Regional Knowledge, Skills, and Abilities Required for ANR Extension Agents in Texas

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Introduction

Texas A&M AgriLife Extension Agriculture and Natural Resources (ANR) agents serve 254 Texas counties that differ widely in climate, commodities, and clientele needs. These agents are expected to provide locally relevant, research-based information on crops, livestock, natural resources, and community issues while managing high workloads and complex stakeholder relationships (Ensle, 2005). Although ANR agents are critical to the success of Extension programming, there has not been a detailed list of the knowledge, skills, and abilities (KSAs) they must possess, especially those that are region specific. Understanding how KSA expectations vary by region can support better hiring, training, and preparation of agents to meet local needs (McLellan, 2014). This study investigated regional variation in ANR agent KSAs across Texas A&M AgriLife Extension.

Theoretical Framework

This study was grounded in competency model theory, which distinguishes between intelligence and the specific competencies that lead to successful job performance (McClelland, 1973). Competence is defined as a set of knowledge, skills, traits, and motives that enable superior performance in a given role (Chouhan & Srivastava, 2014). In this context, KSAs represent functional competencies that allow ANR agents to address agricultural and natural resource issues effectively in their assigned areas (Carroll & McCrackin, 1998; Chouhan & Srivastava, 2014). Because Texas regions differ in production systems and environmental conditions, competency theory suggests that regional KSAs should reflect local crops, livestock, and resource challenges rather than a single uniform list.

Methodology

A Delphi study was used to gather expert opinions about KSAs required for ANR Extension agents in Texas A&M AgriLife Extension. The expert panel included District Extension Administrators, Regional Program Leaders, and Career Ladder Level IV – Distinguished ANR agents, all of whom were identified as experienced leaders in Extension work. Panelists responded to open-ended questions to list general KSAs for new-hire and mid-career agents and to list KSAs that were specific to their regions. The regional responses were coded and grouped by district and region using inductive reasoning techniques to create a list of area-specific KSAs. Fifteen panelists completed all three rounds, exceeding the recommended minimum for Delphi studies (Dalkey, 1969).

Results

Panelists identified clear regional differences in the KSAs needed for ANR agents across Texas A&M AgriLife districts and regions. In District 1 (Panhandle), experts emphasized knowledge of wheat, sorghum, silage, and stocker cattle and cow–calf operations, reflecting the importance of grain and beef production in that area. In contrast, District 3 (Rolling Plains) highlighted KSAs such as basic grass knowledge, disease identification and treatment, and knowledge of cotton, wheat, beef cattle, and sheep and goat production, indicating a mix of crop and livestock

expectations. District 5 (East Texas) and the Overton-based East Region stressed knowledge of beef, forage, horticulture, fruit and vegetable production, feral hog control, and pesticide education, aligning with forage-based livestock systems, diversified crops, and natural resource concerns.

Regional KSA expectations in other areas also mirrored local production systems. In District 6 (Far West), panelists listed knowledge related to livestock purchasing, validation, feeding, care, and health, as well as understanding of crops and animal projects, which reflects extensive ranching and irrigated crop production in that region. The Central Region (District 8) emphasized dairy and small-grains production, sheep and goat management, forage production, vegetable gardening, fruit and nut production, wildlife, and native rangeland, indicating a need for broad content expertise across both production agriculture and small-acreage enterprises. Across all contributing districts and regions, regional KSA lists were more specific than the general KSA lists, often naming particular crops, livestock species, pests, or outreach needs. However, some districts and regions did not provide regional KSAs, so the list should be viewed as detailed for participating areas but not yet comprehensive statewide.

Conclusions

This study examined how regional KSAs identified for ANR Extension agents differ across Texas A&M AgriLife Extension regions. Expert panelists reported that the KSAs needed for effective performance vary meaningfully by region, with expectations closely tied to local commodities, production systems, and environmental challenges. Regional lists complemented the consensus-based general KSA lists by adding specificity about crops, livestock, pests, and outreach topics that matter in particular districts. The findings support the idea from competency model theory that effective performance depends on context-specific functional competencies rather than only on broad, generic skills (Chouhan & Srivastava, 2014; McClelland, 1973).

Implications / Recommendations / Impact on the Profession

The regional KSA lists provide a practical tool for tailoring Extension human resource practices and professional preparation. For hiring, districts can incorporate region-specific KSAs into job postings and interview questions (for example, emphasizing small-grain and beef competencies in the Panhandle or forage, horticulture, and feral hog control knowledge in East Texas) to recruit agents whose expertise aligns with local needs. For training and professional development, AgriLife Extension can adjust onboarding and ongoing education to emphasize the KSAs highlighted for each region, building on existing programs such as orientation, mentoring, and workshops. Colleges of agriculture can use both the general and regional KSA lists to align curricula and experiential learning opportunities with the competencies required for ANR Extension careers, potentially reducing new-agent burnout and turnover. Future research could validate these regional KSAs with current county agents, expand participation to underrepresented districts, and examine how regional KSA alignment influences job performance and retention over time.

References

Carroll, A. & McCrackin, J. (1998), The Competent Use of Competency-Based Strategies for Selection and Development. *Performance Improvement Quarterly*, *11*: 45-63. https://doi.org/10.1111/j.1937-8327.1998.tb00099.x

Chouhan, V. S., & Srivastava, S. (2014). Understanding competencies and competency modeling—A literature survey. *IOSR Journal of Business and Management*, *16*(1), 14-22. https://doi.org/10.9790/487X-16111422

Dalkey, N. (1969). An experimental study of group opinion: the Delphi method. *Futures*, *1*(5), 408-426. https://doi.org/10.1016/S0016-3287(69)80025-X

Ensle, K. M. (2005). Burnout: How Does Extension Balance Job and Family?. *The Journal of Extension, 43*(3), Article 6. https://tigerprints.clemson.edu/joe/vol43/iss3/6

McLellan, M. S. (2014). *Organizational and Individual Factors Related to Retention of County Extension Agents Employed by the Texas A&M AgriLife Extension Service* (Doctoral dissertation). Retrieved from https://oaktrust.library.tamu.edu/handle/1969.1/154103

McClelland, D. C. (1973). Testing for competence rather than for "intelligence." *American Psychologist, 28*(1), 1–14. https://doi.org/10.1037/h0034092