

A Program Evaluation as Perceived by Program Graduates Show Program's Validity

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Abstract

This research represents the findings of an evaluation of the two-year Agricultural Technology Program at Virginia Tech. This study was designed to obtain graduate opinions about the effectiveness of the curriculum, placement of graduates, and how well the program is preparing students to fulfill the needs of the agricultural industry.

Results indicate that the Agricultural Technology Program graduates were pleased with the overall education they received at Virginia Tech. Approximately 78% of the program graduates are employed within the field of agriculture and 16% are working on their own farms or the family farm. The respondents indicated that the major strengths of the program were the mandatory internship requirement and hands-on courses. The respondents' recommendations for the program were to make credit hours more transferable to four-year programs and add more computer, technology, and information courses to the curriculum.

Introduction

Performing a needs assessment and/or evaluation of a program provides the necessary information to effectively determine if it is meeting its mission and purpose. This information can aid program administrators in making the necessary changes in program leadership and management, teaching techniques and methods, and curriculum to allow students and faculty to attain the greatest benefit from a program. Periodically, a program must be evaluated to determine if it must be expanded or changed to meet the needs of its target population. This can be accomplished through various evaluation and assessment methodologies.

Summative evaluation according to Tuckman (1972) allows one or a group to "determine whether a fully developed program is meeting its objectives" (Tuckman, 1972, p. 366). According to Scriven, (1991) formative evaluation is usually conducted for improvement of a program and is conducted more than once. The evaluation is typically performed from within the program.

The use of survey instruments is an easy and

commonly used method to collect data from a large population or sample. Surveys are a widely used and accepted method to provide data for social science research and for administrative evaluation of programs. One of the main purposes of a survey instrument is to provide a description of the program, explanation of a program, and for the exploration on behalf of the program. (Babbie, 1990; Kalton, 1983). A properly created survey instrument can allow the evaluator to determine how the program is performing, whether it is meeting its' intended goals and mission, and how the program can improve.

The Virginia Tech two-year Agricultural Technology Program recently graduated its 10th class. Therefore, program administrators determined that an evaluation of the program was appropriate.

The Agricultural Technology Program

The two-year Agricultural Technology Program has been a source of controversy since its inception. The present-day program was established in the mid-1970s with influence from the Virginia Farm Bureau Federation and the Virginia agricultural industry. The two groups realized that there was a need in the Commonwealth of Virginia for technicians and middle managers that were formally trained in agricultural production. At the time of the inception of the present-day Agricultural Technology Program, only 7% of the students that graduated from four-year programs in the College of Agriculture and Life Sciences (CAL.S) were returning to the farm and to careers directly related to agricultural production. According to Dr. John M. White, Associate Dean of Academic Programs, high school graduates seeking a two-year degree in agricultural production from someplace other than a community college would leave the state to receive a two-year degree that would meet the demands of the Virginia agricultural industry (White, J., personal communication, March 23, 2000).

Today the Agricultural Technology Program enrolls between 90 and 120 students annually. The students are allowed to specialize in one of four areas; agricultural business, landscape and turf management, animal agriculture, or plant agriculture (crops & agronomy). There are four full time faculty with responsibilities for administration, advising, and instruction. Many of the courses are taught through adjunct faculty and graduate student(s). The program continues to instruct through the use of many "hands-on" labs and requires the student to do an internship between year one and year two of the program.

Philosophical Ties Between the Agricultural Technology Program and Vocational Technical Education

Through personal communications with Dr. John Crunkilton, the Agricultural Technology Program administrator, and an in-depth review of the literature, it is revealed that there are philosophical ties between the Agricultural Technology Program and the historical beginnings of vocational education.

The Agricultural Technology Program uses a philosophy of teaching skills through hands-on courses. , more than 80% of the courses contain a laboratory section. This philosophy, which began in biblical times and continued through history is described by such philosophers as Johann Pestalozzi, Booker T. Washington, John Dewey, David Snedden, and Charles Prosser. Included in the Agricultural Technology Program's philosophy of education is a mandatory internship. This philosophy of practicing a trade before becoming a master in the field has its roots in an apprenticeship style of education. Review of the literature reveals how apprenticeships have played an important role in learning skills and a trade (Barlow, 1976; Bennett, 1926; Bennett, 1937; Camp and Hillison 198; Dewey, 1913; Gordon, 1999; Hawkins, Prosser and Wright, 1951; Prosser and Allen, 1925; Seybolt, 1917; Telshulkin, 1994; Thornbrough, 1969; Venn, 1964; Wirth, 1972; Woodbridge, 1831).

Throughout history, apprenticeships and hands-on learning have become a basis of vocational and agricultural education. The Agricultural Technology Program follows this same philosophy of applied learning. Many of the course offerings within the curriculum uses applied techniques to give the student a realistic representation of what will be expected in his/her field of study and career choice (Bennett, 1926; Crunkilton, J., personal communication, February 21, 2000; Gordon, 1999; White, J., personal communication, March 23, 2000).

Program Evaluations

Due to a lack of information on two-year post-secondary agricultural program evaluations and needs assessments, a literature review of books, journals, thesis and dissertations on the subject was unsuccessful. Information was gathered from some traditional sources as well as websites and national statistical data such as that from the Food and Agricultural Education Information System (FAEIS) that had been gathered in the fall of 1998 regarding enrollment status in colleges of agriculture, natural resources, and life sciences. An attempt was also made to gather information about similar two-year agricultural programs at 1862 land-grant institutions.

Attempts were made to correspond with 15 of the national 1862 land-grant institutions possessing a similar two-year or short course agricultural program with more

than one student enrolled. Each program was solicited for some or all of the following information depending on what was gathered from other sources: program history, enrollment numbers, frequency of program review or evaluation, and the most current copy of the program review or evaluation if any had been performed. This would enable the Agricultural Technology Program faculty and staff to look at similarities and differences among program histories, missions, and evaluation techniques. Unfortunately, many of the institutions refused to respond to the correspondence, or stated that they were willing to send the requested materials which were never received, or stated that they or others at the institution had no recollection or knowledge of the requested information. Any information that was successfully obtained was minimal at best.

There were two disappointments about performing the literature review and gathering of information. First, there is a severe drought of information on this subject. Secondly, the majority of the 1862 land-grant institutions' two-year agricultural programs have apparently not, in recent years, if ever, had a formal review, evaluation, or a needs assessment for their two-year agricultural program. For those two-year agricultural programs that have, it seems that the review/evaluation/assessment is done in conjunction with the four-year programs, or only curriculum has been reviewed. This type of evaluation does not allow for the proper information to be gathered about the need for, or the success of the actual two-year program.

Materials and Methods

An extensive review of literature and gathering of information was performed to gain a greater knowledge and understanding of the Agricultural Technology Program, its history, mission, educational philosophy, and the same of similar programs housed at national 1862 land-grant institutions.

A survey instrument was used for the collection of data from the program graduates. The instrument was made up of three parts. Part one consisted of 14 five-point Likert styled questions with the scale ranging from "strongly agree" to "strongly disagree". The questions included, but were not limited to, students' feeling towards the program, advisors, curriculum, and course relevance. The second part of the instrument included, but was not limited to, demographics (i.e. gender, age, schooling prior to entering the program, area of specialization, first job salary, most recent salary, job status, etc.). The third part of the instrument included six open-ended questions that the respondent was allowed to answer freely. These final questions included what courses the respondents wish they had taken, which they wish they had not taken, how the program curriculum could be improved, and whether they

would recommend the program. The data received from the survey instrument was analyzed using excepted quantitative and qualitative methods.

Two mailings of a pilot study was performed with a 40% response rate and a reliability Alpha of .7371 to test the survey instrument.

On February 1, 1999 the first mailing of the instrument was sent and a response rate of 35% (121 responses, N=343) was received. A second mailing was sent out on February 22, 1999 to all those that had not responded. The second mailing yielded an additional 65 responses (19% of the total N). A third and final mailing was sent on April 7, 1999 to the non-respondents which yielded an additional 29 survey instruments (8% of the total N). A 62% response rate was yielded from the three mailings. A total of 30 subjects of the 128 non-respondents were chosen using a random number chart to perform a non-respondents study to determine if there was a difference between the respondents and non-respondents of the survey instrument. The study was conducted over a four day and night time period. Eleven of the subjects' phone numbers were either disconnected or were incorrect and four subjects no longer resided at the given residence and no forwarding phone number was given. A total of 13 subjects were contacted giving a response rate of 10% for the non-respondents study. A reliability test was run using SPSS and a .8235 Alpha was received. No significant differences were found between the respondents and non-respondents.

Population and Sample Group

The population consisted of all graduates from the first graduation class (1989) to graduates from the fall semester of 1998 from the two-year Agricultural Technology Program at Virginia Polytechnic Institute and State University. Because there was such a small number of subjects within the population, to prevent sampling error, and to prevent any deviation of assumptions between the sample and the population, the entire population (N=343) was mailed an evaluation instrument. All three mailings yielded 215 survey instruments for a 62% response. A reliability test gave a Cronbach Alpha of .7661.

Results and Discussion

The evaluation of the Agricultural Technology Program showed that the program is meeting the needs of its students with some areas in need of improvement. Overall, just over 78% of the program graduates are employed within the field of agriculture while 16% have become owners of farms or are presently working on the family farm. When the graduates were asked to respond to the statement, "All things considered, I wish that I had not

majored in Agricultural Technology", only 14 "strongly agreed" or "agreed" and 13 had no opinion, while an overwhelming 188 or 87%, "disagreed" or "strongly disagreed". When asked if their overall educational experience at Virginia Tech was worthwhile, 97.7% either strongly agreed or agreed with the statement. This indicates that an overwhelming majority would return to the program if they had to do it all over again and that they were pleased with the education they received through the program.

When asked to respond to the statement, "Agricultural Technology Program should continue the internship requirement for every student," 95.8% "strongly agreed" or "agreed" to the statement. And when asked if the graduates believe the lab sections helped their understanding of the course content in the Agricultural Technology Program, 96.3% stated that they either "strongly agreed" or "agreed" with the statement. The indication given by the program graduates is that applied learning methods used within the curriculum of the Agricultural Technology Program are a meaningful attribute of the program and should not be relinquished.

The recommendations that the graduates made for improvement of the Agricultural Technology Program included additional courses within their educational option area, separate general education courses (i.e. communications, issues, and computers), and a larger number of transferable credit hours to the four-year programs at Virginia Tech. Although the recommendations are valid, it is not economically feasible at this time to implement them. However, many of the recommendations will be considered when the financial and political outlook of the program is more favorable.

Has the program performed its mission by preparing individuals to meet the needs of Virginia's agricultural industry? Yes, the salaries that program graduates are receiving meet or exceed the expectations of the employment positions for which students are prepared in the Agricultural Technology Program. The mean salary for the graduates' first job was between \$18,000 and \$23,999. The mean salary of the graduates' current job was between \$24,000 and \$29,999. These numbers are in line with the expected salaries of middle managers, technicians, and agricultural production workers in rural Virginia.

Implications

The evaluation of the Agricultural Technology Program will allow administrators and faculty to look at the data and formulate a plan for the improvement of the program. Program improvements may come in a wide array of subtle or not so subtle ways. These changes may include, changing present courses that are not hands-on into applied courses, additional elective courses to allow

students to gain further experience in other areas of their discipline, and the possibilities of expanded option areas to meet the need of the ever-changing market place and economy of Virginia.

This evaluation has aided the Agricultural Technology Program in many ways. The results from the survey instrument can make a valid argument to enhance the programs' funding to meet the expanded needs of Virginia's agriculture industry. The results can be used as a marketing and recruitment tool to show prospective students and their parents what they can expect from the program and what the student can expect after completion of the program.

In conclusion, program evaluations offer a needed component to any program. Program administration and faculty may not realize that the program is not meeting the needs of its clientele without gathering proper information and data. It is a necessity of any program to periodically perform an evaluation and/or needs assessment for the benefit of the program and its constituents. The program may have to change its purpose and/or mission due to unexpected changes in the economy and society. This can be found if the proper information is gathered through various forms of program evaluation. Only then will a program be able to sustain itself in meeting the needs of its clientele through the reaping of economic benefits within their region and their state.

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Results of a Horticulture Survey Completed by Agriculture and Biology Students attending High Schools in Illinois, Iowa, Minnesota and Wisconsin

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Results of a Horticulture Survey Completed by Agriculture and Biology Students attending High Schools in Illinois, Iowa, Minnesota and Wisconsin

Abstract

Students enrolled in agriculture and biology classes were surveyed to determine their interest in pursuing a baccalaureate degree in horticulture at a four-year university. A questionnaire was sent to agriculture and biology instructors at fifty high schools in northwestern Illinois, northeastern Iowa, southeastern Minnesota and Wisconsin. Students were asked several questions pertaining to horticulture. A total of 1000 questionnaires were mailed. Of the 451 surveys received, about 47% of the high

school freshmen, sophomores, juniors and seniors indicated that they were interested in horticulture. About 41% of the students interested in horticulture wanted to work in landscaping, 20% greenhouse, 14% florist shop and 7% in turfgrass management. Over 70% of the students indicated that they wanted to own and operate their own horticultural business. About 50% of the students indicated that they preferred to combine an emphasis or minor in Agribusiness or Business Administration compared to agronomy (19%), biotechnology (14%), plant breeding and genetics (13%) or comprehensive horticulture (2%) with their horticulture degree. The above information was used to develop a major in Ornamental Horticulture.

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Introduction

Public need for horticultural products has rapidly increased in recent years. Floral product and plant purchases were at record levels in 1998 (Johnson, 1999). Retail expenditures for these products reached \$54.6 billion, which