What Makes a Good Case, Revisited: The Survey Monkey Tells All

Clyde Freeman Herreid, Annie Prud’homme-Généreux, Nancy A. Schiller, Ky F. Herreid, Carolyn Wright

We all love mysteries. Is there life on other planets? What is the origin of human language? Are there other universes? What are dreams? What causes gravity? How do we store and retrieve memories? Or the really hard one: What makes a good case study?

We have wondered about that last one for years. We are not without hints. Almost 40 years ago, John Bennett and Balaji Chakrvarthy writing for the Harvard Business School Bulletin wrestled with the same question and tried to get at the answer by interviewing faculty and students. Later, in 1986, Dorothy Robyn of the Kennedy School of Government wrote a note on “What Makes a Good Case?” (N15-86-673). Following their lead, Herreid (1997/1998) recommended that STEM (science, technology, engineering, and mathematics) teachers keep in mind these same qualities based on the Harvard experiences, saying that a good case tells a story, focuses on an interest-arousing issue, is set in the past 5 years, creates empathy with the central characters, includes quotations and dialogue, is relevant to the reader, must have pedagogical utility (i.e., it must serve a teaching function), is conflict provoking, is decision forcing, has generality, and is short.

Reasonable though these suggestions were, there was no strong evidence to support this view until Herreid, Schiller, Herreid, and Wright (2012) surveyed case teachers associated with the National Center for Case Study Teaching in Science (NCCSTS) about the characteristics of their favorite case. The 1,300+ teachers who responded to the survey generally endorsed the above list, placed special emphasis on the relevancy of the case to the students’ lives. In this article, we provide a more definitive answer to the “What Makes a Good Case?” question based on a just-completed Survey Monkey survey given to the NCCSTS teachers. But it is important to emphasize that we are only presenting the subjective notions of case teachers on these issues. Valuable though these insights are, we don’t have the students’ views. And more to the point, we have yet to determine what differences in learning can occur when different case designs are used.

First a word about the demographics: Of the 1,820 participants who took part in the present survey, 90% were from the United States, almost all were life science teachers, and half were from high school and a handful from middle school, with varying representation from higher education (12% community college, 10% 4-year college, 23% 4-year university). Eighty percent had been using cases for over 2 years, and 20% had been at it over 10 years, so for the most part we are hearing from real veterans of the case method. The first point that jumps out from the data is how much variability there is in the answers, and for the most part there are no drastic differences in the answers from K–12 versus higher education teachers. As a side note, it is curious that the community colleges are not better represented because over 50% of United States college students go to these 2-year schools yet only 12% of the faculty taking this survey come from this sector of higher education. In personal conversations, community college colleagues say this is because they have so many courses to teach that it is difficult to develop innovative approaches that require extra time. Also, faculty development opportunities are more limited for them. Below are the questions and the key points from the survey.

What is the ideal class size to teach using a case study?

The answer to this one should not surprise anyone: 38% said 10–20 students and 35% said 20–35 students, and another 15% said they had no preference. Clearly, small groups of students in a class allow a variety of different case methods to be used. Interestingly, it is common in law and business schools for case studies to be taught in classes with 70 students using the discussion method. Our survey suggests only 1% of the STEM teachers preferred classes with over 50 students. Of course, the use of personal response systems, clickers, now makes cases possible in the largest classes by the use of clicker cases. The NCCSTS case collection contains over 70 of these cases (to access them, go to http://sciencecases.lib.buffalo.edu/cs/collection/ and, from the search interface, select “Type/Method,” and then, select “Clicker”).
Ten questions on preferences

We posed a series of questions asking faculty to rank how important various factors were in the design of their ideal case study. They included the importance of telling a story, having characters, being current, being based on a real event, having controversy or differences of opinion, presenting a dilemma that must be solved, dealing with general principles, necessitating critical thinking, requiring quantitative reasoning, being relevant to students’ lives, or providing supplemental material such as videos for the students. For each of these factors the participant could choose one of the following terms: essential, very important, important, somewhat important, or not important. Rather than presenting each graph separately, we have chosen to summarize the data because the Survey Monkey analysis tool provides a single weighted average score for each question.

It is evident that critical thinking is judged to be the single most important factor for the majority of teachers, with an average score of 1.6, with 1.0 being essential and 2.0 being very important. Unfortunately, we do not have any idea what “critical thinking” means to most teachers except that it seems to be a good attribute (Paul, Elder, & Bartell, 1997; Herreid, Schiller, & Herreid, 2012). The next most important factors were that the case should be in the form of a story and relevant to students’ lives. The least important characteristic in the list is that the case be short (one to two pages). Figure 1 shows that none of the characteristics were deemed unimportant. But in the voting there were always some faculty who declared a characteristic was not important or said that they would have preferred that we asked a different sort of question as, for example, the teacher who commented:

The single most important essential element of cases for me is not listed here. The most important thing is that the story FEEL real. Here you have used the term “real” to mean not fictionalized. . . . Real life events can be utter failures in case instruction if they don’t feel real and relevant to the student. Fictional accounts that feel real can be more effective than true events if the story is written effectively. It is not about the case BEING real or fictionalized events; it is about the subjective interpretation . . . does it FEEL real to the student?

What is the ideal length of a case?

In keeping with the views of the Harvard faculty, the NCCSTS survey participants had little enthusiasm for long cases: 15% were happy with two pages or less; 26% said up to one to three pages would be fine; 23% were willing to accept one to four pages; and 11% said one to five pages would be okay. Less than 1% were prepared to push it higher. Looking at the NCCSTS collection, we note that the cases range from one to 15 pages in length, with the average length being about five pages. It is interesting that even though the business school faculty claimed they preferred short cases, many cases in Harvard’s collection are monsters of 15 pages plus several appendices. Apparently, their passions got the better of them.

How much time should the case take to run in the classroom?

Most faculty seem to think that devoting one or two classes is suffi-
The faculty were asked about the ideal number of questions to ask at the end of a case or section to stimulate discussion. Most case studies embed questions within the text, either at the end or as breaks in the story line (e.g., interrupted cases and cases that take the form of problem-based learning). We asked teachers about the ideal number for these questions. There seems to be a strong preference for three to five questions since 53% of the faculty made this choice and in the NCCSTS collection most cases did in fact fall into this range. Only 8% thought one to two questions would do, and 12% thought five to eight would be ideal, and 22% believe that any number would work.

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Are the best case studies open ended (with no right or wrong answer) or closed ended (with a correct answer)?

How faculty answer this question in part seems to depend on how wedded they are to the notion that their primary goal is to pass along facts and principles to students. Coming from a strong lecture tradition, some instructors maintain this concern even when teaching with the case method. So they favor cases focusing on delivering facts and thus they like closed-ended cases. Anatomy and physiology teachers are typical examples. We can sympathize with their plight. They do indeed have a large amount of information to cover in their courses. Upper level classes depend on them. Their students may have to take national exams. And all of us want prehealth students to know this information; they will be our nurses, physicians, dentists, and medical technicians of the future. So when these faculty are faced with the case study method of teaching, many just walk away thinking they can’t possibly cover the necessary subject matter using cases or opt for the Directed Case Method (Cliff & Curtin, 2000; Cliff & Nesbitt, 2005). Here questions are asked at the end of brief scenarios. All of the questions have correct answers that emphasize facts and principles that the students glean from the literature or lecture. Clicker cases and the flipped classroom approach are also case methods that emphasize content.

Hence, we now come to the essence of the survey question: Should a case be open-ended or not? Where do we want to be on Bloom’s taxonomy pyramid? Are we focused on the base, where memorization of terms and definitions are prized, or are we working at the top of the pyramid, where analysis, application and synthesis of material are esteemed? Or are we working somewhere in the middle? The data for this survey question begins to tease out differences in philosophy.

Opinions are split on this question; 17% of faculty say closed cases are best and 17% give the nod to open; 47% have no preference and a whopping 20% have chosen “Other” for the selection. When we read their explanations, we find that teachers say it depends on the topic at hand and perhaps the age of the students, with the more structured and closed-ended cases being preferred for younger or “case-novice” students. Apparently there is no clear-cut answer; rather it depends on the pedagogical goal in using a case. If the goal is to familiarize students with content and allow them to apply the knowledge they learned, analyze data, and come to some of the knowledge through their own insights, then cases with closed-ended questions are best. The closed-ended questions with a correct answer provide feedback on whether students have comprehended and reasoned with the information correctly.

However, if the goal is for students to take it one step further, to think of the content within its broader sociopolitical context, to struggle with larger issues that may extend beyond the sciences, then an open-ended case is best. This may assume that the content was learned earlier on, but it allows students to access the very top of Bloom’s taxonomy pyramid. The follow-up question below gives more insight as to the faculty views.

Is a good case structured or unstructured (i.e., are students guided through the resolution of the problem in a stepwise fashion [structured], or is it better to give them the problem and let them figure out how to solve it on their own [unstructured])?

This question goes to the heart of the issue. And we see a bias toward using structured cases: 42% said structured is best and only 11% preferred unstructured, with 29% had no preference. Now if we are influenced by
the logic of the Perry model of cognitive development (Perry, 1970), which argues that young students are dualistic thinkers looking for certainty, then we might predict that teachers in the K–12 classrooms might have a strong bias. And that is exactly what we learn when we tap into the comments for the 18% of the survey participants who chose the category “Other.” Here are a few representative remarks:

It depends on the level of the course. Structured cases model problem-solving processes and are useful in lower division courses, or at the beginnings of courses, while less structured cases can give an extra challenge to more experienced students.

This depends on the amount of experience students have with the subject. If the case is introducing a concept, then structured is helpful to develop the concept. If students are expected to be familiar with the subject, then unstructured will give opportunity to use (develop) problem solving skills.

Ideally cases presented earlier in the school year would be more structured, but as the year progresses and students are improving their skills the cases would become less structured.

Are the best cases written in the first-person or third-person voice?

Cases written in the first person are not common; nor are they the preferred way for most fiction writers. They do give a degree of intimacy to any writing, but they are limited in the sense that the reader can only know the story from a single point of view. Other views may be expressed, but they will be always filtered through the ears of the major actor. This apparently is what some teachers like, but not many: Only 9% chose this option. The third-person voice received more votes, 21%, but 68% had no preference. There were a couple of teachers who thought that the second-person voice was effective; such cases invite the reader to visualize the situation unfolding as if it were happening to them and asking them what would “you” do? It is noteworthy that some faculty specifically said they disliked dialogue because it often didn’t sound realistic. Of course, that is a danger lying in wait for all of us; we STEM faculty typically are not skilled writers, and some cases falter regardless of what voice is used. Further, there is another bias to note; as we matured as scientists, we have been coached to use the third-person passive voice. Students may not appreciate our clinical approach and apparent lack of passion; they may prefer the first-person narrative that gives an intimate feel to any story. Here are several comments from the faculty.

I really love the case studies based on real events. The fictional stories with dialogue often read as campy and are not taken as seriously by students.

I absolutely hate the made-up stories with fake dialog, and my students don’t engage with them either. I always change them now to be 3rd person.

Cases that contain stories and/or dialogue can be nice, but so often they become cheesy and seem forced. I prefer a case that does not have any dialogue to a case with cheesy dialogue.

My students really dislike “fake” cases and characters. They usually skip over the story to get to the “meat” of the case. They like cases made around real events with some shocking element to it.

How important is it that a case study contains an element of novelty, surprise, or shock?

This is one question where there was a general consensus; almost every teacher thought that novelty was nice to have but not an essential ingredient. However, once again, the students may have a very different view about this since many social commentators have repeatedly mentioned the short attention spans of students today. Novelty might be just what is required to keep students interested and engaged.

How important is it that the case be self-contained as opposed to requiring students to explore resources outside of the case?

Some case studies extend over several days. The good news is that this time allows the teacher to have students look up literature relevant to the case and to do homework that hones the students’ research skills. Problem-based learning works this way. The bad news is that students can just go fishing for the answers within the case; commonly they simply type in the question into Google or try to hack into the NCCSTS teaching notes and answer key. The latter is futile unless a teacher lets them use his e-mail and password. However, occasionally students will discover answer sheets posted by other students in different cities.

The survey data indicate that 32%
of the participants want all of the information presented within the case, 24% want students to gather outside information, and 35% have no preference. Once again, there are individuals who expressed other views:

Depends on the way the case is set up. For structured cases the information I feel should be self-contained (or supported with given materials). For unstructured research based cases a possible starting source list is good as a jumping off point for students, especially non-majors like I teach.

Ultimately this rests on how reliable students are in coming to class prepared and does the instructor want to devote class time to preparing students with foundation info OR making them responsible outside of class.

It depends on the developmental level of individual students and class size. Additional research is most appropriate for smaller classes and classes with more experienced students (unless the search process meets a learning objective for the course).

Usually I like self-contained. However, more and more, students will go to their phones and look up information if it isn’t readily available so I am moving more and more to providing them with some information and then telling them where to look for more.

95% of my students live below the poverty level. Currently my school has no computers for my students. While I think outside research is critical to helping students achieve science literacy, not all teachers are able to give these types of assignments to their students. A variety of cases on important topics would be helpful.

Please rank your preferred case teaching method

If we define a case study as a “story with an educational message” (Herreid, 2007), then there are different ways to tell the story, be it with a lecture, discussion, and/or small groups. We wound up our survey asking the faculty to rank some of these methods (for more information on these [and other] case methods, see Herreid, 1994, 1998, as well as the NCCSTS website at http://sciencecases.lib.buffalo.edu/cs/collection/method.asp).

As Figure 2 shows, the Interrupted Case Method had the highest weighted average, followed by Whole Class Discussion and Problem-based Learning (PBL). Clicker Cases, Intimate Debate, and Role Playing trail behind. The use of small groups as seen in the Interrupted Case format and PBL were the top choice for 65% of all participants. Most faculty who are used to the lecture method seem more comfortable leading small groups than conducting a full-scale Whole Class Discussion. This seems especially true for college and university faculty. In contrast, Whole Class Discussion is a familiar practice for K–12 teachers. But as several faculty emphasized, the choice of the method

![FIGURE 2](Weighted average score for the instructors’ preferred case teaching method. The weighted average is calculated by multiplying the number of people choosing a given category times the importance value given to each category. Weights are applied in reverse; the respondent’s most preferred choice (which they rank as #1) has the largest weight, and their least preferred choice (which they rank in the last position) has a weight of 1. Then this sum is divided by the total number of people answering the question. Thus, the higher the average, the more important the value faculty placed on the category.)
all depends on class size, class structure, level of the course, etc.

So as we wind up our search for “What Makes a Good Case?” we know with reasonable certainty that it should have critical thinking and be relevant, and tell a story, along with assorted other attributes. But the situation is much more fluid than that. Let’s give three survey participants the final word:

I don’t think there is one “best” form of case - different styles & lengths work for different classes & different teaching styles. I love gradual disclosure cases with lots of graphs and data for students to grapple with, but others might prefer debate-style cases with role-playing, or shorter quick activities . . . love the library—such a great resource!!

Most difficult part I have found with cases in entry level, non-science major biology courses is the variety of reading levels in the class. Some students can complete cases quickly due to reading capabilities, while other students struggle to complete in any time frame due to struggles with reading comprehension. We are an open-enrollment institution, so I can have a class with students with ACT scores ranging from 12 to 30.

I use many different types. If I could figure out why some are “hits” and others are not favorites and do not seem to engage students, I would use more of the “right” kind. Sometimes fictional cases are the best. Sometimes those are stupid. Sometimes I want to enforce a specific topic. Sometimes I do not. Sometimes I have a class that will benefit from doing outside research. Other times I have a class that will have an argument rather than a debate . . . Many case study options are nice to have, since all classes and instructors are different.

Amen to that.

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**References**


**Clyde Freeman Herreid** (herreid@buffalo.edu) is a Distinguished Teaching Professor in the Department of Biological Sciences at the University of Buffalo, State University of New York. He is also the director of the National Center for Case Study Teaching in Science (NCCSTS; http://sciencecases.lib.buffalo.edu) and editor of the Case Study column in the *Journal of College Science Teaching*. **Annie Prud’homme-Généreux** is Founding Professor in the Life Sciences Department at Quest University in Squamish, British Columbia, Canada. **Nancy A. Schiller** is codirector of NCCSTS and engineering librarian at the University at Buffalo, **Ky F. Herreid** is the web manager of NCCSTS, and **Carolyn Wright** is project coordinator of NCCSTS.