address the following:

- Does the instructional problem align to the goal for inquiry?
- Do the guiding questions support or align with your colleague's instructional problem?
- Do the guiding questions align with appropriate qualitative and quantitative data collection and analysis procedures?

Course Resources

---

### [Developing Research Questions in an Educational Setting | Transcript](#)

u01d2 - Learning Components

- Review concepts about how to use data for instructional decisions.
- Define what you mean by “inquiry.”

## Unit 2 >> Collecting Data

### Introduction

In this unit, you will explore emerging technologies for data collection and assessment. Emerging technologies include adaptive learning platforms, classroom response systems, Web-based tutoring tools, universal design for learning and assessment, and so on.

You will also explore ethical considerations for protecting participant data and investigate how to ensure anonymity and confidentiality are maintained through the data collection, analysis, and application processes.

When considering data collection and analysis technologies, consider the degree to which you can use them without disrupting the true nature of learning taking place within the classroom, and consider the degree to which the tool enables you to collect authentic data to inform future practice and decision making. Also, consider the degree to which the data collection and analysis technology tools enable you to comprehensively collect and deeply diagnose the data to determine the realities of the situation and then inform future practice.

### Learning Activities

u02s1 - Quantitative and Qualitative Data

## Readings and Videos

These resources contain information on the analysis of quantitative or numerical data.

- Taylor-Powell, E. (1996). [Analyzing quantitative data \[PDF\]](#) (Publication No. G3658-6). Madison, WI: Cooperative Extension Publications.
  - This resource offers guidance on how to run descriptive statistics in order to calculate percentages, frequencies, mean, mode, and median, and measure variability.
- Kahn Academy. (n.d.). [Statistics intro: Mean, median, and mode](#) [Video]. Retrieved from [https://www.khanacademy.org/math/probability/descriptive-statistics/central\\_tendency/v/statistics-intro-mean-median-and-mode](https://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/statistics-intro-mean-median-and-mode)
  - View this lesson for an introduction to statistics. It also provides an overview of how to calculate the mean, median, and mode.

These resources contain information on the analysis of qualitative data.

- Auerbach, C. F., & Silverstein, L. B. (2003). [Qualitative data: An introduction to coding and analysis](#). New York, NY: New York University Press.
  - Read Chapters 5 and 6 of this book for information on how to analyze qualitative data through coding and categorizing data in order to identify themes or patterns.
- Gallicano, T. (2013, July 22). [An example of how to perform open coding, axial coding and selective coding](#) [Blog post]. Retrieved from <https://prpost.wordpress.com/2013/07/22/an-example-of-how-to-perform-open-coding-axial-coding-and-selective-coding/>

- This resource provides guidance on how to analyze narrative data using open, axial, and selective coding. Open coding entails creating labels for batches of data in order to provide a summary of the experience being studied. Axial coding entails searching for relationships within the open codes.
- Taylor-Powell, E., & Renner, M. (2003). [Analyzing qualitative data \[PDF\]](#) (Publication No. G3658-12). Madison, WI: Cooperative Extension Publications.
  - This resource provides guidance on how to analyze narrative data and provides a step-by-step tutorial on coding, categorizing, and identifying themes or patterns within the data.

#### u02s1 - Learning Components

- Review concepts about how to use data for instructional decisions.

#### u02s2 - Assignment Preparation

Your Data Collection and Analysis Decision Making assignment is due in Unit 3. In preparation, read the assignment instructions and scoring guide in Unit 3, and think about the issue, situation, experience, or phenomena within your classroom you want to know more about and how you could collect the data. You will need to comment on these things in the first discussion in this unit.

#### u02s3 - Activity: Qualitative and Quantitative Research Approaches

When comparing qualitative and quantitative data, you will find that each type has its own nature. Each type of data serves different purposes; the nature of the research process is driven by the type of data you are collecting.

Click [Qualitative and Quantitative Research Approaches](#) to see how confident you are in differentiating the two types of data—qualitative and quantitative.

Course Resources

---

[Qualitative and Quantitative Research Approaches](#)

#### u02s4 - Activity: Quantitative and Qualitative Data – Check Your Understanding

Click [Quantitative and Qualitative Data – Check Your Understanding](#) to view a media piece that contains a lot of information about quantitative and qualitative data. The first two tabs provide a quick, clear review of the data types, and the third tab will deliver a quiz for you to check your understanding. The review will provide information you need for your assignments, and the quiz will ensure that you feel confident in your knowledge.

Course Resources

---

[Quantitative and Qualitative Data – Check Your Understanding](#)

#### u02d1 - Emerging Technologies: Data Collection and Assessment

In one of the assignments for this course, you will use a type of technology to collect or analyze student data. For this discussion, do the following:

- Identify one type of technology you believe would be useful to you and feasible for assessing and collecting student data in relation to the educational issue, situation, experience, or phenomena you are considering for your Unit 3 assignment.
- Find a peer-reviewed article from the Capella library that supports the use of this technology. (For example, if you choose classroom response systems, then you might find an article about the effectiveness of clicker technology or something similar).
- Describe the findings of the article or research.
- Describe how you would use the technology to collect assessment data on students. Also, be sure to explain how you know this technology tool will provide reliable, valid results.

If you do not know where to begin when choosing a potential technology tool, refer to the studies. You may also wish to view some of the tools reviewed on the Best Websites for Teaching and Learning page, sponsored by the American Association of School Librarians, a division of the American Library Association.

## Response Guidelines

Respond to the posts of at least two other learners; try to choose posts that have had the fewest responses thus far. Discuss the similarities or differences between the technologies you chose, or ask a clarifying question about use of the technology for data collection, comment on the validity and reliability of the tool, or make a recommendation to improve the use of the tool.

Course Resources

---

[Best Websites for Teaching and Learning.](#)

u02d1 - Learning Components

- Review concepts about how to use data for instructional decisions.
- Identify collection tools for data.
- Determine how to collect accurate data.

### u02d2 - Ethics: Protecting Participants

Ethics is an essential component of research. Adhering to ethical guidelines is important, as doing so protects your students from potential harm. It may be difficult to imagine how your students could be harmed during your research, but consider the following ethical concerns:

- Sharing data without protecting the anonymity and confidentiality of students can cause psychological harm.
- You are an authority figure in the classroom or school. Students might be afraid to honestly complete a survey for fear of retaliation if they give the wrong answers.

Adhering to ethical standards also helps in gathering data that will authentically inform decision making and practice because when we adhere to ethical standards, we put ourselves in a better position to collect data that is authentic, valid, reliable, and more trustworthy.

In your post, do the following:

- Explain what potential harm (psychological or physical) to students might surface as a result of you collecting qualitative and quantitative data.
- Identify strategies for minimizing risk when collecting, analyzing, using, and disseminating data to students or others.
- Discuss what particular threats the use of technology tools for data collection and analysis may pose to participants, and identify a measure that can be taken to eliminate the risk of using the tool.

## Response Guidelines

Respond to the posts of at least two other learners; try to choose posts that have had the fewest responses thus far. Provide suggestions for bolstering your colleagues' strategies for minimizing risk, ask a clarifying question, or challenge aspects of the posts you believe need to be strengthened.

u02d2 - Learning Components

- Review concepts about how to use data for instructional decisions.
- Review how surveys work.

## Unit 3 >> Using Data to Drive Decision Making

### Introduction

In this unit, you will explore how to use formative assessment data to support your students' learning growth and engagement. Formative assessment data is arguably the most important data type you will collect to ensure that students are engaged and learning. Formative data is used to assess what students need to learn. It can be collected and evaluated at any time during the learning process and make use of various technology tools. For example, a teacher might have students do a pre-assessment by blogging about their interests on a given topic and what they already know and have experienced regarding the topic.

From there, the teacher may use that data to adjust or formulate a plan for teaching the lesson and provide activities and practice to help students fully engage in the new learning. The teacher may determine that the best way to proceed is to have students watch a prerecorded video lecture at home and then come to the class and practice the skills and content.

The teacher may also use various technology tools to collect data such as clickers, adaptive technology tools, and so on to determine if students are indeed learning the subject matter. If some students need redirection or enrichment, that can be provided as well. Throughout the learning unit, the teacher may collect artifacts via an online portfolio or some other mechanism and then review these portfolios with students to reinforce their new learning.

While technology certainly has a lot to do with the degree to which we can design learning environments that are engaging and relevant, it can also certainly improve our ability to reach and assess students beyond the classroom, and, at times, in more dynamic ways. In addition, technology tools can also provide us with greater efficiency in collecting and analyzing data. For example, once we log data, there are many tools that will help us generate deep analysis, which we can use to get a more comprehensive perspective on student learning and engagement.

Choosing the right data and analyzing it correctly will help us make better instructional decisions. Interestingly, trusting one's instincts can prove to be incorrect, unless we gather and analyze data to verify the root problem. For example, a student who is not turning in homework could be viewed as lazy and unmotivated. However, after gathering data from the student (for example, by conducting an interview or asking questions), we might find that he does not understand the concepts in the manner in which they are being presented and feels so discouraged he simply does not do the homework. In this case, we would then need to experiment with strategies (and continue to collect and analyze data) to determine what instructional techniques work best in helping the student understand the subject matter.

Identifying the right data is also important to the process. For example, if you want to understand the perspectives and experiences of students regarding why they are not engaged in learning a new concept, you would be best served by either having them complete an open-ended survey or interviewing them. However, an open-ended survey may not produce the richest information; you may need to instead conduct short interviews in order to gain the trust of your students so they relay the root of the issue.

Choosing the right data analysis procedure is equally important in order to illuminate the realities of the situation, treatment/strategy, or experience. For example, if we want to know if there is a relationship between student absenteeism and the amount of homework assigned, we would need to run statistical analysis (quantitative) (likely a *t*-test first to determine differences between means, and then a Spearman or Pearson *r* to determine if/how data is correlated). If we want to analyze narrative data (qualitative), we have to choose a coding method in order to then categorize/organize the data and identify patterns and/or themes.

Once you collect the data, you need to determine how to analyze the data. Most of us will likely do simple math to generate the mode, mean, and median. However, you may choose to do more advanced statistical calculations (for example, examine differences between means through a simple *t*-test). Therefore, you may choose to use some other software program to analyze your data.

## Learning Activities

### u03s1 - Validity and Reliability

## Readings

These resources contain information on validity and reliability.

- Sullivan, G. M. (2011). [A primer on the validity of assessment instruments](#). *Journal of Graduate Medical Education*, 3(2), 119–120.
  - This resource offers a quick rundown of how validity and reliability can be measured/determined. Topics such as field testing, pilot study, interrater reliability, determining the Cronbach alpha, et cetera are covered.
- Williamson, G. R. (2005). [Illustrating triangulation in mixed-methods nursing research](#). *Nurse Researcher*, 12(4), 7–18.
  - This resource provides an example of how triangulation is applied in a study to illustrate how to triangulate data and how it can be used to verify the validity of findings, as well as potential weaknesses in the methodology employed.
- Trochim, W. M. K. (2006). [Introduction to validity](#). Retrieved from <http://www.socialresearchmethods.net/kb/introval.php>
- Trochim, W. M. K. (2006). [Types of reliability](#). Retrieved from <http://www.socialresearchmethods.net/kb/relytypes.php>

## Optional Resources

These resources contain information on technology tools for formative assessment. You may use the Capella library and the Internet to access them:

- Parkin, H. J., Hepplestone, S., Holden, G., Irwin, B., & Thorpe, L. (2012). A role for technology in enhancing students' engagement with feedback. *Assessment and Evaluation in Higher Education*, 37(8), 963–973.
- Bates, C. C. (2013). How do Wii know: Anecdotal records go digital. *Reading Teacher*, 67(1), 25–29.
- Smith, B., & Mader, J. (2015). Formative assessment with online tools. *The Science Teacher*, 82(4), 10.
- Molnar, M. (2014). Formative-assessment tools shape personalized lessons: Educators are evaluating an array of testing and curricular products and services to see what works. *Education Week*, 34(9), 20, 23.
- Common Sense Education. (n.d.). [Top tech tools for formative assessment](https://www.commonsense.org/education/top-picks/top-tech-tools-for-formative-assessment). Retrieved from <https://www.commonsense.org/education/top-picks/top-tech-tools-for-formative-assessment>
- [EdTechTeacher](http://edtechteacher.org/). (n.d.). Retrieved from <http://edtechteacher.org/>

### u03s1 - Learning Components

- Describe how data may be used to inform future instructional practice and decision making.
- Evaluate how data will be analyzed to yield accurate and illuminating findings.
- Analyze how data will inform inquiry.

### u03s2 - Activity: Validity and Reliability

Click **Reliability and Validity** to view a presentation that discusses the importance of collecting data that is reliable and valid. As you begin to think about the types of quantitative and qualitative data you will collect from your students, you will want to ensure your data is both valid and reliable.

Course Resources

---

Reliability and Validity

### u03a1 - Data Collection and Analysis Decision Making

We can often do quick data gathering and analysis to inform inquiry by doing formative assessment. For example, if we want to know areas where students need assistance to master subject matter, we might have them complete an exit ticket and then analyze key words used in their description of what they learned and still want to know more about in order to identify areas that can be targeted for redirection, remediation, or enrichment. Being able to identify what data will assist in making sound instructional decisions and using that data to inform practice will help you to provide students with more dynamic learning opportunities.

## Demonstration of Proficiency

By successfully completing this assignment, you will demonstrate your proficiency in the following competency and assignment scoring guide criteria:

- Competency: Describe effective classroom data collection and analysis strategies to inform instructional practice.
  - Identify appropriate data to inform an inquiry.
  - Analyze how data will inform inquiry.
  - Explain how data will be physically collected.
  - Evaluate how data will be analyzed to yield accurate and illuminating findings.
  - Describe how data may be used to inform future instructional practice and decision making.

## Instructions

1. Identify something you want to know more about within your classroom. Some examples are listed below:
  - What are the perspectives of 8th grade students regarding completing homework using mobile technology? (Qualitative/narrative data.)
  - How do students who create a class disruption (attention is taken away from learning for most or all students due to some behavior) four or more times a week describe their experiences in the classroom? (Qualitative data/narrative data.)

- What differences exist in homework completion rates for students who use mobile technology to complete the work and those who do not? (Quantitative/numerical data.)
  - What is the effect of the incorporation of a mobile technology application designed to assist students in doing homework on students who are labeled at-risk? (Quantitative/numerical data.)
  - What is the relationship between at-risk student homework completion rates and the daily use of a mobile technology application designed to assist students in doing homework? (Quantitative/numerical data.)
2. Identify and describe what data you could collect to provide illumination to the inquiry.
  3. Identify the data type (qualitative or quantitative), and explain why it is qualitative or quantitative data.
  4. Provide a detailed explanation as to how the data you identified would help you to investigate the issue, situation, experience, or phenomena.
  5. Explain how you will physically collect data (for example, how long will interviews last, how much time will it take to administer the survey, who and how many will take the survey, will you send follow-up reminders to collect survey data, will you administer a test, will you review archival records, et cetera).
  6. Identify the best method for analyzing the data, and provide a detailed rationale as to why it is the best method for analyzing data and for yielding accurate and illuminating findings.
  7. Describe how the data might serve to inform future decision making regarding your work as a teacher or your instructional practice.

#### Additional Requirements

- Include a title page and references page.
- Length is 3–5 pages, plus a title page and references page.
- Use at least 2 current scholarly or professional resources.
- Use APA format.
- Use Times New Roman font, 12 point.
- Double space.

**Note:** Your instructor may also use the Writing Feedback Tool to provide feedback on your writing. In the tool, click the linked resources for helpful writing information.

#### Course Resources

[Writing Feedback Tool](#)

### u03d1 - Integrating Technology Into Formative Assessment

Formative assessments are integral to the process of differentiating instruction and helping all students meet goals. They help teachers move from creating a hierarchy based on grades and scores to a more competency-based approach that provides students with the data they need to understand where they stand in relation to their learning goals.

In your initial post, address the following:

- Discuss the benefits of differentiating instruction in the classroom.
- Describe at least one online formative assessment tool you could use to differentiate instruction in your classroom.
- Explain how you would use this tool to differentiate instruction or gather formative data. Describe what cultural considerations (if any) you may need to make when selecting and using online formative assessment tools, and explain why or how those are valid considerations.

## Response Guidelines

Respond to the post of one other learner; try to choose a post that has not had a response thus far. In your response, do one of the following:

- Elaborate on the benefits of differentiated instruction, using references to literature and classroom examples.
- Offer a suggestion for a strategy that would integrate technology into classroom differentiation.
- Suggest another differentiation tool that would work well with the tool described, or suggest another way to use the tool described.

#### u03d1 - Learning Components

- Describe how data may be used to inform future instructional practice and decision making.

## Unit 4 >> Analyzing Student Data

### Introduction

During the learning process, it is always important to take time to reflect upon the degree to which you are mastering key concepts and skills. Therefore, in this unit, you are asked to discuss your experience with using technology to inform decision making and your skill level with collecting, analyzing, and using data. You will also explore the degree to which your school supports inquiry and using data to inform decision making.

In addition, you will examine or participate in a social media platform to investigate a component of using data to inform decision making. The value of exploring content within social media is that we often can gain perspectives on the latest and greatest thinking and practices surrounding any given inquiry. Of course, it is important to carefully vet social media sites and apps, as there are degrees to which the information conveyed is reliable and reputable.

### Learning Activities

#### u04s1 - Reviewing and Researching Resources About Analyzing Data

For this unit, review the resources provided concerning the collection and analysis of quantitative and qualitative data in the first three units. The assignment in Unit 5 is your opportunity to apply your knowledge in a setting related to your profession. If you need more background on analyzing data, search the [Capella University Library](#) for more resources.

#### u04s2 - Assignment Preparation

The Analyzing Data assignment is due in Unit 5. To prepare for this assignment, read the instructions and scoring guide in Unit 5. Pay attention to the scenario provided as part of the assignment instructions, and look over the following resources that you will use to complete your work:

- [Data for Assessment](#).
- [Triangulation Worksheet](#).

Course Resources

---

[Data for Assessment](#) | Transcript

---

[Triangulation Worksheet](#) | Transcript

---

#### u04s3 - Discussion Preparation

In this unit's discussion, you will be discussing the use of digital tools and social media to allow educators to expand their learning and development from school-based delivery to global interaction with other teachers and leaders. Some examples include Facebook, Twitter, or blogs. All of these are environments for the exchange of information and professional learning.

In preparation for this discussion, view interactions or engage with colleagues on social media around the topic of formative assessments or technological tools for student assessment. For the discussion, you will report on this experience.

u04s3 - Learning Components

- Explain how data will be physically collected.
- Evaluate your educational environment to choose a problem to be solved.

## u04d1 - Social Media Practice

Participate in or review a social media discussion on some aspect of data-driven decision making that will help inform your ability to collect, analyze, and use data to make sound decisions and be more prescriptive in your teaching practice. You may use Facebook, Twitter, blogs, et cetera.

In your initial post, address the following questions:

- Which social media outlet did you choose? Why?
- How would you summarize the discussion? What topics were addressed?
- How did this professional discussion inform your learning about data-driven decision making? Were you able to make any connections with the reading you have done in this course—specifically in regard to conducting research?
- How might this resource assist you in gathering, analyzing, or using data to enhance your ability to make sound decisions in your professional practice?

## Response Guidelines

Respond to the posts of two other learners. Compare your experiences. What was similar? What was different?

u04d1 - Learning Components

- Identify the pros and cons of technology tools for data collection.

## Unit 5 >> Using Data to Empower Students

### Introduction

In this unit, you will explore how data can be used to make important decisions to facilitate growth of learning and engagement among students. You will explore next steps strategies such as providing students with clear and constant targets and assessments that are standards-based; providing students with detailed and timely feedback regarding their progress toward meeting the learning targets; providing students with opportunities for self-assessment, revision, and improvement of their work; and implementing interventions that enable students to achieve learning targets in a timely fashion.

### Learning Activities

#### u05s1 - Triangulation

## Readings

- Oliver-Hoyo, M., & Allen, D. (2005). [The use of triangulation methods in qualitative educational research](http://www.nsta.org/publications/news/story.aspx?id=51319). Retrieved from <http://www.nsta.org/publications/news/story.aspx?id=51319>
  - This resource provides a detailed explanation of the benefits of triangulating data and provides detailed instructions on how to triangulate multiple data sets.
- Williamson, G. R. (2005). [Illustrating triangulation in mixed-methods nursing research](#). *Nurse Researcher*, 12(4), 7–18.
  - This resource provides an example of how triangulation is applied in a study to illustrate how to triangulate data and how it can be used to verify the validity of findings and potential weaknesses in the methodology employed.

u05s1 - Learning Components

- Read articles for instructions on triangulating data.

#### u05s2 - Activity: Analyzing Quantitative and Qualitative Student Data

Click **Analyzing Quantitative and Qualitative Student Data** to review and practice knowledge and tasks you will be performing in this unit's assignment.

## Analyzing Quantitative and Qualitative Student Data

### u05a1 - Analyzing Data

## Demonstration of Proficiency

By successfully completing this assignment, you will demonstrate your proficiency in the following competency and assignment scoring guide criteria:

- Competency: Analyze student data to identify and address educational problems.
  - Analyze qualitative and quantitative data and triangulate data to pinpoint areas of strength and deficiency.
  - Identify strengths and deficiencies in overall class performance as supported through both quantitative and qualitative data.
  - Identify strengths and deficiencies in individual student performance as supported through both quantitative and qualitative data.
  - Explain additional instruction and resources, supported by the data, to enrich, redirect, and remediate the learning experience.

## Instructions

### Scenario

The following scenario is the background for your assignment and the data that is provided.

Your students (in a hypothetical eighth-grade geography class) took a test and completed a 3–5 page essay on the topic. Before your students can successfully move on to the next lesson within this unit, you have to determine what they need to do in order to achieve proficiency of the four standards below:

**Standard 1:** Students describe how humans impact the environment and how the environment impacts humans.

**Standard 2:** Students describe how to represent geographical information, such as spatial distributions and the location of places and their characteristics, in different graphic forms including large-scale and small-scale maps that use cartographic conventions.

**Standard 3:** Students analyze the impact of geography on available resources and the impact of available resources on the quality of life.

**Standard 4:** Students propose an actionable response to a geographical challenge and explain the expected outcomes of the proposed intervention.

Look carefully at the standards and the data to determine:

- What gaps in knowledge are evident?
- Are students ready for enrichment (enhanced instruction and resources to extend learning) around the standards?
- Do students need remediation (additional instruction and resources) or redirection (additional guidance and resources)?

### Assignment

Use the data in the following resources (linked in the Resources) as the basis for your assignment. Submit your assignment as one 3–6 page document.

- Data for Assessment.
- Triangulation Worksheet.

Complete the following:

1. Analyze the performance data (qualitative and quantitative data) using the information provided in the Data for Assessment resource. When analyzing quantitative data, you can identify mean, mode, and median, or, if you are ready, you are welcome to do advanced statistical analysis to determine overall student performance based on learning standards, gaps in knowledge, areas of strength, and areas where enrichment, redirection, or remediation is warranted.
  - When analyzing qualitative data, you will want to come up with labels for the narrative data based on the learning standards and then determine which students fall into that label/category.
  - Your analysis will result in a 1–2 page report on the overall class performance and a 1–2 page assessment performance report for any two students in the class.
  - Your reports should include a rich narrative that refers to the criterion descriptors in the geography paper rubric, and you should consider percentage correct and/or stanine scores on individual standards and on overall achievement for each of the two students and for the class as a whole.
2. Triangulate the data to pinpoint areas of strengths and deficiencies. You may use the Triangulation Worksheet as an aide.

- Triangulate the data by identifying how the numerical (quantitative) and narrative (qualitative) data align (or not), and identify areas that need to be targeted to enrich, redirect, or provide remediation for students.
3. List and defend (via the data), in 1–2 pages, at least two decisions you will make in terms of further teaching and support (providing enrichment/extension of learning, remediation, redirection, additional resources, additional instruction, et cetera).

#### Additional Requirements

- Include a title page and references page.
- Length is 3–6 pages, plus a title page and references page.
- Use at least 2 current scholarly or professional resources.
- Use APA format.
- Use Times New Roman font, 12 point.
- Double space.

**Note:** Your instructor may also use the Writing Feedback Tool to provide feedback on your writing. In the tool, click the linked resources for helpful writing information.

#### Course Resources

---

[Data for Assessment](#) | Transcript

---

[Triangulation Worksheet](#) | Transcript

---

[Writing Feedback Tool](#)

### u05d1 - Empowering Students With Feedback and Data

Data is only valuable if you are able to use it to effectively make improvements. Therefore, it is important to consider how you might use the data you collect to make adjustments or help students make adjustments to improve their capacity to engage and learn.

How would you use the findings from qualitative data to empower students in their learning process? Share at least two concrete steps you would take to use qualitative data to improve teaching and learning in your classroom. Support your decisions based on data you have collected.

## Response Guidelines

Respond to the posts of at least two other learners—try to choose posts that have had the fewest responses thus far. Ask a clarifying question, or provide suggestions for using data to enhance instruction and provide helpful feedback to students in the classroom.

#### u05d1 - Learning Components

- Review concepts about how to use data for instructional decisions.
- Review how surveys work.

### Unit 6 >> Analyzing Technology Tools for Data Collection

#### Introduction

So much of the work we do is private in our classrooms. Our colleagues may only have a small idea of what we do behind closed doors. What would change if we would collaborate, engage, and reflect on our research projects, from the first idea to the end? The impact would go beyond our classroom doors, into the department, and into our schools, with the possibility of going beyond.

In this unit, you will delve into the topics of communication and collaboration as the two critical components in the ongoing cycle of instructional improvement. How do we communicate and collaborate with our colleagues? What are ways in which we can strengthen our practices and make improvements in our practice? How do we make data-driven decisions about instruction to improve student learning across the levels, from our classroom to our school to our district?

In this unit, you will also focus your learning on how teachers might share data with their students. Students are an integral part of the process of collective inquiry. Sharing data with students can help passive learners become more active and engaged. When results of data collection are communicated effectively, students are more likely to see how data can help them to understand their needs and provide guidance to support them.

## Learning Activities

### u06s1 - Assessment Tools

## Readings

- Burns, M. (2015). [Empowering teachers with tech-friendly formative assessment tools](https://www.edutopia.org/blog/tech-friendly-formative-assessment-tools-monica-burns). Retrieved from <https://www.edutopia.org/blog/tech-friendly-formative-assessment-tools-monica-burns>
- Dyer, K. (2013, July 15). [Digital technology tools for implementing formative assessment – Post one](https://www.nwea.org/blog/2013/digital-technology-tools-for-implementing-formative-assessment-post-one/) [Blog post]. Retrieved from <https://www.nwea.org/blog/2013/digital-technology-tools-for-implementing-formative-assessment-post-one/>
  - NWEA, strategies, techniques, and tools are available to teachers who use formative assessment in their classrooms.
- Dyer, K. (2016, May 24). [Take three! Fifty-five digital tools and apps for formative assessment success](https://www.nwea.org/blog/2016/take-three-55-digital-tools-and-apps-for-formative-assessment-success/). Retrieved from <https://www.nwea.org/blog/2016/take-three-55-digital-tools-and-apps-for-formative-assessment-success/>
  - NWEA provides tools for formative assessments for rubrics and all-student response tools that are either free or affordable.

## Video

- Center for Instructional Innovation and Assessment. (n.d.). [Using assessment to improve instruction](https://www.youtube.com/watch?v=BZ3USs16J3Y) [Video]. Retrieved from <https://www.youtube.com/watch?v=BZ3USs16J3Y>
  - This video describes why assessment is integral to effective instruction and provides strategies for integrating assessment into instruction.

## Multimedia

- Click **Choosing the Right Tools for the Right Type of Data** to view a media piece.
- Click **Applying Technology Tools to Collect Data** to view a media piece.

Course Resources

---

Applying Technology Tools to Collect Data

---

Choosing the Right Tools for the Right Type of Data

### u06s1 - Learning Components

- Identify the pros and cons of technology tools for data collection.
- Investigate processes for choosing technology tools.

### u06s2 - Assignment Preparation

In Unit 7, your Applying Technology Tools to Collect Data assignment is due. In this assignment, you will use a challenge presented in a media simulation to determine your ability to make the right choices when it comes to using technology tools to collect data.

In preparation for the Unit 7 assignment, complete the following tasks in this unit:

- Read through the assignment instructions and grading criteria in Unit 7. Ask any necessary questions and make a plan for completing the assignment.
- View the Analyzing Tools to Collect Data a media simulation in the Unit 7 assignment Resources.
- Begin to articulate the characteristics of at least two qualitative and two quantitative data collection tools.
- Begin thinking about how you will apply the qualitative and quantitative technology tools to collect data.

### u06d1 - Building a Culture of Data Use

Communication and collaboration are key components in the ongoing cycle of instructional improvement.

In your post, address the following:

- Describe how you collaborate with your colleagues on using data to inform decision making, and identify ways your collaboration could be improved.
- Describe a situation where you and your colleagues have discussed the data from a formative or summative assessment. If you do not have such a situation, describe an activity from your classroom that you feel would benefit from a collaborative discussion.
  - Explain the process of collaboration your team used. If you have not had the opportunity to collaborate, describe the process you would use to collaborate in order to determine how to use data to inform decision making.
  - Analyze your current process of collaboration with your colleagues, and identify 1–2 ways you and your colleagues could have better conversations about student data.
  - Explain how technology could assist you in this collaboration.

## Response Guidelines

Respond to at least one other learner's post; try to choose a post that has not had any responses thus far. After reading the process described your colleague's post, explain how you would respond to the process if you were a member of that team. Would the process work for you to share your data? Would you change any of the steps to facilitate a better conversation? You may also consider suggesting possible strategies that would help address the weaknesses in the process.

### u06d2 - Collaborative Inquiry and Student Participation

The concept of collaborative inquiry is fundamental to the use of data. Teachers are not the only users of formative assessment data. Students are an integral part to this process, thus becoming active learners in the classroom.

In Unit 5, you considered how to share data with students in a meaningful way. Now, you will consider how students can participate in the process of collaborative inquiry. In your post, address the following:

- Discuss the parts of collaborative inquiry you believe could involve students. Are there any parts that students could not participate in?
- Reflect on your current classroom habits. Do you share student progress with students? If so, what does this sharing look like? How frequently does this happen? Does that sharing look more like a dissemination of information or a conversation? What is the follow-up to this sharing?
- Reflect on how demographic factors such as access to technology, individual cultural background considerations, developmental levels/age of students, and past experiences might impact the communication process, and how communication about data is received and processed.
- Describe two ways you could change your data sharing to be more collaborative with students. Consider these topics: technology integration, frequency, goal setting, and communication.

## Response Guidelines

Respond to at least one other learner's post; try to choose a post that has not had a response thus far. Ask a clarifying question or offer a recommendation to enhance your colleague's learning in an area related to the topics covered in this discussion.

### Unit 7 >> Analyzing Technology Tools for Data Collection

#### Introduction

According to Bogdan and Biklen (2006), the authors of books on qualitative research and its use in education, triangulation can be a very powerful strategy that allows validation of data through the use of multiple sources of evidence that examine the same phenomenon and find similar results. Triangulation is done to determine validity. In other words, you analyze the data to determine if all of it is essentially saying the same thing. Is the quantitative data you collected consistent with the findings in qualitative data? If it is not, further investigation may be required. According to educator and researcher Kimberly Williams (2015), "It is quite likely that as we attempt to triangulate we continue to find conflicting evidence (or at least data that seem to contradict what we think we have found). Do not let this discourage you. These divergent types of findings can sometimes be the most useful in

expanding our understanding of classrooms and teaching and learning within them" (p. 103). For example, if you find that students perceive themselves as doing very well in a particular subject area, but test scores say otherwise, additional investigation into why the data is not aligning may be necessary. Triangulation allows you to verify whether or not the data collected is indeed revealing the whole picture.

According to Williams, "As classroom researchers we don't need to discount the outliers or the data that don't converge neatly with what we have already found. We can attempt to explain it, try to make sense of it, or offer it to readers for their examination. Sometimes, we have data that are interesting, useful and important, but that we cannot always explain. Sometimes, these data generate more questions for future research" (2015, p. 104). Keep this in mind when you work with data.

#### References

- Bogdan, R., & Biklen, S., (2006). *Qualitative research for education: An introduction to theories and methods* (5th ed.). Upper Saddle River, NJ: Pearson.
- Williams, K. (2015). *Doing research to improve teaching and learning: A guide for college and university faculty*. New York, NY: Routledge.

### Learning Activities

#### u07s1 - Tools for Data Collection and Assessment

### Readings

- Caruso, N. (2015, Apr 29). [Students use clickers to get things to "click" in the classroom](#). *University Wire*.
  - This article is about devices that give all students (even the shy ones) a chance to participate.
- Common Sense Education. (n.d.). [Apps and websites for improving parent-teacher communication](https://www.common sense.org/education/top-picks/apps-and-websites-for-improving-parent-teacher-communication). Retrieved from <https://www.common sense.org/education/top-picks/apps-and-websites-for-improving-parent-teacher-communication>
- Dann, C., & Richardson, T. (2015). [Deepening understanding of "pedagogical outcomes" through video data collection: A catalyst for guided reflective learning conversations](#). *International Journal of Pedagogies and Learning*, 10(1), 62–80.

#### u07s1 - Learning Components

- Investigate processes for choosing technology tools.
- Describe one quantitative data collection tool to collect valid, reliable assessment data on student learning and engagement.
- Describe one qualitative data collection tool used to collect valid, reliable assessment data on student learning and engagement.
- Determine how a qualitative collection tool can measure student engagement.
- Identify a qualitative data collection tool to collect valid, reliable assessment data on student learning and engagement.

#### u07a1 - Applying Technology Tools to Collect Data

Using data for instructional decisions requires that you use valid and reliable data. Ensuring validity and reliability in your data means that you have to use the right tool for the right reason at the right time.

For this assignment you will use a challenge presented in a media simulation, Analyzing Tools to Collect Data, to determine your ability to make the right choices when it comes to using technology tools to collect data.

### Demonstration of Proficiency

By successfully completing this assignment, you will demonstrate your proficiency in the following competency and assignment criteria:

- Competency: Apply technology tools to collect valid, reliable assessment data on student learning and engagement.
  - Articulate the strengths and weaknesses of technology tools for quantitative and qualitative data collection.
  - Describe the process to choose technology tools for data collection supported by research and best practices.
  - Apply one quantitative data collection tool to collect valid, reliable assessment data on student learning and engagement.
  - Apply one qualitative data collection tool to collect valid, reliable assessment data on student learning and engagement.

### Instructions

Complete the Analyzing Tools to Collect Data simulation, linked in the Resources. Then, imagine yourself as one of the 8th grade teachers at the Riverbend City Middle School who is collecting data to answer the question presented by your school principal. Complete and submit the following components:

1. Articulate the strengths and weaknesses of technology tools for quantitative and qualitative data collection. Briefly annotate the characteristics of at least **two qualitative** and **two quantitative** data collection tools. (Walk through the different technology tools available to collect data, what they can do, what they cannot do, and whether they might work for your particular needs—formative assessment or summative assessment data collection, quantitative or qualitative data, et cetera.)
2. Describe the tools you chose and the process you used to choose the right technology tools for data collection to answer the questions. How is your decision supported by research and best practices to choose the right data collection technology?
3. Apply at least **one qualitative** and **one quantitative** data collection technology tool to collect valid, reliable assessment data on student learning and engagement. Submit cleaned-up data that is ready to be analyzed.

#### Additional Requirements

- Include a title page and references page.
- Length is 6–10 pages, including two pages of cleaned-up data that is ready to analyze. Page count does not include the title page and references page.
- Use at least 2 current scholarly or professional resources.
- Use APA format.
- Use Times New Roman font, 12 point.
- Double space.

**Note:** Your instructor may also use the Writing Feedback Tool to provide feedback on your writing. In the tool, click the linked resources for helpful writing information.

#### Course Resources

---

[Analyzing Tools to Collect Data | Transcript](#)

---

[Writing Feedback Tool](#)

#### u07d1 - Tools for Analyzing Data

As you have prepared your assignment for this unit, you have analyzed at least four different tools for collecting data. For this discussion, choose the one tool you believe will be most helpful for you in your own educational environment, and then explain your rationale.

### Response Guidelines

Respond to the posts of at least two other learners; try to choose those posts that have had the fewest responses. Compare their rationales to yours, and pay attention to the different reasons people have for their choices.

## Unit 8 >> Analyzing Technology Tools for Communicating With Stakeholders

### Introduction

How does one close the loop or continue the process of using research to inform and improve one's teaching? In this unit, you will focus on communication with stakeholders. This communication with stakeholders is another critical step in the process of transforming teaching and learning. Sharing research may lead to future research and changes to your curriculum or pedagogy.

### Learning Activities

#### u08s1 - Tools for Stakeholders

## Readings

The following articles and Web sites give good explanations and examples of several digital tools that could be used for the purposes of communicating with stakeholders in your educational environment.

- Abbott, W., Donaghey, J., Hare, J., & Hopkins, P. (2013). An Instagram is worth a thousand words: An industry panel and audience Q&A. *Library Hi Tech News*, 30(7), 1–6.
- Borno, S. E. (2014). Tools to collect and analyze field data. Retrieved from <http://www.techsoup.org/support/articles-and-how-tos/tools-to-collect-and-analyze-field-data>
- Carscaddon, L., & Harris, C. S. (2009). Working the social: Twitter and FriendFeed. *Library Journal*, 134(11), 24–26.
- Common Sense Education. (n.d.). Apps and websites for improving parent-teacher communication. Retrieved from <https://www.common Sense.org/education/top-picks/apps-and-websites-for-improving-parent-teacher-communication>
- Gilgore, S. (2015). Probing the impact of parent-teacher digital communication. Retrieved from <http://www.edweek.org/ew/articles/2015/09/16/probing-the-impact-of-parent-teacher-digital-communication.html>
- Hinduja, S., & Patchin, J. (2008). Personal information of adolescents on the Internet: A quantitative content analysis of MySpace. *Journal of Adolescence*, 31(1), 125–146.
- McFarland, M. (2014, September 12). What is Twitter, as explained by its evolving tagline. [Blog post]. *Washington Post*.
- Pilgrim, J., & Bledsoe, C. (2011). Learning through Facebook: A potential tool for educators. *Delta Kappa Gamma Bulletin*, 78(1), 38–42.
- Reimers, S., & Stewart, N. (2009). Using SMS text messaging for teaching and data collection in the behavioral sciences. *Behavior Research Methods*, 41(3), 675–681.
- Sheninger, E. (2015). Transforming your school with digital communication. *Educational Leadership*, 72(7). Retrieved from <http://www.ascd.org/publications/educational-leadership/apr15/vol72/num07/Transforming-Your-School-with-Digital-Communication.aspx>
- Wilkinson, Z. (2013). Oh, how Pinteresting! An introduction to Pinterest. *Library Hi Tech News*, 30(1), 1–4.
- Williams, S. (2015, October 26). Six key school communication channels and how to use them. Retrieved from <https://www.campusuite.com/6-key-school-communication-channels-and-how-to-use-them/>

## Multimedia

- Click **Best Tool for the Message** to view a media piece.
- Click **Choosing the Right Tool** to view a media piece.

## Optional Resources

- EdSurge. (n.d.). MasteryConnect. Retrieved from <https://www.edsurge.com/product-reviews/masteryconnect>
- Galvin, N. (2011, June 19). What are...YouTube channels: Out of the box. *Sun Herald*.
  - This article is available in the Capella library.

Course Resources

---

Best Tool for the Message

---

Choosing the Right Tool

u08s1 - Learning Components

- Articulate the process of choosing the right tool for communicating with stakeholders.
- Practice using digital tools to communicate with students, parents, community, and school staff.
- Investigate processes for choosing technology tools.
- Familiarize yourself with various kinds of digital tools to communicate with stakeholders.
- Identify a tool you can use to communicate with stakeholders.
- Choose channels and digital tools that are appropriate for communicating specific types of information to intended stakeholders.

**u08d1 - Learning From Literature**

The benefit of using literature to inform your practice is that it can guide you in your reflection on the process. It is important to remember that there is no such thing as perfect or flawless research design or execution. However, reflecting on flaws or mistakes made can help us improve and grow as research practitioners.

For this discussion, address the following:

- Identify one place you feel you made a mistake or miscalculation in data you have collected. This could be in your data collection plan, the type of data you chose, or the implementation. Perhaps it was not a mistake at the time, but upon reflection you see now that a better tool or strategy could have been used.
- Explain how you would collect data differently next time.
- Explain how collecting data and comparing it to the literature could change your perspective on the use of data in schools and in classrooms.

## Response Guidelines

Respond to the posts of at least two other learners; try to choose posts that have had the fewest responses thus far. In your responses, do one of the following:

- Identify a common assumption or practice that seems to have caused both you and your colleague to make a mistake or miscalculation. Explain how you can prevent that from happening again.
- Provide support or further clarification for the strategy proposed in the post to remedy the problem described.
- Propose a new strategy that could help your colleague the next time he or she collects data from students.

### u08d2 - Choosing Tools to Communicate With Stakeholders

In this unit's study, you reviewed the different communication tools available, what they can do, and whether they might work for your particular needs. There are several free or very low-cost tools that can help you enhance your communication with stakeholders.

For this discussion, address the following:

- Briefly annotate the characteristics of at least one digital tool available to communicate with each of the stakeholders (students, parents, community, and school staff). Why have you chosen the tool for a specific stakeholder? What are the strengths and weaknesses of the tool(s) you have chosen?
- Describe the process you used to choose the appropriate digital tool for efficient and effective communication with stakeholders (students, parents, community, and school staff). How is your decision supported by research and best practices to choose the appropriate digital tool for communication with stakeholders?

## Response Guidelines

Respond to the posts of at least two other learners; try to choose posts that have had the fewest responses thus far.

In your responses, do one of the following:

1. Identify a common assumption or practice that seems to have caused both you and your colleague to make a mistake or miscalculation in choosing the right digital tool for the right audience. Explain how you can prevent that from happening again.
2. If there were no mistakes or miscalculations made by you and/or your colleagues, provide support or further clarification for why the process of choosing the right communication tool for the right stakeholder worked well. How is your response supported by research and best practices?

### u08d2 - Learning Components

- Articulate the process of choosing the right tool for communicating with stakeholders.
- Familiarize yourself with various kinds of digital tools to communicate with stakeholders.
- Identify a tool you can use to communicate with stakeholders.
- Choose channels and digital tools that are appropriate for communicating specific types of information to intended stakeholders.

## Unit 9 >> Applying Technology Tools for Communicating With Stakeholders

### Introduction

Communicating with your stakeholders may occur in more informal settings, such as brown-bag seminars, faculty meetings, and professional learning communities, which are the most common venues for sharing research with peers. Involving other stakeholder groups, such as parents and community members, may result in more formal settings, such as local and national conferences, blogs, other publications, et cetera. According to Sagor (2000), "Regardless of which venue or technique educators select for reporting on research, the simple knowledge that they are making a contribution to a

collective knowledge base regarding teaching and learning frequently proves to be among the most rewarding aspects of this work" (p. 6). In this unit, consider the differences in language, in ethics, and so on, when communicating with various stakeholder groups.

#### Reference

Sagor, R. (2000). *Guiding school improvement with action research*. Alexandria, VA: ASCD.

### Learning Activities

#### u09s1 - More Tools for Stakeholders

### Readings

The following articles and Web sites give good explanations and examples of several digital tools that could be used for the purposes of communicating with stakeholders in your educational environment.

- Mazza, J. (2012). [Live stream school events to boost community outreach](https://www.edutopia.org/blog/live-streaming-schools-joe-mazza). Retrieved from <https://www.edutopia.org/blog/live-streaming-schools-joe-mazza>
- Education World. (2013). [Parent communication: Using social media](http://www.educationworld.com/a_curr/stenhouse/classroom-communication-social-media-tips.shtml). Retrieved from [http://www.educationworld.com/a\\_curr/stenhouse/classroom-communication-social-media-tips.shtml](http://www.educationworld.com/a_curr/stenhouse/classroom-communication-social-media-tips.shtml)
- Tibbs, C. (n.d.). [Digital communication for teachers](http://www.livebinders.com/play/play?id=1584179#anchor). Retrieved from <http://www.livebinders.com/play/play?id=1584179#anchor>
- Ramasubbu, S. (2015, March 17). [Using technology to enable parent teacher communication](http://www.huffingtonpost.com/suren-ramasubbu/using-technology-to-enabl_b_6479766.html) [Blog post]. Retrieved from [http://www.huffingtonpost.com/suren-ramasubbu/using-technology-to-enabl\\_b\\_6479766.html](http://www.huffingtonpost.com/suren-ramasubbu/using-technology-to-enabl_b_6479766.html)

### Optional

- U.S. Department of Education. (2009). [Engaging stakeholders: Including the parents and the community to sustain improved reading outcomes \[PDF\]](http://www2.ed.gov/programs/readingfirst/support/stakeholderiores.pdf). Retrieved from <http://www2.ed.gov/programs/readingfirst/support/stakeholderiores.pdf>

#### u09s1 - Learning Components

- Investigate processes for choosing technology tools.
- Identify a tool you can use to communicate with stakeholders.
- Choose channels and digital tools that are appropriate for communicating specific types of information to intended stakeholders.

#### u09a1 - Applying Digital Tools to Communicate With Stakeholders

For this assignment you will use a challenge presented in a media simulation that shows how the Riverbend Middle School dealt with the issue of improving communications with students, staff, and parents.

Then you will imagine yourself as one of the teachers on the communication committee. You will practice using each of the digital tools presented in the media and report back to the committee on your findings.

### Demonstration of Proficiency

By successfully completing this assignment, you will demonstrate your proficiency in the following competency and assignment scoring guide criteria:

- Competency: Apply methods for communicating information with stakeholders using appropriate digital tools.
  - Articulate the strengths and weaknesses of digital tools for communication with stakeholders.
  - Describe the process to choose digital tools for communication with stakeholders supported by research and best practices.
  - Show what channels and digital tools are most appropriate to communicate specific types of information to intended stakeholders
  - Apply at least one digital tool to communicate with students, parents, community, and school staff.

### Instructions

View the Analyzing Tools for Communicating with Stakeholders simulation, set in the Riverbend Middle school. It is linked in the Resources.

After viewing the simulation, complete and submit the following components as a report to your committee:

- Articulate the strengths and weaknesses of digital tools for communication with stakeholders. Briefly annotate the characteristics of at least one digital tool for each of the following six communication channels. (Walk through the different digital tools available to communicate with stakeholders; what are the strengths and weaknesses of each tool?)
  - District and school Web site.
  - Mobile app (Remind, ClassDojo).
  - Notifications and alerts (Parent Alert by RenWeb, SMS).
  - E-mail.
  - Social media (Twitter, Facebook, Instagram, Pinterest).
  - Video (YouTube, Ustream).
- Describe the process for choosing digital tools for communication with stakeholders, supported by research and best practices. Describe the tools you chose and the process you used. How are your decisions supported by research and best practices?
- Create a table of your decisions on what channels and digital tools are most appropriate to communicate the following types of information to intended stakeholders:
  - Emergency alerts.
  - Public relations.
  - Event promotion.
  - Announcements.
  - Reminders.
  - Forms/documents.
  - PTO information.
- Apply digital tools to communicate with students, parents, community, and school staff. Create four different communications using a digital tool for each of the four audiences. Then, answer the following questions about each type of communication you used. In addition to your answers, also include the actual communications you created or links to those communications.
  - What tools did you practice?
  - Who was the audience (students, parents, community, or school staff)?
  - What was the type of information that you communicated with each of the stakeholders?
  - What research and best practices did you use to support your decision?

#### Additional Requirements

- Include a title page and references page.
- Length is 6–10 pages, in addition to the title page and references page.
- Use at least 2 current scholarly or professional resources.
- Use APA format.
- Use Times New Roman font, 12 point.
- Double space.

**Note:** Your instructor may also use the Writing Feedback Tool to provide feedback on your writing. In the tool, click the linked resources for helpful writing information.

Course Resources

---

[Analyzing Tools for Communicating with Stakeholders | Transcript](#)

---

[Writing Feedback Tool](#)

#### u09d1 - Technology Tools

For this discussion, brainstorm a list of technology tools that may work to present information to various stakeholders.

In your post:

- List 2–3 technologies that could be used to present data and analysis to stakeholders. Be sure to provide links to these technologies, as appropriate.
- Describe the stakeholder groups each technology may appeal to. Why?
- Describe the type of information that may be most usefully communicated in this tool.

You may look for presentation and multimedia tools on the EdTechTeacher Web site.

## Response Guidelines

Respond to the posts of at least two other learners; try to choose posts that have had the fewest responses thus far. Do the tools described seem appropriate to the stakeholder groups? Might a different tool work better? Why? What suggestions or advice would you give about using some of these tools?

Course Resources

---

[EdTechTeacher](#)

u09d1 - Learning Components

- Practice using digital tools to communicate with students, parents, community, and school staff.

### Unit 10 >> Reflecting on the Use of Data to Inform Instructional Practices

#### Introduction

In this unit, as you look back, you will reflect on the knowledge you have gained throughout this course through the various assignments and discussions.

#### Learning Activities

u10s1 - Studies

## Reading

As part of your completion activities and reflection in this course, you may find the resource below helpful in pulling things together.

- Sullivan, G. M. (2011). [A primer on the validity of assessment instruments](#). *Journal of Graduate Medical Education*, 3(2), 119–120.
  - The authors of this article experimented with ways to use SMS text messaging for student-instructor interaction in the classroom.

#### u10d1 - Reflection on Data Collection

Describe how your perception has changed or remained the same as a result of conducting and analyzing research around an identified problem, such as needing to improve communication with stakeholders. Did the root cause of the problem or the problem itself change as a result of gathering and analyzing data and examining existing research on the topic or issue? How will you use data in the future to inform decision making? Why? How does technology influence your ability to collect and analyze data?

## Response Guidelines

Responses are not required for this discussion.

#### u10d2 - Portfolio Reflection

Reflect on the following questions:

- What assignment or assignment component most impacted your teaching? How?
- What technology tools did you discover during this course that you are most excited to bring back to your classroom? How might you use them?

- What assignment from this course would you choose to showcase in your capstone project? Provide a rationale for selecting that assignment.

## Response Guidelines

Respond to at least one colleague; try to choose a post that has not had a response thus far. Compare your takeaways from this course to those in your colleague's post. Provide recommendations or suggestions as appropriate.