

Healthcare Finance Cases as a Pedagogy for Advancing a Competency Based Education

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This Special Issue of the *Journal of Health Care Finance* honors Dr. Louis C. Gapenski for his contributions to the fields of health care finance, public health finance and health administration. In his writing, teaching and mentoring, he served as a role model for all of us.

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Abstract

Both the Commission on Accreditation of Healthcare Management Education (CAHME) and The Association of University Programs in Health Administration (AUPHA) Revised Criteria for Undergraduate Certification require a competency based approach to healthcare education. A competency based approach requires clearly established learning outcomes, ability to assess master of outcomes, and flexibility with time and method of student involvement. Cases provide an opportunity to establish a learning environment which supports a competency based approach. Success with the case approach depends on the instructor appropriately tailoring the learning environment to the students and the specific educational program.

This article extols the case approach as a pedagogy for advancing a competency based healthcare education. It discusses a variety of curriculum structure factors and teaching strategies for creating a successful learning environment. The article then compares various features of two healthcare accounting/finance casebooks, one a classic casebook originally authored by Louis C. Gapenski and the second a new casebook by the article author.

Introduction

Nobel Laureate Herbert A. Simon made the following statement: “Learning results from what the student does and thinks and only from what the student does and thinks. The teacher can advance learning only by influencing what the student does” (Ambrose, et al., 2010).

Simon’s observation is consistent with the following recent definition of learning: Learning is a process taking place in a student’s mind and cannot be directly observed. Learning occurs when there is a change in knowledge, beliefs, and behaviors. Learning results from student’s interpretation and response to their experiences-conscious and unconscious (Mayer, 2002).

The previous quotes can be distilled down to the concept that *students learn from their experiences*. The statements support my long-held belief that significant learning occurs when students experience real-world related cases. I first began teaching in the healthcare field about a decade ago, after many years of teaching in traditional business schools. A short search helped me find Dr. Gapenski’s third edition casebook in healthcare finance (Gapenski, 2006) which, after a brief review, I concluded was an outstanding casebook and I very happily adopted it for use in several healthcare finance related courses. It contains a varied, conceptually challenging set of cases which I found to be very appropriate for certain courses.

A few years later I began writing my own healthcare finance casebook. One day a colleague noticed I was working on writing cases and asked me if I knew there was already an outstanding casebook in that area by Lou Gapenski? “Yes”, I said, “I am using Dr. Gapenski’s book and am quite impressed with it.” “However”, I replied, “all books have certain characteristics which must be considered when adopting them and these characteristics make them a better or worse fit for teaching particular courses and/or audiences. I am writing cases to fill what I perceive as different course needs.”

The purpose of this article is to extol the case approach as a pedagogy which advances a competency based healthcare education and to examine some of the factors which might lead a course instructor to choose a specific casebook.

Role of Cases in a Competency Based Approach to Education

The competency based approach to education simply means that student success is evaluated by the student’s demonstration of specific competencies, in other words, the mastery of the specific knowledge and skills required to be successful. This approach requires three components:

1. Clearly establishing learning outcomes (competency mastery) for each learning task.
2. Ability to assess the outcomes (student mastery).
3. Flexibility with respect to time and method of student involvement (Nodine, 2016).

The competency approach means that student mastery of outcomes rather than time spent on task (time-based education) is critical. This approach is somewhat similar to outcomes-based education.

Some believe that the competency approach is structurally different from outcomes based education because the lack of linkage to time-based education (Eaton, 2016).

A competency based approach to healthcare education is currently required by the Commission on Accreditation of Healthcare Management Education (CAHME). The Fall 2013 CAHME Criteria For Accreditation criterion III.A.1 states:

“The Program will adopt a set of competencies that align with the mission and types of jobs graduates enter. The Program will use these competencies as the basis of the curriculum, course content, learning objectives, and teaching and assessment methods” (Fall 2013 CAHME, 2014).

The Association of University Programs in Health Administration (AUPHA) Revised Criteria for Undergraduate Certification also requires a competency based approach in that guideline 21 states:

“The program will develop or adopt a set of competencies to serve as the foundation of its curriculum that will relate to the program’s mission and the market that it serves” (AUPHA Revised Criteria, 2016).

The competency approach can pose a quantity-versus-quality dilemma with regard to functional areas of expertise (Broom and Turner, 2015). The issue concerns just how granular does a program want to get in defining competencies? For example, a program could broadly state a competency as, “Ability to use historical financial statement data to construct and interpret a cost-volume-profit model of an entity.” Alternatively, a program could break the previous competency down to smaller units such as,

- “Ability to use historical financial data to construct and interpret a volume based revenue equation.”
- “Ability to use historical financial data to construct and interpret a volume based cost equation.”
- “Ability to combine revenue and cost equations into a cost-volume profit model and interpret that model.”

In response to the quantity-versus-quality dilemma, in 2013 CAHME eliminated specific content areas to allow programs the choice of continuing to build a broad array of competencies (i.e. quantity) or focus in greater depth on a smaller number of competencies (i.e. quality) (Broom and Turner, 2015).

Strategies for Motivating Student Learning Via Cases

Educational research suggests student motivation is higher when three conditions exist:

1. The learning goal is valued, and
2. Expectancies for success are positive, and
3. The environment is perceived as supportive (Ambrose, 2010)

Cases provide an opportunity to motivate students by providing an environment which fosters the three previous conditions.

Regarding the first condition, cases can provide a type of value called “instrumental value” (Wigfield and Eccles, 1992). This value represents the degree to which an activity is perceived to help accomplish other important goals such as a fellowship or a high-status career. Authentic, real-world based cases can provide this value because students can see the direct linkage to other goals, such as being able to describe specific accomplishments in fellowship or job related interviews, or the job activities they will be performing once they graduate. In other words, students can see the relevance to their professional lives after higher education.

With respect to the second condition, although their background may vary widely, most students do not come into the classroom having learned effective case research and case analysis strategies. Accordingly, to create positive expectancies for success, an instructor using cases should teach the students how to perform case research and how to structure case analyses.

I provide my students with information which explains how to access relevant materials from library databases, healthcare industry specific comparative financial and operational metrics, and online financial statements filed with the U.S. Securities and Exchange Commission (SEC). I also do a student “walk-through” to each of these information sources so they can find them when they actually need them.

I also require that every case analysis use and reference a minimum of one peer reviewed relevant journal article. As students work many cases while in my courses in their graduate program, the cumulative effect of this requirement is that students, from repeatedly searching and finding highly relevant articles, eventually conclude that research is a necessary part of any professional problem solution process.

I also provide my students with a basic template that lists and explains the possible major parts of a case analysis and write-up. Although every case does not have all the parts discussed in the template, the template provides students a way forward for their case analyses. By providing some degree of structure, the template reduces uncertainty for the less experienced students and thereby increases their belief that they can be successful.

Student motivation is increased when the goals are challenging but attainable. It is important to let students know that for many cases there are no “right answers” just “possible answers based on assumptions.” For this type of case, I let students know that their assumptions and logical reasoning are just as important as their answers. Therefore, their answer does not always have to be “the best” or “right”, just well-thought out and reasonable, in order to obtain a high grading mark. Of course, for many cases there are answers that are significantly better than others. I explain that consistently obtaining these answers requires some degree of expertise which can only be obtained from experience.

The third condition for increasing student motivation is providing a supportive environment. Timely feedback on case submissions is critical in order to close the learning loop. Feedback helps in correcting errors in reasoning and data analysis. It is important that the feedback be provided as

close to task completion as possible so that any student errors or misconceptions don't have time to be hard wired into students' thinking. One way to provide this feedback is through in-class presentation and discussion of the cases. For executive classes which submit case solutions online, I try schedule my time so I can grade these cases the first day after they are submitted. I also post the best case solution submitted so that students can compare their solutions to this peer solution.

Curriculum Structure Considerations

The case approach requires some difficult tradeoffs, many of which are related to human learning. Bloom's revised taxonomy (Anderson, et al., 2001) can help us think about the problem of trying to structure human learning activities. The revision redefines the cognitive domain as the intersection of the Cognitive Process Dimension and the Knowledge Dimension (Iowa State University, 2012).

The cognition process dimension represents one way to think about how cognitive complexity increases as we move from lower order to higher order thinking skills. Anderson et al. (2001) identify nineteen specific cognitive processes for the following six categories of thinking:

1. Remember
2. Understand
3. Apply
4. Analyze
5. Evaluate
6. Create

The related knowledge dimension categories indicate how knowledge might move from concrete to abstract:

1. Factual, e.g. knowledge of details or facts
2. Conceptual, e.g. knowledge of theories or categories
3. Procedural, e.g. knowledge of criteria for when to use specific procedures
4. Metacognitive, e.g. knowledge about cognitive tasks

"The distinctions between the categories are not always clear-cut." However, the "... lower order thinking skills are subsumed by, and provide the foundation for, higher order thinking skills" (Iowa State University, 2012). A complex case typically involves several different levels on both these scales.

Instructors generally assign cases to achieve specific primary learning competency. For example, a valuation case may be primarily assigned so that students can gain competency with the free cash flow method of valuation via working with real or simulated data. However, it is important that students know that every assigned case has multiple goals which extend beyond specific modeling, such as a well-organized and easily readable case write-up which has coherent arguments supporting the recommended solution/course of action. As previously discussed, these additional learning goals can be supported by actions such as providing case analysis and write-up templates and timely feedback about arguments made and solutions recommended.

A sometimes convenient way to classify knowledge is *declarative*, which is knowledge of facts or concepts which can be stated or declared, or *procedural* which is knowing how and when to apply various procedures, methods, theories, etc. Cases are an excellent way for students to learn both what knowledge is relevant (declarative knowledge) and how to apply it to the case issues (procedural knowledge). They provide an opportunity for students to come to the realization that simply understanding a theory or concept is not always enough. Additional knowledge is required to learn when and how to use specific knowledge. I use an example related to flying a plane to make the distinction between declarative and procedural knowledge. I tell students that I understand the concept of lift and aeronautical dynamics very well but I have never flown a plane. I then ask them to raise their hands if, “You would like to be sitting as a passenger on takeoff of a plane which I was piloting based on my understanding of lift and aeronautical dynamics?” This produces a class laugh and almost no hands raised. I then make the point that I would have to have a lot of practice to gain the procedural knowledge necessary to fly a plane even though I understand the concepts surrounding air plane flight very well.

Researchers generally agree that students *must* connect new knowledge to prior knowledge in order to learn. “New knowledge ‘sticks’ better when it has prior knowledge to stick to” (Ambrose, et al., 2010). This is one reason why students who have had real world work experience may pick up concepts faster than those who lack such experience.

Unfortunately, students frequently do not spontaneously make connections to relevant prior knowledge, thus rendering it inactive. The related instructional question is, “How do we activate knowledge which students may have acquired significantly prior to the current course?” Instructors can activate prior knowledge (trigger recall) via methods such as minor prompts, simple reminders, and asking questions, such as “why.”

Providing specific case questions is one way to activate student’s prior knowledge and to guide them to a possible solution in a supportive manner. The extent to which they need this activation and guidance is related to how old their prior knowledge is.

The MHA program I teach in at the Medical University of South Carolina (MUSC) is somewhat unique with regard to the depth of its finance related curriculum. The MUSC MHA students take a sequence of three financial management courses with the first one being heavily financial accounting, the second one being heavily managerial accounting, and the third course (an elective) being primarily finance.

An undergraduate accounting course is *not* a prerequisite for entering the MUSC MHA program. Accordingly, about 35% of the MHA students have *never* had a prior accounting course while about 65% have had one or more prior undergraduate accounting courses. The 65% of the students who have had one or more prior accounting courses typically took that course (s) during their sophomore year of undergraduate studies. Thus, their financial management knowledge is usually at least two years old and may have been minimally utilized during that period. Activating their prior knowledge via providing case questions is an important pedagogical step in successfully using cases. Case questions which guide the case inquiry are also very helpful to the 35% of the students who have no prior accounting/finance courses. Additionally, in order to increase student perceptions of a supportive environment and to help them access other students’ prior knowledge,

the students who have no prior finance/accounting courses are assigned to case teams with students who have had a prior accounting/finance course. Collaboration and knowledge sharing is fostered by the fact that the case teams all receive the same case grade.

I use guiding case questions in the first two courses due to both the length of time which has passed for those students who have had related undergraduate courses and the basic lack of knowledge by those students who have not had any prior related course. I usually do *not* use case questions for the third course since those students usually have built a relatively robust knowledge base from the two prior courses and I want the third course (the last finance related course in the curriculum) to be closer to the lack of guidance/structure they will be facing with real-world problems when they graduate at the end of that semester.

Case Complexity Issues

Cases can range over a continuum from relatively simple, straightforward problem solving to complex, ill-defined, problem scenarios. In other words, the cases can range from the lower levels of Bloom's revised taxonomy to the higher levels. The probability of student success depends on factors such as student background and knowledge, degree of student knowledge activation, and case complexity.

The perceived value of the knowledge gained in instructional cases is not, by itself, usually enough to keep students motivated if they don't think they will have a positive outcome. In other words, students are motivated by tasks they believe they can successfully achieve. Students who lack a strong background in an area will usually be better motivated if they are started out on relatively simple cases focused to a greater degree on lower level learning. As they get good feedback on these cases, both their confidence and knowledge base strengthen simultaneously, so the complexity of the cases can then increase without lowering their motivation.

We know that as cases get longer they are generally become more complex since additional relevant and irrelevant facts are added in an attempt to get closer to real world problem situations. Although the exact degree of complexity increase would vary, as shown in the following figure, we could hypothesize a general linear relationship based on the length of the case, as measured via pages in a case in Figure 1.

We know, of course, that the true relationship is not linear but the previous depiction captures the concept that, generally speaking, cases get more complex as they get longer.

Factors which would tend to make cases less complex (from the student's viewpoint) would be things such as the number of guiding questions provided by the instructor and the degree of spreadsheet support provided by the instructor. Figure 2 shows how case complexity might decrease in an assumed linear fashion as the number of case questions increases.

Figure 1. Complexity Increases with the Number of Pages in a Case

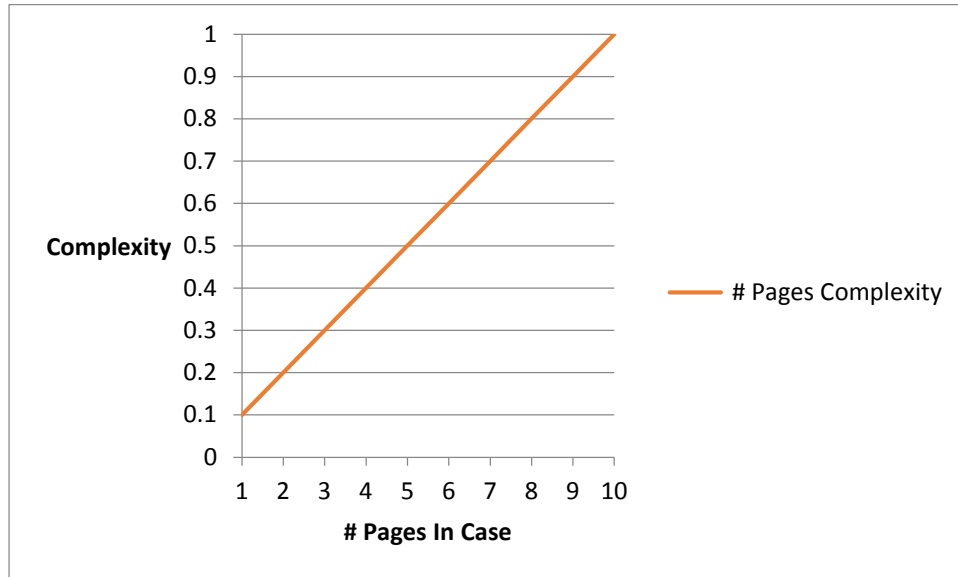
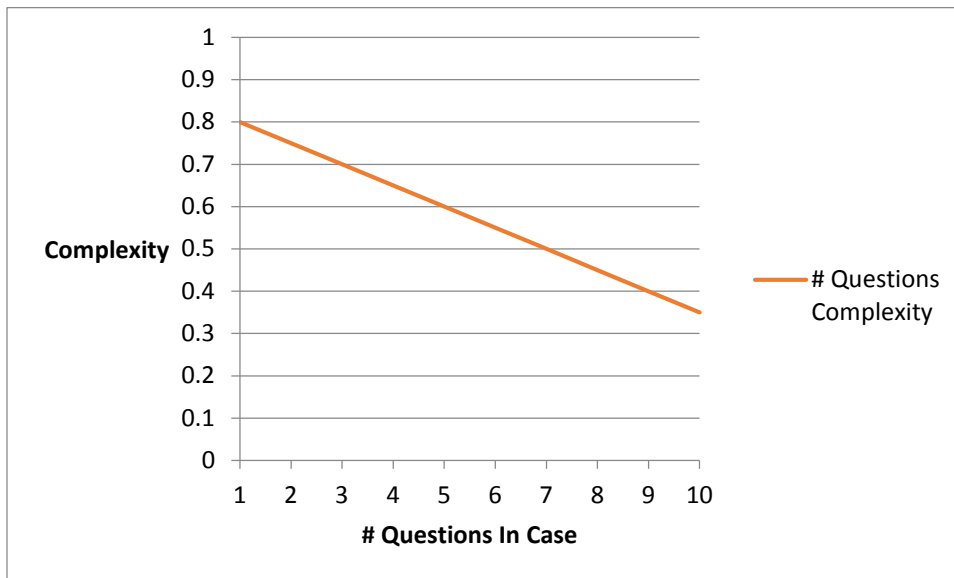


Figure 2. Complexity Decreases with the Number of Questions in a Case



As discussed in greater detail later in this article, providing preformatted spreadsheets for a case might either increase or decrease case complexity, depending on the students' prior training in the use of spreadsheets.

Simultaneous consideration of both the complexity increasing and complexity decreasing factors might lead us to hypothesize the following overall relationship:

$$\text{Overall Case Complexity} = (W * \text{Number of Pages}) - (X * \text{Number of Questions Provided}) \pm (Y * \text{Degree of Spreadsheet Support}) \pm (Z * \text{Other Unknown Factors})$$

Where W, X, Y, and Z are the unknown, nonlinear, relationships of the various factors to overall case complexity.

There are obviously a number of other factors potentially influencing case complexity which are not specifically reflected in the previous model. For example, a case could provide a solution template in a written form instead of a spreadsheet, e.g. a manual accounting system, or the instructor could lecture over the case topic immediately prior to assigning the case. However, the previous model is a good tool for instructors to think about some of the pedagogical tradeoffs. Long cases that would otherwise be considered very complex can be made less complex by making them more directed.

Directed Versus Non-Directed Cases

Instructors can provide some level of direction on cases by providing items such as:

- articles to read before attempting case,
- guiding case questions, and/or
- pre-formatted electronic spreadsheets that automate case computations.

All types of instructor direction move the case away from problem situations students will typically experience the real-world which are usually vague, ill-defined, uncertain, and lacking relevant information.

An important issue to consider is the degree to which case solutions should be directed via electronic spreadsheets (e.g. Excel). There are basically three options:

- require students to solve problems manually,
- have students develop their own electronic spreadsheet, or
- provide pre-formatted electronic spreadsheets with cases.

The research on sequential versus concurrent learning suggests that in situations where students had little prior knowledge or experience with spreadsheets, it might be too demanding to require them to learn how to use the spreadsheet software concurrently with learning how to apply the spreadsheet to solve a problem (Clark, Ayres and Sweller, 2005). This research indicates that students learn better when the tasks are mastered in isolation (sequential learning).

Many of our entering MHA students have either poor or no spreadsheet skills, so I provide some basic in-class tutoring during their first semester. I also provide an initial set of case problems which are less complex and can be relatively easily worked without spreadsheets. The second course includes a mix of problems with some (e.g. regression modeling, matrix inversion and multiplication for cost allocations, etc.) requiring use of spreadsheets. Student spreadsheet skills have been increasing steadily through the first two courses and by the time students progress to

the third course, the mathematically more complex finance class, all problems are worked via spreadsheets including complex Monte Carlo simulation models.

Comparison of Gapenski-Pink and McKee-McKee Casebook Features

I currently use my recently published casebook for our first two MHA courses and the Gapenski-Pink casebook for our third MHA course (Gapenski and Pink, 2014). This split in use seems to work well and takes advantage of the relative strengths of each casebook.

Table 1 provides a comparison of some key difference between the current version of the Gapenski-Pink casebook with the recently published McKee-McKee casebook (McKee and McKee, 2017).

Table 1. Comparison of Casebooks

√= included, X=not included		
Features	Gapenski-Pink	McKee-McKee
Physical Characteristics		
Number of Cases	39 cases	56 cases
Total Pages In Casebook	243	213
Average Printed Page Length of Cases (excluding case questions)	5 pages	1.5 pages
Topics With Significant Coverage		
Financial Accounting	√	√
Managerial Accounting	√	√
Finance	√	√
Ethics	√	X
Corporate Governance	X	√
Fraud Topics	X	√
Pedagogy Features		
Excel spreadsheets for students with cases	√	X
Excel spreadsheets with instructor solutions	√	√
Case questions in casebook for students	X	√
Case questions provided to instructors ¹	√	√

¹ The Gapenski-Pink casebook makes case questions available to the instructor who then has the option to provide or not provide the questions to the students. The McKee-McKee casebook has a set of guiding questions in the casebook at the end of every case.

Summary

A favorite quote attributed to Ralph Waldo Emerson is, “The secret of education is respecting the pupil” (Peter, 1977). I try to respect my pupils by understanding their background, strengths, weaknesses, and motivation so I can create a learning environment in which they can succeed.

This article has addressed the following questions which are important to think about in selecting and using both a casebook and individual cases within a casebook, given that student and class time is limited:

- Which topics are better covered via case format during semester?
- Are short or long cases a better fit?
- Should the cases include case questions or be undirected?
- Should the cases include preformatted spreadsheets (e.g. Excel) or should the students develop their own spreadsheets if needed?

My classroom experience indicates that although both the casebooks reviewed in this article can be used to successfully motivate and educate students, unique program features and typical student background should be carefully considered when making adoption decisions.

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