

**Identifying Professional Development Needs of Secondary Education Professionals**

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### Introduction and Need for Research

The increasingly important issues and top U.S. priorities of food security, sustainable energy, and environmental quality demand highly qualified graduates with expertise in Agriculture, Food, and Natural Resources (AFNR). Despite demand, a recent study found 32% of U.S. employers report difficulties filling job vacancies due to a lack of skills and training among potential employees (ManPower, 2015). Between 2015 and 2020, an average of 57,900 annual job openings are expected in careers related to AFNR areas. With an average of 35,400 new U.S. graduates annually with expertise in these areas, a large gap exists between the number of expected job openings and the number of well-qualified graduates to fill those positions (Goeker, Smith, Fernandez, Ali, & Theller, 2015). Due to this shortage, employers will have to look elsewhere to fill the other 39% of job openings. Teachers play a role in students' career decisions, but other educational professionals—guidance counselors, career technology education directors, work-based learning coordinators, and school and district administrators—also influence students' career decisions. However, these educational professionals, including administrators, often lack the knowledge or have negative perceptions about agriculture and agricultural careers (Boone & Boone, 2007; Thompson & Russell, 1993). The purpose of this research was to identify the professional development needs of secondary school educational professionals in areas related to AFNR careers.

### Theoretical and Conceptual Framework

The theoretical framework for this study is the Model of Career Choice (Dick & Rallis, 1991). This framework focuses on three key concepts that influence an individual's career choice: socializers, past experiences, and self-concept. According to Dick and Rallis (1991), socializers, such as friends or teachers, can have an influence on students' career aspirations. Our conceptual framework focuses on the socializers within the school context (e.g. guidance counselors, teachers, administrators) who may influence students' career aspirations.

### Methodology

The target population for this study included guidance counselors, school and district administrators involved in aspects of student career development or exploration (CTE directors), work-based learning coordinators, and middle and high school teachers, including agriculture teachers in Utah. Surveys were administered at a "career day" event hosted in a central location of the state. Participants were asked to rate on a scale of 1 (*not important or not competent*) to 5 (*very important or very competent*) their perceived importance and their perceived ability of eight different career areas within AFNR. Seventeen participants representing schools across the state completed surveys. Data from the surveys was then analyzed using the Borich Model to calculate mean weighted discrepancy scores (MWDS, Borich, 1980). By utilizing MWDS researchers were able to rank the training needs of education professionals regarding AFNR careers.

### Results/Findings

The training needs for secondary school educational professionals are found in Table 1. The high MWDS for all eight AFNR areas indicate that participants perceived all of these areas as highly important but have little knowledge or skills in these areas.

Table 1

*Secondary Education Professionals' Training Needs for AFNR Areas*

<i>AFNR Area</i>	<i>Ranking</i>	<i>MWDS*</i>
Biotechnology in Agriculture	1	8.40
Unmanned Aerial Vehicles (UAVs) in Agriculture	2	8.39
Urban Agriculture	3	7.08
Water Quality & Environmental Sciences	4	6.11
Natural Resources	5	5.51
Climate Change & Agriculture	6	5.41
Aquaponics	7	5.38
Urban Forestry	8	5.18

\*MWDS = Mean Weighted Discrepancy Score

**Conclusions**

Findings suggest secondary school educational professionals have little knowledge of AFNR careers, yet feel they are important. This finding implies a need to provide these professionals with professional development opportunities about AFNR careers. Biotechnology in Agriculture was the number one training need of educational professionals in Utah. Despite agriculture’s many scientific advances and expanding career opportunities, many people still associate agriculture with traditional production agriculture and may not associate biotechnology with agriculture. Perhaps the fact that biotechnology and UAVs in agriculture ranked among the highest for professional development needs may be a result of inadequate funding and support (i.e., drones and biotechnology equipment can cost thousands of dollars). Perhaps it is the novelty of many of these AFNR careers, such as urban agriculture, that still have not caught on with the general public, but most importantly, among those socializers in secondary schools who help influence students’ career choices. Providing education professionals with training in these areas related to AFNR careers can lessen misconceptions surrounding career opportunities for students in AFNR among administration and other educational professionals.

**Implications/Recommendations/Impact on Profession**

Due to the small sample size, we recommend similar research studies be employed, including needs assessment research, exploring the perceptions of school professionals regarding AFNR careers. We also recommend agricultural education professionals provide workshops to secondary school professionals related to the career opportunities in the areas of biotechnology in agriculture, UAVs in agriculture, urban agriculture, water quality, and more. By educating those who play a role in students’ career decisions, more students can be prepared for careers in AFNR areas, and by so doing, adequately supply the agricultural industry with the qualified graduates they need to solve the complex problems of feeding the world, promoting sustainable energy, and protecting and preserving the environment.

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