

Module #6. Convergence

By now you will have collected and analyzed some data that hopefully yield some interesting findings. This module focuses on how to apply the research principle of convergence to help you tell the most compelling story with best evidence. This can involve additional data collection and/or analyses to serve as further evidence of your findings. The examples we use in this section are grounded in the Carnegie design principle of positive youth development. We focus specifically on caring, consistent student-adult relationships that communicate high expectations for student learning and behavior.

The sequence of sections in this module appears below:

1. Narrate: Connect your findings into a story and determine where you encounter surprises
2. Triangulate: Confirm your findings with students, parents, school staff, or community members
3. Reinforce: Confirm your findings with other methods including observations and review of artifacts

After collecting and analyzing your data as described in the previous modules, you are likely eager to share them. However, first take a moment to clarify what you have found and look for further evidence in relation to any findings that are surprising. This typically involves doing some further data collection or analysis.

One strategy is to determine whether other stakeholders perceive the same relationships as you gleaned. In our examples so far we have focused on students' perceptions. We might also want to see whether parents or teachers see the same patterns. This is covered in the section below on Triangulation.

Another strategy is to seek confirmation of your findings from the same source, but from a different perspective. For example, we could interview students who took our survey to get some anecdotes or further explanation. Or we could observe students engaging in the behavior of interest to see if what they claim to do is what we observe them doing. Finally, we can look for confirmation in student work. This is explained in the section below on Reinforcement.

1. NARRATE AND CONSIDER SURPRISES

KEY INFORMATION

As you analyze data, you inevitably tell stories to make sense of it. This step is critical turning a series of disparate data points into something that has meaning that can guide action. For this reason, as you collect and analyze data, it is critical that you find moments to pause and ask yourself what the story is that this seems to be telling you. Formulate phrases of the type, "We found X in the data. This is probably because Y. Therefore we should in our school, we should do Z."

The same data can lead to starkly different conclusions. Let's say you found that girls express a preference for discussing peer relationships with their counselors while boys express a preference for discussing careers. You would inevitably fit this into a narrative about what you already know from research or experience and then use that narrative to draw conclusions. You might tell the story this way: Adolescent girls are thinking more about emotional relationships with peers and are more interested in discussing these as an entry point for counseling discussions, so we should emphasize this with counselors. Boys will be more interested in launching into discussions of careers and need to see how academics will help them get there, so we should emphasize this with counselors. Alternatively, you might decide: Boys are less comfortable admitting that they need to discuss peer relationships because of societal norms and therefore need more emphasis on these discussions one-on-one with counselors to help them navigate adolescence; girls are less comfortable discussing careers for similar societal norms and need more focus on this with

counselors. The same data, in these instances, lead to opposite conclusions because of the different narratives used to explain them.

Focus on surprises. If you had all the time in the world to investigate a question, you could test various different narratives and see where they take you. You do not have this luxury, and must instead focus only on those areas that are most surprising so that you can decide what to do with these surprises. Think of surprises as falling into three categories:

Ah-ha! moments. The best surprises are the ones where your data analysis appears to buck conventional wisdom but support your innovative idea. These are “surprises” to everyone else, but not to you. Such findings bear further investigation because you want to have enough data to convince not only yourself, but others, that you have hit on the right thing to do.

Oh no! moments. The worst surprises are the opposite of the above. These are the ones where you were sure you had a great new idea but the data seems to say the conventional wisdom was right after all. These can be deflating, but they are immensely valuable. You would rather learn from analysis that your idea wouldn’t work than have it fail on a larger scale. You will often want to investigate these surprises further to confirm that your idea really doesn’t work and, of course, in a world where results are hardly ever so black-and-white, you will likely find some elements to salvage or modify based on your findings.

What the @#\$^? moments. The third kind of surprises are the most confusing. These are the ones that neither you nor the conventional wisdom predicted. These surprises may lead you to question your research methods or accuracy. They may also lead to a whole new set of questions and ideas to explore. It is critical that you confirm these kinds of surprises because they are so counter-intuitive.

2. CONVERGENCE WITH OTHER STAKEHOLDERS

KEY INFORMATION

Triangulation is a term used differently in different fields. For the purposes of this module, we employ the term in the manner most common to the social sciences: seeking to confirm findings from our source with other sources. In school design, researchers typically seek to understand something that occurs in the classroom or in the daily lives of students or teachers. Oftentimes, if respondents are asked to self-report on their behaviors or beliefs, their answers are not fully accurate—especially if they have been asked about a controversial or sensitive topic. In addition, students may want to maintain an image—perhaps as good students, or as defiant of school norms—biasing their answers.

As such, whenever your research and data analysis arrives at an interesting finding, it is important to confirm that the truth converges around your findings—to “triangulate” or “converge” across sources. In this section, we consider triangulating with other stakeholders—other people familiar with your group of interest.

If other stakeholders respond in a manner similar to those of your group of interest, there is more reason to have confidence in your findings. However, if there is obvious conflict between your group’s self-report and that of other stakeholders, you will likely need to follow up with additional research.

Consider four sources: students, parents, school staff, and community members.

Who should you survey or interview during the convergence process? This choice depends on your group of interest and the focus of your research and design process. When considering who to approach for convergence, ask yourself:

Who can provide insight into the preferences and beliefs of my group of interest? Who can provide insight into their behavior and performance?

With these questions in mind, we suggest three potential convergence sources for students: parents who can provide deep insight into the beliefs and behaviors of their children; teachers, counselors, and other school staff who can provide insight into student attitudes and behaviors from both an academic and youth development perspective; community members who interact with students in after-school, internship, or other settings and can comment on students from this perspective.

Critically, all of these stakeholders are invested in a belief system about the student that will bias their reports. So, just as we would not advise asking only students, we also would not want to only ask parents or only ask teachers. The process of convergence is one of asking many people with different perspectives and seeing where their answers converge.

APPLICATION TO EXAMPLE

Recall that we previously conducted a survey asking students the following set of questions:

If you could choose your own counselor, how important would each of the following be in your decision?

- A. Someone who is from my neighborhood
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all
- B. Someone who is the same race/ethnicity as me
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all
- C. Someone who has the same gender as me
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all
- D. Someone who will talk to me about my life
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all
- E. Someone who will talk to me about my future career
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all

Our analysis of that question suggested that girls found the gender of their counselor very important, but boys did not. We want to know whether this finding aligns with students' actual preferences and behavior. Because parents tend to have good insight into their child's preferences and beliefs, we might approach them with an interview or survey question like:

Interview

If your son/daughter meets a new adult, what characteristics seem to draw them in? What kinds of people do you think are the right match for your son and daughter to get advice from?

Survey

If you were matching your son/daughter with a school counselor, how important would each of the following be in your decision?

- A. Someone who is from their neighborhood
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all
- B. Someone who is the same race/ethnicity as them
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all
- C. Someone who has the same gender as him/her
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all
- D. Someone who will talk to him/her about his/her home life
☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all

E. Someone who will talk to him/her about his/her future career

☐ Very important ☐ Important ☐ Somewhat important ☐ Not very important ☐ Not important at all

If parents responded by generally making reports similar to those of the students, we would have confidence in our findings. However, if we were to find that boys report not caring about gender in choosing a counselor, but their parents say this would be an important characteristic in identifying a counselor, there may be more to the story.

Consider what next.

When triangulation confirms your findings, you can happily report what you have found. When it does not, however, you face a quandary. Do you reject your findings altogether? Do you continue investigating with the same questions? Do you revise your questions to get a better understanding? There is no simple answer, and much depends on the centrality of the particular research question to your school design. If there is a key concept you are investigating and you have found confusing, conflicting messages from different sources on it, then it is probably worth investigating further so you can use the learning to improve your design.

3. REINFORCEMENT

KEY INFORMATION

Another technique to confirm the stability of your findings, or to dig deeper when you want to add a richer picture to something you are learning about is to look for confirmation from the same people but from a different modality. One way to do this is to interview survey respondents, or survey a larger population of students than you previously interviewed. When you are particularly interested in a behavior of your group of interest, you can conduct observations or, if the behavior is something like writing or a performance that results in a product, you can look at artifacts such as student work. Observations and artifacts allow you to confirm that behavior matches the self-report of your group of interest.

Interviewing survey respondents

Despite our best efforts, there are times when our survey items leave us with questions. One way to get more insight is to interview a collection of survey respondents—particularly, we should choose a range of students who represent subgroups that we found to be interesting in our initial analyses, and people whose particular responses range across the items that we find confusing.

- 1) You can interview them about their response. This requires having their responses handy and saying “I see you chose x, why?” Or, “Tell me an example of that.” or “What made you choose this over that?” This is a good strategy when you are looking for anecdotes, quotes, or examples to add color to your findings.
- 2) You can interview them with an open-ended version of your survey questions to see if their open-ended responses map to their written choices. This is good if you are interested in establishing a survey you will use again. This can also help you get better language—it is like “cog-labbing” as described in Module 3, Surveys, but on a larger scale.

Surveying a larger sample

If you begin with a focus group, interviews, or surveys, you may decide to reinforce and deepen your findings through a broader survey. In this case, put together a forced-choice survey based on your findings, following the tips outlined in Module 3, Surveys.

Observations

Seeing actual practice in action can be immensely valuable, but a key challenge in conducting observations is that there is so much to observe! With this in mind, it is important to develop an observation protocol for any observation.

Prior to going into an observation, you should know what you are looking for and how you will interpret the likely variation in what you see. This is similar to the idea of using coding for interviews discussed in Module 4, Qualitative Analysis, except that instead of coding a discussion, you are coding an observation. For example, if we observe gender-matched and gender-unmatched counseling sessions to determine what topic the meetings focus on (career or family), we will need to have clear definitions of what qualifies as a mention of family or a mention of career.

After establishing these definitions, prepare a notes sheet where you can record notes on the observation. The specificity of the notes sheet will depend on the specificity of what you are looking for during the observation. If you are looking for relatively broad evidence of familiarity or rapport between teachers and counselors, the notes sheet might look like a running transcript. Conversely, if you are looking for instances of a specific behavior or statement, the notes sheet might include tallies of mentions of a specific topic or instances of a specific action. In addition, depending on the nature of the observation, you may wish to consider including a rating scheme that, for example, asks you to rate the quality of a behavior on a scale from 1 to 5, to complete while you are observing or immediately after you are done. In essence, you are creating a codebook, as described in Module 5, Quantitative Analysis, to support your analysis.

Preparing to observe

Ideally, initial observations should be conducted in pairs, with each observer using the same protocol or checklist so that they can debrief and compare perceptions with each other after. As in the case of double-coding, referenced in Module 4, Qualitative Data Analysis, paired observations may seem onerous but ultimately yield more reliable results. Carnegie design principles encourage operational efficiency through the purposeful use of time and people. Conducting such paired observations ultimately helps ensure the accuracy of your results and optimize the quality of your work. Nonetheless, if paired observations proves out of reach due to logistical concerns, it is still advisable to conduct observations (using a protocol or checklist) to triangulate self-report on behavior with actual behavior.

Additionally, it is considered a best practice to “train” yourself to observe by using video before observing actual behaviors in real time. This way, you can refine and practice using your observation protocol. If such practice proves infeasible, it is recommended to record video of the interactions so that you can return to the visual record to confirm.

Observe jointly

Ideally, observations should be conducted in pairs, with each observer using the same protocol or checklist so that they can debrief and compare perceptions with each other after.

APPLICATION TO EXAMPLE

Our quantitative data analysis suggested that girls in our anticipated population value having a counselor of the same gender more than boys do. In addition to seeking convergence through interviews or surveys, we also consider conducting observations. At the school where we surveyed students, we know that counselors supervise the lunchroom every day. We want to observe how frequently students approach the counselors to talk and whether counselors tend to be approached by students of the same gender.

In this instance, we are less interested in the quality of the conversation than whether the conversations take place at

all, so we develop an observation protocol that focuses heavily on tallying student interaction for each counselor. We observe the lunchroom every day for two weeks using this protocol.

Date			
Observer			
Counselor	# of Times Approached by Female Student	# of Times Approached by Male Student	Additional Notes
Wendy			
Sara			
Aaron			
Joe			

In preparing to use the protocol with our co-observer, we settle on a few restrictions and definitions for our observation process:

- 1)** "Approaching" a counselor means starting a conversation longer than an exchange of greetings. Anything more detailed than saying hello to each other will be counted as a conversation.
- 2)** Interactions will not be counted if the counselor initiated contact with the student.
- 3)** Students will not be "double-counted;" that is, if they approach the same counselor twice during lunch, the approach will not be counted twice.

Student work and artifacts

In some cases, artifacts such as student work are useful reinforcements for your findings. While student work and similar artifacts can be illustrative, there are some challenges in working with them for the purposes of convergence:

- 1.** The artifacts need to exist and be relevant to your research and school design. This is not always the case, especially when you are designing a school that does not yet exist and are therefore relying on student work from other schools.
- 2.** When you do have relevant artifacts, you must develop a clear understanding about how they fit into your research questions and carefully code them.

When you are working with artifacts, you have to take what you are given. Thus, rather than thinking from your data to the codes, you need to have your codes in mind and then decide if the artifacts will give you insight about those codes. The connection needs to be fairly obvious and easy for an objective observer to identify. This is called “low inference” coding, and it is preferable for working with artifacts since so much is out of your control. Since we always try to code as though another person would have to identify exactly the same code in exactly the same idea unit, we need to choose artifacts that we believe can be double coded. That said, anyone who has ever graded an assignment with a rubric has coded an artifact.

If you do have access to artifacts relevant to your research question, the guidelines on coding in Module 4, Qualitative Data Analysis, can be used to converge your findings with the findings apparent in the student work. Your codebook will resemble a rubric with as many “levels” levels in the rubric as you would place in your code. Keep in mind, when coding student work, to create categories that keep you focused on your goals. If you are seeking to better understand what college guidance to offer students, for example, and you have PowerPoint presentations that students put together on their college aspirations, then these may best be coded around the evidence that students were able to offer an ambitious and accurate picture of college possibilities. Other factors, such as the quality of the presentation, the strength of the writing, or the effective use of graphics would be immaterial. On the other hand, if you were trying to gain insight into how your school will teach use of multiple media for learning, then the reverse would be true: code the presentation, writing, and graphics.

APPLICATION TO EXAMPLE

Consider our investigation of students’ relationships with their counselors. One potential source of convergence data would be student end-of-year reflections on their relationships with their counselors. We could code these data to see if female students reported better relationships with female counselors than with male counselors, and vice versa.

Similarly, we might consider using goal-setting sheets produced in advisory with counselors over the course of the previous school year. We want to know whether female students produced more reflective or thoughtful goals in advisories led by female counselors than in advisories led by male counselors. We develop a coding scheme to assess the level of reflection apparent in the goal-setting sheets and code them accordingly.