INVESTIGATING LEADERSHIP CHARACTERISTICS AND ATTITUDES TOWARD CREATIVITY ACCORDING TO AGENCY CONTEXT FOR AGRICULTURE EXTENSION AGENTS IN URUGUAY

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The purpose of this study was to investigate attitudes toward creativity and leadership characteristics according to the agency context for extension agents in Uruguay. Extension agents come from the three different agency contexts in Uruguay of the University, government, and private institutions. Leadership characteristics are those that combine to describe leadership approaches or styles. Attitudes towards creativity concerns the values one holds about using creativity in work situations. The link between these variables is important due to the diverse challenges that agriculture extension agents face in a small country like Uruguay whose economy depends on agriculture.

There are three major conclusions based on the findings of this study. First, factor analysis performed in the scales related with leadership did not cluster as Bass and Avolio (2000) suggested. Rather, results show a different combination of the traits (Motivating demanding, Compliant, and Charismatic controller). The second conclusion is that attitudes and values to promote innovation likely expected to be one of the values of the university group were not shown in the results. One possible explanation could be the philosophy of the university, while the government and private institutions showed an attitude that tends to promote creativity and innovation which in their case is aligned with their jobs goals, which has to do with a model of extension that provides regulation and provision of inputs and also emphasize National production goals and productivity. Third there is a difference between working contexts for agricultural extension agents in Uruguay. The results of the study were able to discriminate between the university context and government and the private contexts which showed a similar behavior. Both the government and the private contexts showed a positive approach to creativity and a compliant leadership behavior.

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CHAPTER I

INTRODUCTION TO THE STUDY

As the practice of agriculture has changed over the years, so has the services provided through agricultural extension. Farmers and ranchers have witnessed shifts from a large production to a quality production, and yet again, to multi-functionality. The dynamic scenarios and the increasing demands that agriculture faces in the 21st century place the extension agents and the extension services represented by them in a central role throughout the world. Agricultural and extension education emerges from four of the United Nations Millennium Development Goals: eradicating extreme poverty and hunger, promoting gender equality and empowering women, ensuring environmental sustainability, and building global partnerships for development (Sachs, 2005). As a consequence, these goals of production, equity, sustainability, and global partnerships are built into the preparation of competent and farmer-oriented extension agents.

Extension services establish the connection between scientific research and the farmer or rancher. Agricultural extension is the function of providing need- and demand-based knowledge in agronomic techniques and skills to rural communities in a systematic, participatory manner, with the objective of improving their production, income, and (by implication) quality of life (FAO, 1984). The basic problem is how to transfer the scientific knowledge through some form of communication. Because leadership is defined as an influence relationship among leaders and followers who intend real changes and outcomes that reflect shared purpose, the leadership

function is attributed to agricultural extension agents (Daft, 2011). This leadership function has strategic importance as the extension agent is in charge to innovate, change, and develop resources in a community. This communication draws the focus to the quality interaction between agent and farmer and not only the mere technology transfer through a hierarchical system (Jones & Garforth, 1997). Agents can no longer rely on their technical or management science training alone. The future extension agent must be an information expert, forward planner, and able to develop solid networks to empower individuals and groups (Seevers, Graham, Gamon, & Conklin, 1997).

A central component of the work of extension is innovation and change. Most main extension programs have been perceived as an innovation that was generated by a researcher and extension agent creative thinking (Warnock, 1985). By nature, extension is dynamic creative activity. Scientists foresee technological and social change through innovation, and extension agents take action by merging needs, values, and beliefs into effective programs. Thus, creativity through problem solving and decision making becomes indispensable. Extension services arise as components of the enlightened ideas where people benefit from expert advice (Leeuwis, 2004). However, the creative and innovative focus has changed and nowadays extension service is understood as a multifaceted social learning process that has implications for a broader population that includes farmers, extension agents, researchers, and policy makers (Leeuwis, 2004).

In agricultural contexts, the fact of accepting a particular innovation has a lot to do with the extent to which the innovation is integrated to the context. In general, adoption of a new idea is understood in terms of some kind of behavior change. The predictors of this change are understood through contextual, cognitive, and affective perspectives. Adoption theory examines individual and the choices an individual makes to accept or reject a particular innovation (Straub, 2009). Diffusion of innovations refers to the spread of ideas and concepts, technical information, and practices within a social context, where the spread denotes flow from a source to an adopter,

typically via communication and influence (Rogers, 1995). Innovations in agriculture have two main dimensions: (1) a technical one that refers different biotic and abiotic objects, like new varieties of plants, animal breeds, machinery and (2) a social organizational one, which includes new forms of labor, marketing, and community actions. Therefore the values and attitudes that the extension agent have toward innovation and creativity is crucial in making a proper connection between the innovation and the farmer, paying particular attention on how to adapt those innovations in a way that fulfill the needs of the recipients (Leeuwis, 2004). McDermott (1987) suggested a proper connection between innovation in theory and acceptance in practice is achieved through the combination of information from farmers, researchers, and extension agents.

In Latin America extension practices have historically followed two main models, one based on Rogers (1995) diffusion theory and another that follows a critical view of the social structure based on Freire (1971). The model based on Rogers sees innovation as a linear process where technology is generated, validated, transferred, and adopted. This technological bias assumes that the main problem for the farmer is centered on technology, leaving behind many socio-economic problems. This model was the predominant one during the period between the 50's and 80's in Latin America, later the economic crisis and a political change, made Latin American countries search for alternative models. The newer models where Freire's philosophy plays a relevant role are centered on a participatory approach that allows the generation of a more appropriate and autonomous knowledge to face the social, productive, and environmental challenges of rural communities in Latin America (Sevilla Guzman, 2006). Thus, extension as a discipline includes not only the influential area of technology transfer, but the challenge of community development (Foster & Demaine, 2005). As a consequence, understanding how the extension agents approach their challenge of the dual role is essential in order to assist them with proper training. Uruguay, in particular, has a fragmented agriculture extension system, with three main sources of extension services: the government, the university, and private organizations. A program evaluation of the system revealed the need to focus on the educational nature of the

extension processes and the need for planning (De Hegedus, Pauletti, & Tommassino, 2006). The fragmentation occurs when the three main sources are not functioning as a system. Studies show some critical areas of dysfunction, such as clear policies, agent training, coordination between agents and the institutions they represent, appropriate approaches for the different socio economic realities, and resources to implement programs (Diaz Rosello, 1986; Morelli, 1988; Vasallo, 1995; 2001). Although research (Morales & Majo, 2005) demonstrates innovation and technological change improve production, these improvements cannot occur if the innovation does not reach its beneficiaries (De Hegedus et al., 2006). The extension system has to have all three agencies disseminating and enabling research results to be translated to practices so that farmers will adopt. All agencies work with the farmers to assimilate new knowledge incorporating innovation within the cognitive and emotional context.

Background to the Problem

In Latin America there are not many studies that approach the subject of leadership and its competencies in agricultural extension. A study on leadership strategies addressing the agrarian reform in Brazil suggested that without a proper system of adult education, reform will not be possible (Correa Harder & Bruening, 2007). According to the researchers, the likelihood of success is increased with proper leadership training that not only improves farmers' agricultural practices but increase their capacity to claim their rights as landowners, workers, and productive citizens. The diffusion extension model sees innovation as a linear process where technology is generated, validated, transferred, and adopted, following a behaviorist method that was far from the educational method proposed by Freire (1971; Callou, 2007). The extension practice of going to the field to qualify others who theoretically know less does not work anymore (Machado, De Hegedus, & Silveira, 2006). Therefore, extension practice has to enable farmers to be autonomous and make their own decisions according to their needs.

Agriculture Extension Services in Uruguay

Uruguay has three main sources of agriculture extension agents, which includes the government, the university, and private institutions. The private services are the ones that are taking the lead, and the government services have become less and less relevant (De Hegedus et al., 2006). The university represented by the college of Agriculture and the college of Veterinary Medicine do not have a central role in the system. The extension agents lack proper training in planning, communication, and pedagogy, and the whole system is deficient in coordination or complementary strategies between institutions (Vasallo & Methol, 1989). A study of agricultural extension models in South America concluded that it is necessary to increase the rate and effectiveness of technology transfer, so as to optimize the organizations efforts and to support farmers in their efforts to overcome the challenges that agriculture faces in globalize and competitive markets (Arboleya & Restaino, 2004). A study of the main Agricultural Research Institute in Uruguay (Restaino, 2004) showed that some of the major barriers to the institute's success were lack of guidelines, poor definition, and communication of objectives. Another study evaluating a dairy herd genetic registry project (Kramer, De Hegedus, & Gravina, 2003), found that the project failed in the needs identification, and it showed that farmers' needs are embedded in a value system that is necessary to know, which is not necessarily addressed by the extension agents. There are few studies that address creativity, a central component in the extension process in Latin America. In Colombia, a study on the relationship between creativity skills and program goals in extension agents working in coffee crops (Marin &Rodriguez, 2012) showed significant relationships between goal attainment and creativity skills. By understanding extension agents' perceptions of their agencies context and their leadership features and the relationship that these perceptions have to their creative attitudes and values, the extension system will be able to make decisions regarding training and professional development to best suit agents' and beneficiaries' needs. Leadership Characteristics in Agriculture

As shown throughout research, there is a connection between leadership and extension work. Research (Arnold, Meyers & Place, 2007) shows that international extension agents described leadership as a way to build relationships and empower and develop skills within and beyond communities. Daft (2011) states that leaders use both emotional and intellectual abilities and understandings to lead organizations through a stormy environment motivating people, and making them feel cared for while facing rapid change, uncertainty and economic insecurity. The ideas proposed by Daft fit perfectly in the agriculture environment where variables like rapid change, uncertainty, and economic insecurity have a heavier weight than any other one. Katz (1955) identified three categories of skills needed by leaders: technical, human, and conceptual. The technical ones are the ones that involve methods and procedures; the human ones are the ability to work as a team member and build cooperative effort; and conceptual skills are those that enable the leader to see how an entire organization is working. Goleman (1998) presented a more modern approach when he defined three main areas of leadership skills as purely technical abilities, cognitive abilities, and aptitudes that reveal emotional intelligence.

Leadership style makes references to the distinctive way in which an individual leads others (Moore & Rudd, 2006). The concept of leadership styles has evolve from thinking about leadership as autocratic, democratic, or laissez faire styles (White & Lippitt, 1960) to a focus on transactional to transformational leadership (Moore & Rudd, 2006). The concept of transformational leadership was introduced by Burns (1978), who perceived transactional and transformational leadership as the two ends of a same continuum (Moore & Rudd, 2006). Bass (1997) saw transformational leadership as an extension of the traditional transactional leadership.

Leadership is a guiding principle in international extension agencies, governmental, and nongovernmental. A qualitative study to identify the predominant styles of leadership that international agencies use in rural extension programs (Arnold, Meyers& Place, 2007) showed a that international extension agents described leadership as a way to build relationships and

empower and develop skills within and beyond communities. The researchers concluded that extension programs were effective when power was shifted to local decision makers.

Although there is evidence of a link between agriculture extension and transformational leadership, some studies (Moore & Rudd, 2006) on leadership styles of extension leaders from land grant colleges concluded that the participants engaged in both transformational and transactional styles. There is not much literature that shows this relationship between leadership features and extension agents from other organizations not related with land grant colleges. This link is important, because agricultural professionals face diverse challenges from commodity markets to resource depletion; shifting demographics to agricultural illiteracy, and economic subsistence. Leaders are needed in the agricultural communities to efficiently face those situations (Diem & Nikola, 2005). In a small country like Uruguay, in which the economy depends on agriculture, it is relevant and essential to know the link between the different sources of extension agents and how the perceptions of their leadership features may differ, so as to develop the abilities that make the extension agent's work productive, effective, and efficient.

Creativity in Agriculture

Extension education faces multiple challenges. According to Freire and Macedo (1998), when the many social, cultural and political dimensions are excluded from the learning practices, the result is individuals who lack independent thought and critical thinking. These thought leaders indicate that effective learning and changes are rooted in the skills to think creatively. Baker, Rudd and Pomeroy (2001) state that if education has a goal to promote creativity, the process must reflect the stakeholders' reality and find ways to boost creativity.

Researchers suggest that creative teaching is part of effective teaching (Anderson, 2002; Bain, 2004) state that creativity arises from and venture of personality attributes, problem explanation, intuition, plasticity, intrinsic and extrinsic incentive, and a certain managerial style (Sternberg & Lubart, 1991). However, there is not much documentation of values and attitudes that extension agents have toward creativity or creative thinking. Extension agents face the

challenges of being creative in program development endeavors, and they must be receptive to the needs of rural communities and farmers. To face those challenges agents should shift from planning for the farmers to planning and creating solutions with the farmers (Cristovao, Koehnen & Portela, 1996,).

Previous researchers have traditionally studied leadership and creativity as isolated variables neglecting possible connections. Furthermore, there are no studies in Uruguay that focus on the extension agents' features and the connection with their agencies context. Once these relationships are uncovered, the extension system will be able to make decisions regarding training and professional development to best suit agents' needs.

Statement of the Problem

Although there is abundance of literature regarding leadership and creativity, there is little evidence to link both variables and extension services in agriculture. This link is important due to the diverse challenges that extension agents face as professionals. In a small country like Uruguay, in which the economy depends on agriculture, it is relevant and essential to understand the relationship between the different sources of extension agents and the relationship between leadership features and attitudes toward creativity. By understanding this connection by context, the extension system can develop the capabilities to make the extension agent's work productive, effective, and efficient.

Theoretical Framework

There are two theoretical frameworks for this study. One is the leadership characteristics associated with leadership style (Bass & Avolio, 2000) and the other is the attitudes associated with creativity (Runco, 2012). Various leadership characteristics have been studied in relation to constellations of style. Here, the research regarding the range of characteristics associated with the styles from transactional to transformational style will be described. Additionally, the

complexity of creativity scholarship will be described as it relates to the process for the need and use of creative skills.

Leadership Theory

Bass and Avolio (2000) developed a nine-factor model that includes five indices of transformational leadership, three indices of transactional leadership, and one index for laissez-faire leadership. According to Daft (2011, transformational leadership is distinguished by the ability to generate substantial change for both followers and social systems. Burns (1978) states, that the transformational leader motivates his/her followers to be effective and efficient. Transactional leadership is a transaction, an exchange process between leader and followers (Daft, 2011). Laissez-faire leaders abdicate responsibility; offer little or no feedback adopting a more hands-off approach (Northouse, 2001). Numerous studies have been conducted addressing the relationships between leadership styles and demographics, showing that characteristics like age, tenure in an organization, educational background, and training are relevant factors of leadership (Krishnan & Park, 1998). For example, in a study addressing demographics and leadership styles of extension leaders from land grant colleges (Moore & Rudd, 2006), the results showed that the majority of the leaders were white males and held their highest degree in social sciences. Transformational leadership was the most common one, though participants reported being engaged in both transformational style and transactional leadership style, once in a while.

Creativity Theory

Creativity has many definitions that depend mostly in the theory that underlies them (Piirto, 2004). Most theories are based on abilities, skills, and attitudes, but others emphasize the importance of the context of creativity in culture and history (De la Torre, 2003). Davis (2004) agrees on the complexity and versatile nature of creativity; therefore, he organized creativity around the "four P's" (p.41). These are the characteristics of the creative person, the phases of the

creative process, the qualities of creative product, and the acceptance or values of the environment or creative press. The diversity of the views and approaches make it difficult to find a common denominator. According to Davis (2004) the "creative process" (p.118) has to do with where ideas come from; whether they are the result of an insight or are the product of planning and hard work. Torrance (1988) describes a four-step process to creativity, including perceiving a problem, developing ideas, testing and modifying the ideas, and communicating the results. The Wallas (1926) four-stage model describing the creative process can be related easily with the activity of an extension agent facing a problem: The Wallas process of four stages includes preparation (the background and experience to search for the adequate answer for the problem), incubation (the unconscious thoughts about the problem), illumination (the unique and often spontaneous combination of ideas to solve the problem), and verification (implementation of the solution to determine its effectiveness). The category of the four "P's" relevant to this study is the creative press. This term alludes to the pressures that influence creative people or the creative process. These influences go from physical surroundings to the culture in which people are born. Thus, social, cultural, and physical context and associated pressures guide individual creative process and production (Runco, 2008). Creativity is linked with the individual and his/her activities; therefore, it is important to evaluate creativity as an outcome of the extension agent openness and value for creativity in his/her working context. The dynamic changes in the social and economic environments compel extension professionals to think about their practice through creative thinking and innovative practice (Argabright, McGuire, & King, 2012). For example, a relationship between creativity skills and program goals in extension agents has been established in a study conducted with extension agents working in coffee crops in Colombia (Marin & Rodriquez, 2012). The study results demonstrated that the agents who scores higher on the Abbreviated Torrance Test for Adults achieved greater goal attainment. However, what has not been investigated is the connection of leadership characteristics and attitudes and values towards creativity for extension agents in Uruguay.

Purpose of the Study

The purpose of this study was to investigate attitudes toward creativity and leadership characteristics according to the agency context for extension agents in Uruguay. Extension agents come from three different agency contexts in Uruguay, the University, government, or private institutions. Leadership characteristics are those that combine to describe leadership approaches or style according to Bass and Avolio (2000) and the Multifactor Leadership Questionnaire. Attitudes toward creativity concerns the values one holds about using creativity in work situations, measured in this study with the Runco (2012) Attitude and Values instrument.

Significance of the Study

Theoretically, the findings of this study may add to the current literature on leadership focusing on a particular population of extension agents. The connection between leadership characteristics, agency context, and attitudes and values toward creativity emerged, which may lead to an understanding of the role of these variables in the extension professional activity in Uruguay. Practically, the results of this study may help enhance the professional development of extension agents and develop new trends to educate future extension agents, adapting the current college curriculum and developing strategies for professional developments to better prepare extension agents for the demands of their work.

Research Questions

The research questions that guided the analysis of the study variables were as follows:

1. In what ways do the nine scales of the Multifactor Leadership Questionnaire (Bass & Avolio, 2000) measure leadership characteristics for extension agents in Uruguay?

2. In what ways do the items within the two scales of the Attitudes and Values (Runco, 2012) measure the attitudes and values toward creativity in the work of extension agents in Uruguay?

3. In what ways does the context of the extension agents influence leadership characteristics and attitudes toward creativity for the extension agents in Uruguay?

CHAPTER II

REVIEW OF RELEVANT LITERATURE

Agricultural extension in the 21st century is challenged by the dynamic changes that the social and natural environment places on farmers and agriculture including the changes that extension organizations face, from funding issues to using technology (Leeuwis, 2004). Extension establishes the connection between scientific research and the farmer. Extension agents deal with individuals as a whole, with their experience, knowledge, values, and beliefs. The way that the extension agent handles his/her own feelings impact the farmers' reaction towards the agent and the conveyed message (van den Ban & Hawkins, 1996). Thus, it is important to combine farmers, researchers, and extension agents' information to establish a proper connection between theory and practice (McDermott, 1987) paving the way for this study. The purpose of this study was to investigate the relationship of attitudes toward creativity to leadership characteristics according to the agency context for extension agents in Uruguay. This chapter reviews literature on the context of the study, extension services, agency context, leadership characterizes, and attitudes towards creativity as related to agricultural extension.

Context for the Study

Agricultural extension agents of the 21st century need to be able to work with little supervision in complex and unstable circumstances, effectively diagnose problems, listen and learn from farmers, and to communicate effectively with farmers (Antholt, 1994). Besides those skills, the different organization and institutions from where those agents come from play a central role, particularly in Uruguay. Agricultural extension services are usually part of the Ministry or Department of Agriculture, but these services are closely tied to the university, farmers' groups, commercial companies, non-government organizations, or private consultants. These different contexts play out in various relationships within different countries, each providing its own idiosyncrasies (Van den Ban & Hawkins, 1996).

The context and requirements of the profession place the extension agent in a leading position to innovate, change, and develop resources in a community. By nature, extension is a dynamic creative activity within this leadership role. Scientists foresee technological and social change through innovation, and extension agents take action by merging needs, values, and beliefs into effective programs implementing scientific innovations (Warnock, 1985). Thus, leadership and creativity through problem solving and decision making becomes indispensable. Uruguay is one of the smallest countries in South America with 176,215 square kilometers, approximately the size of the state of Florida in the United States. The total population is 3,286,314, and 94.7% of the population is urban with only 5.3% rural (INE, 2012). Yet, the economy of the country largely depends on agriculture. Research (Diaz Rosello, 1986; Morelli, 1988; Vasallo, 1995; 2001; De Hegedus et al., 2006) demonstrates that Uruguay has a fragmented agriculture extension system, with the three main sources of extension services being the government, the university, and private organizations. Research of the agricultural extension system in Uruguay revealed the need to focus on the educational nature of the extension

processes and its need for planning for high quality agents to provide effective programs and services.

Previous research has addressed leadership in extension (Arnold, Meyers, & Place, 2007; Jones & Rudd, 2008; Moore & Rudd, 2006; Rudd & Sullivan, 2000) and creativity in extension (Argabright, McGuire, & King, 2012; Warnock, 1985; Womack, 2005) as isolated variables, but the classic and current studies have not investigated the possible ways that the variables are connected. In particular in Uruguay, there is not enough research to explore the characteristics of extension agents and the differential characteristics by agency context. The purpose of this study was to investigate the relationship of attitudes toward creativity to leadership characteristics according to the agency context for extension agents in Uruguay. Once these relationships are better understood, the extension system will be able to make decisions regarding education and professional development to best prepare agents for the demands of their work.

Extension Services

According to the Food and Agricultural Organization for the United Nations (FAO, 1984), agricultural extension is the function of providing need- and demand-based knowledge in agronomic techniques and skills to rural communities in a systematic, participatory manner, with the objective of improving production, income, and (by implication) quality of life. The concept of extension has been given different meanings. Van den Van and Hawkins (1985) analyzed the extension tradition in different parts of the world and stated that in the UK, Germany, and Scandinavia, the focus is on solving specific problems; whereas, the American tradition emphasizes the educational activity in which work is done to teach people how to solve problems. Extension in the Netherlands is defined by a word that means lighting the way; whereas, French tradition uses a word that means simplifying information so that lay people can understand. Spanish extension professionals use the word that indicates the intention to develop people's skills. In the Latin American tradition, following Paulo Freire's philosophy extension is a way to

achieve societal goals (Roling, 1988). Van den Van and Hawkins (1985) suggested that a common meaning is that: "…extension involves the conscious use of communication of information to help people form sound opinion and make good decisions" (p.9).

Agency Context

Agriculture extension in Latin America and particularly in Uruguay responds to two main paradigms. The classic one is based on Rogers (1993), which was transferred to Latin America between the 1940's and 1950's. The other main paradigm is an alternative model based on Freire (1973; Tommassino et al., 2006). Both models were adopted by government institutions, university, and private enterprises to diffusion of new technology and training, leaving their signature and molding the rural reality. Restaino (2004) studied the agricultural extension system in Uruguay and distinguished the two systems of a technology generation subsystem and a technology transfer and extension component. Restaino (2004) defined this second component in four clusters: 1) public organizations or programs managed by the Ministry of Agriculture; 2) public organizations associated with the Ministry of Agriculture, private and public organizations share the management of these organizations; 3) public organizations that are not associated with the Ministry of Agriculture, including the University, through the College of Agriculture and Veterinary Medicine, the Bank of the Republic (BROU) and the states governments; and4) nonprofit private organizations, which provide technical assistance financed by the private sector. The system shows the diversity necessary to enable farmers to access information from different sources. Yet, duplication and competition arise as a consequence of the complexity in the system (Restaino, 2004).

Research suggested that the extension system does not work in an appropriate way. Some critical needs were identified, such as needing clear policies, agents training, coordination between agents and the institutions that they represent, appropriate approaches for the different socio economic realities, and resources to implement programs (Diaz Rosello, 1986; Morelli, 1988;

Vasallo, 1995; Vasallo, 2001). Other research (Morales & Majo, 2005) stated that innovation and technological change has been efficient to improve production; however, others (De Hegedus et al. 2006) argued that knowledge is not valid just for its own sake if it does not reach its beneficiaries. In 1989, Vasallo and Methol studied the extension agents in Uruguay, and most of the features described by the authors remain valid today. Today there remains a lack of training in communication, evaluation, and andragogy practices, lack of coordination between agents and institutions, and the issues of the assisted farmers having high instruction levels related to a higher socio economic status. These findings are aligned with Havelock (1973) and Roling (1988) who argued that extension agents tend to focus on those farmers who already attained the best model of agricultural development. As a possible approach to improve the system, researchers (Allegri, 1999; Restaino, 2003) suggested that the system had to develop networking and optimize resources. Other research (De Hegedus et al., 2006) recommended special attention be given to the educational nature of the extension processes, particularly the interaction between agents and stakeholders in order to develop social capital. Cimadevilla (2003) emphasized how the practice of extension follows a path socio-historically created, so the time has come to review and redefine. Bentley and Van Mele (2005) found that diversity, flexibility, and creativity in extension are crucial needs, because these characteristics allow agents to take advantage of organizational strengths and use methods appropriate for the needs of stakeholders. Highly competitive markets and globalization demand effectiveness from the extension process to optimize organizational effort and to support the farmers' challenges (Restaino, 2004).

Leadership Characteristics

Leadership is an influence relationship among leaders and followers who intend real changes and outcomes that reflect their shared purpose (Daft, 2011). Others define it as the art of mobilizing others to work for shared purposes (Kouzes & Posner, 1995). This function has

strategic importance to agricultural extension as the extension agent can be seen as a leader to innovate, change, and develop resources in a community.

The demographics and leadership styles of extension leaders from land grant colleges were studied by Moore and Rudd in 2006. The authors used a demographic instrument that they developed for the study. The survey included gender, ethnicity, age, position, degrees held, educational background, tenure in years in a leadership position within the extension system, and exposure to leadership training. The Multifactor Leadership Questionnaire (Bass & Avolio, 2000) was the instrument to gather information on the self-perceived leadership style of the participants. The results showed that the majority of the leaders were white males who held their highest degree in social sciences. According to the researchers, these results show that the population has become more diverse, since traditionally leadership positions in extension were held by bench scientists. The leadership style was similar among the participants. Transformational leadership was the most common result, although participants reported being engaged in both transformational style and transactional leadership style. According to Daft (2011), transformational leadership is distinguished by the ability to generate substantial change for both followers and social systems. Burns (1978), states that the transformational leader motivates his/her followers to be effective and efficient. Transactional leadership is a transaction, an exchange process, between leader and followers (Daft, 2011). The leader acknowledges the followers needs and goals and then explains the way to attain them as an exchange for meeting certain objectives (Daft, 2011). Moore and Rudd (2006) stated that it is important that the participants were not trying to replace leadership styles but using both. Demographics did not influence transformational style significantly. Regarding transactional leadership style, tenure in extension and degree classification explained 28% of the variance. The researchers concluded that other factors, besides the ones included in the study, are likely responsible for explaining a big part of the variance in transformational and transactional leadership styles. In a qualitative study Arnold et al. (2007) explored the predominant leadership style that international extension

agencies use to implement and develop rural community programs. They found that the dominant styles were transformational and servant leadership. They identified as the main activities related to transformational leadership in international extension agencies as program design according to the followers' needs, motivate and provide a vision, help followers achieve technical abilities keeping values and beliefs, involve local leaders in the process to assure sustainability, and use local knowledge. Servant leadership is demonstrated with valuing community building, cooperation, trust, and respect and helping the followers to become more knowledgeable and self-reliant (Northouse, 2004). Servant leadership is defined as a management philosophy that implies a comprehensive view of the quality of people, work, and community spirit. It requires a spiritual understanding of identity, mission, vision, and environment (Greenleaf, 2002). Servant leadership implies developing the followers' potential and turning them into leaders (Daft, 2011). According to Ploeg (2008), one of the salient characteristics of the peasant condition is the battle for autonomy in contrast with dependency, marginalization, and deprivation. Freire (1971) states that empowerment is achieved when the extension agent and the beneficiaries interact in a horizontal way, through dialog and mutual respect for different knowledge in an environment where both parts are aware of their position and the need of transforming reality.

Morse et al. (2006) presented a case study in a rural community in Iowa where significant demographic changes occurred due to the increase in the Hispanic population. The Iowa State University extension staff led a process of understanding the new population needs. The extension's role in this community went from a traditional role of offering programming to serving as a catalyst in the process of positive community change. The project turned into an interdisciplinary, community-wide effort, where flexibility and adaptability were critical. Luke (1998) defined public leadership as a trans-organizational leadership process of catalyzing a diverse population of individuals and agencies to confront a public problem. This style of leadership arouses collaboration and joint action among diverse and often competing groups

toward a shared goal. The image of a catalyst as something that is small and can change the rate of reaction is a scientific term to show the power of this work. The evolution of the context where extension agents work has become more and more complex. As a consequence of this increasing complexity, it is necessary for the agents to develop a mindset to facilitate processes where the stakeholders develop a vision and work is accomplished together (Morse et al., 2006).

Moore and Rudd (2005) studied the importance and level of proficiency in six leadership skills areas: emotional intelligence skills, conceptual skills, human skills, industry knowledge skills, communication skills, and technical skills; as perceived by extension leaders that belonged to the Cooperative Extension Services. The researchers developed an instrument to assess how extension leaders perceived each competency related to their success and proficiency. From the six areas, five were rated between important and very important; technical skills were rated between somewhat important and important. Goleman (1998) reported emotional intelligence to be twice as important as the other skills when applied to all levels of jobs within the organizational hierarchy, which explains 90% of the difference in the effectiveness of star performers and average senior level leaders. This was confirmed by Moore and Rudd (2005) in the study that found many competencies often left out of leadership training belong to emotional skills area. Technical skills were perceived as the least important of the six. The authors suggested that this could be expected since the leaders in this study were in senior leadership positions. Participants rated themselves in proficiency in the six skills areas. The largest difference between perceived importance and proficiency was in conceptual skills. Moore and Rudd (2005) attributed this difference to the fact that extension leaders face the challenge of running organizations with limited resources, which demands strategic thinking and long term vision. The smallest difference was in industry knowledge skills, in which the researchers explained that most of the extension leaders are promoted from within the organization.

Emotionally intelligent leaders can have a significant effect on organizations by promoting followers development and generating sense of purpose and team work (Daft, 2011).

Barbuto and Bugenhagen (2012) found a significant though small relationship between emotional intelligence and leader-member exchange in an experimental study in a community in Midwest United States. However, they posit that as emotional intelligence evolves as a viable construct in the field of leadership, empirical testing of its effect will increase in importance. As a practical implication of the study results, they suggested the selection process include aptitudes as emotional intelligence, since those leaders would be more likely to develop strong leader-member exchange relationship. George (2000) stated that emotional intelligence has a central role in leadership effectiveness. Leaders with high emotional intelligence will have the skill to use positive emotions to anticipate key developments in running an organization. For Caruso, Mayer and Salovey (2002), understanding emotion is important because it grants the leader the skill to understand his/her own point of view as well as others.

The need for attention to extension workers' performance was addressed by Khalil, Imail, Suani, Silong (2008) in a study in Yemen. The researchers argued that international studies are generally focused on evaluation of the extension structure and methods rather than human resources. They studied agriculture regions in Yemen to determine the relationship between the performance of extension workers and two independent variables of leadership competencies and organizational commitment and the level of job performance. They used a quantitative survey with a correlational and descriptive design. The researchers found that the role of leadership in agricultural extension is critical and strategic, particularly since the extension worker guides the education activities for farmers as groups or individuals towards the pursuit a common goal. This leadership role has become a progressively critical element in the success of extension programs (Radhakrishna, Edgar, & Baggett, 1994). The researchers defined the competence components for effective extension leadership as including the ability to encourage farmers, to provide support, to be a good planner, to know the organization, to be able to communicate, and to solve problems among followers. The study results showed a positive and significant relationship between leadership competencies and extension workers' performance. The researchers

concluded that program managers and directors had to consider the status of the extension workers specifically competencies and skills.

Addressing the agrarian reform in Brazil, Correa Harder and Bruening (2007) conducted a case study on leadership strategies. They studied the landless workers movement in Brazil. This movement operates in 23 of the 28 states of the country. The goal was to ease and make faster the bureaucratic process of land distribution. The researchers studied one of the groups that help landless people get land by teaching them how to organize and develop strategies to obtain it. They suggested that without a proper system of adult education reform will not be possible. The likelihood of success would increase with proper leadership training to improve framers agricultural practices and their capacity to claim civil and citizenship rights. The extension practice enabled farmers to be autonomous and make their own decisions according to their needs. The research results demonstrate the leadership function of extension and its strategic role in innovation, change and development.

To identify leadership strength and weakness in county extension directors in Florida, Rudd and Sullivan (2000) used the Leadership Profile Index (LPI). The LPI, developed by Kouzes and Posner (1995) is a set of 30 statements that identified five leadership practices among leaders in various fields. These leadership practices include: 1) challenging the process; 2) inspiring a shared vision; 3) enabling leaders; 4) modeling the way, and 5) encouraging the heart. Results showed that scores ranged from the 50th to the 60th percentile for all practices. The highest scores were for modeling the way and the lowest for challenging the process. Leaders who are not compelled to follow the status quo and value innovation use this practice. Women had a smaller range than men, and there were significant differences in four of the five practices.

Agricultural professionals face diverse challenges from commodity markets to resource depletion; shifting demographics to agricultural illiteracy, and economic subsistence. Leaders are needed in the agricultural communities to efficiently face those situations (Diem & Nikola, 2005). Daft (2011) emphasizes the development of leader capacity that goes beyond skills and leadership

styles, suggesting leading based on capacity means leading in a holistic way where intellectual, emotional, and spiritual abilities and understandings are implied. Even though this cannot be learned as conventional skills, leading in this way can be developed and expanded. Some research evidence using the Myers-Briggs Type Indicator (Briggs-Myers, & Briggs, 1985) shows that the two types strongly related with successful leadership are thinking and judging (Daft, 2011); however, extension in agriculture provides a suitable ground where a holistic view might be the right approach. A holistic view in an environment may create an amicable atmosphere or face a deep conflict, so it is up to the leader to develop the abilities that make work productive, effective, and efficient.

Attitudes and Values toward Creativity

Machiavelli (1513) in his novel The Prince written in 16th century asserted that there is nothing more difficult, more risky to carry out, or unsure in its success, than to lead the introduction of an innovation. The 21st century faces a rapid change in social and economic contexts, which make extension reflect about creative thinking and innovative action to increase its chances of success (Argenbright et al., 2010). Extension is understood as a multifaceted social learning process that has implications for a broader population that includes farmers, extension agents, researchers, and policy makers. These actors have to integrate ideas, knowledge, experience, and creativity to connect with each other (Leeuwis, 2004). Leeuwis (2004) asserted that these skills are the relevant "building blocks" (p. 144) of innovation, which cannot be put together instantly, remarking that these potential building blocks for innovation are often part of people's "tacit knowledge" (p.144). This means that individuals may not be yet be aware of their participation in the process. This can be thought as what Runco and Pagnani (2011) reference as "small c" (p.64), originally coined by Csikszentmihalyi (1996), the kind of creativity that applies to routine creative efforts that are not the object of massive acknowledgement.

According to Leeuwis (2004), a learning and negotiating process like extension, knowledge developed in different locations (research stations, demonstrative farms), by different stakeholders (researchers, farmers), for different purposes, and through different methods of validation (scientific method, farmer experience) had to be creatively integrated. Funtowicz and Ravetz (1993) argued that in situations where insecurity is predominant, where there are conflicts of interests, values and beliefs scientists need to have a central role in innovation processes and community discussions. According to Csikszentmihalyi (1988) and Hemlin, Allwood and Martin (2008), creative endeavors not only depend on the person or the context, but on the significant interaction of the people with the context. This provides the evidence for the importance of studying the contextual work environment of extension agents in Uruguay.

Warnock (1985) asserted that creativity is a fundamental need for extension professionals. Extension professionals need to be aware of what naturally stimulates creative thinking and action, and they must have the aspiration of being creative, valuing innovation. He asserted that extension is a creative enterprise where agents respond to stakeholders needs by providing the innovations in effective programs. Warnock (1985) suggested the following four approaches to boost creativity: welcome the preconscious self, paying attention to the novel ideas that come on involuntary basis; seek others' advice, look beyond the grasp of a personal mindset; differ judgment and ruminate, delaying judgment; and be open to new ideas (Warnock, 1985).

Extension administrators' perceptions of creativity in county level programs compared to programs identified as creative was studied by Womack (2005). A census of mid-level and state administrators was conducted and naturalistic inquiry was used. One of the common descriptions of creativity that emerged from the study was the belief that an idea does not need to be new, but it could be presented in an innovative way. The relationship between creative programming and successful programming was a natural association for the participants in the study.

Extension work is related to the two major perspectives on creativity of process view and press theories (Runco, 1999). Runco (1999) identifies process in creativity as the cognitive skills

that assist novel and effective thinking and the extension process is considered a social process influencing an audience and changing the action of a whole community. Press theories according to Runco (1999) are influences on the creative person from the environment. The agricultural context exhibits a wide variety of influences, including social, organizational, and cultural factors, besides the physical environment which constitutes an ever changing and uncertain context. Simonton (1988) added the fifth "P" as persuasion to the four "P's" model, emphasizing the role of leadership in making an impact on others with an innovation. According to Leeuwis (2004), the most prevalent way of communicative intervention is to persuade farmer to adopt new technology or certain policies or ideas. In Rogers' (2003) well known model of diffusion of innovations, the persuasion stage occurs when the individual has a positive or negative attitude towards the innovation. Rogers (2003) considers the knowledge stage cognitive centered, while the persuasion stage is affective centered. Here the opinion of the peers is in general more valuable than the ones that come from the expert. Thus the extension agent's leadership role is essential to promote the adoption process. Davis (2003) asserted that the P's in the model are interrelated when he stated that "creative products are the outcome of creative processes engaged in by creative people, all of which are supported by a creative environment" (p.42). Torrance (1988) related the "P's" in a way related to the extension process, where it is necessary to find the people that could be engaged in the process successfully with the kind of context that could be supportive and type of products that would result from satisfactory process. The persuasion "p" in an extension process is essential as the extension process has to be both informative and persuasive through different people from farmers to researchers, corporations, government agencies, and the general public.

Summary of the Chapter

Overall empirical evidence is lacking when it comes to the various relationships of leadership, agency context and creativity to extension agents. Literature is available regarding

agency context in Uruguay with studies (Diaz Rosello, 1986; Morelli, 1988; Vasallo, 1995; Vasallo, 2001) showing some critical areas like policies, agents training, and coordination between the different agencies. However these areas have not been explored recently.

There is considerable empirical research addressing extension leadership with a focus on the land grant universities and extension services (Moore & Rudd, 2005; 2006; Rudd & Sullivan, 2000), and other studies focusing on international agencies (Arnold et al., 2007). Less is known about extension services and agents in Latin America (Correa Harder & Bruening, 2007), particularly in Uruguay where there are no studies that address leadership linked to attitudes about creativity and extension. The body of research emphasizes the need for creativity and leadership skills for leaders in agriculture extension to face the diverse challenges that globalization, renewable resources management, and ever changing commodity markets present.

Few empirical studies address creativity in extension (Marin & Rodriguez, 2012; Womack, 2005) even though many researchers emphasize the importance of creativity related to extension (Argenbright et al., 2010; Leeuwis, 2004; Warnock, 1985). Both empirical studies and theoretical approaches promote the idea that creative thinking and innovative actions are necessary to increase the chances of success in the extension endeavor.

CHAPTER III

METHOD

The purpose of this study was to investigate attitudes toward creativity and leadership characteristics according to the agency context for extension agents in Uruguay. Extension agents come from the three different agency contexts in Uruguay of the University, government, and private institutions. Leadership characteristics are those that combine to describe leadership approaches or styles. Attitudes toward creativity concerns the values one holds about using creativity in work situations. The research questions that guided the analysis of the study variables are the following:

1. In what ways do the nine scales of the Multifactor Leadership Questionnaire (Bass & Avolio, 2000) measure leadership characteristics for extension agents in Uruguay?

2. In what ways do the items within the two scales of the Attitudes and Values (Runco, 2012) measure the attitudes and values toward creativity in the work of extension agents in Uruguay?

3. In what ways does the context of the extension agents influence leadership characteristics and attitudes toward creativity for the extension agents in Uruguay?

Population and Sample

The population represented by this research project was Uruguayan agriculture extension agents that work for the government, the university, and private institutions. The total number of

agriculture extension agents at the time of data collection was 247 with the following distribution: 24% from the university, 34 % from private institutions and 42% from the government. Since the agency context is one of the independent variables, the sample included the same number of agents per agency context. Participants were recruited by e-mail and phone using the script approved through the Institutional Review Board requesting an opportunity to administer a paper and pencil survey during a scheduled meeting. The researcher stopped the recruiting process when the goal of 40 respondents was reached. Respondents included 120 extension agents, 40 from each context (government, university, and private institutions). Respondent rate by agency were: 38% of the total government agents, 48% of the total of private institutions agents and 68% of the total of the university agents were interviewed.

Procedure

After approval of the Institutional Review Board (Appendix A: IRB approval), data collection was completed in Uruguay. The researcher contacted the three different institutions and asked for permission to invite the agents to participate in this research project, and then the researcher contacted the agents that responded to the invitation. A convenient time and place was scheduled in which each extension agent completed three different surveys, including the demographic survey, the Multifactor Leadership Questionnaire (MLQ, Bass & Avolio, 2000), and the Attitudes and Values questionnaire (Runco, 2012). Two of the instruments (Attitude and Values and demographic survey) were translated to Spanish, the participants' native language by the researcher and then reverse translated by another doctoral-level Spanish speaker. The Multifactor Leadership Questionnaire has a commercial Spanish version and translation was not needed. Instrumentation

Three instruments were used in this study, the Multifactor Leadership Questionnaire (Bass & Avolio, 2000), the Attitudes and Values questionnaire (Runco, 2012), and a demographic survey.

Multifactor Leadership Questionnaire

The Multifactor Leadership Questionnaire (MLQ) is based on the Full Range Leadership model (Avolio & Bass, 1991) and was developed by Bass and Avolio (2000). The survey is a comprehensive assessment with 45 items that measure a full scope of leadership characteristics. The MLQ measures scales of leadership known as features as well as leadership styles (transformational, transactional, and laissez-faire). The styles are integrated by nine leadership factors (Greiman, 2009). The leadership factors are individualized consideration, intellectual stimulation, inspirational motivation, idealized influence (attributed), and idealized influence (behavior) associated with Transformational leadership. Individualized consideration is exhibited by a leader when he/she provides a supportive environment and acts as a mentor helping individuals achieve goals and develop personally (Northouse, 2001). Intellectual stimulation is demonstrated by a leader when he/she encourages creativity and innovation in his/her followers, tries new perspectives and challenge values and beliefs even his/her owns (Northouse, 2001). Inspirational motivation is shown by a leader who inspires his/her followers to commit to a shared vision, increase team spirit and enthusiasm (Northouse, 2001). Idealized influence is expressed in terms of how the followers react to the leader´s behavior. These leaders serve as strong role models; they give the followers a vision and sense of mission (Northouse, 2001). Bass and Avolio (2000) state that this feature can be seen as behavior and as an impact and suggest two scales idealized influence attributed and idealized influence behavior. Contingent reward and management by exception (active) and management by exception (passive) associated with Transactional Leadership. Contingent reward has to do with the commitment of leaders and followers in and exchange mechanism in which followers' effort is rewarded. There is an agreement of objectives and accomplishment is encouraged (Northouse, 2001). Management by exception happens when the leaders get involved to make corrections and generally involves criticism. This can be active or passive, active when it implies a close monitoring and correction

of mistakes. It is passive when the leader gets involved only when problems arise (Northouse, 2001). Laissez-faire as a passive form of leadership when decisions are delayed and there is no feedback and there is no special interest in satisfying the followers´ needs or personal growth (Northouse, 2001) The MLQ is based on a model easy to understand, which points to the individuals performances on a range of leadership behaviors and the directions that they take to be more effective leaders (Bass & Avolio, 2000). The factor structure of the questionnaire has been validated by discriminatory and confirmatory factor analysis, and it has been extensively use in research to study leadership (Bass & Avolio, 2000). The authors reported a reliability of .74 to .91 for the instrument. The instrument has been improved over 20 years of research with high consistency across raters, regions, and cultures. This instrument has a Spanish version that was used in this study.

The MLQ has been used to study the leadership style of academic program leaders of colleges of agriculture and life sciences at land grant universities in the United States by Jones and Rudd (2008). They found that current program leaders tend to have more characteristics of transformational leadership. Greiman (2009) conducted a literature review to synthesize the results of leadership research using the MLQ in agriculture education. The study revealed the efficiency of the instrument, and the researchers suggest the exploration of other variables, demographic variables, and cross cultural research to enhance the results.

Attitudes and Values Questionnaire

The Attitudes and Values instrument is part of the Runco Creativity Assessment Battery (Runco, 2012). The instrument has two scales, one is the indicative items or those attitudes and values that support the creative process and the other is contraindicative items or those attitudes and values that tend to inhibit the creative process. Previous studies utilizing this instrument yielded a reliability of .83. (Runco, personal communication). The instrument is not in the market yet. As a consequence, there is no literature reporting its use, but the information

provided by the developer of the instrument. Despite its novelty the researcher decided to use this instrument due to the complexity of the creativity attitude and values construct. The purpose of this project was not to measure creativity as an outcome but to determine the attitude and values that extension agents have toward creativity and innovation. The original instrument was translated to Spanish by the researcher with the permission of the author. The instrument was then reverse translated by a doctoral level researcher fluent in Spanish to check the accuracy of the initial translation.

Demographic Survey

A demographic questionnaire (Appendix B: Demographic Survey) was used to collect basic information about the participants, such as age, gender, number of years in the position, years since graduation, college degree, and area of the country where he/she works. The survey was developed by the researcher to determine statistical variables. This instrument was translated into Spanish and reverse translated to English to check the accuracy of the initial translation.

Data Analysis

Participants were classified in three groups according to their agency context of government, university, or private institutions that constituted the categorical criterion. Forty participants were included in each group for a total number of participants of 120.The reliability of both instruments the MLQ questionnaire and the Attitudes and Values questionnaire was tested for the sample under study.

To respond to the first research question regarding the ways the MLQ measures the leadership characteristics of the extension agents in Uruguay, factor analysis was performed with the nine variables of the leadership questionnaire so as to detect latent constructs and reduce the number of variables. Each participant had a continuous score for the nine variables in the MLQ questionnaire: individualized consideration, intellectual stimulation, inspirational motivation,

idealized influence (attributed), and idealized influence (behavior) associated with Transformational leadership; contingent reward and management by exception (active) and management by exception (passive) associated with Transactional Leadership and laissez-faire as a passive form of leadership. Exploratory factor analysis was used to determine how many dimensions were present and accounted for most of the variance; to check if the new dimensions were correlated and also to name the underlying constructs. The scree test (Cattell, 1966) and the Kaiser (1960) criterion, were used to decide how many components should be retained. Varimax rotation was used to reduce the number of factors on which the variables under study had high loadings, so as to obtain an easier interpretation of the new variables.

Summary of the Chapter

A sample of 120 agriculture extension agents with equal number of participants (40) belonging to three different work contexts in Uruguay of government, university, and private institutions were recruited to participate in this study. Participants completed the Multifactor Leadership Questionnaire (Bass & Avolio, 2000), Attitudes and Values questionnaire (Runco, 2012) and a demographic survey. Analysis helped to understand the relationship attitudes toward creativity to leadership characteristics according to the agency context for extension agents in Uruguay.

CHAPTER IV

FINDINGS

The purpose of this study was to investigate attitudes toward creativity and leadership characteristics according to the agency context for extension agents in Uruguay. Extension agents come from three different agency contexts in Uruguay, including university, government, and private institutions. A description of the sample is presented, followed by results according to the research questions including multivariate statistics for the variables included in the study. The research question that guided the analysis of the study variables were the following:

1. In what ways do the nine scales of the Multifactor Leadership Questionnaire (Bass & Avolio, 2000) measure leadership characteristics for extension agents in Uruguay?

2. In what ways do the items within the two scales of the Attitudes and Values (Runco, 2012) measure the attitudes and values toward creativity in the work of extension agents in Uruguay?

3. In what ways does the context of the extension agents influence leadership characteristics and attitudes toward creativity for the extension agents in Uruguay?

Description of the Sample

A total of 120 agriculture extension agents completed the survey instruments including the Multifactor Leadership Questionnaire (Bass & Avolio, 2000), Attitudes and Values questionnaire (Runco, 2012) and a demographic survey. The sample included equal number of participants for each work context (40 participants per context). For gender, 70% of the participants were males and 30% females. Only one did not have a bachelor degree, with 61% college graduates and 38% having postgraduate studies, 33% masters, and 5% doctoral degrees. For professional education, 51% had some kind of training in extension and 49% did not. Half of the population had been in their working position between 4 to 6 years; 75% of the participants had accessed their job through contests. Table 1 summarizes the demographics results by agency context.

Table 1

Demographics Results by Agency Context

Agency context	Age Means (Sds)	Gender %	Education %	Training %
Government	41 (11)	Males 68 Females 32	Bachelor 68 MSc. 27 Ph.D. 5	No training 10 Training 90
University	39 (10)	Males 53 Females 47	Undergraduate 5 Bachelor 53 MSc. 37 Ph.D. 5	No training 58 Training 42
Private	39 (10)	Males 83 Females 17	Bachelor 68 MSc. 27 Ph.D. 5	No training 33 Training 67

Reliability Analysis

Reliability was assessed for the two instruments, the Multifactor Leadership Questionnaire (Bass & Avolio, 2000)and the Attitudes and Values questionnaire (Runco, 2012) with the data at hand using Cronbach Alpha, the most widely method for estimating reliability (Furr & Bacharach, 2008reference). The method is based on the inter-item correlations and

reflects the extent to which the items are generally consistent with each other (Furr & Bacharach, 2008). The Attitudes and Values questionnaire is part of the Runco Creativity Assessment Battery (Runco, 2012). The instrument has two scales, those items that are indicative of attitudes and values that support the creative process and those items that are contraindicative of attitudes and values, which tend to inhibit the creative process. The instrument has 25 items with 15 indicative items and 10 contraindicative items. These items were measured using a Likert-type response format ranging from 1 (totally disagree) to 5 (totally agree). The indicative items scale was adjusted; following the better adjustment suggested by the values of Cronbach Alpha (Cronbach Alpha item deleted, SPSS version 20.1). Coincidentally the items that were suggested for deletion by the Statistical program, were the ones mentioned by the participants as confusing. From the 15 items, 6 remained in the scale: 9, 20, 22, 23, 24, and 25. Cronbach Alpha was calculated as .81 based on 120 valid cases showing adequate internal consistency (Nunnally & Bernstein, 1994). The dimensionality of the scale was checked using factor analysis. For the first factor the Eigen value is larger than the Eigen value for the next factor (3.2 versus 0.83). Additionally, the first factor accounts for 53% of the total variance. This suggests that the scale items are unidimensional. The same procedures were used for the contraindicative items scale. From the 10 contraindicative items 5 remained in the scale: 6, 12, 13, 14 and 18. Cronbach Alpha was calculated as .645 based on 120 valid cases. Even though this value was below the acceptable values, ranging from .7 to 1(Nunnally & Bernstein, 1994), the internal correlations worked well ranging from .34 to .48. Factor analysis was also performed to check dimensionality. The Eigen value for the first factor was 2.1, while the second one was .841; the first factor also accounted for 42% of the variance. In the contraindicative items scale the omitted ones also coincided with the ones that were mentioned as confusing by the participants. Table 2 showed the 25 indicative and contraindicative items of the Attitudes and Values questionnaire, the underlined items where the ones that were deleted to increase the reliability of the scale.

Table 2

Attitudes and Values Questionnaire Items

Indicative Items

4. Diversity is a good quality in an organization that wants to be innovative.

5. When solving problems is often a benefit to postpone judgment about possible solutions.

7. Solutions and ideas improve in general when we consider a variety of perspectives.

9. If we produce a big number of ideas, we are more likely to find some valuable solutions and ideas.

10. Problem solving and innovation benefit from changes in perspectives.

11. Collecting data and obtaining new information can be useful before solving a problem.

15. I look for different ways of isolate myself, thus I can concentrate and think deeply about my work.

16. We can find useful ideas when we change the perspective of a problem; no just looking at the problem as it is presented to us.

17. There is a clear benefit when one look for ideas that others will not even consider.

20. It is useful to consider the opinion of those who have a different perspective, even when we are trying to solve a problem.

22. Work can be fun if we face projects as if they were games.

23. Being original can be useful at work or at school.

24. Sometimes is better not to be conventional.

25. I am tolerant with people that are different, bohemians, unconventional, strange.

Contraindicative Items

2. One of the advantages of experience is that you can make useful assumptions and work faster.

3. It is a waste of time when all the people involved in a project share their ideas

6. Maybe is good for a scientist to be strange or extravagant, but for most of us is better to follow the crowd.

8. It is not enough to find an original idea. That idea is worthy if we check it, verify it and put it to work.

12. Any group work and every Project should have a person in charge, that makes constantly that time is not wasted exploring each option.

13. The best is to keep a stand of "proof and truth" regarding innovation, when we find something that works.

14. Good ideas result from concentrating in a problem. It is good not to rest when one is involved in a project.

18. I avoid working out of my area of knowledge. I do not want to be a beginner again.

19. One important thing in work is to find something that is approved by others (supervisors, colleagues, clients, etc.)

21. It is difficult for me to work with people that have different education or work experience.

Note: the underlined items were the ones that were not used in the analysis.

The Multifactor Leadership Questionnaire (MLQ, Bass & Avolio, 2000) was used to gather information on the self-perceived leadership of the participant. The instrument has 45 items and nine leadership scales with four transactional, five transformational, and one passive form of leadership (laissez-faire). It has three outcome scales that were not considered in this study. The items require a Likert-type response indicating the frequency of the behavior from 0, not at all to 4, frequently if not always. Each scale has four items. Scores for each scale were the average scores for the items on each scale. Cronbach Alpha was calculated as .71 in 119 valid cases.

Research Questions

Factor analysis was used to respond to the first research question: In what ways does the Multifactor Leadership Questionnaire (Bass & Avolio, 2000) measure leadership characteristics of extension agents in Uruguay? The nine scales of the MLQ were submitted to factor analysis to identify underlying constructs that explain the correlations among the set of the scales used as variables in the factor analysis, find a meaningful interpretation, and obtain a smaller or more

relevant number of variables for the population. Results showed three different components (Table 3). The first component includes the scales of idealized influence (behavior), inspirational motivation, individual consideration and contingent reward. The second component includes the scales of intellectual stimulation, management by exception (passive), and laissez faire. The third component includes idealized influence (attitude) and management by exception (active).

Table 3

Exploratory Factor Analysis Results for MLQ

Variable	Component 1	Component 2	Component 3	h^2
Idealized influence (behavior)	+.782	+.216	+.113	.67
Inspirational motivation	+.745	-.395	+.068	.72
Individual consideration	+.614	-.419	-.135	.57
Contingent reward	+.602	+.027	+.023	.93
Laissez faire	+.023	+.784	+.189	.65
Intellectual stimulation	+.227	-.704	+.306	.64
Management by exception (passive)	+.064	+.619	+.528	.67
Management by exception (active)	-.216	+.082	**+.750**	.62
Idealized influence (attitude)	+.464	+.020	**+.616**	.60
Sum of Squares of the Loadings	2.22	1.88	1.39	5.49
% of variance	25	21	15	61

In the first component, three scales are associated with transformational leadership style idealized influence (behavior), inspirational motivation, and individual consideration) while the fourth one, contingent reward is associated with transactional leadership. The second component has three scales; intellectual stimulation associated with transformational leadership. It is important to remark that this scale had a negative correlation, which implies the lack of encouragement to creativity and innovation. Management by exception (passive) is related with transactional leadership, and laissez faire attitude is related with a passive form of leadership. This component has a combination of transactional and transformational style, even though the transformational feature has a negative correlation, with the addition of a passive form of leadership. The third component balances both main styles summarizing the scales idealized influence (attitude) (transformational) and management by exception (active) (transactional).

These results match Burns (1978) view, who postulated transactional and transformational leadership as a construct with the two styles at opposite ends of the same continuum (Moore & Rudd, 2006). For Bass (1997) these are complementary constructs, therefore leaders engage in both behaviors. The three components showed different combinations of the traits and in component 2, the presence of a hands off approach. The first component was named **Motivating Demanding**, since the scales summarize a motivating approach, where the individual is taken into account, but there is a demand to accomplish goals. The second component was named **Compliant,** due to the passive attitude and the lack of encouragement. The third component was called **Charismatic Controller,** due to their influence on the vision and sense of mission with a close monitoring to take corrective actions. It is interesting to consider the remarks that many of the participants, mostly those that belonged to the University group, made during data collection. Many reported a negative connotation to the word "leadership". Many of them associated the word leadership with an individualistic approach. A leadership position was seen as a power position that tends to sharpened boundaries, accentuated differences, and social distancing.

To answer the second research question, In what ways do the items in the two scales of the Attitudes and Values questionnaire (Runco, 2012) measures the attitudes and values toward creativity in the work of extension agents in Uruguay. The indicative scale had six items that summarize attitudes and values that support the creative process. The scale was submitted to factor analysis to identify underlying constructs that explain the correlations among the set of variables. Factor analysis confirmed the unidimensionality of the scale. The first component explained 53.3% of the variance and the communalities showed that item 23 (Originality can be very useful at work or in school), accounted for 80.7% variance while 62.9% was accounted by item 25 (I am tolerant of people who are different, bohemian, contrarian, odd). The component matrix showed that all loadings were higher than .5. Items 23 (.898) and item 25 (.793) showed the highest loadings. Table 4 summarizes the results.

Table 4

Exploratory Factor Analysis Results for Attitudes and Values Indicative Scale

Item	Component 1	h^2
9. If you produce a large number of ideas, you are likely to find some high quality ideas and solutions.	+.514	.26
20. It is useful to tolerate people who have different views, even if we are trying to solve a particular problem.	+.723	.52
22. Work can be fun if you approach projects playfully, like they are games and have fun.	+.688	.47
23. Originality can be very useful at work or in school.	+.898	.81
24. Sometimes it is best to be unconventional.	+.709	.49
25. I am tolerant of people who are different, bohemian, contrarian, odd.	+.793	.63
Sum of squares of the loadings	3.19	3.19
% of variance	53.13	

All the items in the scale show high loadings showing agreement with a vision that support a creative attitude. The highest loading (.898) summarizes an attitude that remarks novelty in both learning and working.

The contra indicative scale had five items that summarize attitudes and values that inhibit the creative process. Similar to the indicative scale, factor analysis confirmed the unidimensionality of the scale (Table 5). The contra-indicative component explained 41.9% of the variance, and the communalities showed that item 13 (It is best to stick with a "tried and true" approach to innovation, once you find something that works) accounted for 52.5% variance; while, 46.1%% was accounted by item 14 (Good ideas often result from concentrating on a problem. It is best not to take time off when immersed in a project). The component matrix showed that all loadings were higher than .5. Both items 13 (.725) and item 14 (.679) showed the highest loadings.

Table 5

Exploratory Factor Analysis Results for Attitudes and Values Contra-Indicative Scale

Item	Component 1	h^2
6. Maybe it is good for mad scientist to be strange, but for the rest of us it is best to go along with the crowd.	+.565	.32
12. Any group work, and all projects should have a person of authority who constantly insures that not time is wasted exploring every option.	+.660	.44

13. It is best to stick with a "tried and true" approach to innovation, once you find something that works.	+.725	.53
14. Good ideas often result from concentrating on a problem. It is best not to take time off when immersed in a project	+.679	.46
18. I avoid working outside my area of expertise. I do not want to be a beginner again and again	+.595	.35
Sum of squares of the loadings	2.1	2.1
% of variance	41.9	

The items in both scales showed a clear trend supporting both positions. Considering the main features of this population and its work field, it is necessary to consider the subculture that exists. Runco (2006) gives special attention to culture. Culture represents a significant influence on creative potential. Culture can control whether or not the creative potential is translated into practice. Agriculture as a way of living and producing generates a population of stakeholders with strong values and beliefs. To certain extent the extension agent has to adjust the practice to this particular environment. As well they have to respond to their working context. Therefore values, beliefs and conventions determine the impact of creativity, which creative behaviors and actions are supported and which ones are not (Runco, 2006).

The indicative scale supports a position where originality and acceptance of different points of view rule, the variable was named promote innovation for this study. On the other hand, the contraindicative scale reveals a very conservative and safe position, and the variable was named inhibit innovation for this study.

The third research question requires an examination of the differences among the three working contexts for agricultural extension agents in Uruguay on the basis of leadership features related to attitudes and values towards innovation. A three group discriminant analysis was used. The three grouping variables levels were defined as the government context (group 1) defined as agricultural extension agents that work for the government (Ministry of Agriculture, local governments, and any other institutions that depend on the government). University (group 2) was defined as those agents who work for the University (Central Services, College of Agriculture, and College of Veterinary Medicine). Private (group 3) was defined as those agents who worked for private institutions or were free-lance professionals.

Following the previous analysis of the instruments, five variables were selected on the basis of their relevance to the study of working context differences. Those scales are **Promote innovation**, **Inhibit innovation**, **Motivating-Demanding**, **Compliant,** and **Charismatic Controller**. No missing data were found in the 120 by 5 matrix. Data were analyzed using SPSS version 20.1. Descriptive information about the five outcome variables is given in Table 4.The results of the univariate hypothesis tests (df_1 =2, df_2 = 117) indicate that the three populations differed on only three of the five variables, promote innovation, motivating-demanding, and compliant.

Table 6

Descriptive Information for the three Agency Contexts

	Group Means / (SDs)		
Variable	1	2	3
	Government	University	Private
Promote innovation	3.87	3.34	4.19
	(051)	(1.08)	(0.46)
Inhibit innovation	3.75	3.79	3.50
	(0.62)	(0.76)	(0.57)
	12.35	11.37	12.00
Motivating-demanding	(1.46)	(1.32)	(1.66)
	1.88	1.41	2.25
Compliant	(1.46)	(0.97)	(0.82)
	3.84	3.88	3.72
Charismatic controller	(1.02)	(1.04)	(0.99)

The results of the univariate hypothesis tests ($df_{1=}$ 2, $df_{2=}$ 117), indicate that the three groups differ on only three of the five variables: Promote innovation F (2,117) =13.5, p = .000; Motivating-demanding F (2,117) = 4.5, p = .01; Compliant F (2,117) =5.67, p = .004. The three

variables with differences include first the Promote innovation (the indicative scale from the Attitudes and Values questionnaire that shows attitudes and values that promote innovation and creativity); Motivating demanding (component 1 of the MLQ), summarizes three variables that are associated with transformational leadership style (idealized influence behavior, inspirational motivation, and individual consideration), and contingent reward which is associated with transactional leadership. The third variable Compliant summarizes three scales, intellectual stimulation associated with transformational leadership, management by exception (passive) related with transactional leadership, and laissez faire attitude, which is related with a passive form of leadership. It is important to note that intellectual stimulation had a negative correlation, which implies the lack of encouragement to creativity and innovation. All these variables were significant at a confidence level of 5 %. Therefore only the three significant variables were used in the discriminant analysis. The Box test for covariance matrices homogeneity had a *p* value of 0.00 suggesting that homogeneous covariance matrix cannot be assumed. Since the test is quite conservative, it was assumed that the joint distribution of the three variables within each population is approximately multivariate normal.

To study the resulting group differences, the linear discriminant functions are analyzed. Since there are three groups under study two discriminant functions are obtained. To determine if the group differences were described in one or two dimensions, the test results and the discriminant functions plots were examined. The Eigen values and multivariate tests are shown in Table 7. In this study, work context had three groups, therefore two functions are calculated. The percentage of variance is the proportion of discriminating ability of the five independent variables in a function. In this case, the first function accounts for 86.7% of the discriminating ability of the discriminating variables and the second one account for 13.3%. The Canonical correlations express the Canonical correlation of our predictor variables (promote innovation, motivating-demanding and compliant) and the grouping in work context.

Table 7

Eigenvalues and Multivariate Tests

Function	Eigenvalue	% of variance	% cumulate	Canonical correlation
1	.282	86.7	86.7	.469
2	.043	13.3	100	.204

Results presented in Table 8 showed that the first dimension is significant, and it explains 25.2% of the variability. The significant Chi Square rejects the lack of canonical correlation. Function 2 discriminant ability was not significant (p= .086). Wilks΄Lambda (Λ) tests both Canonical correlations and Chi square tests the null hypothesis that the Canonical correlation is zero, meaning that the functions have no discriminating ability. From these results, it is reasonable to consider only the first dimension in describing the work context difference.

Table 8

Test of Dimensionality

Number of dimensions	Wilks Λ	Chi-square	df	Sig.
1	.748	33.754	6	.000
2	.959	4.916	2	.086

An interpretation of the group difference structure is based on correlations between each of the three outcome variable scores and the two respective linear discriminant functions scores. The structure correlation coefficients are given in Table 9. Function 2 is not shown since it is not significant.

Table 9

Structure Matrix

Variables	Function 1
Promote innovation	.904
Compliant	.584
Motivating-demanding	.393

Table 9 shows the correlation between the observed variables and the dimension of the unobserved one. For interpreting the discriminant function standardized coefficients and the discriminant function variable correlation were used. The procedure empirically clustered the variables, and then what the highly correlated with the discriminant function have in common was determined. The correlations give a direct indication of which variables are most closely aligned with the unobserved trait that the discriminant function represents. The standardized canonical discriminant function coefficients provided and index of importance of the variables. Both promote innovation (.781) and compliant (.445) showed the highest values.

The group centroids for the first function are presented in Table 8, and a plot of the group centroids is given in Figure 1.

Table 10

Functions of the Centroid Groups

Group	Function 1
1	.117
2	-.693
3	.576

Attitudes and values that promote innovation and a compliant leadership behavior are associated strongly with the discriminant function (see Table 7). Therefore the separation among the three working contexts may be attributed to the attitudes and values that promote innovation and a compliant leadership behavior. A plot of the group centroids is given in Figure 1.

The classification results shown in Table 9 revealed that 54.2% of the respondents were classified correctly into the three groups (hit ratio). Group 1, the group that represented the government was the most accurately classified (60%) followed by group 3, the one integrated by the private institutions (55%); group 2, the university was the less accurate (47%). The hit ratio or overall predictive accuracy of the discriminant function is compare with what it could be achieve by chance (Agresti, 1996). In this study the hit ratio was 33.7 % larger than that due to chance; in general a hit ratio 25% larger is accepted.

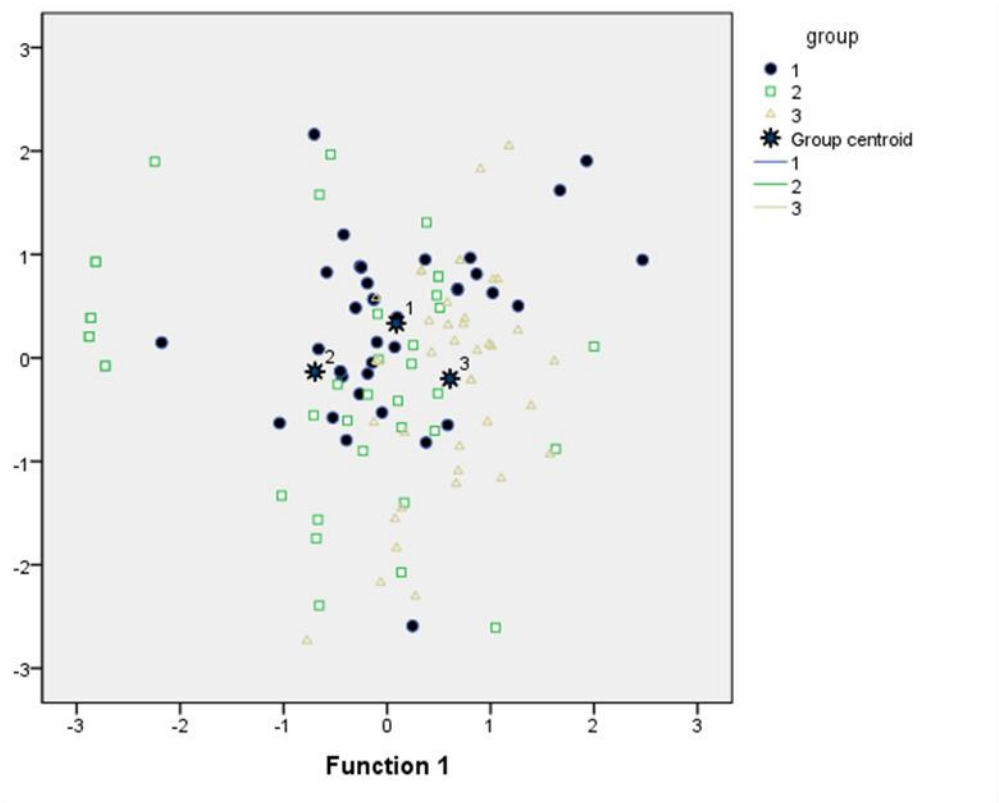

Figure 1

Group Centroid Plot

The classification results shown in Table 11 revealed that 54.2% of the respondents were classified correctly into the three groups (hit ratio). The government context (group 1) was the most accurately classified (60%) followed by the private context (group 3) (55%). The university context (group 2) was the less accurate (47%). The hit ratio or overall predictive accuracy of the discriminant function is compare with what it could be achieve by chance (Agresti, 1996). 54.2% of original grouped cases were correctly classified. The improvement in classification was 21.2%. The I index shows the improvement in the classification by the one done by chance, in this study the I index was 33.7%.

Table 11

Predicted Group Membership

	Group	Government	University	Private	Total
Count	Government	23	10	7	40
	University	10	20	10	40
	Private	13	2	25	40
Percentage	Government	57.5	25.0	17.5	100
	University	25.0	50.0	25.0	100
	Private	32.5	5.0	62.5	100

Summary of the Chapter

In this chapter results of data collection and analyses for this research study were presented. A description of the sample was presented first, showing an adequate variability to resemble the population under study. Next, reliability for the Attitude and Values scales and the MLQ questionnaire were described. Both scales showed at least a good level of internal reliability. Then, the research questions were reported with factor analysis used to reduce the number of scales in the MLQ questionnaire. As a consequence the original nine scales were reduced to three. Discriminant analysis was performed to discuss the degree to which the continuous outcome variables could be used to discriminate between the working contexts for the agricultural extension agents in Uruguay. Attitudes and values that promote creativity and innovation and a compliant leadership style were the independent variables that accounted the most for the differences in the average score profiles of the three groups. The proportional reduction in error was 33.7 %.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMENDATIONS

The purpose of this study was to investigate attitudes toward creativity and leadership characteristics according to the agency context for extension agents in Uruguay. Extension agents come from three different agency contexts in Uruguay, including the university, government, and private institutions. Leadership characteristics are those that combine to describe leadership approaches according to the Multifactor Leadership Questionnaire (Bass & Avolio, 2000). Attitudes toward creativity concerns the values one holds about using creativity in work situations and was determined by the Runco (2013) scales in the Attitude and Values instrument. This chapter summarizes the findings and discusses conclusions based on the analyses of data. Implications and recommendations for theory, practice, and research conclude the chapter.

Summary of Findings

The data analysis employed in this study was selected to explore the differences among the three working contexts for agricultural extension agents in Uruguay on the basis of leadership characteristics and attitudes and values towards innovation. A three-

group discriminant analysis was used, because this technique allows the determination of which variables discriminate between two or more a priori defined groups. This statistical tool is effective to investigate differences between groups and to discard variables that do not contribute to group distinction.

Results of the discriminant analysis identified two variables. A positive attitude and values toward innovation and creativity and a leadership behavior that is characterized by a combination of intellectual stimulation, management by exception (passive), and laissez faire scales, as the highest discriminating variables between group two, the university context and groups one and three the government and private contexts. The group difference is based on the correlation of the three outcome variables scores and the discriminant function. The construct is defined primarily by a positive attitude towards creativity and a compliant leadership behavior. The largest standardized coefficient for the discriminant function was associated with the attitude that promotes creativity and innovation, while the second high coefficient was associated with a leadership behavior that correlates negatively with intellectual stimulation. Intellectual stimulation is associated with transformational leadership. This feature is demonstrated by a leader who encourages creativity, tries new perspectives and challenges values and beliefs (Northouse, 2001). The study showed a negative correlation between this scale and the compliant component obtained by factor analysis. Management by exception (passive) is related with transactional leadership and it happens when the leaders get involved to make corrections. The laissez faire scale is a passive form of leadership where the leader gets involved only when problems arise (Northouse, 2001). This component was named "compliant" due to the leadership features related with it. They seem to act in a compliant manner, agreeing with rules, standards and requirements, making sure that they are accomplished.

Conclusion

There are three major conclusions based on the findings of this study. First, factor analysis performed in the scales related with leadership did not cluster as Bass and Avolio (2000) suggested. However, the clustering is appropriate to the population under study. These results match Burns (1978) view, who postulated transactional and transformational leadership as a construct with the two styles at opposite ends of the same continuum (Moore & Rudd, 2006). For Bass (1997), those are complementary constructs, therefore leaders engage in both behaviors. Factor analysis yielded three components that did not follow the transactional, transformational, and laissez faire styles that Bass and Avolio (2000) proposed. Rather, results show a different combination of the traits. The first component was named **Motivating Demanding**, since the scales within it summarize a motivating approach. In this approach the individual is taken into account, but there is a demand to accomplish goals. The second component was named **Compliant** due to the passive attitude. The third component was called **Charismatic Controller** due to the influence on the vision and sense of mission with a close monitoring to take corrective actions.

Cognitive and affective processes are critical in education. Extension in agriculture, in particular, as a non-formal education practice faces a challenging heterogeneous audience. In addition rural contexts have features that make them special, values, concerns, beliefs and a particular language. Capacity building and empowerment in rural communities is necessary to ensure sustainable processes; leadership can be intertwined into the extension programs to effectively reach the stakeholders. These results show that it is necessary to train the agents so that they can access leadership as another tool for their practices. Development of leader capacity should go beyond skills and leadership styles, to lead in a holistic way where intellectual, emotional, and spiritual abilities and understandings are implied (Daft, 2011).

The second conclusion is that attitudes and values to promote innovation likely expected to be one of the values of the university group were not shown in the results. One possible explanation could be the philosophy of the university. The extension models historically followed in Latin America are based on Rogers (1995) diffusion theory or the critical view of the social structure based on Freire (1973). The university tends to follow the critical view. The word "innovation" is related to Rogers´ model, which sees innovation as a linear process where technology is generated, validated, transferred and adopted, without space for a participatory approach. Leeuwis (2004) states that the potential blocks for innovation are often part of people's "tacit knowledge" (p.144). Perhaps this underlying philosophy has dominated the view of innovation. The others two groups government and private institutions showed an attitude that tend to promote creativity and innovation which in their case is aligned with their jobs goals, which has to do with a model of extension that provides regulation and provision of inputs and also emphasize National production goals and productivity. According to Guba and Lincoln (1989), this approach is guided by a positivist paradigm where the professional ground is the center, and there is little room for relating to the stakeholders values and meanings. This could explain the compliant way of leading.

Third - there is a difference between working contexts for agricultural extension agents in Uruguay. The results of the study were able to discriminate between the university context and government and the private contexts which showed a similar behavior. Both the government and the private contexts showed a positive approach to creativity and a compliant leadership behavior. The separation among the university group and the other two, government and private, may be attributed to the positive approach to innovation and the leadership characteristics. Second this particular population clustered their leadership features as a combination of styles in a particular way, which does not follow the theoretical approach. Third trends that characterize the population approach to innovation and creativity were identified. The third conclusion from the findings is that government, university, and private work contexts separate in two groups. The government

and private work contexts are similar, yet different from the university context. The government and the private contexts showed the highest scores for a positive attitude towards creativity and innovation and a compliant leadership approach. The university context showed the lowest scores on both positive attitude toward creativity and compliant leadership. This result reflects some features of the population under study. On one hand, both the government and the private institutions have to respond to policies and programs that despite being related to innovation sometimes leave little room for a leadership behavior. On the other hand, the university has more flexibility to implement leadership behaviors with a more active approach. A positive attitude to creativity and innovation and the negative correlation with the transformational leadership feature of intellectual stimulation cannot be seen as a contradiction. As individuals, the extension agents can have a positive attitude towards innovation; however, their leadership approach to the process of extension does not allow them to express it. This could be explained by the lack of specific training in extension. Runco (2003) suggested that some tasks can weaken the creative potential, mostly when the tasks required by the profession lead towards conformity.

Implications and Recommendations

Previous research has found some critical areas regarding agency context in Uruguay, like: policies, agents training, coordination between the different agencies (Diaz Rosello, 1986; Morelli, 1988; Vasallo, 1995; 2001). The findings of this research provide some insights about how the agents see themselves and how the different contexts are related to the extension process. This is a first approach to address leadership linked to the extension in the country. Future studies may be able to find a way to characterize the leadership approaches of the agents in order to best help them adjust to the needs of their stakeholders and the institutions that they represent.

Few empirical studies address creativity in extension (Marin & Rodriguez, 2012; Womack, 2005) even though many authors emphasize the importance of creativity related to

extension (Argenbright, et al., 2010; Leeuwis, 2004; Warnock, 1985). Both empirical studies and theoretical approaches subscribe the idea that creative thinking and innovative actions are necessary to increase the chances of success in the extension endeavor. These findings added empirical support to the idea that extension agents have a positive attitude towards creativity and innovation at least in two of the groups addressed in this study. Future research should address the University group in order to find, which particular approach this relevant group has. As Leeuwis (2004) suggested failure of some innovations in agriculture are due to improper, insufficient or lack of alignment. He remarked that it is important to "mobilize creativity" (p.142) to generate the necessary links and networks to align the innovation.

The identification of these particular combinations of leadership features can aid in future data collections and they can be of use to develop training programs, which not only would benefit agents, but extension students and untrained professionals.

Theoretical Implications

The major findings of this research study provide insights on a relevant population. In a small country like Uruguay, whose economy depends on agriculture, it is relevant to understand the relationship between the different sources of extension agents and how they perceive their leadership features and creative attitudes. By understanding this connection, the extension system can develop the capabilities that make the extension agent's work productive, effective, and efficient. As the demographic data showed half of the sampled population did not have training in extension, this could be understood as a constraint to express the variables under study. Therefore training seems to be a key answer for this population, hands on experiences that work as incentives to apply leadership skills. Training should promote a positive view of leadership, it should start "with a conception of leadership that fits" (Zachary, 2000, p. 72). These findings can help to focus a training program that aligns with these population needs. The context not only the

working context but also the complex context of rurality, becomes a central consideration when designing a training program (Cervero & Wilson, 2006).

This study contributes with a quantitative view and its findings can aid in the development of new scales more appropriate to assess the agriculture extension professionals in the Uruguayan reality. Previous research in agricultural extension models in South America concluded that it is necessary to increase the rate and effectiveness of technology transfer, so as to optimize the organizations efforts and to support farmers in their efforts to overcome the challenges that agriculture faces in globalize and competitive markets (Arboleya & Restaino, 2004). By understanding extension agents' perceptions of their agencies context and their professional attitudes, the extension system will be able to make decisions regarding training and professional development to best suit agents' and beneficiaries' needs. The positive view towards innovation in both the government and the private institutions, suggested an awareness of what naturally encourages creative thinking. As Runco (2003) states creative potential is part of the basic human predisposition to build personal interpretations and integrate information through experience. This agrees with Sternberg's (2006) idea that creativity is in the interaction of environment context and person, therefore it is important to focus as well on the features of the individual and the individual's action relative to the environment context. This feature can be integrated to the instructional design of training programs, generating a balance between the agents' attitude towards innovation and the expression of it in their work practice.

Practical Implications

The results of this research study provide implications for future practice in agricultural extension training. Understanding how agricultural extension agents perceive innovation and leadership can help to design instructional and practice activities both at academic and professional development levels. Therefore optimize the organizations efforts to overcome the challenges that agriculture faces. It will be interesting to develop instruments for these specific

contexts to better assess the individuals perceptions as extension agents. The different working contexts should seek additional knowledge and training in leadership skills so as to provide this tool to their agents to effectively assist rural communities. Creativity training programs can be a part of the agents training, as Piirto (2004) states; they should be based on people self-evaluation of their creative processes and should emphasize fluency, flexibility, elaboration and divergent thinking.

Future Research

This research should continue on with further exploration of the main characteristics related to agriculture extension agents. Further exploration of leadership approaches and attitudes towards creativity and innovation would be relevant; not only from the extension agents´ point of view, but also from the point of view of the stakeholders. The finding that the University group is different from the other two contexts and its specific view about innovation should be explored.

Further exploration of the concept of leadership and how it is perceived by this population will be relevant. The specific leadership traits that clustered in this study will help identify trends within and among working contexts. Needs assessments approaches suitable for this population should be considered. The findings of this study showed that this particular population has perceptions, needs and interests that are different from the traditional leadership approaches.

The effects of culture are a key point in creativity, and according to Runco and Pagnani (2011) it responds to three variables: resources available, degree of development in the culture, and the specific features of moment of time. Further research should also look at attitude towards innovation and leadership inside the working context and also the stakeholders' context. This will provide a way to articulate the individuals' perceptions with the innovations goals and their application to the working context and professional practice.

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APPENDICES

Appendix A: Institutional Review Board

Oklahoma State University Institutional Review Board

Date:	Wednesday, May 29, 2013
IRB Application No	ED1392
Proposal Title:	Leadership characteristics and attitudes towards creativity in agriculture extension agents in Uruguay.
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 5/28/2014

Principal Investigator(s):

Virginia Gravina
402 Willard
Stillwater, OK 74078

Diane Montgomery
424 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI, advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Shelia H. Kennison

Shelia Kennison, Chair
Institutional Review Board

Appendix B: Demographic Survey

Demographic Questionnaire

1. What is your age, circle the one that corresponds:

less than 25; 26-30; 31-35; 36-40; 41-45; 46-50; 51-55; more than 55

2. Circle your gender : male female

3. We are interested in your educational history. Please complete this table:

Diploma	Place	Date earned
High School		
Associate		
Bachelor		
Master of Science		
Philosophy Doctor		
Other training		

4. Did you have special training in extension? Yes No

If yes, please specify: _____

_____

5. What is your agency context? Circle the one that corresponds:

a. University

b. Ministry of Agriculture

c. Private

6. Name the institution that you work for: _____

7. How long have you been working for that institution, circle the one that corresponds:

a) less than a year

b) 1 - 2 years

c) 2 – 4 years

d) 4 – 6 years

e) 6 – 10 years

f) 10 – 20 years

g) More than 20 years

8. What are your specialty areas:_____

_____

_____

9. What area of the country do you cover?_____

10. What was your previous work experience?_____

_____

11. How do you get the position that you are working at the moment?_____

_____

12. How would you describe your work as an extension agent? _____

_____

_____

VITA

Maria Virginia Gravina
Candidate for the Degree of

Philosophy Doctor

Thesis: INVESTIGATING LEADERSHIP CHARATERISTICS AND ATTITUDES TOWARD CREATIVITY ACCORDING TO AGENCY CONTEXTS FOR AGRICULTURE EXTENSION AGENTS IN URUGUAY

Major Field: Educational Psychology

Biographical:

Education:

Completed the requirements for the Philosophy Doctor in Educational Psychology at Oklahoma State University, Stillwater, Oklahoma in December, 2013.
Completed the requirements for the Master of Science Agriculture Sciences at Universidad de la Republica, Facultad de Agronomia, Montevideo, Uruguay in May, 2010.

Completed the requirements for the Bachelor of Science in Agriculture Engineering at Universidad de la Republica, Facultad de Agronomia, Montevideo, Uruguay in August, 1989.

Experience:
Head Manager of the Biometrics, Statistics and Computer Science Department, Agronomy College, Universidad de la Republica, Uruguay; and Professor in charge of the undergraduate courses, 2005-2010.

Adjunct professor, College of Agriculture, Universidad de la Republica, Uruguay, Biometrics, Statistics and Computer Science Department, 2000 – 2005.

Professional Memberships:

American Evaluation Association.

International Society for the Scientific Study of Subjectivity.

Uruguayan Statistics Society.