Web-Based Academic Support Services: Guidelines for Extensibility

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Abstract

Using the experience of the University of Illinois at Springfield 's College of Liberal Arts and Sciences at the as a foundation for discussion, this paper addresses the provision of student support services to distant students within the context of development and expansion. Specific issues for consideration include: integrating student support functions with institutional technology and information systems; determining developmental concerns and their impact on scalability; and, identifying barriers related to systematic program expansion.

As on-line learning continues to grow in terms of popularity and access, academic support practitioners have new opportunities to re-conceptualize Web-based programming that furthers the integration of service, instructional, business, and cultural aspects of the institution. A fundamental challenge to program expansion is appropriately scaling such services in ways that student demands, curricular priorities, market trends, and institutional mandates can be met through an integrated approach to technology based support provision.

Context for Discussion: UIS College of Liberal Arts and Sciences

On-line Program Development & Expansion

The University of Illinois at Springfield 's ("UIS" or "University") College of Liberal Arts and Sciences ("College") routinely delivers approximately 60 to 70 percent of the University's Web-based programming. On-line coordination personnel provide ongoing support and advising for both newly admitted and continuing students studying in the College's Web-based academic programs. Growing beyond the first Web-based degree completion program developed by the University (the Bachelor of Arts in Liberal Studies initially delivered in fall 1999 to 32 students), now in its seventh year of delivery) the College of Liberal Arts and Sciences has admitted approximately 1,000 majors to its on-line programs. On-line programs currently include six undergraduate degree completion programs (computer science, English, history, liberal studies, mathematics and philosophy) and two minor concentrations (mathematics and philosophy); two graduate certificates (computer science); and, one graduate program (computer science), as well as a range of elective courses offered throughout the liberal arts and sciences disciplines. This growth impacted not only the nature of outreach and support services provided to this student population, but also contributed to shaping a new institutional culture. The following discussion extends beyond a traditional approach to support provision to promote a scalable, integrated and interoperable administrative strategy enabling expansive learning experiences for students

regardless of the instructional medium by which they study.

E-Support Evolution: Beyond Sustainability

The College's need for distant academic support services grew exponentially with the expansion of Web-based instruction. Accepting a limited number of on-line majors initially enabled the University to admit and advise all distant students through academic program-based coordinators whose responsibilities largely focused upon advocacy, intervention, and referral, filling service gaps left unmet by non-mediated institutional business and support systems. In the absence of such systems, this approach demanded the provision of customized services to each student; indeed, exceptions to policy and procedure became the rule. However, as the number of enrollments in Web-based programs grew, it was quickly apparent that advocacy and customization were not effective substitutions for carefully coordinated systems. Additionally, concurrent to the expansion of specific on-line programs, the University observed that increased numbers of students and faculty members in general expected a level of technology integration and interoperability that allowed them to perform a wide range of transactions, interactions, and communications via the Internet. Within the six year span of on-line program delivery, the larger University's experience began to mirror that of the College's, as it recognized technology as more than an instructional tool, as a means to revision UIS' institutional culture. The coordination of technical, academic, and student support functions became integral to developing best practices that both complimented and reinforced instruction, enabling broad based extensibility.

The importance of academic support services to both students' learning as well as the successful delivery of on-line instruction is well documented (Boettcher, November 2004; Collison, Elbaum, Haavind, & Tinker, 2000; Ludwig-Hardman & Dunlap, 2003; Kretoviks, Fall 2003; McCracken, Spring 2004; Palloff & Pratt, 1999, 2001, 2003; Rovai, November 2004; Tinto cited in Rovai, 2002; Turloff, 1997; Wiley, 2005). Moreover, an increasingly strong correlation has been established between the dynamic nature of learning, consistent academic achievement, and a corresponding need for support services to facilitate the development of and reinforce multiple intelligences and abilities (Chambers, Winter 2004; Oliario, 1995; Schroeder, 1993; Thorpe, 2002; Yalama & Aydin, 2004). Although both professional literature and anecdotal experiences consistently identified support services as critical to distant student recruitment and retention, the provision of such programming in practice was developed and implemented independently of instructional delivery. This method reinforced a disconnection between academic support and the scholastic curriculum, and perpetuated a "singly focused" approach to service (or "silo approach") that replicated traditional campus based programming (Burnett, October 2001, June 2005). Such a strategy failed to recognize the importance of technological interoperability as well as instructional and support integration so essential to the academic success of all student populations, and specifically distant students whose computers represent affiliation, communication, and access to the institutional environment.

In order to develop a comprehensive approach to support integration, it became important for the College to identify and collaborate with those stakeholders within the larger University both providing essential services (such as application and admissions procedures, course registration processes, tutoring, test proctoring, or library access), as well as directly promoting and supporting instructional delivery (for example, through research opportunities, internship experiences, co-curricular activities, international studies possibilities, alumni events, etc.). Activities to initiate institutional change, then, began with a review of literature and identification of best practices, and continued with collaborations with inter and intra institutional experts.

The College found that academic support practitioners both internal and external to the institution generally greed on the scope of program components required to support all members of the institutional community, particularly those studying in Web-based learning environments. For example, Thorpe (2002) described academic support programming as "... central to high quality learning [and] … the arena within which transformations in the nature and the scale of activities made feasible by on-line teaching … [generated] widespread change in pedagogies and learning communities and across institutions as a whole ..." (p. 106 – 113). Tait (2000) emphasized engagement as an essential characteristic of such programming to meet the needs and goals of multiple learning domains, for example, "... cognitive (supporting and developing learning); affective (related to the emotions that support learning and success); and, systemic (helping students to manage rules and systems of the institution in ways that that support persistence)" (p. 289). Carnwell and Harrington (in Yalama and Aydin, 2004) identified a combination of strategies that reinforced students' development of skills, intelligences, and abilities, including "… [instructional] strategies such as cognitive, affective, meta-cognitive and motivational; and, skills such as informing, advising, counseling, assessing, enabling and feeding back" (p. 2). The College's coordination personnel documented an increasing demand for specific institutional system components merging aspects of physical and virtual learning environments, including interoperable technology and information systems; seamless and visible instructional, business, and student support programs; ongoing opportunities for communication and interaction with the larger university community; and, the creation of visible, congruent and interactive learning opportunities (Boettcher, 1999; Fredericksen, Pickett, Shea, Pelz, & Swan, 2001; Kretoviks, Fall 2003; McCracken, Spring 2004; Palloff & Pratt, 1999 & 2001; Sener and Baer, December 2002; Shay & Armitage, 2004; Tait & Mills, 2002; Thorpe, 2003) When combined these functions, activities, and approaches provided a foundation on which to build an inclusive e-culture that facilitated increasingly interactive and transactional approaches to academic support provision.

E-Support in a Changing Instructional Environment

While the College predictably experienced a dramatic rise in the number of distant students participating in Web-based degree programs as "on-line majors," the larger University noted that growing numbers of on ground classes required the use of some level of educational technology. Additionally, as the general public became increasingly familiar with e-transactions and interactions, both students and faculty members expected to be able to conduct business, access records, obtain funds, and communicate via electronic systems. In order for support programming to increasingly reinforce the distributed nature of instructional and business trends, it was necessary that the development and scaling of service systems respond in kind to such changes.

Matheos and Archer (Winter 2004) provided a description of the changing instructional landscape, explaining "... what we have known as distance education is morphing into 'distributed learning'," or the application of instructional technologies in ways that further learning and teaching goals regardless of the physical location of learning resources, instructors, students, or collateral services (section 1). Bates (cited in Matheos and Archer, Winter 2004) emphasized that such distributed learning environments are characteristically "... learner-centered ... based on blending a choice of appropriate technologies with aspects of campus-based delivery, open learning systems and distance education" (section 2). Matheos and Archer (Winter 2004) specifically noted the importance of a distributed approach to creating inclusive instructional and institutional cultures that specifically reinforce those skills and abilities required by a global networked environment (section 2). Oblinger, Barone, and Hawkins (2001) credited distributed methodology as promoting exploration and access, mobilizing experiential learning opportunities, facilitating creative engagement, allowing customization of teaching approaches,

and enabling overall learning effectiveness (p. 6). Berge and Huang (May 2004) added that developing and expanding instructional programming from a distributed perspective "... encourage[d] commitment (personal goal commitment, institutional initial and ongoing commitment); enhance[d] integration (management and support services that enhance academic and social experiences); improve[d] delivery systems (delivery of instruction and support ...); increase[d] person-environmental fit (ease stages of transition, facilitate person-institutional ... fit); and, improve[d] outcomes (... such as academic performance and intellectual development, psychological outcomes such as perceived utility and satisfaction) (p. 19).

The migration of a service provision approach from a "distance" to a "distributed" context required the institution to re-evaluate its instructional delivery infrastructure. Web-based program expansion by nature challenged the use of time and location variables traditionally used to define student populations; as such, expansion activities required that the University extend its capacity to utilize technological applications beyond instruction to business and services systems in ways it had not previously considered. As Black (Winter 2003) confirmed "Struggling to respond to the pressures, educational environments and their interrelated systems are in a state of flux. ... [E]nvironmental and system struggles are amplified because of the greater than ever 'customer-as-student' demand for portable, flexible, quality, interactive courses and our knowledge-age demand for continual lifelong learning" (section 2). Moreover, the competitive higher education market, increasing demand for Web-based programming, and a growing technological sophistication continuously challenged efforts to expand programming in planned and strategic ways. The perceptual shift from "distance" or "on-line instruction" to "distributed teaching and learning" provided a foundation for enabling the identification of criteria that reinforced the integration of instructional methods, technological applications, academic support services, and e-business systems.

An Approach to Support that Reinforces Instruction: Combining High Touch and High Tech

Although initially envisioned as supplementing instruction, practitioners increasingly considered the means by which programs and services could use of technology to reinforce an approach to service that extended beyond traditional support models. Burnett (October 2001) advised that such " ....trends of new [support and service] models ... focus on added value and relationship building with every service transaction, [as well as] service processes redesigned from the student's perspective. .... These new models are ... creating a cultur[al] shift in how services are defined and delivered, creating a high touch/high tech environment" (n.p.). Banning and Hughes (cited in Kretoviks, Fall 2003) advised, in order to connect service provision to instructional delivery in a distributed manner "... the university must begin to concern itself with the environment outside its physical boundaries to include other environments that also impact the student," and encouraged a consideration of "the ecology of the virtual university" in program planning and implementation (section 4). Both Lewin (cited in Kretoviks, Fall 2003, section 3) and Terkla (cited in Kretoviks, Fall 2003, section 5) cautioned that the development of comprehensive Web-based institutional environments require support programming to be highly integrated beyond instruction to incorporate administrative, business, student services and technological systems. Bates (in Reid, May 1999) emphasized that such an approach required an active commitment from and involvement by key personnel throughout institutions, and advocated for the development of specific approaches to address broad aspects of institutional infrastructures, to include "... a vision for teaching and learning; funding reallocation; strategies for inclusion; technology infrastructure; people infrastructure; student computer access; new teaching models; faculty agreements and training; project management; new organizational structures; collaboration and consortia; and research and evaluation" (p. 21). Because it was

important that technology was integrated throughout the institution's environment, its use not marginalized for a limited student population labeled "distant," the coordination function became particularly critical to overall collaboration, systems migration, administrative transition, and program extension at UIS (Kretoviks, Fall 2003; Matheos and Archer, Winter 2004; Shay and Armitage, 2003; and Tait, April 2003).

Assessing the Potential for Extensibility

Beyond a consideration of system components, the College found an understanding of the developmental stages attributed to scaling support programming as well as an awareness of the ways these services are positioned within an institutional infrastructure to be important to accurately and realistically assessing the potential for extensibility. Identifying critical processes inherent in both developmental and expansion activities enabled academic programs as well as the larger institution to both anticipate barriers as well as gauge progress towards achieving a level of interoperability that would facilitate an inclusive and accessible virtual culture. Three specific dimensions – instructional, technological, and support – contributed to movement towards comprehensive on-line programming. Although difficult due to competing strategic priorities, fiscal challenges, and inconsistent planning, such elements ideally must be developed concurrently, becoming increasingly integrated in order for a seamless technology infrastructure to adequately support distributed instruction. The following table describes developmental stages and characteristics the College identified as related to academic support program expansion.

Table 1: Three Dimensions Related to Systems Integration and Instructional Technology

Dimensions to Integrative Process 1	Stage 1: Early Adoption Characteristics	Stage 2: Broad-Based Development Characteristics	Stage 3: Systems Integration Characteristics
Instructional 2	Web-based instruction is introduced as an innovation. Programming generally targets specific markets.	Instructional platform is centralized across academic programs, colleges, &/or larger institutions. The use of instructional technology becomes increasingly "distributed."	The use of technology is essential to the delivery of the academic curriculum & to constructing instructional environments; there is a need for a high level of interoperability linking business, support & instructional systems.
Technological 3	Technology focuses on system functionality, stability, & general user access.	Technology focus includes multiple software applications & hardware platforms to address diverse learning styles as well as faculty & student needs/requests. Technology is introduced as an adjunct to traditional instruction, services, & programs. Technical support is introduced as an important support component.	Interoperability of information, instructional, & support systems is essential to learning assessment and achievement, as well as ongoing business processes. Technology support functions are critical to not only instructional, but also business and support programming.

Support 4, 5	Media-based support programming is "supplementary," i.e., services replicate those provided to on campus students, intentionally "extending" the physical campus.	Support programming is "complementary" in that services are integral to & embedded in the provision of the actual curriculum. For example, activities/events are accessible via multiple media to meet a range of student needs & abilities.	Support programming is "comprehensive," completely integrated within the institution's learning environment, & is accessible & coordinated to the extent that it no longer supplements, but replaces traditional services.

1 Rumble, 1992.
2 Yetton & Forster, cited in Reid, May 1999, section 2.
3 Reid, May 1999, section 2.
4 King, cited in Reid, May 1999, section 2.
5 Kretoviks, Fall 2003, section 3.

The identification of these dimensions allowed the College to isolate general criteria for ongoing evaluation and monitoring related to scaling support programming. For example, associated variables for assessment related to instructional elements included: 1. levels of faculty involvement in and support for media-based instructional initiatives; 2. availability of faculty/staff training; 3. sophistication of course management systems; 4. capacity of course management systems to interface with automated business & information systems; and 5. level of systems cohesiveness. Assessment criteria related to the technological dimension included: 1. the level of functionality, stability, & accessibility; 2. the level of interoperability; 3. level, availability, & responsiveness of technical support to institutional community; 4. capacity of institutional website to promote access, interaction, affiliation & transaction; and, 5. the ongoing evaluation of system reliability & availability. Finally, assessment criteria related to the support dimension included: 1. level of interoperability of instructional, business, & administrative e-systems; 2. capacity for technological, instructional, & support programming integration; 3. ability of support services to reinforce instructional, institutional, & environmental goals using technology; 4. levels of collaboration with & access to the institution's technology assessment, planning & delivery infrastructure; and, 5. ongoing evaluation of responsiveness & accessibility, as well as system integration.

Capacity Building in the Academic Support Specialization

In addition to its integration within instructional, technological and service systems, support programming specifically was observed to progress through its own distinct developmental processes, differentiated by the degree to which institutions use educational technology as well as their capacity to integrate a “high tech/high touch” approach into all interactions and transactions. For example, King (cited in Reid, May 1999) viewed systemic evolution of support services in terms of organizations' capacity to institutionalize the application of instructional technologies. Using "... added value and relationship building evident in each service transaction" as an indicator, Burnett (October 2001; June, 2005) recognized four distinct "generations," or stages characteristic of scaling services and support. Archer (cited in Matheos and Archer, Winter 2004) and Matheos and Archer (Winter 2004) judged the expansion of support services by the level of sophistication of the primary instructional and communications media. The following table presents a comparison of developmental stages identified as specific to the expansion of academic and student support programming in an increasingly integrated on-line environment.

Table 2: Support Program Evolution: Comparison of Developmental Stages

Theorist & Developmental Indicator	Stage 1 Early Adoption Characteristics	Stage 2 Broad-based Development Characteristics	Stage 3 Systems Integration Characteristics	Stage 4 Characteristics
King 1 Primacy/status of technology within the curriculum.	Support services are supplementary to those offered at a physical (on campus) location. Accessibility is limited to specific applications. Business, instructional, & support systems are not connected nor are they available in multiple media.	Services are complementary in that they are integral to the delivery of the academic curriculum. However support programming for distant students continues to exist separately from that available on campus.	Services are comprehensively integrated within the environment; their selection is based on service objectives as opposed to technological applications (in some instances, replacing on campus programs)	(not applicable to model)
Burnett 2 Shay & Armitage 4 Degree of added value & relationship building in service transactions.	Characterized by replication of services found in a traditional physical (on campus) model. Virtual services & programs added to "fill gaps" in existing programming specifically for distant students.	Services emphasized a focus on & attention to value & quality. They were "embedded" in programming traditionally provided to residential populations.	Services characterized by personalization, customization & community. There is an increased focus on interaction and transaction as service objectives; technology is only one variable in the selection of service priorities.	Systems created facilitate a "high touch/high tech" environment, & a process orientation; this holistic approach was characterized by proactive communi-cation. A" one stop" outreach approach is employed.
Matheos & Archer 3 Level of sophistication of communication medium.	Functions include slow asynchronous communication via print mail, telephone, & email correspondence.	Functions include synchronous communications via audio or video media.	Features include fast asynchronous communication via audio/video conferencing media, chat, etc.	(not applicable to model)

1 Reid, May 1999, sections 1 & 2.
2 Burnett, October 2001 (npr), June 2005 (n.p.)
3 Matheos & Archer, Winter 2004, section 2.
4 Shay & Armitage, 2003, section 4.

Regardless of level of sophistication, both the development and expansion of support services within higher education institutions generally appeared to consistently lag behind that of general technological and instructional initiatives, and UIS' experience was consistent with this trend. For example, although well documented that media-based learning environments have unique and specific support requirements, these systems frequently were incompatible with larger university processes and information systems. Resources continued to be disproportionately allocated to

support direct instruction at the cost of developing and maintaining widely accessible Web-based services. Additionally, cultural beliefs, competing political interests, and administrative hierarchies limited opportunities for collaborative planning, governance, and ongoing management required to ensure integration and interoperability. A lack of resources and support for and expertise in broad-based systems integration inhibited necessary collaboration between academic faculty, support personnel and the larger technology infrastructure (McCracken, 2004).

Using Best Practice to Direct Extensibility

UIS' College of Liberal Arts and Sciences found that developing best practice recommendations based on programming history and experiences promoted an increasing integration of institutional system components, naturally facilitating expansion and integration within the University's technology-based infrastructure; the following reflect lessons learned.

1. People (systems users throughout the university community) must be the center of any expansion initiative. A focus on people as the center of all technology initiatives enables learning and teaching to direct technological applications, ensuring they are integrated within and congruent with cultural, instructional, and social aspects of the university environment (Burnett, October 2001; Matheos and Archer, Winter 2004; Palloff and Pratt, 2003; McCracken, Spring 2004; Shay and Armitage, 2003). Palloff and Pratt (2003) reminded ".... there is no "one size fits all" approach to providing support services" and encouraged practitioners to "resist the urge to create a blanket solution" to support provision. They emphasized that "Student characteristics should be the ultimate force motivating the development of support services" (n.p.). Institutional priorities must focus upon students as the center of instructional, technological, and support expansion initiatives.

2. Move beyond 'redesigning' to 're-visioning' broad based academic support systems that reinforce the institution's instructional goals. Re-visioning Web-based support services requires moving beyond replication of traditional time and location specific programming. Burnett (October 2001) advised that in order to "... focus on the ‘redesign' processes, [practitioners must] move into delivery of electronic student services, and ... find ways of creating the positive experiences on the Web that [have been created] in a physical environment" (n.p.). Truly integrated support requires that service delivery be pedagogically based within the context of learning needs, assessment outcomes, and instructional/curricular goals. As noted by Shay and Armitage (2003) "Redesigning a service means looking at all of its components: people, process, and data. It does not mean 'Web-enizing' existing services" (section 5).

3. Collaboration and coordination were crucial to providing seamless, functional, responsive services. Black (Winter 2003) emphasized that institutions motivated to evolve beyond survival promoted holistic, flexible and quality technological systems through ongoing intra and inter-organizational collaboration. When institutional plans to extend Web-based programming advance without the full agreement and buy-in of a broad base of stakeholders, a subjective, fragmented, and inconsistent awareness of and response to program expansion initiatives is guaranteed (Hirt, et. al, cited in Kretoviks, Fall 2003). A collaborative approach to scaling Web-based programs ensured that academic faculty, support practitioners, and the students they represent are full stakeholders in expanding programs and services in ways to reinforce their instructional experiences and goals. More specifically, the

coordination function was seen as particularly important to furthering collaboration, as well as facilitating systems migration, administrative transition, and overall program extension (Tait, April 2003; Kretoviks, Fall 2003). The benefits of coordination extended beyond supporting systems functionality to reinforce student persistence to degree completion, for example, enabling cohesive and strategic media-based approaches to recruitment, advising, outreach, and graduation, as well as using support programming to reinforce broader instructional objectives.

4. Portals were found to be essential elements to providing integrated media-based academic systems; their presence or absence determined the quality of Web-based instructional experiences. Burnett (June 2005) stressed the critical nature of a coordinated Web presence to both enrollment and retention processes, noting that 97% of new college entrants initially obtained information about universities via their institutional websites (n.p.). She (June 2005; October 2001) emphasized the importance of portals to establishing an environmental context for instruction "... that provide[d] decision support, personalized communications, [and] enhanced community and process orientation ... leading to more accessibility and better services for the distance student" (n.p.). Web-based portals were viewed essential to enabling access to information systems, promoting business and instructional transactions, and reinforcing institutional affiliation. Beyond simply informing, portals indicated the degree to which media-based academic programs are accessible, integrated, interactive, and cohesive as well as reflect the status of instructional technology within the larger institution. Their presence – or absence – seriously impacted access to as well as the quality of Web-based instructional experiences for both students and instructors.

5. Institutional alignment promoted inclusion, consistency, congruency, and seamlessness. Institutional politics, administrative hierarchies, and obsolete business processes significantly slowed both the development and expansion of distance learning programming (Oblinger, Barone & Hawkins, 2001; Armitage and Shay, 2003). Burnett (October 2001) and Matheos and Archer (Winter 2004) advised that all distance learning programming be consistent with the larger institution's academic agenda and central to and integrated within its strategic plan in order for interoperability and integration to occur. In the absence of such alignment, competing technical, structural, and support systems were inefficient and confusing to all but the most sophisticated users, actually creating barriers to access and responsiveness. Information, instructional, service and business systems were required to be interoperable, stable, and seamlessly implemented in order for broad based environmental integration to occur. Regardless of the level of technological sophistication, the provision of options by which to disengage with technology, for example, relying on more personal communications, such as the telephone, were seen as essential.

6. A distributed approach to support provision reinforces the use of technology to enhance instruction. In order to strengthen a distributed instructional environment and further integrate support programming within the institution, practitioners coordinated parallel and congruent approaches to service provision. Kretoviks (Fall 2003) identified specific competencies needed by support practitioners to facilitate this approach as: "... (1) systems thinking, (2) facilitation, (3) technology, and (4) assessment" (section 3). Such an inclusive strategy advanced accessibility and responsiveness, and reinforced a distributed instructional approach. Inclusion within

this context strengthened opportunities for broad based learning and teaching experiences, for example, enabling the participation of students with multiple learning styles and intelligences, from many geographic areas and via a range of media (Shay and Armitage, 2003, section 3).

7. Establish institutional definitions and benchmarks related to distant student retention, attrition, and persistence, and apply them when evaluating the capacity for scalability. By understanding the dynamics of student persistence related to individual academic disciplines, educators, administrators, and support practitioners can reach consensus regarding realistic, program-specific definitions and benchmarks as they related to Web-based program delivery, and, in turn, implement coordinated assessment and expansion activities. When integrated with curricular outcomes such guidelines provide a strong contextual foundation for scaling media-based programming.

8. Allow reliable, current data to direct program expansion initiatives. By identifying methods by which to collect and analyze accurate, valid, and timely data, (for example regarding enrollment and retention) expansion activities can confidently be planned and directed. For example, feasibility studies based on local, regional and national enrollment/retention trends, labor market information, and strategic planning documentation assisted the College to engage in realistic planning for expansion related to on-line capacity.

9. There should be no short cuts taken in providing quality, accessible technical support for students and faculty members. Twenty-four/seven technical support was critical to broadly scaling distance learning initiatives. Responsive, accessible and available technical support formed the foundation of all technology-based learning environments; it was required that this level of support include timely and current support of any software application used in the institution. When extending programming, the quality and level of technical support was a defining element determining levels of access to and the overall satisfaction with virtual instruction.

10. The customer is (still) always right! It bears repeating: as previously noted, Palloff and Pratt (2003) reminded ".... there is no ‘one size fits all' approach to providing support services" (n.p.). The increased growth of instructional technologies has enabled many exciting opportunities to extend education beyond geographic and time boundaries for both students and faculty members. A focus on students' goals, requirements, and needs guarantee that institutions can implement strategic planning that effectively links technical, instructional, and support functions to provide a comprehensive Web-based teaching and learning environment.

Connections and Conclusions

The environment in which post secondary institutions plan and implement instructional programming has grown increasingly complex, requiring the balancing of instructional, administrative, and financial priorities. As academic support practitioners expand programming through the responsible use of technology, they require access that extends beyond bandwidth to decision-making and policy-setting related to technological and instructional infrastructures. Evolving needs and goals related to scaling programming must be continuously assessed and support systems modified based on assessment and evaluation data, changing student

demographics, instructional standards, and emerging delivery technologies. Support services that facilitate communication, participation, interaction, affiliation, and representation for distant students guarantee inclusive access to the larger institutional community.

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