

Bachelor of Applied Sciences Degree Program: A New and Innovative Collaboration between a Land Grant University and Community Colleges

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Abstract

The College of Agriculture, University of Wyoming (UW), in collaboration with the UW Outreach School and the state's community colleges, developed a new and innovative Bachelor of Applied Sciences Degree (BAS) program. The online-only program serves a new audience, students who earned an associate of applied science (AAS) degree and have a minimum of two years work experience. Prior to the BAS, these community college graduates had no opportunity for professional advancement within their chosen professions if a baccalaureate degree was required. The BAS degree program was designed to utilize appropriate course credits and fill the gaps toward completing a four year university degree and to serve place bound professionals. The process for doing so was highly collaborative, involving all of Wyoming's community colleges, several UW academic departments and colleges, and support staff university-wide. The program has successfully enrolled students from a broad array of professional disciplines and produced its first graduate in the brief time span of two years. The systems view of organizing such a program and the curriculum described herein may serve as a model for other universities striving to meet the forecasted higher national demands by non-traditional students for online education in their professional fields.

Literature Review

No one disputes that there are benefits to having a four-year degree. Day and Newburger (2002) noted that over their work lives, individuals who have a bachelor's degree will earn about a third more than workers who did not finish college and nearly twice as much as workers with only a high school diploma. Carnevale et al. (2009) asserted that post-secondary education is needed more than ever because:

Every year more than a third of the entire U.S. labor force changes jobs.

Every year, more than 30 billion Americans are working in jobs that did not exist in the previous quarter.

Many of the occupations workers have today did not exist five years ago.

Current research shows that most of the high-paying jobs of the future will require a bachelor's degree or higher and many will reside in health care, high tech, education, office, and energy-related jobs (Carnevale et al., 2009; Dohm and Shniper, 2007).

At the close of the 20th Century, Eastmond (1998) stated, "Rapidly changing societal and work environments demand continuous learning, and nontraditional students ...are the new majority, pursuing education for career development, job security, upward mobility, recareering, and other professional and personal reasons" (p.33). With an ever-increasing frequency, students who are classified as nontraditional are accessing higher education (Kilgore and Rice, 2003; Schuetze and Slowey, 2002), bringing with them unique learning needs. Nontraditional students have been defined in many ways: adult students aged 24 or older, those with vocational and/or work experience leading to an unconventional educational background, ethnic minority or immigrants, first-generation students, those from remote or rural areas, and other underrepresented groups (Donaldson and Townsend, 2007; Holder, 2007; Merriam and Caffarella, 1991; Schuetze and Slowey, 2002).

Of particular interest to this paper are those nontraditional students who fit the definitions above, hold an Associate of Applied Science (AAS) degree, and have a desire to continue their education. The AAS degree, primarily delivered at community colleges, is intended for students majoring in occupational fields who do not plan to transfer to a four-year institution. It is considered to be a terminal degree because it "consists of occupational or technical courses that are not required and thus are not transferable into conventional academic baccalaureate degrees" (Arney et al., 2006). Critics of the AAS state that these programs do not prepare students with the higher-level skills necessary for management or other higher paid career paths (Brint and Karabel, 1989; Dougherty, 1994). While this position

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might be contested, UW has recognized the need to provide students who hold the AAS with a career path through the development of a BAS distance degree program.

A BAS degree is designed to fit the needs of employees in today's complex economic climate. According to Townsend (2009), "The applied baccalaureate is a bachelor's degree designed to incorporate applied associate courses and degrees once considered as terminal while providing students with the higher-order thinking skills so desired in today's job market (104)." As such, it allows technical courses to be transferred to a four-year degree. Donaldson and Townsend (2007) showed that many states are supporting the development of a BAS to meet the needs of adult learners. Research indicates that BAS degree programs fit today's needs for workforce development (Bragg, 2001; Ignash and Kotun; 2005; Siladie, J., 2007; Townsend and Bragg, 2001) and are a "logical extension of career pathway curricula that emphasize initial entry into the community college and extend the educational pathway...(105)" (Townsend, 2009).

There are key differences between a BAS and the traditional Bachelor of Arts (BA) or Bachelor of Science (BS) degree programs. Students with an AAS desiring to access a BS or BA lose 50 to 60 hours of course credit, since their technical coursework is not accepted. All accredited coursework transfers into the BAS, significantly reducing the amount of time it takes to earn a bachelor's degree. In a BAS, the bulk of a student's coursework in their area of specialization is taken at the AAS level. Only the few general education classes needed to obtain a two-year degree are taken at the community college. Once the student transfers into a BAS program, coursework emphasizes critical thinking skills, a deeper understanding of the major through targeted electives, general electives, and upper division coursework to fulfill the university's general education requirements. This can be categorized as an inverted major. UW's entirely distance delivered coursework for the BAS is somewhat unique, allowing working adults to access the needed coursework for their degree without having to arrange time away from their jobs and families to come to campus.

History and Creation of the Program

The idea for the University of Wyoming's BAS degree program originated with the Wyoming Community College Commission, the governing body for the seven community colleges in the state. They perceived a need to serve their alumni that had entered the workforce with an AAS degree, and had not originally planned to complete a four year baccalaureate degree because their goals were strictly vocational. However, many of these AAS graduates found themselves in jobs that provided professional advancement only if they had a four year degree. Hence, the community colleges saw an

opportunity for the university to meet the needs of a new audience by allowing them to complete a baccalaureate degree and to do so via online delivery, thus accommodating their site bound status and full time occupations.

The Commission's concept was communicated to the UW Office of Academic Affairs, which in turn brought it before UW's college deans for their consideration and potential adoption within their college. The UW College of Agriculture ultimately agreed to sponsor the program with some adaptations. According to Associate Provost and Dean of the Outreach School M. Murdock, "The BAS was a new direction for UW – we've not previously given much attention to the applied science degrees students earn from Wyoming's community college. Thus, we wanted to make sure that we found a BAS model that integrated well into UW requirements, that met accreditation standards (note the emphasis on general education), and that met Wyoming community college expectations. The role of the UW College of Agriculture in embracing this degree and making it an effective choice cannot be overstated." (personal communication) While the timeframe for developing the initial concept and structure was lengthy, it only took six months for the actual program to be developed, approved by the UW Board of Trustees, and delivered to the first group of students. By the end of the program's first year 26 students had matriculated and the first student graduated from the program in December 2008.

The genesis and development of this program was remarkable not only for the condensed timeline but also for the excellent collaboration among multiple partners, principally the Community College Commission, the UW College of Agriculture, and the UW Outreach School. As B. Pickett, Director of the UW Casper College Center and one of the initial members of the development team stated, "The creation of the bachelor's of applied science represents, for me, how community college—university partnerships can be productive and beneficial not just for institutions of higher education, but for the region that they serve. It was community college people in Wyoming who initially urged UW to work with them in creating this degree program. Now community college AAS graduates have a new degree option, after working in their respective fields for a few years, and the university has yet another way that it is serving the people of our state." (personal communication) A. Wiedmann, now Coordinator of Special Projects for Outreach Credit Programs and a key member of the original BAS coordinating team, in correspondence with E. Boenisch, Deputy Director, Wyoming Community College Commission (6-19-07) wrote, "I am most sincerely inspired by the potential of serving Wyoming's workforce. Returning adult students with professional experiences are so valuable in any learning environment, and to have this degree program as part of the Wyoming partner-

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ship among our public colleges and the University is wonderful.” The Community College Commission is to be credited for having the vision for the program and delivering a proposal to the University for implementing.

The UW Office of Academic Affairs made the critical decision to forward a proposal to the UW college deans and urge sponsorship of the program, knowing that the program was unlike any other baccalaureate degree program on campus. One of the unique features of this program is the recognition of the AAS degree for admission into a baccalaureate program. Prior to the BAS, only Associate of Arts or Science (AA and AS) degrees from community colleges fulfilled general education requirements. Prior to the BAS, AAS degrees were viewed as purely vocational/technical degrees, not applicable to a bachelors program. Associate Vice President for Academic Affairs R. Abernethy took the lead in advancing the program and explained, “The BAS proposal fulfills our expectations for a baccalaureate degree from UW; our general education requirements are met, and students are required to engage in upper-division coursework sufficient to provide focus and depth of learning. Students admitted and completing this degree program will have earned the baccalaureate without question.” (personal communication)

The next pivotal decision was that by the College of Agriculture to sponsor the program. It did so largely because of what it perceived as a natural fit with the land grant university philosophy and commitment to meeting the needs of the citizens of the state. Furthermore, it seemed like an appropriate match academically, because many of the college programs were applied in nature. Like the Office of Academic Affairs, the College of Agriculture sought assurances that the integrity of its baccalaureate degrees were not compromised.

Collaboration with the UW Outreach School was integral to the broad-based collaborative effort. It played the important role of providing the infrastructure and support for the delivery of this totally online program and because of its widespread network throughout the state, communication among partners, announcements to the public, and program marketing was enhanced.

Lastly, implementation of the program was also facilitated by collaborative work with the UW Offices of Admissions, Financial Aid, and the Registrar, all of which were instrumental in establishing the necessary day to day operations and maintenance of a new degree program.

One of the early steps in the program's development was an inventory of existing distance-delivered course at UW that were appropriate for the BAS degree. When gaps were identified, measures were taken to either develop the necessary course, as was the case with the BAS cornerstone course, or to solicit new distance delivery course proposals from various

academic units. In most instances, new courses were not required, but rather a commitment to contribute an existing course to the curriculum or to develop an online version of an existing course. Once an adequate number of courses were identified, they were organized into the curriculum and assigned to one of four program components. The major was designated as Organizational Leadership.

Staffing for the program came from existing personnel in the College of Agriculture and the Outreach School. An adviser from Outreach volunteered to add BAS students to her advising load, another Outreach staff member led the communications and marketing efforts, and an Outreach instructor from the College of Education agreed to develop a new and required cornerstone course as part of her teaching load. Staff in the Office of Academic and Student Programs accepted office support roles, the Associate Dean J. Wangberg acted as the program's lead administrator, and the Office of Academic and Student Programs was designated as the “home department.” The Head of the Department of Family and Consumer Sciences, College of Agriculture, with significant experience in distance education programs, K. Williams, assisted with administrative duties. Within the first year the Trustees approved the creation of a BAS Director position and she assumed the role.

A special inaugural launch for the program occurred in October 2007 and was videocast live from the UW Casper Outreach Center, Casper, Wyoming. News media, university news and public relations personnel, and outreach centers, connected from throughout the state facilitated the official announcement to the public. At the time of the official announcement the program was already underway with four student majors.

Program Description and Degree Requirements

This degree is designed for individuals with some work experience who have completed or are completing an AAS degree at a Wyoming Community College or other accredited institution. The degree is especially relevant for those who need or desire additional breadth in skills, knowledge, and professional expertise to enhance their capabilities in their own careers and in the organizations in which they work. To better serve place-bound individuals, many of whom are currently working full time, the program can only be completed through distance delivery methods. It is not available on campus at the UW, although students are not prohibited from taking classes face-to-face if they live in proximity to Laramie.

Students apply through the UW Admissions Office. Students are required to send official transcripts from all institutions attended, indicating proof of an existing AAS degree. To be considered for the BAS program, an applicant's AAS degree has to

include 16 hours of preliminary general education/University Studies courses, including freshman composition and a college-level math class. Students are also required to submit a current resume with proof of two years work experience.

The fundamental philosophy of the BAS degree is that the student must complete the general education requirements expected of all UW bachelor's degrees and must engage in upper-division coursework sufficient to provide focus and depth of learning. Following this philosophy, the BAS has four basic components: university studies, career specialty, professional concentration, and electives. The fundamental elements of the baccalaureate degree are provided by the general education core (University Studies Program) and the upper division professional concentration. All students graduating from UW must have 48 hours of credit at the junior and senior level; 30 total hours in the degree program must be completed through UW. Currently, over 20 departments contribute coursework to the BAS.

The **University Studies Program (USP) Component** consists of a minimum of 30 credit hours. Students with an AAS degree from a community college will normally matriculate with 16 to 20 hours of credit that count toward this component. The remainder may be acquired as part of the student's UW coursework, including the Professional Concentration or Electives coursework.

The **Career Specialty Component** is fulfilled with the AAS degree. This component consists of a minimum of 40 credit hours in the major.

The **Professional Concentration Component** is the advanced component of the program and the courses are selected by the student and the advisor. The specifics may vary according to the student's program, community college, interests, and career aspirations. However, all students are required to take a range of courses from the prescribed areas of concentration within this component. This compo-

nent provides the breadth and depth of learning necessary for a baccalaureate degree. It consists of 36 to 40 upper division or articulated equivalent credit hours. The following table illustrates courses used for the professional concentration:

The **Elective Component** consists of the credit

Table 1. Coursework for the Professional Concentration Portion of the BAS

Area of Concentration	Sample Courses
Discovering and Utilizing Ideas and Information	AGRI 3000: Discovering and Utilizing Ideas and Information
Communicating in Writing and Speaking	ENGL 4010: Technical Writing in the Professions COJO 3010: Business and Professional Communication COJO 3190: Cross-Cultural Communication
Analysis and Problem Solving	FCSC 3110: Personal Finance A & S/AGRI 4990: Organizational Problem Solving in the Social Sciences ENR 4500: Risk Analysis
Organizational Leadership Option A	AGEC 4660: Community and Economic Development FCSC 4117: Community Leadership: Working with Services and Systems FCSC 4985: Seminar – Development in Community Leadership POLA 4710: Special Topics -Non-Profit Management and Leadership POLA 4710: Special Topics -American Political Issues PSYC 4070: Motivation SOC 3650: The Community SOC 4020: Sociology of Work
Option B	MGT 3110: Business Ethics MGT 3210: Management & Organizations MGT 4410: Human Resource Management MKT 3210: Introduction to Marketing
Contemporary Society	A & S 3105: From Gilgamesh to the Bomb ANTH 3500: Gender & Society COJO 3160: Theory of Language and Society ENR 4890: Special Topics HIST 4340: History of American Women HIST 4490: Modern America -1960-present HIST 4545: Multicultural West
Career Electives	Individualized recommendations

hours needed (after completing the other three components) to complete the minimum total credit hours (120) required by the College of Agriculture. This component also provides an opportunity for each student to individualize their learning to fit their career aspirations. Adviser, Dianne Davis, noted, "The career electives were developed to support the student's specialty area from their AAS degree or to enhance their future goals. Having choices for most major requirements as well as three career electives enables each student to tailor their degree to meet their personal interests."

As of spring 2009, the BAS program had 33 majors. The first student graduated in December of 2008. Males and females are fairly equally represented in the program with 18 females and 15 males. The average student is 39 years old; the youngest is

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21 and the oldest is 56. While 21 students obtained an AAS degree from a Wyoming community college, the program has become national in scope with students from Colorado, Pennsylvania, New Mexico, Utah, Illinois, and Washington accessing the BAS. Students come to the program with a wide variety of AAS degrees, and in some cases multiple degrees. These include:

Table 2. AAS Degrees Earned by Current BAS Students

AAS Degree	#	AAS Degree	#
Accounting	3	Fire Protection/Fire Science Technology	3
Administration – Medical	1	General Technology	1
Administration/Management/Office-Business/Secretarial	5	Human Services	1
Ag Business	1	Machine Tool Technology	1
Automotive Technology	2	Paralegal	2
Criminal Justice	1	Park Ranger Technology	1
Denturist	1	Phlebotomy	1
Emergency Management/Planning	1	Radiography	4
Emergency Medical Services	1	Water Quality Management Technology	1
Engineering Technology/Drafting	4		

In all cases, students indicate that they have a desire to broaden their career opportunities or obtain a degree that will allow them to advance in their current job setting.

Learning Measures and Facilitating Student Success

Assessing student progress and ongoing evaluation of curriculum are attributes of all quality degree programs. The BAS at UW is no exception. During the first year of delivery, the BAS team created learning objectives and assessment measures that were then posted on the web page, making expectations visible to current and prospective students.

The following student outcomes were established by the BAS team:

- Goal I. To develop proficiency in accessing, evaluating and utilizing information and ideas.
- Goal II. To develop proficiency in communicating information and ideas effectively and responsibly.
- Goal III. To gain an appreciation for civic engagement as a mechanism for individual, organizational, and community problem solving.
- Goal IV. To demonstrate the ability to acquire, evaluate, and utilize information and data.
- Goal V. To demonstrate an understanding of organizational design, behavior, ethical practices, and effective managerial and supervisory practices.
- Goal VI. To gain an understanding of social, cultural, economic, and environmental contexts essential for effective leadership and the management of change.

Assessment of Learning Outcomes

The following strategies are used to assess student outcomes:

1. Data from AGRI 3000: student comments to

instructor, grades, instructor feedback on the major research paper, and content analyses of threaded discussions. (Goal I, II, and IV)

2. Student Exit Interviews: completed electronically or through digitally recorded phone interviews for all program graduates. Student objectives/personal goals stated in their applications and emails to their adviser are compared with exit interview data. (Goals III, V, and VI)

3. Student final papers from WC course with attached faculty grading rubric. These will also be scored by the BAS team to look at all six goals. (Goals IV and VI)

While administrators of all degree programs and institutions of higher learning would agree that student services are integral to student success, the distance delivery of the BAS

program presents inherent challenges. The UW BAS program emphasizes student support, and has done so in both conventional and unconventional ways. This is in keeping with the motto proudly displayed in the College of Agriculture: Students – The Reason We're Here. Valuing students is a thread that runs through all of the following:

Advising. The BAS program has an adviser that works with all student majors, helping each student choose and register for courses each. A unique piece is the adviser's involvement in program assessment, design and implementation, meeting face-to-face and by conference call with the BAS team several times per semester.

Student Services. Distance students have online and email access to the Writing Center through the Ellbogen Center for Teaching and Learning; to a library consultant and access to all library search engines through Coe Library; to financial aid, career planning and disabilities support services through Student Educational Opportunities; and to the UW Bookstore.

Project LeaRN. Students entering the BAS face many adjustments and come with expectations that may not be accurate. It is common for students to think that online courses will be easier than face-to-face classes, will operate in the same way as independent study courses that are self-paced, or will be delivered much like the training modules they are exposed to in industry. These expectations can set students up for failure.

Students in the BAS program are the first online students to have a dedicated Supplemental Instruction (SI) component. Piloted in the 2008 to 2009 academic year with financial support from the Outreach School, C. Boggs, instructor for AGRI 3000:

Discovering and Utilizing Ideas and Information partnered with Al Heaney, director of Project LeaRN to create an online SI. April hired and trained a graduate student to be a mentor to the two experienced BAS students who served as the SI facilitators. They and the students worked together to develop and deliver the curriculum that would support AGRI 3000 students in their learning. Preliminary data indicates that students who participated in the SI had higher grades, higher levels of course satisfaction, and a greater retention rate.

According to Boggs, “Due to the unique background of the students accepted into the BAS program some of them have fairly low writing skills and can feel disconnected from the academic nature of a college course. The SI component gives them a chance to polish their skills, get feedback on drafts and interact with their fellow students. I feel that this really helps them be successful in the class. So far, after two semesters of SI I can say that the students who participate in SI often receive the best grades in the class and their assignments are usually a much higher quality.” (personal communication) Heaney concurs, adding “In addition to helping students learn specific skills, the SI sessions bring students together (without the teacher's presence) to create their own space. The online forum allows students to go back and read information and discussion later (after the session) and refer to it throughout the semester. Because online students have far fewer opportunities for leadership and mentoring, this program allows students to experience academic leadership who might never have explored this kind of opportunity. The leadership experience raises students' confidence, increases their own skills (through planning and teaching others), and in some cases shapes their future goals.” (personal communication)

Summary and Future Directions

One key in developing this collaborative program was understanding the state's higher education system and having an appreciation of the personal and professional interrelationships among what would become the BAS program's principal players.

Our approach mirrors the systems thinking approach to organizing popularized by Senge (1990). Systems thinking emphasizes spotting interrelationships and interdependencies among educational actors and activities and understanding how what goes on in one course or program relates to other courses or programs, or to a larger systemic whole (Smith, 2001).

Systems organizational theory began to be applied to higher education in the 1960's (Peterson, 2007). It is an organizational approach scholars have found to be most helpful in understanding the strategies and methods of operation in distance education (Moore and Kearsley, 2005). Farad Saba (2007), noted that a systems view of distance learning

describes well the variety of elements and processes that operate when distance learning occurs.

Applied to the case of the BAS program at UW, systems thinking highlights the importance of collaborations with community colleges in developing the program, considering the philosophies of student support involved in operating the program, and the cross-functional cooperation between the university's Academic Affairs Division, the College of Education, and the Outreach School. We should note that systems thinking was not consciously part of the planning team's original strategy. However, we think that the theoretical framework, considered in conjunction with this report/study, suggests that awareness of systems thinking concepts is helpful for those considering the development of similar programs. Not only may systems thinking help uncover interdependencies and interconnections between actors, programs, and ideas, but this thinking provides a strategy for others as they conceptualize, develop, and implement new and innovative programs. We would encourage its use from the inception for new programs being developed by other institutions.

As with any program, quality and continuous improvement are important. Courses will continue to be delivered online with real-time chat sessions that fit the students' schedules. However, the BAS program is looking at 6 to 8 week blocked courses to better fit the needs of working students. This would allow the students to focus on one course at a time while still making progress toward degree completion. In addition, we would like to bring all of the instructors who deliver coursework for the BAS together. A strength of other UW distance programs is a community of teachers who mentor each other, share teaching strategies, and work toward insuring that their course delivery fits the program philosophy. Even though the BAS program draws from multiple departments, such a faculty community would strengthen program delivery. The shared philosophy that could be strengthened would draw from Cooperative Extension: Take students where they are and build from there while delivering quality content and skills.

Literature Cited

- Arney, J.B., S. Hardebeck, J. Estrada, and V. Permenter. 2006. An innovative baccalaureate degree: Applied versus traditional. *Jour. Hispanic Higher Education* 5(2): 184-194.
- Bragg, D.D. 2001. Opportunities and challenges for the new vocationalism. *New Directions for Community Colleges* 115:5-15. San Francisco, CA: Jossey-Bass.
- Brint, S., and J. Karabel. 1989. *The Diverted Dream*. New York, NY: Oxford Univ. Press.
- Carnevale, A.P., J. Strohl, and N. Smith. 2009. Help wanted: Postsecondary education and training required. *New Directions for Community Colleges* 146:21-31.

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- Day, J.C., and E. Newburger, E. 2002. The big payoff: Educational attainment and synthetic estimates of work-life earnings. <http://www.census.gov/prod/2002pubs/p23-210.pdf>. Washington, DC: U.S. Census Bureau, Special Studies. (July 17, 2009).
- Dohm, A., and L. Shniper. 2007. Occupational employment projections to 2016. *Monthly Labor Review*, 130 (11):86-125.
- Donaldson, J., and B.K. Townsend. 2007. Higher education journals' discourse about adult undergraduate students. *Jour. Higher Education* 78(1): 27-50.
- Dougherty, K.J. 1994. *The Contradictory College*. Albany, NY: State Univ. New York Press.
- Eastmond, D.V. 1998. Adult learners and internet-based distance education. *New Directions for Adult and Continuing Education* 78:33-42.
- Holder, B. 2007. An investigation of hope, academics, environment, and motivation as predictors of persistence in higher education online programs. *Internet and Higher Education* 10(4): 245-260.
- Ignash, J. and D. Kotun. 2005. Results of a national study of transfer in occupational/technical degrees: Policies and practices. *Jour. Applied Research in Community College* 12(1): 109-112.
- Kilgore, D. and P.J. Rice (eds.). 2001. *Meeting the special needs of adult students*. San Francisco, CA: Jossey-Bass.
- Merriam, S.B. and R.S. Caffarella. 1991. *Learning in adulthood: A comprehensive guide*. San Francisco, CA: Jossey-Bass.
- Moore, M. and G. Kearsley. 2005. *Distance education: A systems view*. Belmont, CA: Thomson-Wadsworth.
- Peterson, M. 2007. The study of colleges as organization. *The Sociology of Higher Education: Contributions and their Contexts* 147-186. Baltimore, MD: Johns Hopkins Univ. Press.
- Saba, F. 2007. A systems approach in theory building. In Moore, M. (ed.). *Handbook of Distance Education*, (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Schuetze, H.G. and M. Slowey. 2002. Participation and exclusion: A comparative analysis of non-traditional students and lifelong learners in higher education. *Higher Education* 44: 309-327.
- Senge, P. 1990. *The fifth discipline: The art and practice of the learning organization*. London, ENG: Random House.
- Siladie, J. 2007. The dental hygiene degree completion program: It's all about access. *Journal of Dental Hygiene* 81(1): 1.
- Smith, M. 2001. Peter Senge and the learning organization. In *The Encyclopedia of Informal Education*. <http://www.infed.org/thinkers/senge.htm>. (June 29, 2009).
- Townsend, B.K. 2009. The outlook for transfer programs and the direction of the community college. *New Directions for Community Colleges* 146:103-110.
- Townsend, B.K. and D. Bragg. 2008. *The adult learner and the applied baccalaureate*. Indianapolis, IN: Lumina Foundation for Education.

