Distance Learning Education of Software Engineering: Principles and Experiences

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CONCLUSION!

- Distance Learning is expensive
- Accreditation/Validation panels do not know what to do and hence did not do a good job!

The advent of Distance and Distributed Learning has raised numerous questions about quality and quality assurance.:

- How do established distance learning institutions ensure quality?
- What more needs to be done?
- How do quality assurance agencies view the distinction between on- and off-campus teaching and learning?

- Whether distance learning spells the end of traditional campuses, as some maintain, or whether distance learning instead represents a powerful addition to a growing array of delivery options for higher education, its impact on higher education is great and growing.

- Distance learning is creating alternative models of teaching and learning, new job descriptions for faculty, and new types of higher education providers.

- The most familiar impact of distance learning is the growth of credit-bearing distance learning offerings and enrollments at accredited, degree-granting colleges and universities.

- Another major impact of distance learning is the appearance of *new providers* of higher education: *freestanding online institutions*, *higher education consortia* (degree-granting and nondegree-granting), *corporate universities* , and *unaffiliated online providers* of courses and programs.

- However, a hybrid model of distance learning likely will be increasingly common in the foreseeable future. In this hybrid mode, site-based and electronically delivered instruction and support services will be offered together, whether from traditional institutions or new providers.

- Today, students attend traditional campuses while taking courses online. Faculty are designing teaching and learning environments that rely on both face-to-face contact and online access.

- Institutions are offering courses, programs, and degrees that are site based, electronically delivered, and a combination of both.

- There is great uncertainty among decision-makers and managers as well as among developers, trainers and learners:
    - Instructors find themselves confronted with a new role in which they are tutors and facilitators for learning processes.
    - Software developers more and more have to go beyond the paradigms of their own discipline when designing and implementing learning software; they are in need to seek interdisciplinary exchange with teachers, authors and learners.
    - Authors are required to think in a new way: no longer the instructional material is built in a series of straight consecutive units where each presentation is based on the preceding one.

- On the learner's side, the question arises:
    1. which characteristics are most important for good e-learning environments and
    2. which providers offer the best performance at a reasonable price in a market that is continuously differentiating further.
- Learning Management System providers, for their part, find themselves confronted with the continually progressively changing of the technological *delivery structure* of e-learning and are thus faced with an increasing learner orientation

The Delicate Balance

- The delicate balance of accreditation to assure quality in higher education, and the self-regulation of higher education institutions,has been central to higher education for many years.

- However, the emergence of distance learning has the potential to undo this balance and the political understandings that accompany it.

- If this were to happen, decades of a productive arrangement between government-funding and higher education could be, at minimum, jolted.

- This delicate balance rests, first and foremost, on governments acceptance of institutional and programmatic accreditation as a reliable affirmation of quality in higher education. It is through the commitment to accreditation that higher education claims its self-regulation efforts are effective.

- If accreditation were perceived as failing to affirm quality, the likely reaction would be a substantial increase in government regulation of higher education and an erosion of its self-regulation status.

- As distance learning activity expands and diversifies, government, is turning to accreditation to affirm that distance learning providers are meeting quality expectations.

Challenges

- Distance learning is creating significant challenges for accreditation because accreditation values, policies, and practices were created in an era of site-based education.

- This has meant that accreditors, and the faculty and administrators on review teams perform primarily site-based tasks: visiting campuses, examining classrooms, touring facilities, and, in general, scrutinizing the resources and capacity of an academic community, especially the teaching and learning environment.

- The educational environments that accreditors observe are changing, as are the questions that they need to ask.

- Through electronic communication, remote access, and virtual faculty-student relationships, distance learning goes to the heart of the higher education enterprise teaching and learning.

- Accreditors SHOULD BE called upon to review institutions and programs that routinely involve four key components:
  - Computer-mediated classrooms: Faculty and students engage with each other electronically, relying heavily on the written word rather than face-to-face exchange.
  - Separation in time between communications: Teachers and students depend on asynchronous modes of communication, such as e-mail exchanges.
  - Availability of online services: Student services such as advising, counseling, mentoring, and library services are integrated with the online teaching and learning environment.
  - Continuous monitoring: Performances of services, teachers, students and environment.

- Distance learning can shift the responsibility for determining academic standards from faculty members to the staff of corporate or other distance learning providers or standards may already be embedded in commercially prepared curricula.
- Distance learning challenges accreditation by altering what we mean by *higher education institution* , replacing or augmenting lecture halls with chat rooms, campuses with the World Wide Web, and communities of learning with the borderless networks of cyberspace.

- An *institution* no longer needs to be anchored in physical space and time; it can exist anywhere, anytime – a liberating notion, in one sense – but a notion that raises important questions about whether the Internet can be a substitute for the campus as a supportive environment for creative learning.

- Distance learning challenges accreditation by altering what we mean by a college or university degree.

- Electronic access encourages and supports more mobile student behaviour , allowing students to attend more than one institution either serially or simultaneously, online or onsite.

- These changes in faculty work, institutional operation, and student behavior are putting pressure on accreditors to undertake additional responsibilities.
- Their success in meeting the challenge of assuring quality in distance learning relies on the willingness with which they undertake certain tasks:
  - Identifying the distinctive features of distance learning delivery, whether within traditional settings or supplied by new providers.
  - Modifying accreditation guidelines, policies, or standards to assure quality within the distinctive environment of distance delivery.
  - Paying additional attention to student achievement and learning outcomes in virtual or all-electronic distance learning environments where site-based features are not present.

How is distance learning changing familiar political understandings?

- Until recently, most decisions by the higher education community and the government about education quality were made primarily in the context of site-based education delivery.

- As with accreditation, the site-based model of education was a given: Students, whether full- or part-time, came to physical campuses, attended classes, and participated in other onsite activities.

- Both the accountable use of student aid and other government funds and the effectiveness of institutions in creating environments for student learning were assessed on the basis of the verifiable physical presence of students at verifiable physical locations over measurable amounts of time.

- By contrast, distance learning creates an electronically based environment for higher education that is not entirely, and sometimes not at all, dependent on physical presence and physical space.

- This sounds simple - merely a shift from physical space to cyberspace. But just as electronic technology is profoundly affecting other sectors and issues - from retailing to intellectual property rights to health care - distance learning also is powerfully affecting the foundations on which the understanding between government and higher education was built.

- For both parties to this understanding, the safety and familiarity of physical site and presence is being replaced with the uncertainty and the unknown of the electronic environment.

- Two issues concern any funding body as this shift is taking place:
    - Can accreditation continue to be relied upon to assure quality in a distance learning environment, or will alternative forms of quality review be needed?
    - And, more broadly, can governments remain comfortable with the principle of self-regulation in higher education as distance learning expands, or are more government controls needed?

- Government needs assistance from higher education as it seeks to protect students from fly-by-night distance learning providers, who are present one day and disappear the next.

- In terms of accreditation and self-regulation, government needs the accreditation community to assure that it can continue to review and promote quality in higher education, even in the face of significant academic changes driven by distance learning, and student aid grants and loans will purchase a quality educational experience in a distance environment.

- Government is keenly aware that distance learning is exerting pressure on the accreditation community to expand and modify its site-based model of quality and selfregulation and is watching carefully to see how successfully accreditors and the institutions they review respond to this challenge.

- We in the higher education community - whether institutional or accreditation leaders - have an obligation to acknowledge the implications of distance learning for our political understandings with government about public funding and about quality.

- Nurturing and, if necessary, adjusting these political understandings to prevent their disruption amidst a changing educational environment are essential to preserving self regulation and institutional autonomy.

- Institutions, accreditors, and government can work together profitably to address the potential impact of distance learning on accreditation
- Several issues to be pursued are:
    - **Defining the term** *course.*
    - **Measuring time**
    - **Documenting student learning outcomes**
    - **Changing student attendance patterns**