Trends within Risk Management Education for International Agricultural and Extension Educators: A Historical Review

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Abstract

This study focuses on three key areas: relevant literature in adult learning and learning theory, relevant literature in risk management in agriculture, and lastly, relevant literature in risk management education.

The historical review of literature in adult learning and learning theory focuses on the importance of adult education, the key characteristics that make adults unique in the educational process, and Kolb’s learning theory and its possible implication for adult and risk management education. The section on risk management identifies the major sources of risk in production agriculture, the factors that contribute to those risks, and lastly, the priority strategies and techniques to management of those risks. Lastly, the literature review provides an overview of current risk management educational programs.

In summary, the historical overview indicates many challenges and opportunities for educators, consultants, and industry leaders focusing on risk management education. Educational programs dealing with risk management topics and strategies need to be pursued as a high priority.
Introduction

Adult learning has emerged into a new frontier. The knowledge explosion has enhanced the need for life-long learning and the demand for people to know more about their home and on-the-job surroundings (Gordon and Souza, 1980). At the same time, adults bring a wide variety of experiences with them to their educational settings according to Slotnick, Belton, Fuller, and Tabor (1993), Smith and Haverkamp (1977), Knowles (1984), and Apps (1988). It is the rich experiences that enhance adult learning.

Kolb (1984) has identified three main areas of human development related to learning. The first stage is from infancy to about age 15 at which time childhood development occurs. The second stage (described as specialization) occurs from age 16 to 40. The last stage of the process, as described by Kolb, is called integration (age 40 and beyond) whereby an individual feels the need for personal fulfillment. Furthermore, Kolb identified four learning modes that individuals tend to prefer during the specialization and integration stages. His four learning modes are: concrete experience, reflective observation, abstract conceptualization, and active experimentation.

Regarding agriculture, Klair (1998) states that farmers need to understand the changes of agriculture and carefully consider how to adapt their businesses. To be successful, farmers, educators, and researchers will need a clear understanding of risk and how to manage it (Harris, Benson, and Rosser, 1998). By managing risk, farmers are better able to stabilize farm income and ensure that funds will be available to fulfill both business and family-related needs (Hanson and Pederson, 1998).

Risk and uncertainty is very evident in farming. Many factors, such as weather, crop and livestock diseases, insects, adoption of new technologies, fluctuating prices, government programs and policies all create risky situations for farmers. Nelson (1997) defined risk and uncertainty as situations that have many possible outcomes regardless of their desirability. Five common sources of risk found in farming have been identified and widely reported for years (Boehlje and Trede (1977) and Kay and Edwards (1994)). The five common sources of risk are: 1) production risk, 2) price or market risk, 3) institutional risk, 4) human or personal risk, and 5) financial risk.

Many educators have stressed the need for risk management education for farmers. Klair (1998), Nelson (1997), and Pena, Klinfelter, and Warmann (1999) concluded that educational programming in risk management should be pursued as a high priority to help farmers assess and plan their future. Jose (1998) emphasized that changes in agriculture pose a major risk for farmers and those changes create an urgency to develop and deliver educational materials that will meet farmers’ needs. Coble and Barnett (1999) stressed the need for effective communication of risk management. Based upon focus group research of Texas and Kansas farmers, Texas and Kansas Risk Management Teams (1998) concluded that farmers see risk management as a very broad concept. Furthermore, Coble, Knight, Patrick, and Baquet (2000) stressed the need and importance of teaching fundamentals of risk management followed by more specific programs.
Purpose and Objectives

The primary purpose of this study was to review the current and past literature about risks in production agriculture and risk management educational programs. The secondary purpose of the study was to look at adult learning theory to help develop an understanding for risk management educational programs.

The specific objectives for the study were:
1) to review and summarize current and past literature in adult education.
2) to review current and past literature in risk management.
3) to identify current and past educational programs in risk management.

Methods and Procedures

This study used a historical research methodology. This methodology uses a systematic collection and evaluation of data to describe, explain, and thereby understand actions and events that have occurred in the past, according to Fraenkel and Wallen (1993). The following sources were used to extrapolate the data for this study: USDA bulletins, the ERIC database, Extension publications, bibliographies of related literature, the World Wide Web, and other sources. References were located through a library search completed in 1999 – 2001 at Iowa State University.

Results/Findings

The results and findings section is reported in three segments. The first segment identifies the unique characteristics of adult learning and learning theory that are relevant to adult education and risk management education. The second segment identifies risk management in production agriculture and describes the sources of risk within farming. The last segment addresses current needs in educational programming and delivery of risk management educational programs.

Adult Learning and Learning Theory

Why adult education is important

Learning is part of survival and progression. Adults have learned to survive and pass knowledge from one to another. In recent years, Gordon and Souza (1980) stressed the need for lifelong learning opportunities because of the knowledge explosion. This knowledge explosion has created a demand for people to know more about their surroundings. Adults, after completing their formal education, want to continue to learn skills that will further them in their respective fields.

What makes adult education unique?

Adult educators are challenged by the diverse backgrounds that adults bring to any educational setting. Adults have differences in motivations, goals, and experiences, as well as differences in social, educational, and employment backgrounds (Haverkamp, 1983). These experiences give them a better sense of direction and a unique outlook on life and education
Smith and Haverkamp (1977) concluded that adult learning includes acquiring the knowledge and skills that are essential for learning in any situation.

Knowles (1984) listed four features that makes adult learning unique: 1) self-directness, 2) a rich experience base, 3) the need to address real life problems, and 4) the need to apply learning immediately. A logical means in contributing towards these four assumptions is the use of a collaborative teaching model that involves the learners as partners (Knowles, 1980). His model assumes that the adult learning environment draws upon many resources other than the teacher. These resources include peers, members of the community, materials, and media resources.

The premises of adult education

While the Knowles model is comprehensive, most adult educators would agree that not one model fits all situations since the adult learning environment must accommodate many different conditions. Communication between adult learners and educators is a must in understanding agricultural producers’ needs and establishing a quality program.

In Schroeder’s (1980) view, adult educators should be concerned with needs, objectives, learner experiences, teaching strategies, and evaluation. Furthermore, Boone (1985) concluded that in order to design programs effectively, a better understanding of program planning and needs of adult learners must be developed.

Several educators have argued that teaching and research in agricultural education must be integrated for the educational process to be successful. Coble and Barnett (1999) stressed the importance of a continual and respectful dialogue between researchers and educators working with lay audiences. Likewise, they have indicated that researchers need feedback from producers to help identify and solve problems. In risk management, Coble and Barnett stated also that the educational process should include quality research that is quickly and effectively conveyed to educators and then disseminated to producers.

Kolb’s learning theory

Kolb (1984) identified three main stages of development throughout one’s life. Each of these stages constitutes a need for education to be taught and learned using different techniques. The second (specialization) and third (integration) stages focus on adults while the first stage deals with the early development of an individual’s life from infancy to about 15 years of age.

The second stage is one of specialization (about ages 16 to 40), in which the environment and one’s own learning preference moves an individual to greater specialization. People choose a vocation, a place to live, a field of study, and their lives begin to be shaped. They rely more on a particular learning style and become more skilled in grasping and transferring experience. In this stage, people move toward specialization as a way of coping with the complex world. For risk management educators, this stage focuses largely upon the needs of younger and beginning farmers. Risk management programs may be designed to help identify and minimize risks associated with farming in the first few years.
The third stage of development is called integration (about age 40 and beyond), which is a period characterized by conflict between the need for specialized competence and the need for personal fulfillment. Individuals frequently rely upon more than one learning mode. For risk management educators, programs should address more advanced issues such as marketing techniques.

Kolb’s (1984) model describes learning as a series of interactions among four learning modes (concrete experience, reflective observation, abstract conceptualization, and active experimentation). As shown in figure one, the four quadrants of the model visualize the process whereby knowledge is transformed through experiences. Kolb hypothesized that knowledge is from the “combination of grasping experience and transforming it” (Kolb, 1984, p. 41). Knowledge is either transformed through intention or extension and then grasped either by comprehension or apprehension. For concrete experience, the new knowledge is introduced through new experiences. For reflective observation, the knowledge is gained through watching/listening. For abstract conceptualization, the learner creates concepts and then forms them into generalizations. These concepts and generalizations are then used to make decisions, solve problems, and application in the active experimentation mode (Andreasen, 1998).

Figure 1. The Kolb model of experiential learning (Kolb, 1984)

Kolb (1984) proposed four distinct learning modes that represent each of the quadrants in the model during the specialization and integration stages. As defined by Andersen and Adams (1992), some examples of teaching activities for each learning mode are as follows:

1. Concrete experience is learning by feeling/hunches/intuition or specific experiences. Teaching activities that support this type of mode are fieldwork, laboratory exercises, and observations.
2. Reflective observation is learning by observing/watching/listening to others. Teaching activities that support this mode would include discussions, brainstorming, and thought provoking questions.

3. Abstract conceptualization is learning by thinking/analyzing/using logic to solve problems. Teaching methods that support this type of mode include lectures, projects, and papers.

4. Active experimentation is learning by doing and experimenting on my own. Teaching activities that support this learning mode include projects, case studies, and simulations.

Risk Management in Production Agriculture

Risks in agriculture

Kay and Edwards (1994, p. 251) listed three main sources of risk that should concern producers. They are: 1) production risks, which encompasses diversification, production capacity, custom farming, and share leases; 2) market risks, which are sales, hedging, options, and government programs; and 3) financial risks, which are interest rates, loans, available credit, and net worth. Furthermore, Boehlje and Trede (1977) indicated two additional risks that are of equal importance. They are: 4) Institutional risks which result from changing rules and/or regulations affecting the agricultural producers; and 5) human or personal risks, which are disruptive occurrences resulting from death, injury, divorce, or similar events.

These sources of risk and the outcomes associated with them are inherent in all stages of farming from beginning farmers to well-established farmers. As agriculture changes (i.e., globalization, volatile markets, etc.), producers need to understand and manage these risks to protect their investments.

For market risks, the use of forward contracts, hedges, and government programs can help sustain profit margins. Recently, managing government programs has become increasingly important because government payments have become an increasing proportion of farm income and can be the difference between profit and loss. Human risk, also, has become increasingly important. As more farmers become older and reach retirement, more beginning and younger farmers will be needed to replace them. Production risk is also becoming increasingly important. As more varieties of seed, different combinations of herbicides and pesticides and vaccination programs for livestock are being developed, producers need to be aware of the latest advancements and technologies that can help them in production. Financial risk is becoming important to manage with smaller locally-owned banks merging and being acquired by bigger banks. The volatility of interest rates on borrowed capital and operating loans may cause cash flow problems for the business.

Factors contributing to risks in production agriculture

Now more than ever, producers need to seek the advice of qualified individuals to help them analyze the financial outcomes of business decisions. Agricultural educators can develop and deliver educational programs to assist producers to minimize these downside risks. At the same time, producers will be forced to learn and develop more sophisticated management skills. According to Klair (1998), in 1990, 40% of the farmers were making a profit while the remaining 60% were simply living a lifestyle. In 1998, 20% were making a profit and 80% living a
lifestyle. These changes have implications for the survival of farmers. Previously, one bad year financially might be made up in 3 to 5 years, but now with high input costs and low investment returns, one bad year could take 5 to 10 years for farmers to recover, according to Klair.

Agriculture in the United States is more globally trade-oriented and more sensitive to international events beyond its borders. “International marketing” is a new concept for farmers with the development of “global” markets causing additional confusion and risk. Given these conditions, Harris et al. (1998) concluded that farmers, educators, and researchers needed a clear understanding of these international factors and their impact upon risk and risk management.

Priority areas of managing risks

Alternative risk management tools need to be developed that don't just focus on traditional risk management concepts. All risk management educators, consultants, producers, and other professionals need to explore all options of risk and broaden their perceptions towards risk and how to manage it.

Pena et al. (1999) state that most farmers and ranchers prefer to concentrate on production related skills and leave the financial skills to their financial lender or accountant. Furthermore, they state that the only true business analysis or planning that some producers complete is signing their income tax forms or preparing limited financial information for their lender. However, with the rapidly changing agricultural environment, Pena, et al. have concluded that those who will succeed in farming in the future will manage their operations with greater emphasis on record keeping, planning, profitability analysis, and repayment based upon sound production and business monitoring and controls.

Risk Management Education

Educational programs and delivery

Examples of extensive and comprehensive risk management education programs are somewhat limited. The literature search, for this study, revealed only one extensive program in the United States. The state of Texas initiated a Master Marketing group in 1996 to assist producers to develop management strategies to reduce market and price risk. This program does not, however, deal with other sources of risk in farming. To develop the program content, extension economists identified focus group participants in Texas and Kansas. The focus groups consisted of farmers, ranchers, lenders, and other agri-business representatives and were designed to gather input for educational materials on risk management (Texas and Kansas Risk Management Teams, 1998).

The results from the focus group research indicated that producers preferred meeting segments of one day or less due to time limitations. At the same time, the producers recognized that these meeting segments frequently increase awareness but note that meaningful education is often difficult in this setting. Additionally, they supported in-depth educational programs with short and focused publications containing real-life examples (Texas and Kansas Risk Management Teams, 1998).

The Texas and Kansas Risk Management Teams found that farmers view risk management as a very broad concept. It extends beyond crop insurance, futures, options, and
contractual agreements affecting revenue. They wanted better evaluation of new farm technologies and farm programs. They were also interested in the potential of niche markets. Several conclusions were made by the Texas and Kansas Risk Management Teams. Revenue (price, yield, and input costs) were of the utmost importance to these farmers. They also concluded that producers indicated that important risk management strategies are debt management, diversification, and forward contract selling. Regarding educational delivery, they concluded that producers prefer to receive risk management education in management meetings/clubs and by printed publications.

A study conducted by Coble, Knight, Patrick and Baquet (2000) also found that price, yield, and input variability were the major risks confronting producers. This conclusion supports the Texas and Kansas Risk Management Teams’ findings. This study also indicated that agricultural producers wanted to be involved in the planning and delivery of risk management education programs. Some additional conclusions of the study that are important to the design of risk management education were that farm magazines are likely to work better than the Internet for producers to get information regarding risk management. Also, phase one educational programs should help producers understand the fundamentals of risk management. Once the fundamentals are understood, then more specific programs can be implemented. Lastly, the needs of producers from different sizes of operations are likely to be different and this alone creates challenges for educators to be creative in program design and delivery.

Major emphasis on risk management educational programs

Pena et al. (1999) envisioned that producers are going to have to enlist themselves in intensive educational programs to gain the confidence in the use of essential farm/ranch business management skills, including risk management. Many producers have traditionally avoided these programs due to the lack of time and availability but now need to get involved quickly to stay current. Jose (1998) stated that changes in agriculture pose major risks for producers and those changes create an urgency to develop and deliver educational materials that will meet the producers’ needs.

Community colleges, high schools, adult education programs, universities, agribusiness, extension and others can help deliver the risk management education programs to better serve our agricultural producers. Knowles (1980) addressed the importance of using collaborative educational models that involve learners, educators, and other professionals in the program development process to increase the likelihood that the needs of the adults are met and that real-life experiences are included in the development process.

According to Coble and Barnett (1999), researchers, professionals, and educators have an interest in attacking the question of how to communicate risk management results more effectively. They stress that willing and educated individuals will need to involve the participating parties to get feedback on positive delivery methods and then apply these methods in educational programming.

Nelson (1997) concluded that educational programs should include the concepts and procedures for strategic planning as well as the advantages and disadvantages of alternative risk management strategies. Producers need to be aware of all the risks associated with their decisions so that they may make the best decision. Farmers need real life experiences and role-playing techniques within the educational setting so positive outcomes can be achieved.
Professionals, involved with agriculture, who can help producers develop and implement strategic management approaches are invaluable. Educators are needed that understand risk and that can relate to the specific needs of farmers. Educators need to be well equipped with valuable information that can help the farmer survive beyond the next few years in this rapidly changing agriculture business (Klair, 1998).

Summary

If quality educational programs are to be established, then educational research on risk management education needs to move to the next level. The learning styles of producers, along with their demographic characteristics and perceptions towards risk management, need to be considered in the developmental process of educational programs.

The challenge, according to the Texas and Kansas Risk Management Teams (1998), is to implement innovative educational programs that will help producers reduce downside risk. These programs need to be developed to provide tool(s) for producers to manage their operations. Pena et al. (1999) and Klair (1998) suggested that individual producers who fail to plan their business course using these tools will struggle to survive.

Lastly, the review of literature indicates that most educational research in risk management education focuses on the method of delivery (computer, seminars, printed text, publications, and others) and not on the learning mode or style for adults enrolled in risk management education. Educational research has shown greater participation and retention when the learning mode of adults is considered in the development of a program. So, if quality educational programs are to be established that will cause producers to participate, the interaction of risk management and learning mode for farmers must be studied.

Conclusions/Recommendations

Several conclusions and recommendations can be made from this study. The conclusions and recommendations section of this paper will be divided into four subcategories: 1) The need for risk management educational programming, 2) training for risk management educators, 3) content of risk management education, and 4) the delivery of risk management topics and information.

The need for risk management educational programming abroad

Educational programming in risk management education needs to be a high priority. Such programs are needed to keep agricultural producers competitive and profitable. Furthermore, phase one risk management educational programs should help producers understand the fundamentals of risk before they move onto more specific programs.

Educational models need to enlist the learner(s), educator(s), and other professionals to help establish and increase the productivity of the program. This type of structure increases the likelihood that the learners needs are met.

Training for International risk management educators

Agricultural producers need a firm understanding of the risks in agriculture so the useful information can be attained and used properly. These educational programs should include strategic planning concepts and alternative risk management strategies.
Content of risk management education

Educational programs should include concepts and steps for strategic planning as well as pros and cons of alternative risk management practices. Price, yield, and input variability are topics that should be implemented into educational programs. Also, agricultural producers view risk management as a very broad concept that extends beyond crop insurance, futures, options, and agreements that affect revenue. Producers want better evaluations of new farming technologies and farm programs.

The delivery of risk management topics and information for international educators

International researchers, professional and educators need to ask the question of how to communicate risk management results more effectively. Magazines are preferred over the internet for information regarding risk management. Producers of different sizes are likely to have different needs. This creates challenges for educators to be creative in program design and delivery.

Agricultural producers want to be involved in the planning and delivery stages of educational programs. Producers prefer to receive risk management information in meetings/clubs and by printed publications.

Current changes in agriculture around the globe pose major risks for producers. These changes create an overwhelming urgency to develop and deliver educational materials that will meet the producer’s needs.

References


