

The Chef Returns: A Recipe for Writing Great Case Studies

By Clyde Freeman Herreid



Anthony Bourdain is dead. On June 8, 2018, he hung himself in an Italian hotel while filming an episode of his award-winning TV travelogue for CNN: *Anthony Bourdain: Parts Unknown*. He was a rock star celebrity chef and travel author who created and starred in shows featuring international cuisine, culture, and the human condition. Known as the bad boy of the culinary world, he dined with peasants and aristocrats and was especially captivated by exotic fare, “sheep testicles in Morocco, ant eggs in Puebla, Mexico, a raw seal eyeball as part of a traditional Inuit seal hunt, and an entire cobra—beating heart, blood, bile, and meat—in Vietnam.” In 2001 he published one of his bestselling books, *A Cook’s Tour: In Search of the Perfect*

Meal. It recounts his global search for the best food while traveling as a native in each country. Bourdain’s success as a TV personality and writer is perhaps only the most famous example of a chef who capitalized on the American public’s endless fascination with cooking shows and cookbooks. Do they have something to teach us? Can we channel Anthony Bourdain’s enthusiasm for adventure?

Long before Bourdain, cooking shows captured the hedonistic interests of television audiences. Every day there are gastronomic competitions for the tastiest barbecue or most flamboyant cake. There are epicurean battles between assorted citizenry, children, geriatric citizens, the disabled, and southern dowagers, vying to wear the garland of champion. There are titanic struggles for ethnic culinary superiority be it over Mexican guacamole, Tibetan ematshi, Polynesian pipi kaula, or Louisianan jambalaya. Any day we might celebrate culinary delights from the Neanderthal cookbook given our recent fascination with Paleolithic diets.

We are endlessly fascinated with food and how to prepare it. And recipes matter. Some years ago, I concocted one for writing case studies and published it as an article called “Cooking with Betty Crocker” (Herreid, 1999/2000), a clear reference to one of the best-known cookbooks of yesteryear. And a few years later I had another shot at it based on data

we collected from case study teachers (Herreid, Prud’homme-Genereux, Schiller, Herreid, & Wright, 2016). And here we go again. Like any Bourdainian gourmet, I am still looking for the perfect recipe for how to write a case study. I think I am closer to the Promised Land. So sharpen your knives and ready your ladles.

Basic questions to ask about the menu

Target audience

To begin, we need to know who is coming to dinner. Our *carte du jour* certainly should be different if we are hosting 30 birthday children or 30 Chilean diplomats. So the question here is, which class is the case for? What are the students’ backgrounds? Where are the students headed academically and in life? Not only should the subject matter be tailored for the audience, but the case structure should take account of the age and experience of the students. Young students or those new to the case method require more structure, fewer open-ended questions, and more information provided to them. They also need the language to be at a level that is accessible to them. As they become more seasoned, then it is possible to be more adventure-some in the cases you design. William Perry (1970), the Harvard developmental psychologist, made this point long ago when he noted that students as they mature become less

dogmatic and more open to alternative answers to questions.

Concept(s)/Principles

What are the concepts or principles that you wish to teach? What are the objectives that you wish to achieve? These questions should be the top concerns of any case author. But it is not so simple. There is more to it. How are you going to introduce those principles into the case, and how many ideas can we throw at the students? It is like any menu. Too much on the plate, and if paired with the wrong wine, the entree may bring on indigestion.

Teaching format

There are two basic issues that a case writer must face: How to write the case and what the students do in the classroom with the material you are feeding them. Both issues have to do with the method of instruction the teacher uses. Will the meal be served all at once or in courses? Will it be a buffet or sit down meal with waiters at the ready? To be pedantic: Will the information that students receive in a case be given to them all at once, or will it be delivered piecemeal? In the classroom, will the teacher be holding a general discussion, or will small groups be discussing the issues? Will there be debates, a symposium, role playing, a public hearing? Will students consider the case over several days and have a chance to look up information? Or . . . ?

Product

What product do you wish your students to produce? Perhaps none. Just chit chat? Some case teachers simply want a vigorous class discussion and hope that the students will profit from the exchange. But they may be missing a bet. Instruc-

tors ultimately have to give their students a grade. They may wait until an exam to do that or they may try to keep a running tally on the brilliance of the students' verbal contributions in class. But another alternative is to have students create a written report, a critique, a presentation, a letter to the editor, a poster—any tangible product that shows the students have some understanding of the topic. Once a teacher has this in hand, they are in familiar territory. They know how to grade these. They have something to evaluate beyond a simple exam score.

Resources

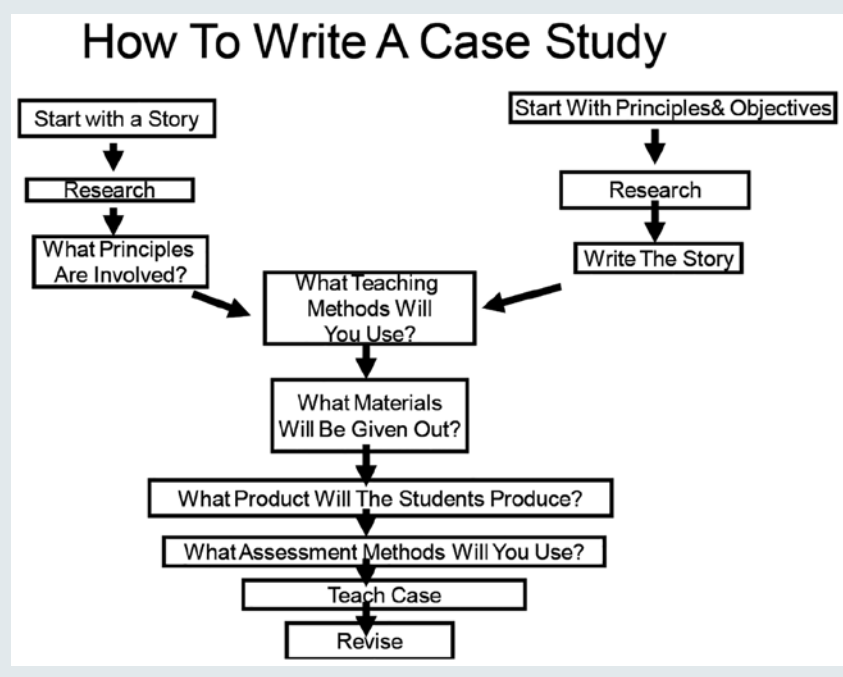
What resources will the students need to complete the project—books, references, videos, journals? Today this is not likely to be much of an issue because of the omnipresence of the Internet. But even so, the economic status of some students may be a serious limiting factor—they may not own a smartphone or computer. And resources may be an issue if a case involves lab materials.

Assessment

How will teachers know if a case study has accomplished its objec-

FIGURE 1

A diagram showing two alternatives to writing cases. On the left side, a teacher can start with a story that she knows and then identify the principles that she could incorporate into the case study. On the right, a teacher can start with the principles that need to be taught and then create a storyline for the case. In either approach, the instructor must choose a teaching format, the resources that the students need, the product(s) that they will produce, and the assessment methods. Order of the steps in the later part of the diagram is not regimented.



tives? What will the students be able to do after the exercise that they could not do before? How can the instructor grade the assignment? How will a teacher know that everyone did equal work in small groups? How will they know whether the group has worked well together? Teachers always ask these questions, and a case author should have some suggestions to offer. Not only to find out if the guests are happy, but to determine if the host is happy.

The recipes

You don't have to create your menu from scratch. There are hundreds of meals (cases) just waiting for you to select and tweak to your taste. Further, there are great case studies that can be served up from journal articles, books, and news events. They may meet your needs exactly, and they have the added virtue of dealing with up-to-the-minute events. But what if you want to custom design a case to meet a particular need you have in your curriculum? What then? Basically there are two options. Either find a story which is relevant to the topic you wish to teach and then fit in the subject matter that is pertinent. Or first identify the concepts you wish to teach and then create a story around that material. Figure 1 shows the two alternatives. In either instance, the author must deal with which teaching method they will use, the resources that the students require, the product(s) that the students might produce, and the possible assessment methods.

Story first—start with a story

All teachers tell stories (usually a lot of them), often funny vignettes from their past or an anecdote about a famous personality. The trick is to embellish and expand that story into

a full-fledged case. Let me give you an example. I used to teach a course in physiology well before the legendary Lance Armstrong came onto the sport's scene and dominated the cycling world by winning seven *Tour de France* events—a grueling 3-week, 2,110-mile race. Armstrong became a sport's phenomenon, enjoying the celebrity circuit, writing books about his spectacular rise from a despondent athlete who had been struck down by testicular cancer to his heroic physical rehabilitation riding into sports history. Along the way he fathered three children, withdrawing sperm he banked before surgery and chemotherapy. He was feted everywhere because of his humanitarian efforts on behalf of cancer victims and the medical community.

If I had been teaching at that time, I could have used his story as the lead in a case on any number of physiological topics because Armstrong had been intensively studied in sports labs. I could have used him as a hero to introduce topics on respiration, the cardiovascular system, muscular/skeletal system, and exercise all because of his unusual physiological attributes. But that is not all. I could have used him to discuss testicular cancer and reproductive physiology. What a perfect—and ultimately tragic—story. For today, I could use him for an additional theme—blood doping and an ethical lapse. Armstrong was caught in a scandal which tumbled him from the Athenian heights to the lowest disregard when his teammates turned him in. He finally admitted his transgressions and was stripped of his titles. What a cautionary tale to turn into a case study.

Suppose you have such a story with a great hook, what is next? Likely, you will need to do research to unearth details that you may have missed

or forgotten. Then you will have to choose the principles or concepts that you wish to introduce into the case. In the example of Armstrong, there are a bunch of possibilities, and one would have to figure out how to introduce the science into the narrative. Should we weave it into the storyline or try another strategy such as using a set of guided questions to have the students look up the material or introduce it as distinct essays in sidebars?

If I were to write about Lance and physiology, I would be faced with the decisions that I mentioned at the outset of the article, that is, target audience, teaching method, resources, product, and assessment. I wouldn't have to deal with all these issues immediately, but pretty soon I would have to decide if I were going to deliver all of the case details at once or in sections. Then when all of these questions were resolved and a draft of the case was written, I would try the case out in front of my toughest critics, the students. I surely would discover one thing almost immediately—based on sorrowful experience—that the case will probably be too long. Editing will follow and then back to the classroom to try again. Figure 1 shows the general flow chart.

In some ways, this recipe for writing cases is the easy way because you already know a real story whose details you can look up. All that has to be done is to decide how to present the story and weave in the science.

Concepts first—backward design

More often than not you will have to create the story yourself. Ready-made stories seldom exist for topics you cover in your classes. Here is a recipe that will allow you to tackle the problem. At the outset, identify

a subject in your curriculum where you want a case study; say you want a case on pH and its impact on enzyme function. Then, first and foremost, identify the objectives that your case must achieve to be successful. This method of approach is called the *backward design*, introduced by that name by McTighe & Thomas (2003) and McTighe & Wiggins (2004).

In a nutshell, three steps are involved in the method: (a) identify the desired results (big ideas and skills) you want the students to get; (b) determine what evidence you would accept in determining if you have met your goals; and (c) design activities that will allow you to achieve your goals. (In our example we will be writing a case study to do the job.) Notice that the backward design model posits that you design your assessment methods even before you design the case itself. That makes sense, but it is often hard to do. So if we were to incorporate that model into Figure 1, we would have to shift the assessment step upwards to just after the objectives are determined.

In my previous article, “Cooking with Betty Crocker” (Herreid, 1999/2000), I gave step-by-step suggestions on how to design a case with the concept-first approach. Here is an amended version of those steps. Follow along with me and you will have a case study at the end.

Choose one of your courses, then choose a topic in that course for which you would like to write a case. (Note, do not choose something that would only take 5 minutes to explain or a topic that would require several classes to cover. For this exercise, choose a topic that usually takes a lecture or two to cover.) As an example, I will take mitosis, a conventional topic in general biology.

List all of the subtopics that typically would fall under that topic if you were lecturing on the subject. Here is a sample of subheadings that might fall under mitosis: cell division, chromosomal duplication, centromere, centriole, cell cycle, interphase, G1 (first gap), S (synthesis), G2 (second gap), checkpoints, prophase, metaphase, telophase, spindle fibers, chromosomes, chromatids, haploid, diploid, DNA, base pairing, binary fission, cytokinesis, aneuploidy, nondisjunction, polyploidy, etc.

List all of the stakeholders who might have an interest in the subject either directly or indirectly. Of course, this might include everyone in the world for some topics. But even in this case, list some examples of the sorts of people. For mitosis it might mean researchers, graduate students, people with somatic mutations, cancer victims, pharmacists involved with designing anticancer therapies, elderly people showing telomere loss that accompanies aging, etc.

Choose one of these people. You now have a central character in your story with a clear point of view and an emotional investment in the topic, and the stronger the emotional investment the better. A cancer victim seems like an ideal choice with a failure of the cell cycle that has led to melanoma, breast cancer, leukemia, or a non-Hodgkin lymphoma, etc.

Give this person a name. This immediately personalizes the case. A warning here: Choose a name that is realistic. Do not be cute with the name or it will undermine the credibility of the story. A name that resonates with the students’ ethnic background is best.

Write the first paragraph of the story with your character as the protagonist. You are now on your way to being a case author. But as you weave your tale, it must be absolutely clear whose story you are telling; don’t fail to make the viewpoint clear. Do not shift viewpoints through the story. That will work in a novel but not in a short story. If you are writing about Susan, make all of the events unfold as seen through her eyes.

Introduce the science topics into the story as you write. There are several options here, some more pedestrian than others. If it is a story about patients, it is easy to have a doctor explain the problem to the patient and thus introduce the key points. But try not to have your characters lecture. It is boring to read paragraph after paragraph of someone droning on. If the doctor is speaking, have another character interrupt to ask a question, have a nurse intervene, or have a door open—anything to break a long-winded spiel. Another common ploy is to have the patient or one of his family look up information on the Internet. If you are into “flipping the classroom,” it is reasonable to have students view a video ahead of time or to show a video in class explaining the science. Another reasonable solution is to have the students look up information during the case or to read an essay on the subject. The latter would be shown as a sidebar in the case.

As you go through this process, you once again must grapple with the initial questions about target audience, product, resources, and assessment before you actually teach the case, revise it, and do it again.

That's it. You have written your case. Your meal is complete. Unlike Anthony Bourdain, you didn't have to travel to the ends of the globe to find the perfect meal; you created it yourself. But as any cook knows when the guests go home and the host is reveling in the afterglow of success, there is more to be done—the cleanup process looms ahead. Maybe it can wait until morning, but unless there is a cleanup crew coming in, it is up to you to finish the job. Tidy up the place; make some notes so that the next party will be even a greater success. ■

References

- Herreid, C. F. (1999/2000). Cooking with Betty Crocker: A recipe for case writing. *Journal of College Science Teaching*, 29, 156–158.
- Herreid, C. F., Prud'homme-Genereux, A., Schiller, N., Herreid, K., & Wright, C. (2016). What makes a good case, revisited: The Survey Monkey tells all. *Journal of College Science Teaching*, 46(1), 60–65.
- McTighe, J., & Thomas, R. S. (2003). Backward design for forward action. *Educational Leadership*, 60(5), 52–55.
- McTighe, J., & Wiggins, G. (2004). *Understanding by design: Professional development workbook*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Perry, W. G., Jr. (1970). *Forms of intellectual and ethical development in the college years: A scheme*. New York, NY: Holt, Rinehart, and Winston.

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