

Professional Development Needs of Nicaraguan Agricultural Educators

Introduction/Theoretical Framework

Nicaragua is one of the poorest countries in Latin America with approximately 46.2% of the population living below the poverty line (Kliesner, 2014). The Nicaraguan agriculture sector accounts for nearly 30% of the country's Gross Domestic Product (GDP) and almost half of the workforce (Dimas, 2003), making agriculture in the country critically important to the nation's economy. According to the United Nations Educational, Scientific and Cultural Organization (2011), Nicaragua is a country of 5.6 million people and more than 2 million school-aged children. To continue to develop the nation, Nicaraguan schools have started to gain interest in developing their agricultural education programs, as well as implementing opportunities for hands on learning. However, per a background study done by the USAID InnovATE project, teacher training and quality are significant issues at all levels of the Nicaraguan school system (Williams, 2014).

This study identified the specific training needs of agriculture teachers in Nicaragua, and provided insight and direction for the creation of professional development workshops. By analyzing the self-identified needs and deficiencies of Nicaraguan agriculture teachers, programming can be developed to focus on these needs and deficiencies for the improvement of their agricultural education programs. Successful agricultural education programs can help the country become more food secure, as well as assist in developing their economy.

The objectives of this study were to describe the demographic profile and program characteristics of Nicaraguan agriculture teachers, and identify and describe the perceived in-service needs of Nicaraguan agriculture teachers.

The Borich Needs Assessment (Borich, 1980) was designed to weight and rank the needs of a group based on their perceived importance and perceived competency of each need. This model looks at what the behavior and skills of the group are, and helps to describe what should be used for future training processes.

Methodology

Data collection was completed using a survey instrument that includes 50 Likert-type items that were modified from previous research (Layfield and Dobbins, 2002; Dormody and Torres, 2002) to meet the needs of Nicaraguan agriculture teachers. Twenty-five items were asked twice to collect both the perceived level of importance for each item, as well as the perceived level of competency by the individual for each item. These items were developed based on the Borich Needs Assessment Model (Borich, 1980).

This research was conducted with 14 agriculture teachers who were present at a three-day youth development program in northern Nicaragua. The survey instrument was distributed as a pencil

and paper instrument only. The survey instrument had been translated into Spanish prior to data collection and was then translated back into English following data collection. Descriptive statistics were used to analyze data with SPSS version 22. Microsoft Excel was utilized to calculate a Mean Weighted Discrepancy Score (MWDS) to describe the overall need rankings for each competency.

Results/Findings

The first objective of the study was to describe the demographic profile and program characteristics of Nicaraguan agriculture teachers. The majority of participants in this study (71.4%, n=10) were male. They were primarily in their late twenties ($M = 27.21$, $SD=4.53$), and averaged 5.14 years of teaching experience ($SD=2.38$). Fifty percent (n=7) of respondents indicated they teach soil science related lessons, 42.9% (n=6) indicated teaching plant science, 35.7% (n=5) teach animal science related lessons, and 35.7% (n=5) teach entomology to their students.

The second objective of the study was to identify and describe the perceived in-service needs of Nicaraguan agriculture teachers based on the Borich Needs Assessment Model. The top 10 competency needs as identified by their MWDS are: teaching Agriculture Mechanics (3.75), teaching Agricultural Business (2.51), teaching Soil Science (1.87), teaching Agricultural Marketing (1.85), teaching Animal Science (1.68), motivating students to learn (1.66), teaching Plant Science (1.45), teaching decision making (1.25), teaching agricultural leadership (.98), and teaching problem solving (.90).

The 10 least important competency needs as identified by their MWDS are: Locating and selecting student reference materials (-2.40), managing student behavior problems (-1.78), teaching Horticulture (.83), teaching using experiments (-.68), keeping students on task (-.56), conducting local youth organization activities (-.53), presenting subject matter clearly (-.33), having a rapport with students (-.32), using a variety of instructional methods (-.30), and using appropriate assessment strategies (.31).

Conclusions/Implications/Recommendations

Based on the findings of the least needed competencies, Nicaraguan agriculture teachers indicated they have a firm grasp on most of the major components of effective instruction. However, the results of the top needed competencies revealed a desire to improve on subject matter knowledge and implementation. Based on this study, professional development should focus primarily on providing content knowledge of subjects that are being most actively taught in Nicaraguan agriculture programs (soil science, plant science, animal science, and entomology). It is also recommended more research be done, using a larger sample size of teachers from Nicaragua.

References

- Borich, G.D. (1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education*. 3(3), 39-42.
- Dimas, E.M. (2003). Bloque II: Analisis y diagnostico de Nicaragua. Seguridad alimentaria sostenible en zonas marginadas de Nicaragua. Universidad Politécnica de Madrid.
- Dormody, T.J. & Torres, R.M. (2002). A Follow-up study of Agricultural Education program graduates on teaching competencies. *Journal of Agricultural Education*. 43(4), 33-45.
- Kliesner, K.W. (2014). Poverty in Nicaragua. The Borgen Project. Retrieved from: <http://borgenproject.org/poverty-in-nicaragua/>
- Layfield, K.D. & Dobbins, T.R. (2002). In service needs and perceived competencies of South Carolina Agricultural Educators. *Journal of Agricultural Education*. 43(4), 46-55.
- United Nations Educational, Scientific and Cultural Organization. (2011). Regional Overview: Latin America and the Caribbean. Retrieved from: <https://en.unesco.org/gem-report/sites/gem-report/files/191433e.pdf>
- Williams, R.J. (2014). Nicaragua: Background Study. USAID: Innovation for Agricultural Training and Education. Retrieved from: http://www.oired.vt.edu/innovate/wp-content/uploads/2015/08/innovATE_Nicaragua_country_study_92714.pdf