

Using Distance Education in Extension Programming

Rodney Jones, Alicia Goheen, Kevin Dhuyvetter, Terry Kastens, and Vincent Amanor-Boadu

This paper provides an overview of the development of the Management Analysis and Strategic Thinking (MAST) program conducted by Kansas State University. This intensive management training course for progressive farm and agribusiness operators is being delivered successfully using a combination of face-to-face and distance extension delivery techniques. We find that some parts of the program are best delivered face to face and other parts are best delivered via distance. Of participants surveyed, 94% would recommend the MAST program to their peers, and 100% believe the program will have a positive impact on their businesses' bottom line.

Key Words: distance learning, education, extension, management

JEL Classifications: A20, A29, Q16, Q12, Q19

There has been much discussion in recent years regarding the future of extension program delivery, and some have raised questions about the survivability of the extension function (Bull et al.; Boehlje and King; McDowell). Although a detailed discussion of the future of extension is not the topic of this paper, some of the realities pointed out by previous authors and speakers are addressed by programs like the one discussed here. First, delivery costs for traditional extension programming (ranging from the variable costs associated with specialist travel to the fixed costs associated with extensive extension infrastructure) are increasing. At the same time public funding for extension has been, and likely will continue to be, under pressure, perhaps especially for the softer sciences, such

as Agricultural Economics (Amosson). Second, today's typical extension client (particularly agricultural client) is well educated (often holding a college degree) and capable of obtaining information from a variety of sources. It has been argued that traditional extension delivery modes may not be the most appropriate way to reach these audiences, especially for the delivery of intensive educational programs (Hoag). Several authors and speakers have speculated regarding extension programming of the future in light of these challenges and changes. For example, Klinefelter specifically mentioned the need for a move to "fee-based programs that truly recover costs" and the need for "greater emphasis on alternative delivery mechanisms."

In this paper, we provide an overview of one innovative extension program, the Management Analysis and Strategic Thinking (MAST) program, developed at Kansas State University. This program is an attempt to address both the issue of funding of extension

Rodney Jones, Alicia Goheen, Kevin Dhuyvetter, Terry Kastens, and Vincent Amanor-Boadu are associate professor, communications analyst, professor, professor, and assistant professor, respectively, Department of Agricultural Economics, Kansas State University, Manhattan, KS.

programming (at least to some degree) and the issue of alternative delivery mechanisms for extension programming. Amosson outlined a series of specific steps for development and sustained delivery of a contemporary extension program. The first two steps involve identification of a problem that extension could address and development of a shared vision among a group of education providers who could address the problem. The last three steps in Amosson's model relate to the development (under peer and industry review) and evaluation of the program in its initial stages. The development of the MAST program loosely followed this model.

Beginning late in 2001 and early in 2002, a group of faculty at Kansas State University with extension farm management programming responsibilities began discussing the need for an overall farm management education program that would be more intensive than anything being delivered at the time. Members of the group were getting requests from progressive farm and ranch stakeholders and sensing the need for a "higher level," more comprehensive educational program. Kansas State University has the luxury of having one of the largest contingencies of farm management extension faculty in the country. This includes a relatively large contingent of on-campus faculty with extension farm management responsibilities (at least five, depending on definitions), three area specialists with extensive farm management responsibilities, and more than 20 Kansas Farm Management Association economists and Farm Analysts.¹ In spite of the large number of diverse personalities involved, with the leadership and support of the department head at the time, the MAST faculty had little trouble arriving at a consensus "vision" regarding the core elements of a program targeted for development and delivery. First, given the

history and current subject matter expertise in the department and the nature of the requests being received by the extension faculty, it was quickly agreed that the program would be centered on the traditional subject matter area of farm and ranch management. Second, due to the needs and experience of the potential clientele, the program was envisioned to provide an "intensive educational experience." Although unknown at the time, this is quite consistent with the thoughts of Amosson and others regarding the most effective extension educational efforts. Rather than simply providing facts and basic information, the MAST program is designed to teach participants how to process information and make better business management decisions. Finally, despite the traditional appeal of having large numbers of participants, the MAST faculty agreed that the focus should be on economic impact rather than simply counting heads (Klinefelter). Therefore, the target audience was determined to be the most progressive subset of farm and ranch management stakeholders. This group includes farm and ranch managers, lenders, agricultural consultants, and others interested in the economic success of farms and ranches. It was known at the onset that the MAST program would not appeal to everyone but would target a group having significant economic control and impact.

Based primarily on experiences with other intensive educational efforts in the department (e.g., with its Master of Agribusiness [MAB] distance education degree program), the MAST program was designed to be a hybrid delivery product (Burke) to encompass face-to-face and distance-delivered components. This combination delivery design is, in fact, one of the unique aspects of the program relative to other extension programming efforts of which we are aware. The MAST faculty certainly wanted to take advantage of the convenience of distance education to provide learning opportunities for busy and geographically dispersed learners, such as farmers and ranchers. On the other hand, certain topics do not lend themselves as readily to distance learning. In addition, it is

¹ Not all of the staff associated with the Kansas State Agricultural Economics Department with farm management responsibilities were involved in the initial development of the MAST program discussions; however, the development did involve a significant number of individuals, referred to here as simply the MAST faculty.

extremely important that each group be provided the opportunity to get to know each other, so some traditional face-to-face delivery was also built into the program from the start. As an additional consideration, Hoag suggested that "personal contact is extension's greatest public relations tool."

Stakeholder meetings throughout early 2002 resulted in a finalization of the subject matter content of the MAST program (discussed in more detail later) and in assignments regarding who would "take the lead" on development of the various components. Ironically, one of the more difficult challenges was to come up with a name for the program. A name was desired that would adequately reflect the intentions and content of the program while lending itself to effective marketing. After significant discussion, the end result was "Management Analysis and Strategic Thinking" (MAST). This title accurately reflects the fact that the program deals with both tactical day-to-day aspects of management (management analysis) and strategic long-run planning aspects of the management function (strategic thinking). The acronym provides a metaphor for the program's ability to gather available energy to move forward.

One of the principles outlined by Hoag for success in contemporary extension programming is to focus on competitive advantage. This is certainly a concept that applied economists should embrace. Of course Hoag was talking about extension in a broader sense, whereas here we are talking about one particular program, but the concept still applies. As a side note, we frequently observe that the agricultural economics profession is very good at talking about the concept of competitive advantage but often has difficulty remembering the concept when developing its own programs and managing its own careers. Two primary areas of competitive advantage were identified as the MAST program was developed. The first is subject matter expertise. The MAST faculty wanted to capitalize on the history of farm management work in its department and on the depth of its core competency (large number of faculty) and

information availability (e.g., Kansas Farm Management Association data) in the department. The second competitive advantage identified is delivery technology. The MAST program draws heavily from the department's experience with its highly successful MAB distance education program. Knowledge and experience with the application of distance education technology and relationships forged with the division of continuing education at Kansas State University have proved extremely valuable.

The first delivery of the MAST program was in the fall of 2002, with the class of 23 participants finishing in the spring of 2003. Subsequently, other classes completed the program in the springs of 2004, 2005, and 2006. There have been 147 participants in the program since its inception. At the time of this writing, the group that started with the on-campus session in the fall of 2006 (33 participants) is studying via distance.

In addition, in early January of 2007, a one-day MAST seminar (targeted at alumni) was held that involved detailed discussions of current agricultural issues (energy and Farm Bill) and two case study presentations from previous MAST participants. This session was put together in response to requests from previous MAST clients who wanted both an educational update and an opportunity to interact with other MAST students. Twenty-seven current and past MAST participants and nine faculty members participated in this session. A formal follow-up survey has been mailed to the alumni session participants that will reveal more information; however, an on-the-spot showing of hands revealed a strong majority interest in continuing to hold one-day alumni events on an annual basis.

The MAST program was designed from the onset to be a fee-based program that would at least cover the variable costs of delivery (essentially all costs except faculty time). Klinefelter and others have suggested that extension programming of the future will include programs that have a significant private fee associated with them. Even so, the fee associated with this program represented a "new programming philosophy" for

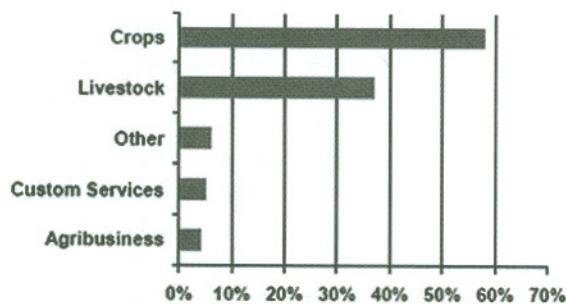


Figure 1. Management Analysis and Strategic Thinking Program Participant (2002–2006) Business Activities

Kansas State University extension, subjecting faculty to the usual questioning and criticism from within the extension system. For the initial group (2002 starters), the fee was \$750 per person.² The fee has increased over time, with current participants paying \$900 per person.³ No complaints have been received from participants regarding the fee, although some potential participants have indicated that the fee might be a constraint. Participants do, however, greatly appreciate the scholarships and other financial support that the MAST program's coordinator works diligently to procure (e.g., from lending institutions and organizations, such as Women in Agriculture).

The MAST program delivers contemporary management information and education regarding decision-making tools to geographically dispersed agricultural producers, lenders, and agribusiness professionals using a combination of face-to-face program delivery and a variety of distance delivery technologies. The design of the program takes advantage of modern technology while striv-

ing to avoid the pitfalls of "correspondence study"-type courses. The program provides flexibility in learning schedule (and even content, for that matter) and a high level of interaction with faculty and peers.

Participants represent the entire spectrum of Kansas agriculture, bringing geographic diversity from all areas of the state (75 different counties), and include people from three other states. Diversity is enhanced not only by the geographic differences of MAST participants but also by the mixture of distinct business activities. Wheat, corn, grain sorghum, soybeans, and forage crops are produced by participants (both irrigated and dryland). Organic production is represented, as well as operations that rely heavily on custom farming. Livestock enterprises are also represented, with participants involved in cow-calf, backgrounding, and cattle feeding operations, as well as farrow-to-finish and swine finishing operations. Class participants also represent businesses that support agriculture, including agricultural lending, management and crop consulting, and extension. Figure 1 provides a summary of 2002–2006 MAST participant business activities on an aggregate scale.

We survey participants after they have enrolled to determine their expectations from the MAST program. Historically, the primary benefit participants expected to receive from the MAST program was the opportunity to improve their businesses. That overarching goal is emphasized through a desire to improve management skills through record

²The first class fees were subsidized by a grant from a state commodity commission. For subsequent years, a large agricultural lender in the state offered scholarships amounting to half of the fee for any of their customers who participated in the program. This arrangement has been expanded to include other financial institutions in the state. Participants have found numerous additional ways to "subsidize" the enrollment fee.

³A lower fee is charged for spouses and additional business stakeholders, reflecting efforts to encourage partners to attend the program together.



Figure 2. Participant (2002–2006) Reasons for Enrolling in the Management Analysis and Strategic Thinking Program

keeping, decision making, access to tools and information, and development of strategic plans to provide guidance into the future. Several participants expected the MAST program to increase profits, provide opportunities for networking, and help facilitate a successful transfer of the family business to the next generation. Figure 2 provides an overview of participant reasons for enrollment in MAST.

Teaching Utilizing a Combination of Distance and Traditional Methods

A total of 14 faculty and staff members are currently involved directly in coordinating and delivering the MAST program.⁴ The degree of involvement varies considerably among those faculty members, in that components are delivered based on individual interests and areas of expertise. Therefore, involvement can range from taping a couple of 30-minute lectures to recording several hours of distance material plus participating heavily in on-campus sessions.

The MAST program begins with a two-day workshop on the Kansas State University campus in the November. Program participants are provided distance learning software training and some spreadsheet training to

ensure efficient involvement in the distance component to come later. They are also provided an overview of the entire program with a detailed discussion of how the various components fit together within the context of an overall business management plan for the farm or ranch. The first session is designed to stimulate long-term strategic thinking on the part of participants. These are management concepts that are difficult to teach without a significant amount of either student-instructor face-to-face interaction, or student-student interaction. Specifically, there is educational time devoted to the importance of Vision-Mission-Objective-Goal development for farm and ranch businesses (including addressing the unique family dynamic issues that often arise in farm family businesses). The first session wraps up with an exercise that is designed to both stimulate strategic thinking and build a sense of class “community” and teamwork. Teams of participants address specific aspects of a farm case study and formally present suggestions to the entire group. The resulting discussions, which include class participants as well as faculty, draw out personalities and interests within the group, helping participants and faculty develop a better understanding and appreciation of each other. This facilitates more effective communication during the distance component of the programs. Over the life of the program this “participant presentation” part of the first two days has grown in importance and time allocated. Moreover, it has been moved from the beginning to the end of the second day of

⁴ Most of the MAST faculty are directly associated with the Agricultural Economics Department (state level, area level, or Farm Management Association Economists). However, the MAST program greatly appreciates the support and assistance received from faculty in the College of Business (one faculty member in particular).

the first session to help participants leave with a greater sense of enthusiasm as they go home to begin the distance learning portion of the program. For analytically minded agricultural economists, the vast importance of such people-oriented components to the overall success of MAST was somewhat of an eye opener.

Over the subsequent three to four months (historically the "winter" period), participants proceed through the curriculum using distance education methods. Students progress through a series of seven (there is an eighth "optional" module) learning modules that address a variety of farm management and marketing topics. The modules, in their order of recommended study, are land ownership and leasing, machinery ownership and leasing, financial management, human resource management, tax planning and policy, risk management, and marketing. The optional eighth module covers analytical tools for farm and ranch managers, providing an introduction to statistical methods and optimization.⁵

The distance-delivered modules are recorded using a software package called TEGRITY. When viewing the modules, students see a PowerPoint slide (which can be drawn on or modified during the discussion) and hear the audio presentation of the material. The instructor's picture can be either viewed or turned off during the viewing. Additional tools (e.g., Excel spreadsheets) can be incorporated into the module recording. Participants can follow along with hard copy presentation notes.

Each module consists of six or more recorded sessions that are roughly 30 minutes in length. In total, the recorded sessions tally up to about 37 hours of time. The recordings are delivered via a customized CD⁶ or can be

accessed via the Internet through K-State Online, a controlled-access online delivery portal. Additionally, participants receive a binder with all presentation notes and supplementary material to accompany the CD and online presentations.⁷ Participants indicate that the flexibility of "where to study" is one of the best aspects of the MAST program for them. For example, they can listen to only the audio portion of a module while engaged in other activities on the farm, on the road, or around the house. Participants are provided with a suggested timeline for completion of each module. For most participants there is no required timeline.⁸ However, participants are encouraged throughout the program to try to keep up in order to garner the full benefit of the program. At approximately the suggested completion time for each module, an internet "chat" session is scheduled with faculty members involved with the module (one good reason for participants to remain on schedule). These sessions are intended to maintain communication among participants and between the participants and faculty. Currently, the chat sessions are delivered via software called Horizon WIMBA. Students log in using the software and can speak to each other and the instructor(s) via microphone or by typing into a message box. Faculty members can load presentations, spreadsheets, and other materials to share with chat session participants. The chat sessions are formally scheduled to be one hour long, give participants a chance to ask questions and make comments about the distance education modules, and provide a forum to discuss current issues. Students may also utilize Horizon WIMBA to chat with one another at any time without a faculty member.

⁵The statistical module was made "optional" as a result of participant feedback. It is important to note, however, that unless a participant is enrolled in the program for degree credit, all modules are essentially optional.

⁶Participants receive four CDs at the start of the program, containing all of the modules as well as numerous spreadsheet examples, homework, exercises, and additional materials.

⁷Actually, participants receive two 4-in. binders packed full of presentations and supplementary information when they begin the program. The program has yet to receive a complaint that "too little" hard copy supplementary information was provided.

⁸Those who are taking the course for credit are more stringently required to complete the modules (and related homework) on time.

Each module contains specific exercises (or "homework") that participants can use to test their knowledge and comprehension of the material. It is important to note that most adult learners in voluntary educational programs will not actually complete homework. Therefore, for the most part the homework is incorporated directly into the presentations. At some point in the future when a deeper understanding is needed (for making a particular business decision), students can review a particular session and the associated homework. Finally, throughout the distance portion of the program participants and faculty interact via email, an ongoing electronic message board, and over the telephone. These interactions revolve around the modules, specific questions about topics in the modules, or broad questions about contemporary topics that arise during the course of the program.

The Information Technology Assistance Center (ITAC), the central location for technology help for all distance education programs offered through Kansas State University, provides technology assistance to MAST program participants whenever they need it. The center offers a variety of help options: a 1-800 number, email, and personal help on site. It is staffed by 40 trained technical people who help students with software installation and use, technical problems, and other computer-related issues. Reviews from participants who have used the ITAC suggest that fast and friendly service is the norm.

After the distance education portion of the program, participants return to the university campus for a final two-day program that emphasizes the application of the various tools and concepts to individual farm situations. This session focuses on presentations and discussions that point out and develop expected changes in agriculture and presentations integrating the various concepts into a comprehensive business plan for a farm or ranch operation. Again, these topics are very "strategic" in nature, requiring a significant amount of interaction to optimize the educational experience.

The overall content of the MAST program has changed relatively little over the five years (including the current group) of delivery. The on-campus presentations are typically "adjusted" by the individual presenters to reflect the needs of the participants and current events affecting the business environment. The distance modules are rerecorded as needed (some almost every year, some much less frequently) to update specific numbers, to better align with current economic issues and new research, and in some cases to accommodate faculty changes. One issue that will need to be addressed is the fact that some of the modules continue to "grow" over time in terms of the number of sessions and total viewing time.

Program Results and Awards

Participants rate the quality of the MAST program content and delivery quite highly. Table 1 provides specific program evaluation results for the first four years of MAST program delivery. The average of the participant ratings of the content of the various first on-campus sessions is 4.18 on a scale of 1 = poor to 5 = excellent. When the same scale is used, the average of the participant ratings of the presentation quality of the various first on-campus sessions is 4.00. There are naturally some specific sessions that rank higher (or lower) than others; however, all the sessions are rated quite highly on the scale of 1 to 5 in terms of both content and presentation. Average content rankings of the individual sessions range from a low of 3.77 to a high of 4.53, and average presentation rankings across individual sessions range from a low of 3.86 to a high of 4.19.

The average of participant ratings of the content of the various distance-delivered modules is 4.20, and the average rating of the presentation quality of the distance delivered modules is 4.03. Average content rankings of the individual sessions range from a low of 3.76 to a high of 4.37, and average presentation rankings across individual sessions range from a low of 3.27 to a high of 4.43. These evaluation results indicate that

Table 1. Management Analysis and Strategic Thinking Program Evaluation Results (2002–2006 Participants)

	Content Rating	Presentation Rating
On-Campus Session I		
<i>Session</i>		
Goal setting	4.32	4.12
Working with spreadsheets	4.53	3.98
Business planning	4.13	3.89
Strategic thinking	3.77	3.86
Distance education orientation	4.16	4.19
<i>Modules</i>		
Land	4.70	4.43
Machinery	4.32	4.18
Financial management	4.14	3.97
Human resource management	4.37	4.21
Tax management and policy	4.23	4.17
Risk management	3.89	3.27
Marketing	3.76	3.98
On-Campus Session II		
Thinking about the future	4.36	4.28
Strategic business planning	4.37	4.72
Global environment	4.22	4.32
Executing the business plan	4.28	4.65

Note: Rated on a scale of 1 = poor to 5 = excellent.

intensive farm management information content can be successfully delivered via distance (average content and presentation rankings are similar for the initial face-to-face program and the distance-delivered component). One interesting observation is that the variation in perceived presentation quality across speakers is significantly higher for the distance-delivered material, even though there is not much difference in the variation of perceived content quality. This could be a function of the specific sample of faculty presenting via each method. An alternative interpretation of this result is that making presentations using the distance technology is a unique skill that needs to be developed and refined and some faculty are better at it than others (although all presenters ranked relatively well).

Evaluation results indicate that participants find the final on-campus session, designed to tie all of the concepts studied throughout the program together, especially useful. The average of participant rankings regarding the content is 4.31, and the average

rating of presentation quality is 4.48. The variation (range) in average content and presentation quality ratings across the individual components of the final on-campus session is much lower than that observed for either the first on-campus session or the distance-delivered modules. The average perceived content ranking for the various components of the final session ranged from 4.22 to 4.37, and the average presentation quality rating ranged from 4.21 to 4.72.

Broader measures regarding the overall program also have been examined. On a scale of 1 to 5, participants rate the overall quality of the online chat sessions as an educational tool at 3.2. On the same scale, participants rate the quality of interaction with faculty at 4.23 and the quality of interaction with peers at 3.62. The pace of the overall program is rated at 3.1 (1 being too slow, 5 being too fast).

The MAST program has been honored with several awards, ranging from a local team effort award from K-State University Research and Extension, to regional extension

program awards from both the Southern Agricultural Economics Association and the Western Agricultural Economics Association, to a national honorable mention award from the Association of Continuing Higher Education.

Discussion and Conclusions

Through the MAST program, participants develop better management skills, are exposed to a variety of decision-making tools, and have the opportunity to network with progressive peers. The result is improved planning skills (both strategic and tactical), resulting in opportunities for increased management decisions, and ultimately increased profits. It is evident that MAST program participants are generally pleased with the overall quality and content of the program.

The MAST program faculty has learned a few lessons from its experience developing and delivering this unique extension program. Distance delivery technology lends itself to certain topics better than others. Planning is required in the development stages to sort out material that can be successfully delivered via distance from material that does not lend itself readily to distance delivery, and successful distance delivery requires adequate technical support. It is our opinion that a successful intensive educational program needs to include some face-to-face component. This is true not only because certain material lends itself to face-to-face delivery but also because interaction between the participants themselves and between the participants and the instructors is a critical component of an intensive educational program. Finally, a well-designed "wrap-up" session that brings together the various components of a comprehensive educational effort is important. In the MAST program, this clearly helps participants to see how all the individual pieces fit together.

Over the past four years, those involved with the MAST program have tried to build on its strengths and address its weaknesses. They have switched software and responded to scheduling issues to increase the quality and

usefulness of the chat sessions. Scheduling has been adjusted and the program revised slightly in an effort to promote more interaction with peers. A challenge will be to continue to improve the program without "overfilling" the individual modules. Finally, faculty members are learning more about how to record and present in the distance modules in order to enhance the presentation quality. One large benefit of the recorded module delivery approach is that it allows a smoother transition in the face of faculty turnover. This flexibility allows for transitions (e.g., making use of faculty who have moved away from the university) that may not be as easy in a physical classroom.

One disappointment has been the program's inability to recruit a significant number of out-of-state participants. The original intent was to develop and deliver a program for which the costs to at least surrounding state participants would be essentially the same as for Kansas residents. Although the MAST program has had a few participants from surrounding states, it has not garnered the interest earlier envisioned. At this time it is unclear whether this is because farm and ranch stakeholders in other states are not interested in the program (i.e., they believe that they are getting what they need from other sources closer to home) or because advertising is inadequate and potential clients in other states are simply unaware of the opportunity to participate. An important objective in future years is to recruit more out-of-state participants.

References

- Amosson, S.H. "The Future of Agricultural Economics in Extension." *Journal of Agricultural and Applied Economics* 38,2(August 2006):229–34.
Boehlje, M., and D. King. "Extension on the Brink: Meeting the Private Sector Challenge in the Information Marketplace." *Journal of Applied Communications* 82,3(1998):21–35.
Bull, N., L. Cote, P. Warner, and R. McKinnie. "Is Extension Relevant for the 21st Century?" *Journal of Extension* 42,6(2004), available at: <http://>

- www.joe.org/2004december/comm2.shtml. (Accessed June 14, 2007).
- Burke, J.C. "Preparing School Systems to Deliver a Hybrid Education Program for Students with Autism Via Distance Learning Classrooms, In-Class Teleconferencing, and Listserv Technology." *Rural Goals 2000: Building Programs That Work*. Baltimore, MD: Johns Hopkins University, 1993.
- Hoag, D.L. "Economic Principles for Saving the Cooperative Extension Service." *Journal of Agricultural and Resource Economics* 30, 3(December 2005):397–410.
- Klinefelter, D.A. "To Remain Relevant, Change Agents Also Need to Change." *Journal of Agricultural and Applied Economics* 38, 2(August 2006):243–246.
- McDowell, G. "Is Extension an Idea Whose Time Has Come—and Gone?" *Journal of Extension* 42, 6(2004), available at: <http://www.joe.org/joe/2004december/comm1.shtml>. (Accessed June 14, 2007).