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The Rise and Fall of Innovative Education: An Australian University Case Study

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Abstract From 1980 to 1995, the University of Western Sydney at Hawkesbury (formerly Hawkesbury Agricultural College) in Richmond, New South Wales, Australia, pioneered an innovative undergraduate degree in Systems Agriculture based on experiential education, systems thinking, and adult learning theory. Today this program is in trouble and has reverted back to a more traditional teacher-directed approach. This article discusses the rise of the innovative education paradigm at Hawkesbury, the unique Systems Agriculture program itself, and its eventual decline. Reasons for both the shift to innovative education and its eventual downfall are explored. Implications for institutions of higher education contemplating innovative educational approaches are suggested.

Key words experiential education · systems thinking · competency-based education · paradigm shift

If an perfectionist were to design the ideal undergraduate program for meaningful student learning, it would likely include the following:

- No classes, only learning experiences.
- No instructors, only facilitators.
- No grades, only written assessments.
- No tests, only formative and summative evaluations through which students demonstrate increased competency to progress toward graduation.

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- A collaborative, non-competitive learning environment.
- No requirements of specified knowledge of subject matter, only development of competencies.
- Student competencies determined by feedback from employers and other post-graduate transitions.
- A progression from facilitator-designed learning experiences to student-designed learning experiences.
- A progression from dependent to independent to interdependent learning.
- Student progression from phase to phase based on written reflection documents and oral presentations.
- Student acceptance of full responsibility for demonstrating their own learning.
- Faculty research based on systemic action research.

The above list of innovative education principles describes a highly successful undergraduate program at an Australian University. From1980 through 1995, the Systems Agriculture program at the University of Western Sydney at Hawkesbury (formerly Hawkesbury Agricultural College) operated under the above philosophy, graduating hundreds of systems agriculturalists. This article presents the story of the rise and fall of that program and an analysis of the reasons why it first succeeded and, then, eventually failed.[1]

Forces of History

It was as unlikely a place for a radical learning curriculum as one can imagine. Hawkesbury Agricultural College had trained graduates in the field of agriculture since its founding in 1891. Located in the small town of Richmond, New South Wales, Australia, the campus is nestled between the western megalopolis of Sydney and the eastern escarpment of the Blue Mountains.

[1] I have spent two sabbatical leaves at Hawkesbury, one of 10 months duration between August 1989 and May of 1990 and the second, for four and a half months, from December 2003 through the middle of April 2004. During my first sabbatical I was immersed in the Hawkesbury paradigm, observing the day-to-day operations of the Systems Agriculture undergraduate program, attending student formative and summative evaluations, absorbing myself in the underpinning theoretical literature, as well as the growing body of literature written by the faculty themselves, and traveling throughout New South Wales to visit students on their farm placements.

This sabbatical had a profound influence on my personal and professional life. I formed lifetime personal relationships with Hawkesbury faculty and some of the students, which has led to several exchanges between my institution and Hawkesbury. More importantly, however, my experience at Hawkesbury dramatically influenced my own teaching style and pedagogical approaches to learning. Experiential education is now a part of every undergraduate and graduate class I teach. For my second sabbatical in Australia, I again spent time on the Hawkesbury campus, observing the current state of the Systems Agriculture program and conducting longituditional research with some of the graduates of the program with whom I had worked 15 years earlier. It was the juxtaposition of these two sabbatical experiences that has given me the perspective of this article and has allowed me to comment on the reasons for the changes in the experiential nature of the Hawkesbury program.

As an outside observer, I am in a unique position to note the trends that have taken place in the program at Hawkesbury over time and to interpret the reasons for these changes into generalizable principles that will be of interest to the higher education community. It is important to note that these observations and deductions are mine alone. It is with this goal and caveat in mind that this article is written.

History of the College

Run under the auspices of the Australian Department of Agriculture, Hawkesbury began as a college that offered "diplomas" in the traditional disciplines of agriculture. It grew to be one of the best agricultural institutions in the country and became known for its discipline, practicality, and application of knowledge, as well as its maleness. Women were allowed to enroll in the 1970s, and only in 2003 did the alumni association change its name from "Hawkesbury Old Boys" to the "Hawkesbury Alumni Chapter." In 1976 Hawkesbury's affiliation shifted from the Australian Department of Agriculture to become a College of Advanced Education, as part of the Australian higher education sector, and it began offering a "degree" in agriculture. Then in 1989, Hawkesbury was consolidated, along with two other Colleges of Advanced Education in the western Sydney area, into a federated network known as the University of Western Sydney. This federation has grown over the years to encompass six campuses.

The Australian University system is more closely related to the British Federal system than the decentralized American system of higher education. Of today's 39 Australian universities, two are private, while the rest receive public funding through State and/or Federal sources. Public universities in Australia are created through an act of Parliament and are closely monitored and accredited by their government agencies. (Australearn, n.d.) The 3-year "certificate" previously awarded by Hawkesbury Agricultural College under the auspices of the Department of Agriculture would be the equivalent to a bachelor's degree offered by an American professional institution. The "degree" awarded by the Hawkesbury College of Advanced Education would be equal to an American bachelor's degree in applied science.

In the mid 1970s the Faculty of Agriculture (then called Agriculture and Rural Development) was typical for its day. Faculty, trained in the basic sciences (e.g., chemistry, biology, botany) and the applied agricultural sciences (e.g., agronomy, horticulture, agricultural economics, animal sciences) passed on their knowledge to agricultural students, many of whom had been raised on farming properties in the western Sydney area. In addition to classroom teaching, there were a number of farms on the Hawkesbury campus which were used for both commercial and instructional purposes. The curriculum for the undergraduate agricultural program was standard fare, similar to other undergraduate agricultural courses found throughout the developed world. Syllabi, courses, lectures, exams, and grades were the norm.

Curriculum Change

A number of opportunities aligned and came together in the late 1970s that led to the ensuing unprecedented pedagogical shift. There has always been a practical side to the teaching of agriculture, and the proximity of the farms on the Hawkesbury campus provided an ideal venue for experiential education. Many faculty members began to feel a sense of unease (Dewey, 1916). They knew that curriculum change was inevitable as Australian agriculture was undergoing drastic upheaval with the promise for even more revolution to come. The field of agriculture looked to Hawkesbury for educational leadership. In addition, the organizational structure and culture of Hawkesbury Agricultural College, in comparison to larger and more bureaucratic Australian schools of higher education, was relatively open to curriculum change.

A new Dean of the College was hired in 1977 and brought with him an existential philosophy, international experience, and a commitment to "praxis" (the intersection of

theory and practice). An animal scientist with a Ph.D. in parasitology, the Dean had subject matter credibility with his faculty while being committed to the larger issues of educational leadership and curriculum reform. During his interview process he had noted a few outlying attempts at experiential education in the Extension Education faculty and surmised that the Agricultural faculty was ready for change.

The Program

The new Dean found the faculty (approximately 40 FTE), for the most part, ready for change and willing to adopt new modes of teaching and learning. He familiarized himself with the current academic literature, first focusing on "learning" and then on "systems thinking," and then devoted himself to putting this theory into practice. Through his persuasive charisma, his positional power, and his ability to understand and utilize the existing faculty networks, he was able to convince the informal leadership in the Agriculture faculty to help him develop a revolutionary new curriculum. Eventually the Dean and these leaders persuaded the majority of the remaining faculty to accept this change; and the bachelor of applied science in agriculture degree, established in 1980, gave way to a bachelor's degree in Systems Agriculture in 1984. This highly innovative degree was approved by the Hawkesbury College of Advanced Education Academic Board and the New South Wales Board of Higher Education.

Unlike the other undergraduate degrees offered at Hawkesbury, the new Systems Agriculture degree dropped all classes in favor of student demonstration of competencies developed through experiential learning projects, first directed by faculty, then by students, and then as a joint venture between the two. By interviewing employers of past graduates and asking them what expertise they were looking for in college graduates, the faculty discovered some common themes that ultimately led to the articulation of three competencies which formed the nucleus of the new course of study: autonomous learning, effective communication, and systems thinking.

Autonomous learning was selected because employers had indicated that they would train graduates in the specific skills and knowledge needed for their particular careers. Employers had responded that they needed graduates who were "quick studies" and could learn on-the-job. Faculty members, too, realized that the knowledge of the world and the skills needed to succeed in it were changing at a rapid pace. Teaching knowledge subjects to undergraduates began to be viewed as a waste of time as the information covered would likely be obsolete before they graduated. Why not teach students to become lifelong learners and, thus, give them the skills they would need to adapt, change and learn with the times?

The second competency, *effective communication*, was also suggested by employers who had indicted that they were looking to hire college graduates who were able to listen as well as effectively communicate orally and in writing—a nexus of skills that the faculty agreed were important.

Employers had also suggested that graduates needed to be able to deal with complexity and ambiguity. Thus, *systems thinking* was added as the third competency to give students a set of holistic tools to comprehend the nature of relationships and uncertainty found in the "real world" outside of academia. In time, the faculty devised "The Hawkesbury Spiral," a model that matched learning interventions to the complexity of the problem at hand. The reductionism of the scientific method was prescribed for puzzles of a finite, confined manner (e.g., chemistry experiments); and systems thinking was reserved for complex,

multifaceted, and interrelated problem situations. Hard systems were used to improve performance of existing physical systems (e.g. using mathematical or computer-based systems approaches to improve farm production) while soft systems methodology (Checkland, 1981; Checkland and Scholes, 1990) was prescribed for paradoxical, intractable human activity problem situations, most likely those found by the students in their experiential learning situations involving people in agriculture (e.g., using learning theory, systems thinking, discussion and debate among the affected parties to reduce agricultural phosphorous discharge in a watershed district).

The faculty based the Hawkesbury spiral on the Kolb adult learning cycle (Kolb, 1984) showing how each of the suggested methodologies of learning for a specific situation followed a similar pattern of experience, reflection, theory building, and experimentation. Learning, not education, became a focus of the program; and students became intimately familiar with their own style of learning, playing to their learning strengths and working on improving their learning weaknesses.

The Dean would often say that the Hawkesbury Systems Agriculture curriculum stood on a stronger theoretical base than the traditional higher education teaching/learning paradigm. Knowles' (1975, 1980, 1990) vision of self-directed learning and his concept of "andragogy" played a critical role in the development of the autonomous learning competency, along with Burgess (1977) and Boud (1981), who provided additional insight into learning theory. Problem-based learning in medicine (Maddison, 1982) and Spedding's (1975, 1979) and Cox and Atkin's (1979) writings on agricultural systems served as basic models for the systems thinking competency. Agryris and Schon (1978), Chaudhri (1969), and Kast and Rosenzweig (1981) were important contributors to the Hawkesbury study of agricultural management and the school's own organizational structure.

Throughout the 4-year period from 1980 to 1984, the Dean established a climate of theoretical discourse and inquiry that eventually pervaded the faculty who, although trained in basic and applied sciences, familiarized themselves with the above literature and began to view their disciplines in a larger context. Many faculty members were able to see the downfalls of approaching the complexity of agriculture from a narrow, discipline-based perspective. Agriculture was seen as a complex human activity system, not a subject-specific focus, and, therefore, given the mantle of complexity deserving of other high esteem professions such as law or medicine. As described by Turnbull (2003), Hawkesbury Systems Agriculture faculty:

> ...were also expected to provide advice in their technical areas and to have a broad awareness of agriculture and learning theory so they could be credible advisors to emerging agriculturalists. The changing form of academic and student relationships within the curriculum over the seven semesters of the undergraduate program was described as moving from pre-internship, to internship, to post-internship. (p.24)

During each of the five developmental phases of the three and a half year Systems Agriculture undergraduate program—two representing pre-internship, the internship itself, and two representing post-internship—students were required to demonstrate, through oral presentation and written documentation, growth and a higher level of proficiency in each of the three competencies. Formative and summative evaluations were periodically scheduled in which students demonstrated improved competence before rotating panels of faculty. The panel for a student's final summative evaluation before graduation would often contain a representative of the industry upon which the student had based his or her final learning project. Successful demonstration meant progress to graduation. Unsuccessful demonstra-

tion of any phase meant either: granted conditional progression, permission to repeat the phase, or expulsion for a period of 3 years.

The Hawkesbury Paradigm

Kuhn (1970), in *The Structure of Scientific Revolutions*, defined and popularized the concept of "paradigm shift" as representing a revolution in thinking, a transformation, a metamorphosis (p.10). The innovative Hawkesbury Systems Agriculture bachelor's degree program represented a paradigm shift from the traditional model of higher education and could be summarized as follows:

- The study of systems and subsystems involved in agriculture, not of separate subjects or disciplines.
- The use of systems and problem-solving approaches to learning, not reductionist science and pedagogical instruction.
- The application of learner-centered and not teacher-centered teaching strategies.
- The development of organizational flexibility in the School, not adherence to traditional discipline-based departments.
- The adaptation of the School as a learning center subsystem integrated into the national agricultural system. not as a discrete and restrictive post-secondary institution. (Bawden et al., 1984)

It is remarkable to note that the Hawkesbury Paradigm closely parallels the "Learning Paradigm" as discussed by Barr and Tagg (1995):

> In the Learning Paradigm, on the other hand, a college's purpose is not to transfer knowledge but to create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems. The college aims, in fact, to create a series of ever more powerful learning environments. The Learning Paradigm does not limit institutions to a single means for empowering students to learn; within its framework, effective learning technologies are continually identified, developed, tested, implemented, and assessed against one another. The aim in the Learning Paradigm is not so much to improve the quality of instruction—although that is not irrelevant—as it is to improve continuously the quality of learning for students individually and in the aggregate. (p. 15)

The Program by Year

When students arrived for their first year of the innovative program, now called "Systems Agriculture," they often described the feeling as "swimming in the deep end." Not having classes that met on a regular basis and being given the complete freedom to explore and learn on their own, students often felt lost and unsure of how to proceed. Faculty members stood by, offering "facilitation" to help guide students; but the students had to take the initiative and seek help. Sometimes, students would approach faculty and ask them to conduct a "class" on a particular subject they needed to investigate (e.g., farm budgeting, crops and agronomy). Having students accept responsibility for their own learning was a huge step for every student entering the program. As one graduate put it, "learning is now in your hands, and it's up to you to do something about it." (Linnegar, 2004, personal interview)

The first year was characterized as moving the students away from teacher-directed or dependent learning to independent learning. As virtually all the first-year students arrived on campus had succeeded in a traditional, teacher-directed school environment, there was a considerable amount of "unlearning" (Freire, 1970) that had to be accomplished. Immediately upon arrival, students were placed in a faculty-designed experiential learning situation and given the freedom and time to study the problem and report back. (e.g. First-year Systems Agriculture students were often given the assignment to visit and study the Hawkesbury campus dairy farm, develop a holistic systems viewpoint and develop problem situation improvement recommendations). Left to their own devices in a learning situation, possibly for the first time in their lives, most students struggled with this first experiential learning assignment. Gradually, during the first year, faculty designed learning projects gave way to projects developed by groups of first-year students.

The second year of the Systems Agriculture program, called the "farms phase" or Off Campus Experience (OCE), was dominated by a student's 4-month internship placement on a farm or other rural agribusiness enterprise. These placements were set up by faculty members, who worked with hosts (often host families) to provide a practical learning experience for the student. Payment to the student was discouraged as it was feared that this practice would lead to an employer–employee relationship rather than the desired co-learning relationship, whereby the student learned from the farmer and the farmer, in turn, learned from the student.

During the middle of the farms phase, teams of faculty drove throughout the Australian outback for up to a week at a time, visiting the students on their OCE placements and interviewing the student and the host, separately and then together. In addition to the faculty visits, mid-course regional meetings were held in which a team of faculty would set up a regional workshop for the students who were interning in a given area. These two-day meetings served as a focal point for students to reflect on their experiences and to share these reflections with their fellow students. OCE hosts were invited to participate the second day as well.

Student reflection documents about their Off Campus Experience were due a month after they returned to campus and would give faculty a clear indication of the progress each student had made toward the three competencies. The reflection documents included a "situation improvement" report on their farm experience that was also given to the host farmer.

The third year[2] of the program was totally devoted to student-designed learning projects, many developed from the student's OCE experience in the second year. Faculty were engaged by the students as facilitators, as subject matter experts, and as co-learners. The final student summative evaluation reflection document and presentation were the culminating event for the student's entire three year program.

Accolades and Discontent

As the pedagogical expertise of the faculty grew, they began spreading the word of the "Hawkesbury experience" by publishing in academic journals and newsletters (Bawden, 1992; Bawden et al., 1984; Bawden and Packham, 1993; Sriskandarajah, 1991; Sriskandarajah et al., 1991), writing chapters in books (Weil and McGill, 1989) and presenting at international

[2] In 1990 the undergraduate Systems Agriculture program was shortened from seven to six semesters to reflect a decline in funding and to align the program with other undergraduate University courses, most of which were six semesters in length.

professional conferences (Macadam and Sriskandarajah, 1990, November). This, in turn, drew the attention and interest of academics from around the world, some of whom spent time visiting the Hawkesbury campus and participating in the innovative educational approaches with students and faculty (U. S. faculty from Rutgers University; Michigan State University; University of California, Davis; and the University of Vermont spent time on the Hawkesbury campus). In turn, Hawkesbury faculty were invited to higher education campuses around the world to describe their unique approaches to higher education. While overseas higher education professionals paid reverence to the new Hawkesbury approach, things were not as copasetic at home.

As ideal as the above may seem in terms of pure learning, there were forces at work to resist and turn back the paradigm shift. These forces were felt within the Hawkesbury campus and beyond in the newly-created university conglomeration, the agricultural community, and the general discipline of higher education itself.

The systems approach relied less on the faculty's subject matter disciplinary training, expertise, and, in many cases, professional passions, and more on their "soft" interpersonal skills to brainstorm, facilitate, communicate, work with people, and improve real-world problem situations. While some faculty reveled and grew in this new environment, others ranged from feeling devalued or abandoned to being deceived or betrayed. Some faculty felt that the change to experiential learning and systems thinking eroded their traditional disciplinary prestige and added to loss of identity, something they had worked hard to achieve.

Within the Hawkesbury agriculture faculty, there was a small cadre of non-believers who begrudgingly went along with the change, but never fully adopted nor approved of it. In fact, they were a covert force that never lost an opportunity to criticize and undermine the innovative nature of the program. It was an open secret among the faculty and students who these faculty members were. This disagreement and hostility toward the Systems Agriculture educational paradigm was exacerbated by a growing enmity toward the elitist nature of the program and its leadership. Some in this group remained with Agriculture; but a splinter group broke away to form a separate Horticultural school, the only such arrangement in the Southern hemisphere and possibly the world of higher education. The Horticultural undergraduate degree program reverted back to a traditional teacher-directed, coursework model that was practiced by all the other degree programs at Hawkesbury, with the exception of Systems Agriculture.

Among the faculty members teaching traditional classroom-based courses on the Hawkesbury campus (e.g. Commerce, Land Economy, Nutrition, Horticulture), there was a wide range of opinion about the Systems Agriculture program; and some faculty members were vocally critical of the new educational paradigm of the Agriculture faculty. Being unfamiliar with the literature that served as the foundation of this new curriculum, these faculty members did not understand or seem to care to understand the educational paradigm behind the Systems Agriculture program. As a result, many of this group felt threatened by it. They had excelled in a traditional, teacher-directed educational environment and felt compelled to pass this model on to their students. After all, if the Systems Agriculture program was a better model of education, then what they were practicing must be inferior. As a consequence, there was an increasingly uneasy relationship between the Systems Agricultural faculty and the some of the other traditional faculty on the Hawkesbury campus. The non-believers within the agriculture faculty found plenty of support from this group.

This phiosophical disagreement with the Systems Agriculture program was joined by a growing enmity for the program's leadership. The Dean of the agricultural faculty, who had

adroitly provided the vision and leadership for the experiential paradigm shift, exacerbated this schism by summarily dismissing his critics. With international attention and praise, a solid theoretical-base for the innovative learning paradigm, and a growing cadre of successful graduates, why bother to answer the program's detractors? This indifference included the Dean's superiors, who were under increasing pressure to conform to the standards of the newly formed University of Western Sydney, of which Hawkesbury was now a part.

So, while the Agriculture and Rural Development faculty reaped accolades and attention from around the world, the criticism mounted at home.

The Downfall

In the early 1990s, the Systems Agriculture faculty were able to appease their detractors and the growing centralization of the University of Western Sydney by making "minor changes ... to the integrated nature of the course and assessment of competencies" (Turnbull, 2003, p. 32). Finally, however, the Systems Agriculture innovative model of higher education at Hawkesbury gave in to the increased internal and external pressure; and in 1995 a core of traditional teacher-directed courses was reintroduced. Those leading the curriculum change (made up of many of the non-believers) argued that reverting back to a standard educational model would bring the program in line with mounting University requirements and expectations, reduce the high student attrition rate, and stabilize the declining numbers of Systems Agriculture undergraduates. They attributed the high drop out rates to students feeling lost in the program brought on by the unwavering commitment to experiential education by the paradigm believers and program leadership.

Additionally, the University of Western Sydney bureaucracy was now beginning to flex its new centralized power and control over the six previously independent colleges that formed the conglomerate University. Not surprisingly, University standards were put into place that favored traditional education and research and raised barriers to the faculty of agriculture's innovative model. Classroom teaching was the norm, and grades were now required for all courses. (Grades had been replaced with a paragraph of commentary regarding student performance in the Systems Agriculture model).

In 1995, the Dean of the Faculty of Agriculture and Rural Development, who had provided the extraordinary visionary leadership for the Systems Agriculture paradigm, applied for an administrative position within the University system. He was denied promotion and subsequently resigned as Dean, to be appointed to the directorship of the newly created Center for Systemic Development. Eventually, he retired from the University and left the country to accept a 5-year appointment in the College of Agriculture and Natural Resources at a major U.S. land-grant institution. With the loss of its champion, the Systems Agriculture paradigm became more vulnerable than ever.

The faculty members who formed the core of believers found themselves without a leader and took several directions. Some accepted assignments overseas to spread the Hawkesbury paradigm; some were terminated due to declining University resources; others resigned or retired; and others stayed on to continue the fight.

In 2004 the systems agricultural program at the University of Western Sydney Hawkesbury campus was in serious trouble. Two articles in *The Land*, a weekly newspaper marketed to rural and agricultural interests in New South Wales, Australia, brought to their readers' attention the steady decline in the number of Systems Agriculture students, the cuts to faculty and staff, the endless restructuring of the agriculture faculty, and declining

resources that have characterized the program in recent years. The column, entitled, "Hawkesbury Under Knife," (Dick, 2004, Nov. 4) and a letter of response, "Saving Ag at Hawkesbury," (Wilson, 2004, Nov. 11) illustrate the precipitous nature of the Hawkesbury Systems Agriculture program, driven by current University of Western Sydney financial pressures which reflect low student-to-faculty ratios.

In analyzing the decline of innovative education at Hawkesbury, it has become evident that there are two types of factors at play. One set of factors seems to be inherent in the innovative learning paradigm itself; the other is more context-oriented to the specifics of the Hawkesbury program and its environment.

Inherent Downfall Factors

There are several intrinsic aspects to experiential education that helped lead to its decline at Hawkesbury. To begin, the traditional pedagogical model of higher education, as practiced around the world, has been taught and handed down from generation to generation for hundreds of years. The experiential nature of the Systems Agriculture program at Hawkesbury represented a dramatic paradigm shift from this long-standing traditional model and was seen as a threat to the status quo. Such drastic shifts, according to Kuhn (1970), are always met with resistance from the established paradigm. The opposition and eventual downfall of the Systems Agriculture experiential learning program could be viewed in the context of this nature of humans to resist change.

While the traditional pedagogical model has had hundreds of years to perfect its applicability and conduct, the higher education experiential model is still developing and defining itself. The traditional model, dominated by its teacher-directed lecture classrooms, has developed into an efficient teaching vehicle measured by high student–teacher ratios. The Hawkesbury experiential education program called for dramatically lower ratios, with much of the facilitation done on a one-to-one basis. From the newly empowered University administration standpoint, anxious to establish its conforming authority over the six formerly independent colleges, this was an inefficient mode of teaching. Additionally, the dominant paradigm was set up for easy measurement, assessment, and reporting through objective testing and letter grades. The experiential model was much more obtuse and relied on subjective written evaluation of competencies by faculty and outsiders.

To be successful in experiential learning in higher education, faculty require a different set of skills from those of traditional higher education. Hawkesbury faculty were constantly being challenged with new situations and problems that arose from their students' experiential learning projects. Contrasted with a traditional faculty member who gives the same classroom lecture to a different group of students year after year, experiential education requires a different set of "problem solving" skills, where faculty are more assistants of learning than fountainheads of knowledge. Indeed, Systems Agriculture faculty were called "facilitators." Those who successfully made the transition from lecturer to facilitator championed experiential education, while many of those who struggled with the conversion became part of the "non-believer" group.

Experiential education takes constant monitoring and maintenance. For example, teams of faculty spent weeks traveling in University cars throughout New South Wales, interviewing host families and assessing students on farm placements. Systems Agriculture program experiential learning records required extensive administrative support to keep track of student progression, OCE host family information, student reflections and reports, and faculty assessments. Contrasted with traditional higher educational practices and

viewed through the University financial lens, the program was seen as inefficient and out of the mainstream of higher education.

The Hawkesbury Systems Agriculture approach to experiential education had always been a complete and dramatic one. Once on campus, Systems Agriculture students were directly put into experiential learning situations and asked to reflect and learn on their own or in small groups. This abrupt pedagogical change led to confusion and frustration and, ultimately, a high drop-out rate for Systems Agriculture students. In *Challenge and Change: The History of Hawkesbury Agricultural College, 1966–1991*, Bawden (1991) wrote:

> A number of students withdraw from the course each year on the grounds of their dislike of the process which makes many difficult and onerous demands of them. Whilst the attrition rate within specific course groups reaches worrying proportions from time to time, the commitment to an education which explains the need for students to learn experientially, and to deal with complexity, remains undiminished. (p. 157)

Hawkesbury Context

The Dean's steadfast belief and commitment to the innovative Systems Agriculture approach represented an extraordinary example of visionary leadership and was key to the faculty's successful paradigm shift. His intellectual prowess and outgoing personality, his exquisite command of the English language, and his impressive stature all helped him lead the faculty through massive change. These traits, however, were also part of the downfall of the experiential movement.

While attracting international attention and accolades, the Dean created enemies within his own camp. His seeming aloofness, his failure to seek the favor of higher-level University administrators, and his apparent refusal to respond to program feedback, all led to an isolation of the Systems Agriculture program on the Hawkesbury campus. Indeed, a siege mentality pervaded the faculty, where they felt under constant pressure (if not attack) to explain and justify their program at home. So when the Dean finally resigned, it represented a break in the dam that allowed the "non-believers," program opponents, and University administrators to recapture the agriculture program and bring it back into line with traditional pedagogy.

To understand the present day context fully, one must also look to the changing nature of the Western Sydney higher education student body. Whereas Hawkesbury Agricultural College and the Systems Agriculture program used to draw many of its students from farming properties in the Western Sydney area, this pool seems to have dried up. This, in all probability, reflects the changing global nature of agriculture in Australia, which is experiencing the same declining trends as are evident in other developed countries (Alston, 2004).

Nowadays, the vast majority of students on the Hawkesbury campus come from the greater Sydney megalopolis. They have no background and little interest in pursuing agriculture or agricultural related subjects in college. In addition, the majority of today's Hawkesbury students live at home and commute to campus, and many of them hold part-time jobs. This changing character of the student body has forced a change in the second year off campus experience. Now called service learning, most of the second year experiential assignments are made in the greater Sydney area, to accommodate those students who commute and hold jobs.

Today

The innovative Systems Agriculture paradigm is barely alive at Hawkesbury today. The culture of Hawkesbury has changed dramatically with the centralized and standardized domination of the Western Sydney University bureaucracy reaching into all areas of University life. Currently the "innovative new degree" program in agriculture (it was significantly revised and reintroduced in 2006 when "systems" was dropped from the title) contains some experiential learning components, but it is clearly coursework driven.

The Faculty of Agriculture has undergone several organizational iterations; currently they are associated with the School of Natural Science. The very few remaining agriculture faculty who continue to champion the Systems Agriculture paradigm are housed together in one building and are marginalized from the current School administration and the rest of the Hawkesbury campus.

The criteria for new agriculture faculty hired since the former Dean's departure are focused on credentials (holding a terminal degree) and the potential for conventional research productivity. Their research interests and publications are found in traditional subject matter disciplinary journals. Innovative education does not seem to be any part of the hiring criteria nowadays; in fact, newly hired faculty seem surprised when asked about their commitment or even interest in experiential learning or systems thinking.

Summary and Implications

The Hawkesbury Systems Agriculture program was an incredibly pure experiment in innovative higher education. The program established an international reputation for higher education curriculum innovation based on experiential education, systems thinking and competency-based learning, and, for almost 20 years, produced successful systems agriculturalists, who developed and demonstrated competencies in effective communication, autonomous learning and systems thinking.

What can we learn from the history of this program that has implications for other institutions of higher education contemplating a shift to innovative education practices? Clearly, committed, long-term visionary leadership from the top is essential for the success of innovative education. The Dean of Hawkesbury Agriculture and Rural Development led the faculty through the paradigm shift with an unwavering commitment and a righteous belief in the Systems Agriculture paradigm. Faculty members, in turn, had to respond by developing and utilizing interpersonal and facilitation skills that, in most cases, were not part of their original training and background. This led to a split in the faculty between those who successfully made this transition and those who clung to traditional pedagogy and their subject matter background.

The pure experiential education model led in this instance to a high student dropout rate and a segmentation of students based on previous experience and learning style. The trauma of transitioning from secondary schooling to college is well known, and a paradigm shift to innovative education only adds to student distress. Some Hawkesbury students successfully worked their way through the uncertainty and confusion that characterized this transition while others gave up and left the program to start a career or enter a more traditional pedagogical program. The Hawkesbury experience suggests that mature-aged students, with some background in the world of work, fared better with the pure experiential approach than did traditional-aged college students, who arrived on campus directly out of secondary schooling.

The relationship of the Hawkesbury Systems Agriculture program with the burgeoning administrative bureaucracy of the University of Western Sydney is also instructive. Compared to traditional classes and exams, the Hawkesbury experiential model required more time for faculty facilitation and evaluation. More documentation of individual student accomplishments was also necessary. The pure experiential education model does not fit well within common higher education bureaucratic standards of measurement such as number of students enrolled in courses, student-to-faculty FTE ratios and letter grades.

In retrospect, the unwavering commitment and vigor with which the leadership and dedicated faculty members held on to the pure Systems Agriculture model of innovative education (while providing essential vision and program continuity) also helped lead to the program's downfall. While the University of Western Sydney was establishing administrative control over its six once independent colleges, the Western Sydney student demographics were changing. At the same time, discontent was growing within the faculty and beyond. In what proved to be a fatal non-response, the Systems Agriculture program failed to take these changes into account. Ironically, understanding and adapting to changes in the environment is a major tenet of systems thinking, one of the three Systems Agriculture student competencies. This lack of insight and flexibility significantly contributed to the breakdown of the program.

Conclusion

The traditional didactic model of teacher-directed higher education—courses, books, lectures, exams, papers and final grades—is not in danger of being supplanted by the Hawkesbury innovative paradigm anytime soon. Recently, there have been experiential inroads made into higher education at large, most notably through internships and service learning; but these areas remain on the edge of mainstream college education. The Hawkesbury Systems Agriculture program, however, does provide a valuable lesson for those wishing to incorporate more innovative education into higher education. After all, we know that paradigm change usually starts where experiential education now resides in higher education, at the periphery of the organization.

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