Incorporating an Entrepreneurial Certificate into the Pharmacy Curriculum

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Objective. To describe the implementation and assessment of an entrepreneurial certificate program within an elective.

Methods. An entrepreneurial certificate program through the Kauffman Foundation was integrated within an entrepreneurial elective to provide students at Presbyterian College School of Pharmacy with more in-depth training regarding entrepreneurial skills. A pre-/post-survey was administered to assess knowledge and skills obtained.

Results. Thirty-three students completed the survey. By completing the entrepreneurial certificate, 67% of students increased their knowledge and skills in entrepreneurism.

Conclusion. Incorporating an entrepreneurial certificate program into the pharmacy curriculum increases student confidence in entrepreneurial principles and skills.

Keywords: entrepreneurship, certificate program, Kauffman FastTrac, business plan

INTRODUCTION

The changing landscape of health care provides significant opportunities for pharmacists to engage in innovative practice models.1 Quality- and value-based models are replacing traditional fee-for-service programs, placing more emphasis on patient outcomes. Pharmacists have demonstrated the ability to positively impact patient outcomes and add to the quality of care provided when part of the health care team.2,3 In addition, reimbursements for medications from third-party payers are lower, while the actual costs of medications continue to rise.4 Pharmacists need to find new revenue streams to keep pace with the changing health care environment. Developing and implementing new services in the pharmacy setting require entrepreneurial skills and innovative thinking.

Traditionally, entrepreneurship was associated with those who were seeking or have already obtained pharmacy ownership. However, the spirit of entrepreneurship encompasses critical thinking, seeking change and continuous improvement, which aligns with the development of a variety of services in many pharmacy and health care settings. Current accreditation standards and professional competency outcomes as delineated by the Center for the Advancement of Pharmacy Education (CAPE) 2013 require that all student pharmacists have sufficient exposure and understanding of entrepreneurship and innovation as a way to better accomplish professional goals.5 These skills and knowledge are vital in today’s evolving health care environment. Brazeau suggested that fostering the entrepreneurial spirit in student pharmacists is vital to advancing health care.6

Today, many pharmacy schools offer joint degree programs that allow interested student pharmacists to obtain their master of business administration (MBA) while completing requirements for the doctor of pharmacy degree (PharmD). However, depending on the professional goals of the student pharmacist, an MBA may not be necessary. Furthermore, many schools are unable to offer dual-degree programs because of financial, regulatory, or other reasons. Instead, these schools may implement other trainings or programs with a focus in entrepreneurship to provide student pharmacists opportunities to further develop these skills.

The Presbyterian College School of Pharmacy offers its student pharmacists the opportunity to participate in the Innovation and Entrepreneurship (IE) certificate program. The IE program was implemented with the goals of enhancing the entrepreneurial skills and increasing knowledge of the business processes related to opening one’s own pharmacy or pharmacy-related business. This program involves many required components, including attendance at IE workshops and programs, written reflections, completion of an entrepreneurial-focused advanced pharmacy practice experience (APPE), and completion of an entrepreneurial elective. These requirements span the
didactic and APPE curricula, and are intended to foster innovative and entrepreneurial thinking. Student pharmacists who complete all requirements obtain their IE certificate at the hooding and commencement ceremony.

The entrepreneurial elective course is offered in the spring of the second year of the didactic curriculum (ie, fourth semester). Although enrolled students may be part of the larger IE program, the elective course is open to all students in the second professional year. This 2-credit-hour didactic elective incorporates a certificate program provided by the Ewing Marion Kauffman Foundation, which is devoted to entrepreneurship and education. Kauffman FastTrac (Kansas City, MO) provides a variety of training programs for would-be and established entrepreneurs. The Kauffman FastTrac program was selected based on the prominence of FastTrac programs in business journals and magazines, the small-business education provided, and firsthand experience of several faculty colleagues with other Kauffman FastTrac programs.

Planning the Entrepreneurial Venture (PEV) program is intended for students and provides the basic entrepreneurial principles. Specific topics and learning objectives covered within the PEV program are listed in Tables 1 and 2, respectively. The program provides a foundation for student learning, as students are able to practice concepts by reviewing and evaluating a business model of a start-up company. In addition, supplementing the program with additional activities such as completing a pharmacy-related business plan and an entrepreneurial skills assessment enables students to apply knowledge and makes the training program more applicable to the pharmacy profession. To complete the elective, students must complete the Kauffman FastTrac training program workbook and submit a pharmacy-related business plan using skills learned in the course. Students are awarded a certificate of completion from the Kauffman FastTrac at the end of the elective. It is unknown if a similar certificate program is being implemented at other pharmacy schools. A list of affiliate organizations that offer Kauffman FastTrac training is available at www.fasttrac.org.

Previous literature have described methods to develop entrepreneurial skills in student pharmacists as well as inclusion of certificate programs in pharmacy curricula, but none have described inclusion of a nationally recognized entrepreneurial program. This paper describes the implementation and assessment of a nationally recognized entrepreneurial certificate program within a 2-credit-hour didactic elective course at Presbyterian College School of Pharmacy.

**METHODS**

A survey instrument was designed to assess the acquisition of confidence in the skills listed in the learning objectives of the Kauffman FastTrac. While this is a nationally recognized program, it was necessary to see if students were gaining confidence through the completion of the program embedded in the PEV program. Kauffman FastTrac did not provide a means to assess its program outcomes, nor did it conduct such assessments itself. Considering there was no measurement tool in place and, thus, no benchmark data for comparison, a pre-/post-testing method was used to find a baseline for confidence in knowledge and skills based on the outcomes of the Kauffman modules, and to see if there was an increase upon completion of the program. After receiving Institutional Review Board (IRB) approval, students were asked 19 questions related to the competencies/learning outcomes advertised by the program. Those competencies were adapted into 19-question dimensions on a grid, with a 5-point Likert scale rating. The Likert scale was selected to provide an easy way for students to accurately gauge their level of agreement in a familiar format with little room for confusion. The questions were vetted through pharmacy educators and persons with entrepreneurial experience to ensure that the language of the questions were accurate and understandable. The survey was disseminated electronically via the Qualtrics system (Seattle, WA).

| Table 1. Topics Covered in the Planning the Entrepreneurial Venture (PEV) Program Curriculum |
|---------------------------------------------------------------|
| Exploring entrepreneurship                                      |
| Developing a business idea                                     |
| Defining the business concept                                  |
| Testing feasibility                                            |
| Management and organization                                   |
| Product and service planning                                   |
| Market planning                                                |
| Penetrating the market                                         |
| Pricing                                                       |
| Start-up costs and sales                                      |
| Inventory and operating expenses                               |
| Cash outlays and sources                                      |
| Financial statements                                          |

| Table 2. Program Learning Objectives in the Planning the Entrepreneurial Venture (PEV) Program Curriculum |
|---------------------------------------------------------------------------------------------------------|
| Assess personal ability as entrepreneur                                                              |
| Evaluate the viability of a business idea                                                              |
| Create a business concept and plan                                                                    |
| Define strategies for establishing and marketing a business                                              |
| Analyze pricing for a product or service                                                               |
| Understand capital needs and financial statements                                                     |

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Communication regarding the survey was delivered via e-mail and a unique collector link to each class cohort. The e-mail communication provided informed consent documents, as did the survey itself. Respondents were informed of the research and its implications and were permitted to opt out before taking the survey. As this was administered to a group of students in a common course, it was important to ensure students did not feel any pressure to participate. It also was important to stress this was external to the course and that the responses would be anonymous to avoid any performance bias. The intent was to create an environment that encouraged respondents to answer freely, and not to overstate their skills and abilities to impress the instructor. Anonymous results were compiled, and the summation was used to calculate an individual entrepreneurial skills confidence score before and after the completion of course. These results were analyzed for any trend data that would indicate a change in agreement from the time before to the time after the completion of the program. Descriptive statistics were used to analyze the results, and a paired samples t-test was conducted to compare the students’ entrepreneurial skills confidence scores before and after the program. Treatment effect was calculated with Cohen’s d.

RESULTS

Of the 35 students participating in the elective and set to complete the Kauffman FastTrac training program, 94% (n=33) completed the pre-survey and 89% (n=31) completed the post-survey. This is a total number of respondents during the two years the program has been in use. Each student was given a unique identifying code to enter during both the pre- and post-surveys. Two respondents completed the pre-survey but not the post-survey, and were identified. Their results have been removed from the final analysis. Based on the box plot, there was only one outlier in the remaining sample, but the outlier was included as it did not affect the data analysis. An observable trend in the results is a change from either strongly disagree or disagree with the individual’s confidence in an entrepreneurial skill or knowledge before participating in the program to agree or strongly agree with the individual’s confidence in an entrepreneurial skill or knowledge upon completion of the program.

With each question, the median score increased from the pre-survey data to the post-survey data. In addition to this increase, there is a noted decrease in the standard deviation from the pre-survey data to the post-survey data. This indicates that not only are the responses changing from strongly disagree or disagree to agree or strongly agree, but there is a consistent choice of agree or strongly agree in the post-survey results. The reduction in variability of responses in pre-survey to post-survey shows there is a clearer understanding of the concepts behind each question and a firm determination of response. There was a significant mean difference between the total scores for the pre-test (mean=50.5, SD=17.6) and the total scores for the post-test (mean=82.6, SD=13.9), with results significant at $p<.05$ as determined by a paired samples t-test with $\alpha=.05$ (Table 3). There was a large treatment effect after the completion of the program.

In the pre-survey, 39% (n=13) of students either agreed or strongly agreed they had an awareness of their own entrepreneurial traits. Additionally, 76% (n=25) of students stated they had a personal vision. Only 6% (n=2) of the class stated they had created a business plan that incorporated their personal vision, and 12% (n=4) of students felt they could develop financial projections. In the post-survey, 100% (n=31) of students either agreed or strongly agreed they had an awareness of their own entrepreneurial traits. Additionally, 97% (n=30) of students stated they had a personal vision, and had created a business plan that incorporated their personal vision, while 84% (n=26) of students felt they could develop financial projections.

In general, students’ overall entrepreneurial confidence scores increased upon completion of the course. This score was obtained by summing the scores of each question to provide an overall confidence score. The statistical significance of the data provided through the paired samples t-test combined with the effect size indicate that this increase was not due to chance. Table 4 shows the descriptive statistics of each question.

Of the 33 students completing the elective, six (18%) completed the end-of-the-year course evaluations. While the response rate for the course evaluations was low, it was comparable to other elective courses at this pharmacy school. Sixty-seven percent of students strongly agreed they benefited overall from the course; the remaining

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Table 3. Descriptive Statistics and t-test Pre-Test and Post-Test for Entrepreneurial Skills Confidence

|                  | n  | M (SD)   | p    | t-value | D   |
|------------------|----|----------|------|---------|-----|
| Pre-Test         | 31 | 50.5 (17.6) |      |         |     |
| Post-Test        | 31 | 82.6 (13.9) |      |         |     |
| Entrepreneurial Skills Confidence Total (change) | 31 | (32.1) | .000 | 21.1 | 2.0 |
students (33%) agreed the course provided benefit. In addition, all students (100%) felt the text and assigned readings from the Kauffman program contributed to learning in the course.

**DISCUSSION**

The entrepreneurial elective was first offered in the spring of 2016. Overall, 35 students have been registered for the course in the past two years, and 33 have completed the course, which is approximately 25% of the total number of students eligible who are enrolled at the school. Two students withdrew because of personal reasons before the end of the course. Students who enrolled in the elective said they were interested in future careers in pharmacy ownership, administration, community pharmacy, and consulting. Potential limitations for this study include a lack of background information on entrepreneurial experiences, trainings, and undergraduate coursework from students before entering the course. Some of the course material is taught in other courses during the second and fourth semesters in the required didactic curriculum. Any prior training could skew the baseline results; however, the instrument was designed to assess the skills associated with Kauffman FastTrac training program learning competencies specifically rather than general entrepreneurial traits. Additionally, considering that only a portion of the student population at Presbyterian College was assessed, there is no guarantee that these results can be extrapolated to pharmacy students as a whole. This population is accessible through their enrollment in the course and is sampled specifically because of the phenomenological aspect of learning that takes place in this course alone. Because of the small number of students enrolled in this course, no demographic data was captured to ensure that anonymity was preserved. However, it is a limitation of this study that such comparisons were not made. Future studies with larger samples should consider capturing this information for further analysis.

|                          | Pre-Survey M (SD) | Post-Survey M (SD) |
|--------------------------|-------------------|--------------------|
| I am aware of my entrepreneurial traits. | 3.1 (1.0)         | 4.5 (0.5)          |
| I have a personal vision. | 3.8 (0.8)         | 4.5 (0.6)          |
| I understand the business planning process. | 2.4 (1.0)         | 4.5 (0.7)          |
| I understand how to conduct market research to identify needs, trends, and to generate business ideas. | 2.2 (1.0)         | 4.3 (0.7)          |
| I understand how to incorporate a business idea into my personal vision. | 2.5 (0.9)         | 4.5 (0.5)          |
| I can define the business concepts of what I am selling, to whom, and how to best reach that market. | 2.6 (0.9)         | 4.5 (0.7)          |
| I am able to analyze the strengths and weaknesses of a business idea to identify if it is feasible. | 2.9 (1.1)         | 4.5 (0.6)          |
| I understand how to structure and manage an organization. | 2.8 (1.1)         | 4.4 (0.7)          |
| I know the process involved in protecting my intellectual property. | 2.4 (1.2)         | 4.1 (0.9)          |
| I understand about market planning to identify competitors and how to identify my advantages. | 2.6 (1.0)         | 4.4 (0.8)          |
| I understand the concept of/or have identified my target market. | 2.6 (1.1)         | 4.5 (0.7)          |
| I am able to articulate my image for my business and understand how to market it effectively. | 2.6 (0.9)         | 4.4 (0.8)          |
| I understand pricing principles and how to apply them to a product. | 2.5 (1.1)         | 4.2 (1.0)          |
| I understand what start-up costs would be involved in pursuing my business idea and how to project sales. | 2.3 (1.1)         | 4.3 (1.0)          |
| I know how to develop financial projections. | 2.2 (1.0)         | 4.2 (1.0)          |
| I am able to develop and implement inventory management systems. | 2.6 (1.3)         | 4.2 (1.0)          |
| I understand the financial statements that are necessary to manage a business. | 2.6 (1.4)         | 4.2 (1.0)          |
| I have created a business plan that incorporates my personal vision. | 1.9 (1.0)         | 4.6 (0.8)          |
| I have planned the next steps to begin starting my business. | 2 (1)             | 4.2 (0.9)          |
As pharmacy schools continue to look for ways to address entrepreneurism in the curriculum, the data from this study suggest that the Kauffman FastTrac program has a positive effect on the increase in student confidence of entrepreneurial skills. Future studies should consider that students who seek this type of elective experience may be more likely to possess an entrepreneurial spirit beforehand and may likely already possess related skills. This study aimed to test if confidence in the skills related to the Kauffman FastTrac learning outcomes increased upon the completion of the program, but further pre-program assessment could be completed to remove any ambiguity about baseline skill level in general entrepreneurial traits. Also, future consideration should be given to whether all students should be exposed to such an offering considering all PharmD graduates are expected to possess skills, attitudes, and behaviors that demonstrate innovation and entrepreneurship.

**CONCLUSION**

Incorporating an available certificate program provides a method of instruction for the entrepreneurism standards in pharmacy curricula. The students’ confidence of entrepreneurial skills increased after completion of Kauffman FastTrac as demonstrated in the pre- and post-test score analysis. Future studies are needed to determine the impact of completing such a course on pharmacy practice.

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