The Instructional Design Portfolio

A Task-Centered Approach to Entrepreneurship

By Anne Mendenhall, Caixia Wu Buhanan, Michael Suhaka, Gordon Mills, Gregory V. Gibson and M. David Merrill

Background

Brigham Young University-Hawaii has a student body of approximately 2,400 students representing 70 different countries. Almost half of this student body is international, representing many different cultures and languages. While they come primarily from the Pacific Islands and Asia, there are a few representatives from every continent in the world.

One of the biggest challenges for Brigham Young University-Hawaii is return-ability; that is, the university does not want to be a stepping stone for immigration to the United States. The university is striving instead to provide an education to these young people that will facilitate their productive return to their home countries. With respect to this goal, the Willes Center for International Entrepreneurship (CIE) has as their motto: "Don't go home as an employee; go home and become an employer." Their goal is to prepare students to return home and start small businesses that will not only provide for their families but will also enable them to employ others.

The Center for Instructional Technology and Outreach (CITO) at BYU–Hawaii was established with two primary missions: first, to help the faculty of BYU–Hawaii to provide more effective instruction and second, to assist the faculty of BYU–Hawaii to put their courses on-line for delivery to students prior to their coming to the university so that the university can accommodate more of the young people in our target area. At present, the university is able to accept only 12% of the students who apply to attend.

Gregory Gibson, the director of the Willes Center for International Entrepreneurship, contacted the Center for Instructional Technology and Outreach with a proposal for an on-line course in *Entrepreneurship for Non-Business Majors*. The existing program consisted of a series of a business core of six short courses representing what the CIE believed to be the most important steps in starting a business.

CITO was able not only to help CIE put their Entrepreneurship course on-line but to also implement an innovative problem-centered approach to this instruction. We will briefly describe this project and our approach in this portfolio.

Design for the project

Research has demonstrated that when learners acquire knowledge in the context of real-world tasks that they are more motivated to learn and the information they learn is easier to retrieve and apply following the course. Merrill (2002) identified five first principles of instruction that promote effective and efficient learning. A task-centered instructional strategy is central to this model. For this project Merrill (in press) elaborated this principle to identify knowledge components that are required for a task-centered strategy. He also described a strategy for incorporating these knowledge components into a strategy that uses a progression of whole tasks.

Figure 1 illustrates the knowledge components required to teach a whole task adequately. The *desired consequence* is a specific outcome or final product resulting from executing the whole task. This consequence results from the completion of a series of tasks represented by the large arrows. Each of these tasks produces some artifact, perhaps a document or event. There are two types of information associated with each of these artifacts: the properties that define this artifact as an example of some concept and the properties that distinguish a good example from a better example of the concept. In addition there is a series of sub-steps that lead to the identification or creation of the artifact. And finally there is a scenario that illustrates the execution of these steps.

In this project the consequence is to start a new small business. The major tasks required to start a business were identified. The sub-tasks for each of these major tasks were identified. Sections of the business plan, the financial records, representations of the resources acquired and so
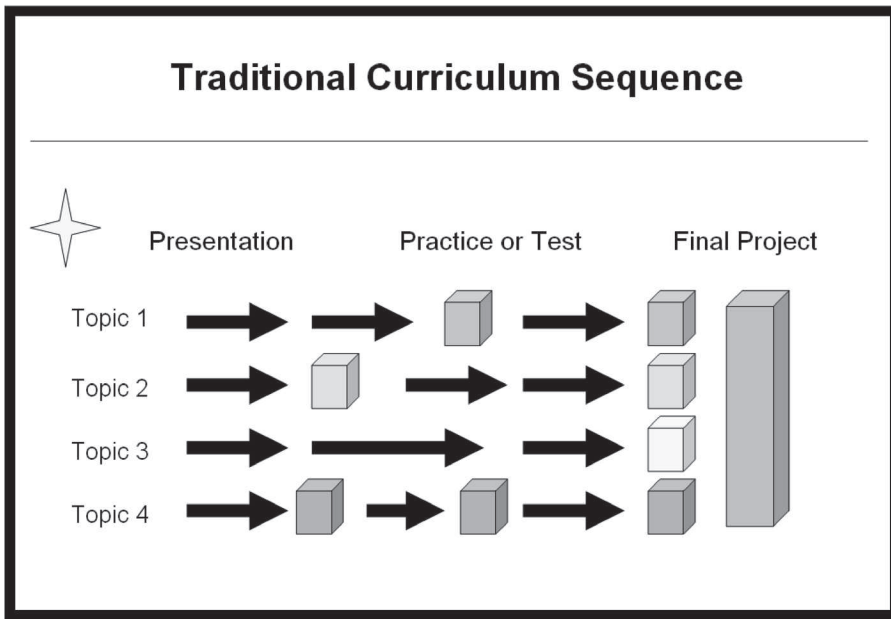
Figure 1. Traditional curriculum sequence

on comprised the artifacts resulting from each of these tasks. Auditory or video scenarios show how each of these tasks were accomplished for each of the businesses included in this product. The original content material was elaborated to include both the information and the portrayals, the knowledge components, required by this knowledge analysis.

The traditional curriculum as illustrated in Figure 2 is most often organized around topics. Each topic is taught in sequence together with remember-information quizzes. After learners have completed each topic they are often required to apply what they have learned in some form of final project. The Entrepreneurship course was originally offered using this traditional curriculum. Each topic was taught and then learners were asked to use this knowledge to develop their own business plan and start their own business.

The Entrepreneurship project uses a *task-centered* instructional strategy as illustrated in Figure 3. Real-world tasks are the focus of the instruction. Early in the instruction learners are shown a whole task. They are then taught that portion of each of the topics that apply to that particular task. The instruction then demonstrates how each of these pieces of information is applied to the task that they have been shown. Then they are presented a second whole task. The learners are asked to use their new knowledge and skill to do as much of this task as they can. They are then taught additional portions of each of the topics that apply to this new specific task. This same sequence of events is repeated for a third and forth task. For each new task, additional information from each topic is taught as it is relevant to the new task. With each successive task in this progression learners do more and more of the task and the instruction demonstrates less and less until learners are able to complete a whole task without guidance or coaching.

For the Entrepreneurship course there were six topics or skill sets thought to be appropriate for starting and running a business:

1) Identify a business opportunity
2) Define the idea that best fits the opportunity
3) Identify resources
4) Acquire resources
5) Start the business
6) Manage the business

The whole tasks chosen were from simple businesses plans developed by former students:

1) A product business — Veasna's Pig Farm
2) A service business — Tseegi and Tsogto's Instant Service Carpet Cleaning
3) A retail business — Da Kine Wireless Mobile Phone, and
4) A restaurant business — Fiesta Mexican Restaurant

These businesses were selected because they are similar to the type of businesses that the students might be expected to form in the future. Some subset of each of the six skills are
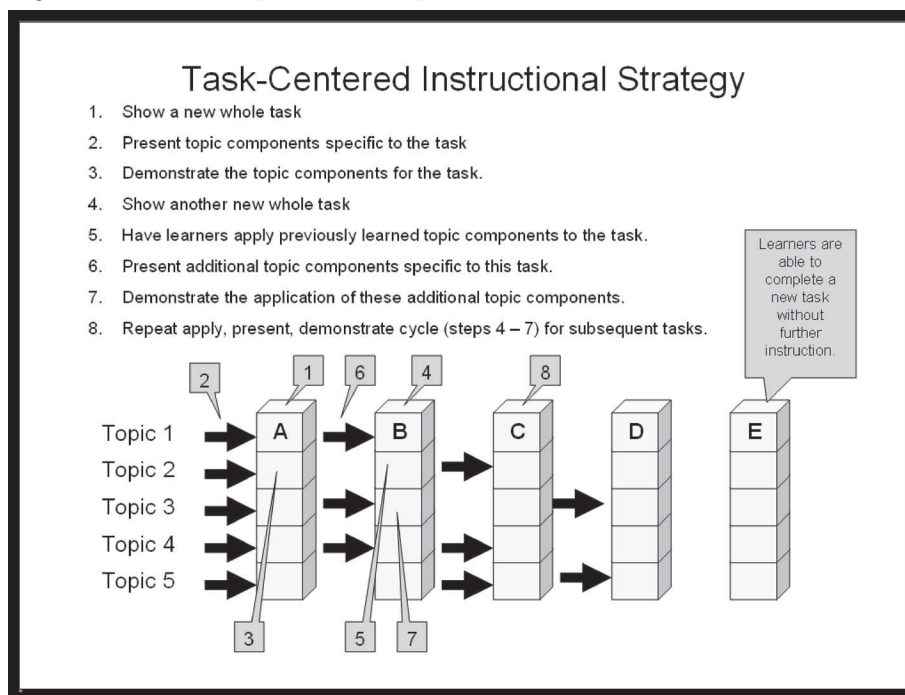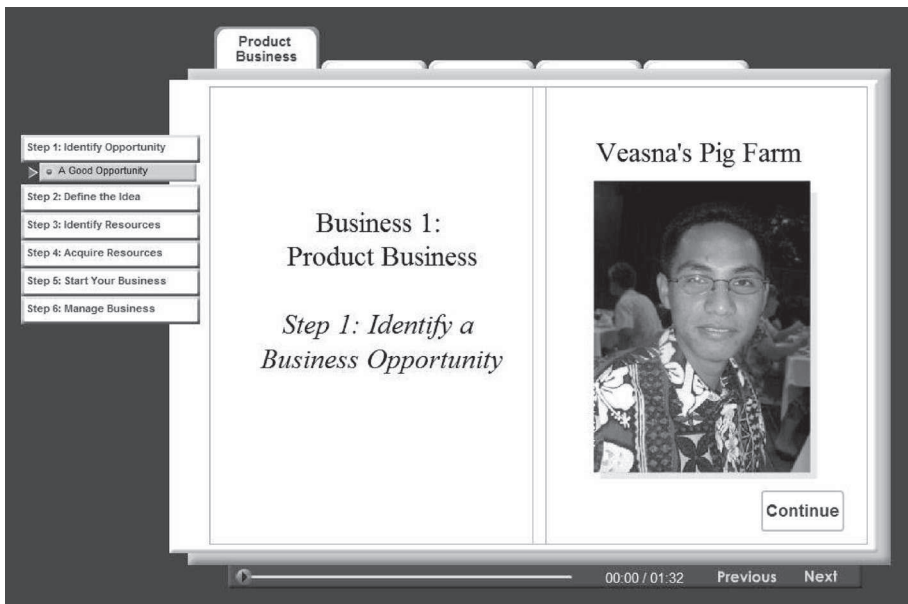

Figure 2. Task-centered instructional sequence

Figure 3. Business introduction screen

illustrated or applied for each of the businesses in turn.

This task-centered approach puts the emphasis on real world examples (show-me) instead of on the abstract concepts (tell me). The abstract concepts are still taught but in the context of whole real tasks. Each concept is thus demonstrated multiple times in different contexts for each of the examples in the course. Learners thus form a whole schema for how to start a business and have several cases that illustrate the entire process.

Illustration of product[1]

Figure 4 illustrates the on-line format of the product. The instruction is developed in Flash and delivered both on-line and on CD-ROM. The tabs across the top represent each of the business cases. The tabs at the left represent the six steps for forming a business. Each of these tabs has pop-up sub-tabs for topics (sub-steps) within the major steps. The topic tabs are nested within the businesses so the material they call up on the screen is
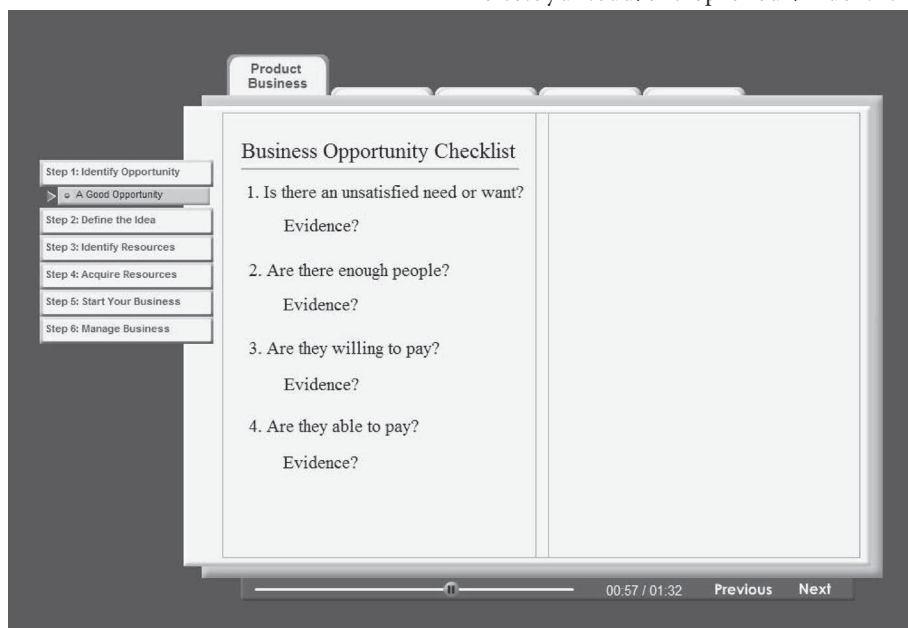
1. This course is available for review at http://cito.byuh.edu/entrepreneur/index.html

Figure 4. Information presentation

appropriate for the business tab which is selected. Students are encouraged to study each of the steps for each of the businesses in turn. However, the system is under learner-control so the tabs are always active. This introductory screen for each business presents a brief slide-show overview of the business.

The instruction consists of two forms of content: information and portrayal. The information is the presentation of the business concepts and principles. Information is presented in the left-hand panel. The portrayal is the demonstration of these principles as they are applied to a particular business. The portrayal is demonstrated in the right-hand panel.

Figure 5 illustrates the presentation of the concept of identifying "a good business opportunity." The check list shown represents the defining properties of the concept. Audio elaborates each of these properties. Each bullet item is displayed as the property is discussed by the audio. Learners can replay the audio and accompanying animation by using the slider bar underneath the panel. In the right panel (Figure 5) each of the properties of the concept defined in the left panel is illustrated. The audio directs learners to move their cursor over the properties and then observe the highlighted part of the written business plan that demonstrates this property.

A similar presentation/demonstration strategy is followed for each of the topics represented by the tabs and sub-tabs at the left. Learners can repeat a presentation/demonstration, return to a previous presentation/demonstration, or even skip ahead to a subsequent presentation/demonstration. However, learners are encouraged to study all of the topics for each business in turn.

When learners go to the "Identify Opportunity" tab for the second business, the properties of a good business opportunity are first reviewed and a new property is added and elaborated by the audio as in Figure 6. Then the portrayal in the right panel is displayed and the learners

are asked to indicate if this portrayal is a good example of these properties for "a good business opportunity." No matter which answer they select, feedback is provided in the left panel that discusses their answer indicating whether this business opportunity statement is adequate and where it could be improved. After a business concept or principle has been presented and demonstrated for one business, in subsequent businesses the concept or principle may be extended. Then learners are asked to apply the concept or principle to the new situation.

Description of measures

An application test was designed and administered to all of the students in the pilot study. This test consisted of a series of questions asked about a fifth business, KHAANSUB, a sub sandwich business. The students had not previously seen this business plan. Questions asked learners to recognize examples of the business concepts they had learned in this new business or to apply the business principles they had learned to this new business.

For example, concerning the business opportunity the test asked the following questions:

5. In the KHAANSUB business plan:
- What is the evidence that there is an unsatisfied need or want?
- What is the evidence that there are enough people with this unsatisfied need or want?
- What is the evidence that there are enough people with this unsatisfied need or want that are willing to pay?
- What is the evidence that there are enough people … that are able to pay?

13. Complete the twelve-month KHAANSUB Pro Forma Income Statement for 2007. (Appropriate additional data was provided as part of the question.)

Learners were given the questions two days in advance of being given the business plan that was needed to
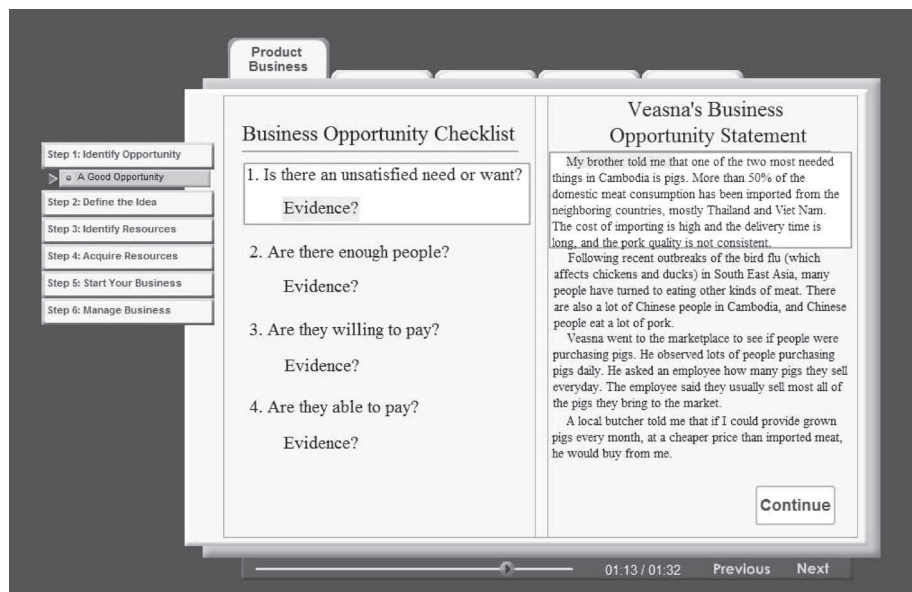

Figure 5. Portrayal demonstration

provide the answers to the questions. This provided an opportunity for students to review the instructional materials which were on-line and available at any time. Students were encouraged to study the questions with their fellow students. Learners were then given five days to complete the exam in a take home format and were required to work alone once they received the business plan.

There were 13 students in the pilot class. One of the students was very dissatisfied with the course. He refused to complete course assignments; he often did not complete the on-line

materials of the course. As a result he performed poorly on the exam. The student's belligerent attitude seemed to have little or nothing to do with the on-line portion of the course. This student's results were not included in the results reported.

The final exam results are shown in Figure 7. There was a bimodal distribution of the scores. Six of the students scored 90 or higher on the exam. The other six students scored in or near the 70s on the exam (1 high 60 and 1 low 80). This difference was related to the students' performance on the financial sections of the exam. The
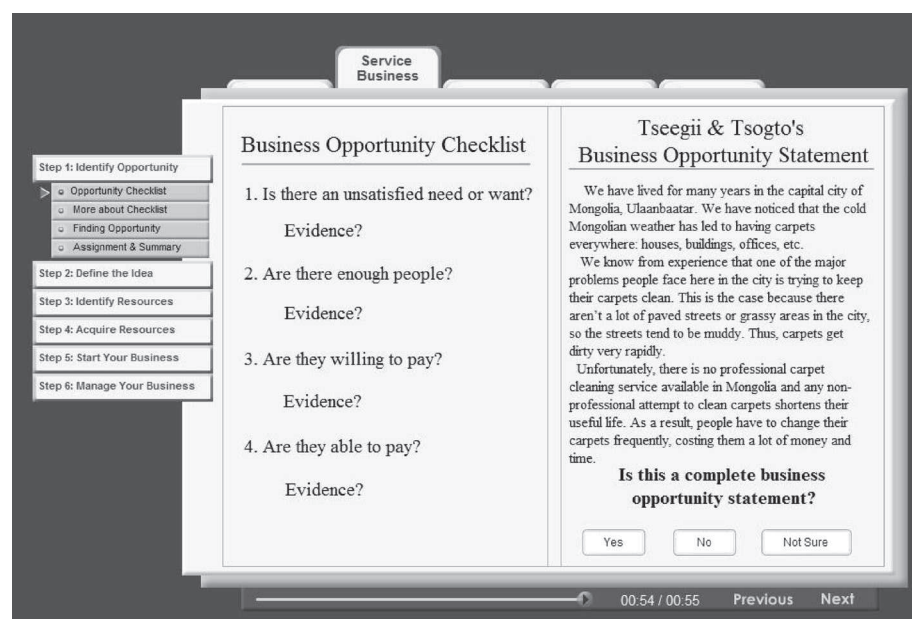

Figure 6. Application to a second business
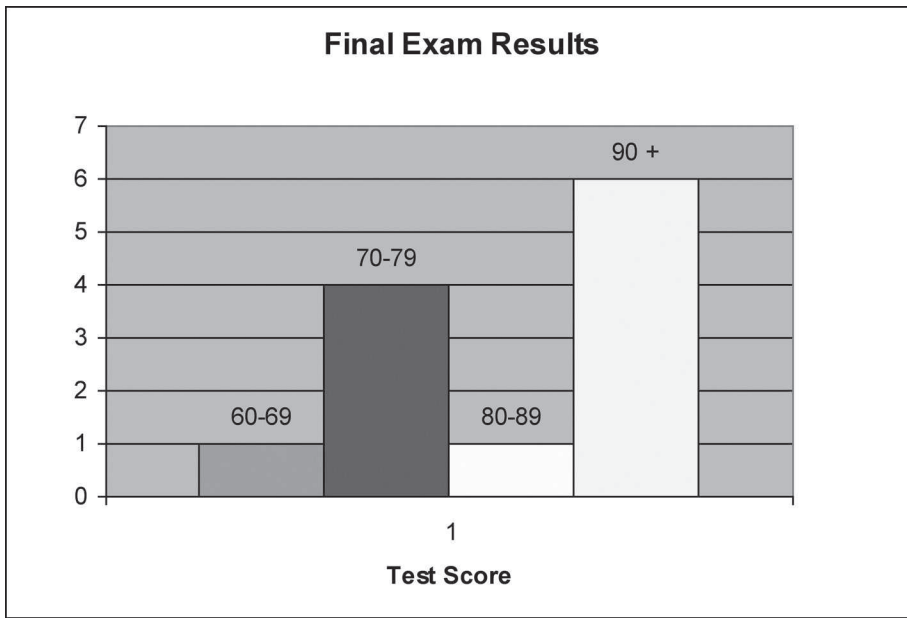
Final Exam Results

Figure 7. Final exam results

revisions underway are to further develop and enhance the financial sections of the fourth business of the course.

For comparison the final exam was also administered to eight students who had completed the business core. The performance for these students is shown in Figure 8. These students each had a complete course for each of the topics that were covered in the on-line module in a single course. An examination of the data shows that the business majors did not have the same difficulty with the *manage-your-business* (accounting) sections of the exam. It is of interest to note that six of the students in the pilot group scored as high on the exam as the business majors who had had far more exposure to the content required.

Each of the learners in the pilot study also completed a series of survey questions before they took the final examination. These questions attempted to assess their attitude and perceptions of the on-line materials. The survey used a 5-point Likert scale from 1-strongly disagree to 5-strongly agree. Sample questions are as follows:

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3. The on-line module helped me better understand entrepreneurship.

7. Please rate your overall satisfaction with the Entrepreneurship online module.

16. The Entrepreneurship online module should continue to be used in this course.

Eleven of the 13 students did not feel that a course pre-requisite was necessary.

The students overall perception of the course was a 4.3. Students thought that the on-line module helped them to better understand entrepreneurship and that the module was interesting and stimulating. They thought the online module stimulated interest in this subject and the course. Overall, students expressed satisfaction with the on-line Entrepreneurship module.

The students overall rating of the course content, assignments, and quizzes was a 4.0. Students agreed that the online module appropriately covered the course content. Students agreed that the directions for the online module assignments were clear and that the assignments were of reasonable length and at an appropriate level of difficulty. Students also felt that the quizzes covered important course materials and content.

The students strongly recommended (4.4 rating) that the online module be used as a part of the entrepreneurship course in the future. Students said they had a stronger interest in the subject because of using the online module and were very satisfied with the module. They would highly recommend this Entrepreneurship course to other students.

Ten of the students were interviewed concerning their experience. All of the students expressed very positive attitudes about the course. Several of these students indicated the value of this experience. The following comment by one student seems to verify the viability of a whole-task-centered approach.

"… I liked the focus it [the on-line entrepreneur course] provided in one course. I loved the fact it made it connect … It started from the beginning

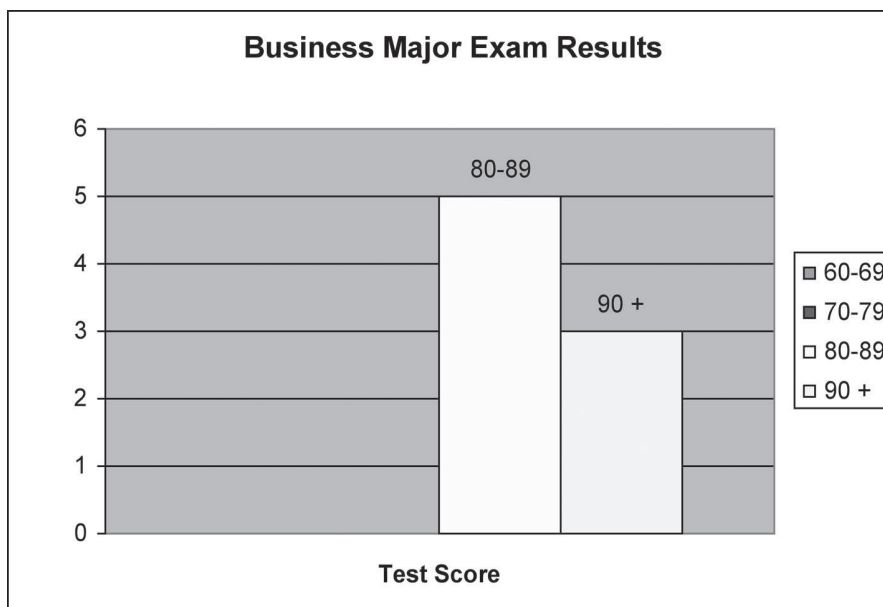## Business Major Exam Results

Figure 7. Business Major exam results

part of starting a business and takes it through all of the steps. I love the continuity of the topics. I felt like when I was studying business [in previous classes] that it was so choppy. Everything you learned you learn it in chunks and it was too general. I like the course online because … it takes you through the whole process all at once within a short period of time within a semester. It was much better than the business core classes. The business core classes were too choppy. I think I would have still learned the same things just using the course online than going through all those classes. It helped me make the connections."

Current status of the project

The beta version of this product was completed early in 2006. This beta version was used as the primary source of instruction in an on-campus course taught winter semester (January — April) by an experienced entrepreneur, John Simcox. The pilot study showed that the information in task 6 for business 4, manage the business, was insufficient for the business illustrated. This section included a number of difficult accounting concepts which may not have been adequately covered in the on-line module. In addition many of these students had no experience with Excel. The current beta version of the course is being modified to enhance the required accounting information that was shown to be inadequate in the pilot study. In addition the revised version will include a hyperlink to a simple Excel exercise demonstrating the two or three required Excel commands required by the exam.

An all on-line alpha version of this course will be offered at BYU–Hawaii summer term 2006. In the summer of 2006 a beta version of the course is being used as the primary source of instruction for a limited group of Filipinos in Manila

being conducted by the Center for Entrepreneurship in order to obtain data on a class conducted by a former student as opposed to an experienced entrepreneur as was the case at BYU-Hawaii. In the fall of 2006, this course will be administered at a distance to students in several locations in our target area of the Pacific Islands and developing Asia.

Primary contributors

This project was funded by private donors provided both to the Center for International Entrepreneurship and to the Center for Instructional Technology and Outreach. The project manager was Anne Mendenhall, the Director of Instructional Design and Development at CITO. The development team consisted of graduate student instructional designers who came to CITO for short or long term internships. They were assisted by BYU-Hawaii student developers. The principal designer/developers were Caixia Wu Buhanan (Utah State University), Michael Suhaka (Utah State University), and Dmytri Samus (Brigham Young University – Hawaii). Gordon Mills (Florida State University) prepared evaluation instruments and conducted the formative evaluation of the product. Additional design assistance was provided by Ellie Jones (Utah State University) and Clint Rogers (Brigham Young University Provo). Additional development assistance was provided by Brigham Young University – Hawaii student developers: Rachael Aitu and Michelle Fuluvaka. M. David Merrill, Director of the Center for Instructional Technology division of CITO, provided the instructional design concept and provided project oversight.

From CIE the subject matter team was directed by Gregory Gibson. The content was written by a team of BYU – Hawaii business students. The primary writers were Manea Tuahu and Carolyn Pack. They were assisted by Carson Ammons, Heber Moulton and Ethan Lee. John Simcox, a successful entrepreneur, provided subject matter quality control and

taught the first class using the on-line instructional product.

Anne Mendenhall (MS Instructional Technology, Utah State University) is Director of Instructional Design and Development, Center for Instructional Technology and Outreach, Brigham Young University-Hawaii.

Caixia Wu Buhanan (Ed Specialist, Utah State University) is tending her new baby boy and accompanying her husband to graduate school at Montana State University.

Michael Suhaka (MS Instructional Technology, Utah State University) is the Director of Custom Course Development with Rapid Intake.

Gordon Mills is a PhD candidate in higher education administration at Florida State University.

Gregory Gibson is the Director of The Willes Center for Center for International Entrepreneurship at Brigham Young University-Hawaii

M. David Merrill completed his assignment at Brigham Young University-Hawaii at the end of June 2006. He is professor emeritus Utah State University and visiting professor Florida State University.

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