

Enhancing Online Finance Education for Non-Financial Managers

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Abstract

Many nurse executives and managers have had to learn financial management skills, including planning, controlling, implementing, and analyzing departmental budgets, on the job. In today's healthcare environment, organizations are becoming aware of the value of hiring nurse executives who can speak the financial language and employ financial skills to operate their areas. As more and more nurses are pursuing advanced degrees online, schools of nursing face an imperative to find effective ways of helping students achieve program competencies related to finance in an online environment. Cognitive apprenticeship, as a framework for teaching and learning, facilitates rapid acquisition of knowledge of essential concepts and skills needed to meet such competencies in an online, graduate-level finance course, including the use of spreadsheet software. The application of cognitive apprenticeship provides faculty with seven strategies to facilitate higher-level thinking skills: modeling, coaching, scaffolding, fading, articulation and reflection, and exploration (promoting transfer of learning).

Keywords: online education, finance education, nursing management, online modeling, cognitive apprenticeship

Introduction

For many nurse executives and managers, financial management skills, including planning, controlling, implementing, and analyzing departmental budgets, have been acquired on the job. Traditionally, most nurse managers have tended to rely on the organization's finance personnel to direct activities related to financial issues. After all, nurse executives usually evolve from apprenticeships within a technical or specialty area in nursing, and are generally not familiar with financial concepts (Finkler & McHugh, 2008). Often, the nurse manager's focus is on quality of patient care and clinical issues, and not on identifying and responding to financial matters. However, in today's healthcare environment, organizations are increasingly recognizing the importance of having nurse executives who are fluent in the financial language and able to make use of financial tools and techniques to monitor, improve, and report on performance within their areas (Studer, 2010). The potential impact of this combined skill set in nurse managers can prove to be of tremendous value to the financial status of organizations, and ultimately benefit the patients they serve.

Despite increased awareness of the value of financially astute nurse managers, many healthcare organizations continue to cite financial skills as one of the key deficits of their nurse managers. As noted by Studer (2010), "clinical leaders who do not have the financial skills to comply with expected behaviors will be frustrated" (p. 82). As growing numbers of nurses are seeking and completing advanced degrees online, schools of nursing are confronted with a heightened challenge to teach the skills necessary to achieve program competencies related to finance. Students may enter their graduate programs with little to no knowledge of financial concepts, and/or no experience in the use of relevant software tools such as Microsoft Excel. Thus, the challenge of offering new content online is exacerbated by the need to instruct students on the use of software with which he/she may be unfamiliar.

A structured and theoretically informed approach should be used to maximize learners' chances of success in online courses (Salimi, 2007). In contrast to the traditional model of apprenticeship, cognitive apprenticeship focuses on the acquisition of knowledge rather than the development of physical or

psychomotor skills ([Oriol, Tumulty, & Snyder, 2010](#)). "When apprenticeship learning is applied to the development of cognitive skills, it requires that thinking processes that often remain implicit become explicit" ([Oriol et al.](#), p. 211). Faculty provide ongoing feedback while students engage in tasks that stimulate and develop their higher-level thinking abilities. The purpose of this paper is to present a method for teaching finance and accounting concepts to graduate nursing students in an online environment that is based on a cognitive apprenticeship framework.

Key Course Concepts

Teaching nurse managers finance skills necessitates a targeted approach to the selection of course content. It may not be feasible or even necessary to cover the spectrum of topics presented in a traditional introductory finance or accounting course. The content that is chosen should be relevant and current as it relates to the issues healthcare managers are likely to encounter. The American Association of Colleges of Nurses ([AACN, 2011](#)) offers recommendations for program content at all levels of educational preparation, and may be used as a guide here. Additionally, essential financial skill sets may vary by facility; therefore, it is essential that universities assess their communities of interest and take steps to identify and ascertain the skills desired of graduates ([Commission on Collegiate Nursing Education, 2009](#)).

Financial managers usually have concrete, specific goals, and keep a close watch on financial variances in order to be prepared to react if and when necessary ([Studer, 2010](#)). In contrast, nurses and other clinical leaders are not usually as attuned to these aspects. Having managers "speak the same language" is key to maintaining control of the financial affairs of the organization. To accomplish this, some hospitals set financial goals for clinical managers, and clinical goals for financial managers. Each has to learn about the other's area, including the "why" behind actions and decisions ([Studer, 2010](#)). Thus, building on the clinical knowledge base of nurses can only enhance their value on the healthcare team.

In order to be able to create and analyze financial records and reports, students must be familiar with spreadsheet software such as Excel. The teaching of this application should begin with the assumption that most students have not previously utilized this type of software. Some techniques for introducing the skills they need are presented later in this paper. Additionally, understanding the basic tenets of the budget, the financial impact of government relations on the healthcare organization, systems of reimbursement, reimbursement models, cost projections, the use of electronic medical records, and communication and negotiation skills are key conceptual objectives in a basic healthcare finance course. Relevant topics include contractual allowances, cost allocation, break-even analysis, inventory and depreciation concepts, employee turnover, staffing, financial reports (e.g., balance sheets, revenue and expense reports), financial and operating ratios, trend analysis, operating budgets, capital budgets, variance analysis, benchmarking, and the creation of business plans (Baker & Baker, 2011).

Online Education in Nursing

Nurses have been educated via distance education for more than 30 years, using a variety of formats and modalities including print, audio, video, and the Internet (Billings, 2007). Enrollments in distance education programs – including online programs – in United States (US) colleges and universities continue to be on an upward trend, and this is particularly the case with graduate-level programs (Salimi, 2007). According to the US Department of Education, almost 3.1 million students were enrolled in online education courses in 2000-2001 (Salimi, 2007). With advancements in technology, the online classroom is becoming ever more interactive, giving rise to improvements in learner satisfaction and outcomes (Billings, 2007). Networked technologies such as desktop videoconferencing, mobile computing (using smartphones, personal digital assistants, tablet PCs, etc.), and audio/video streaming allow faculty and students to engage in media-rich interaction, both synchronously and asynchronously, irrespective of their location.

According to Salimi (2007), the effectiveness of online education is directly related to the effectiveness of the design of the course. Key elements of an effective course include active presence of the instructor, a sense of community, participation and discussion by the students, a rich set of online presentation materials, study aids, and application exercises. Learning requires an equitable, dialogical process with the educator speaking with, rather than to, the students ([Kash & Dessinger, 2010](#)). It is not the role of the educator to impose his/her view of the world on the students, but rather to strive to assist them in working toward solutions to solve authentic, real-world problems. Billings (2007) observes that an increasingly robust toolset is available to individualize learning in online nurse education through practice tests, on-

demand audio and video content, ancillary learning activities (e.g., treasure hunts, games, case studies), and collaborative learning tasks. To facilitate higher-level critical thinking, students should be encouraged to access resources online, such as best-practice guidelines, community databases, and evidence-based reviews, as well as to interpret data, make judgments, and evaluate outcomes.

The Cognitive Apprenticeship Model as a Pedagogical Framework

Cognitive apprenticeship, as a framework for teaching and learning, facilitates rapid acquisition of essential knowledge and skills needed to meet competencies in an online, graduate-level finance course for nurse managers. Collins, Brown, and Holum (1991) describe cognitive apprenticeship as "a model of instruction that works to make thinking visible" (p. 11). In contrast to traditional apprenticeship, which is typically concerned with the performance of outward, observable tasks in real-world environments such as the workplace, cognitive apprenticeship is primarily concerned with thinking processes (cognitive skills). It usually takes place in a setting separate from the real-world setting, such as an online learning or other academic environment, but the knowledge and skills acquired are then later applied to real-world situations (Austin, 2009). This makes cognitive apprenticeship ideal for the teaching and learning of finance and accounting principles. Students are expected to demonstrate the ability to explain and discuss financial concepts, and subsequently to apply their learning to actual scenarios. The application of cognitive apprenticeship provides faculty with seven strategies to use to facilitate higher-level thinking, namely: modeling, coaching, scaffolding, fading, articulation and reflection, and exploration (promoting transfer of learning) (Austin, 2009; Collins et al., 1991; Oriol et al., 2010) (see Figure 1).



Figure 1. *Cognitive apprenticeship model*

- *Modeling* involves the instructor or other expert demonstrating a task or skill and providing a detailed explanation of the process, allowing the apprentice to form both procedural and conceptual understanding (Austin, 2009). Modeling was first proposed by Bandura (1977) as an instructional strategy whereby students learn by observing. Modeled behavior serves to convey information to the observer with the goal of influencing new behavior. Modeling can be in the form of three stimuli: live models, symbolic models (e.g., graphic description), and verbal descriptions. A key requirement is that the modeling includes not only a demonstration of the task itself, but also a demonstration of "how to think" about the task or the problem being solved. The modeling should mirror a real-world setting as much as possible. Students should be encouraged to ask questions and engage in problem solving, and importantly, the cognitive process followed must be made explicit to them (Oriol et al., 2010).
- *Coaching* is the provision of ongoing feedback as the learner works to achieve his/her goals (Austin, 2009). The instructor should coach students by offering hints and suggestions, analyzing their problems, and identifying areas for corrective action. Feedback should be as immediate as possible to increase the likelihood of achieving the desired outcome. Effective coaching draws on existing knowledge and skills and facilitates the acquisition of new knowledge and skills.

- *Scaffolding* may be used prior to the student mastering the problem-solving process. It involves the introduction of more complex tasks, but in incremental steps, according to the learner's capability (Austin, 2009). Scaffolding can be supplied in the form of tools such rubrics, step-by-step instructions, checklists, cue cards, and sample work. The instructor provides the support and guidance needed for the student to discover, remember, and learn the new concepts. The student is allowed to take charge of his/her learning in a gradual process, and he/she is encouraged to learn from mistakes and grow from successes. In this way, scaffolding challenges the student to "learn how to learn." The instructor must continually assess the student's learning to provide level-appropriate support; an overuse or underuse of scaffolding may interfere with learning (Oriol et al., 2010).
- *Fading* entails gradually removing assistance, while allowing the learner to attempt to solve complex problems (Oriol et al., 2010). Determining the learner's readiness for independent thinking and analysis is key to successful fading. If fading occurs too quickly, the student may not achieve the desired outcome, whereas if fading occurs too slowly, the student may become dependent on the instructor and the support provided.
- *Articulation* and *reflection* are accomplished when the learner expresses or externalizes the approach used for problem solving, and thinks more deeply about the approach, its rationale, and how it might be refined and improved or otherwise done differently. This may involve comparing one's process of thinking to that of others. Paulo Freire viewed education as more than the provision of information to students (Kash & Dessinger, 2010). He challenged teachers to create an environment of equality and caring so that dialogue would flow freely, thereby enhancing learning. Reflection is central to this process as it involves thinking critically about alternatives (Moyer & Witmann-Price, 2008). Reflection may be in the form dialogue, where thoughts are articulated to generate internal awareness. Freire argued that dialogue allows learners to take responsibility for their learning.
- *Exploration* involves encouraging the students to think about alternative methods to approach the problem, and about how their process can be applied to other situations (i.e., promoting transfer of learning). This process should catalyze the generation of new questions, and thereby, new knowledge (Austin, 2009).

The cognitive apprenticeship model provides a dynamic framework for introducing concepts and skills in an online environment. It is believed that integrating all of the above components will yield the most effective approach (Oriol et al., 2010). An additional consideration is the need to create an environment or situations relevant and applicable to the learner.

Applying the Framework

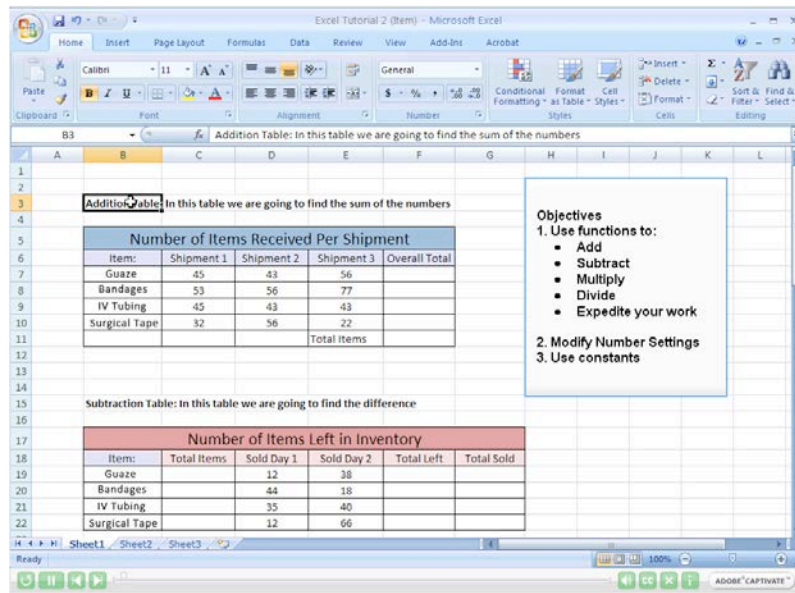
Students enrolled in graduate-level finance courses must become skilled in the use of Excel as well as achieve competencies related to financial concepts. An opportunity exists to employ innovative strategies to teach both skill sets in a holistic and integrated manner. Using the cognitive apprenticeship framework and with the help of various software tools, students can be provided with hands-on experiences early in the course and then throughout it as the concepts and skills being targeted become more complex.

Students are introduced to financial concepts (e.g., financial operations – assets, liabilities, net worth, revenues, expenses, cost classification; cost behavior; break-even analysis; inventory and depreciation concepts; staffing; financial and operating ratios; budgets; etc.) via multiple tools within the Blackboard learning management system, including the discussion board, written and Excel assignments, PowerPoint slide shows, and video and audio presentations. Using multiple modalities caters to various learning styles and increases student interaction. A key tool used to show application of the financial concepts to real-world problems/scenarios and to model the use of Excel is [Adobe Captivate](#). Captivate is an e-learning content authoring program that can be used to capture screen recordings and embellish them with voice narrations, annotations, and other content. The students are provided with step-by-step instructions related to the functions needed to complete the assigned problems. The Captivate tutorials illustrate (model) the Excel skills and procedures, such as creating formulas, using functions, and designing financial statements (budgets, staffing schedules, balance sheets, variance analysis, etc.). Automatic on-screen mouse-tracking and text captions emerge as the concepts and each step are explained using the audio feature in Captivate. If students need additional assistance, a computer screen-sharing application, such as [join.me](#), may be used for one-on-one tutoring. The instructor's screen can be

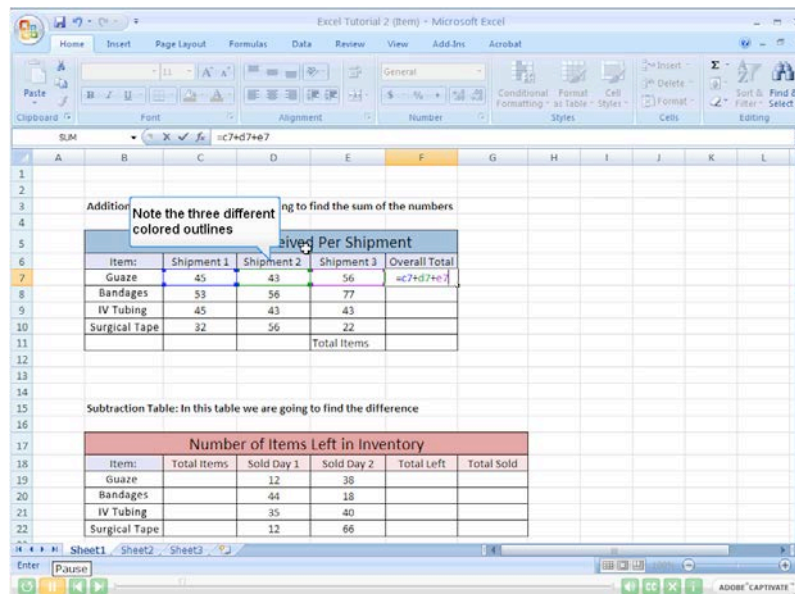
shared with the student without requiring the latter to download or install any specialized software. Presented below is an exemplar for using cognitive apprenticeship as a framework for teaching basic financial concepts and for incorporating software applications to teach Excel in an online environment.

Modeling

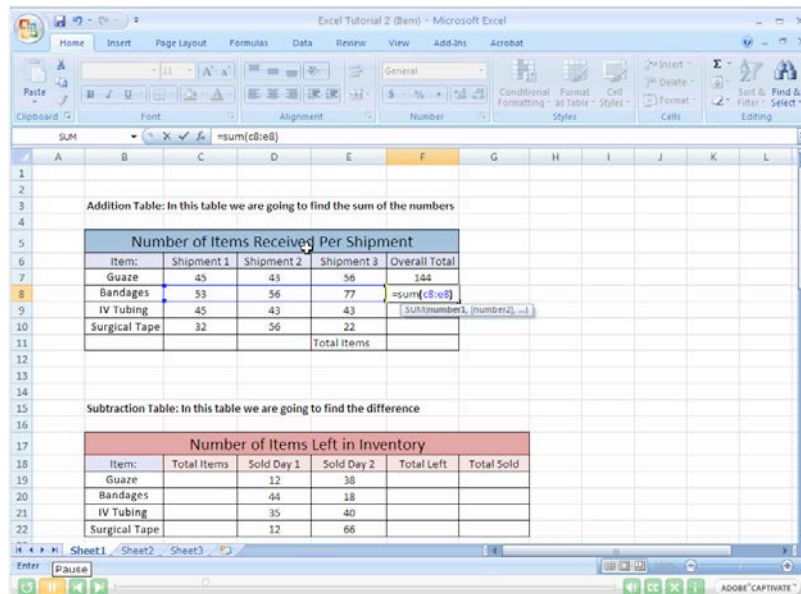
Providing a detailed demonstration of Excel and its real-world application is necessary for increasing the student's confidence, or self-efficacy, in its use. During the demonstration, the students are informed of the rationale for each step via the audio description of the process. Students are encouraged to ask questions and post comments on the course discussion board related to the new skill. Figure 2 illustrates the use of Adobe Captivate to introduce a basic Excel skill using symbolic (graphic) models. The narrator describes each step (verbal modeling) as the skills and concepts are demonstrated. According to Bandura (1977), behavior is reinforced through direct reinforcement (e.g., successfully accomplishing a task), vicarious reinforcement (e.g., receiving a favorable mark on an assignment), and self-reinforcement (e.g., gaining a feeling of personal satisfaction).



(a) Students are given an overview of the skill being introduced



(b) Students are directed to identify the appropriate function and to select values to be added



(c) Students are directed to press "Enter" to complete the computation

Figure 2. Sample screen shots from an Adobe Captivate Flash movie demonstration of Excel. On-screen captions and audio voiceover guide the learner in the process

The Captivate tutorials demonstrate the Excel functions in an explicit methodical manner, affording the student ample time to grasp the concepts being presented. The tutorials are each limited to coverage of a specific skill and are short in duration so as to enable the students to easily return to the relevant content when needing to revise or revisit a particular skill. Captivate tutorials can also be used to introduce complex assignments to demonstrate how to approach a real-world situation (e.g., developing a proposal for the development of a new program).

Coaching

As students are introduced to new information and skills, the instructor directs their attention to the key concepts, discusses how they apply in practice, and then provides reminders and advice in the way of methods for solving the more complex problems. Coaching the student through the process involves understanding and troubleshooting their problems, offering hints and suggestions, and identifying areas in which corrective or remedial action is needed. Students may select to work with their peers on assignments; in the context of the cognitive apprenticeship model, peer coaching is desirable and should be encouraged. Such collaboration among peers reduces frustration and feelings of isolation, which are not uncommon in online learning (Oriol et al., 2010).

When students submit assignments, faculty have an opportunity to use those assignments to determine if they are in need of additional, remedial assistance, and to deliver the assistance and feedback in a timely fashion to address skill gaps and misconceptions. When additional assistance with a particular aspect of Excel is needed or requested by a student, a screen-sharing tool such as join.me, is an excellent vehicle for facilitating real-time coaching and learning. The instructor can either gain access to the student's screen, or the student can view the instructor's screen. Synchronous dialogue takes place as the demonstration occurs. Students can be "walked and talked" through the various Excel features and functions, the process of spreadsheet design, and so on. Coaching can also be performed via e-mail, telephone, or desktop audio/videoconferencing using a tool like [Skype](http://skype.com). Skype is a software application that allows users to make voice calls over the Internet. Users can also see each other if both parties have webcams attached or built in to their computers. At present, Skype can be used for free to make computer-to-computer calls, but costs are involved when placing calls to telephone lines.

Scaffolding

Rubrics, helpful hints (e.g., in the form of on-screen annotations within the Captivate tutorials), and concise instructions can be invaluable in helping guide and assist students in their learning. Scaffolding,

or incrementally building on previous knowledge so that the learner is supported at each stage to reach his/her next potential level of development, encourages building of confidence and self-efficacy related to the skill being learned. Step-by-step instructions may be provided, for example, when a new Excel skill or concept is introduced, and then removed as new content is added. Subtle reminders and hints replace specific guides and instructions to empower the learner to assume independence in the learning process. Fading occurs as the instructor gradually removes explicit clues and instructions. For example, as the student is able to demonstrate the ability to use Excel functions competently, the instructor begins to withdraw (fade) guidance and instruction in that respect.

Articulation, Reflection, and Exploration

Articulation, reflection, and exploration occur when the learner thinks critically about an approach to a problem, reflects on the method by comparing it to benchmarks or approaches used by experts, and shares his/her thoughts about the problem and the outcomes. [Kash and Dessinger \(2010\)](#) argue that the "real value of education is not in what one learns, but in how one develops" (p. 18). As the students apply their new skills to real-life scenarios, they enhance their knowledge and develop new insights and understanding. They use these skills as they create a business plan. They evaluate their business proposals and share their analyses with one another and with the instructor. They also explore potential alternative outcomes to their proposal.

Table 1 summarizes the strategies described above, which involve the application of the cognitive apprenticeship framework to the teaching of finance to nurse managers in an online setting.

Table 1. *Application of the cognitive apprenticeship framework to the teaching of finance in an online, graduate-level course for nurse managers*

Modeling	Adobe Captivate, a software program capable of capturing screen recordings, is used to create tutorials on the Excel procedures in the form of narrated Flash movies. Students are guided step-by-step through features and functions of the application. Automated on-screen mouse tracking, accompanied by text captions, is used to explain the process and steps involved in detail. Students are then asked to reproduce the procedure demonstrated in the recording.
Coaching	Students are coached through structured exercises that make use of data derived from real-world problems. The use of join.me , a free and open-source computer screen-sharing program, allows the provision of synchronous (real-time) assistance to students. Additionally, the course discussion board, telephone, and e-mail are used for coaching.
Scaffolding	Grading rubrics, helpful hints posted on the discussion board, and step-by-step instructions are used in parallel with the modeling and coaching to assist and support students.
Fading	The instructor begins to withdraw tools and support as students gain confidence and competence.
Reflection and articulation	Students are asked to document and share their findings and the process(es) used for problem solving in assignments and case studies. They are also encouraged to engage in productive dialogue with one another about their solutions.
Exploration	Once students complete the structured exercises, they apply their newly acquired knowledge and skills to the task of designing an operating budget as part of a business plan for the unit of their choice. They evaluate their business proposals and share their analyses, exploring potential alternative outcomes to their proposals.

Conclusion

It is believed that using the cognitive apprenticeship model as a pedagogical framework for the teaching of financial concepts and the essentials of Microsoft Excel, it is possible for the instructor to ensure that students are able to master the desired competencies without becoming overwhelmed with the details of the software. However, further evaluation of the framework's application is needed to more fully substantiate this claim. As online courses continue to proliferate and rise in popularity, particularly at the graduate level and within the field of nursing, it is necessary to devise and implement innovative strategies to facilitate successful learning in these domains at a distance. New technologies continue to offer online educators increasingly powerful ways of delivering instruction that is comparable to that seen in the physical classroom. For example, the use of desktop and mobile videoconferencing (e.g., [Skype](#), [FaceTime](#)), web conferencing (e.g., [Adobe Connect](#), [Blackboard Collaborate](#)), and screen-sharing (e.g., [join.me](#)) technologies permit synchronous sessions to be conducted that enable instructors and students to communicate both verbally and visually in real time, closely approximating or mimicking a face-to-face meeting. Research in this growing area is required to provide faculty with best practices and guidelines upon which to base their instructional design and teaching decisions. Empirical studies comparing various tools, techniques, and methods are also needed to determine the most effective and efficient approaches for different pedagogical situations and scenarios, and to produce evidence-based guidelines on how best to facilitate achievement of particular learning objectives and outcomes in the online environment.

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