

## Chapter 4

# Higher Education and FOSS for E-Learning: The Role of Organizational Sub-Cultures in Enterprise-Wide Adoption

**Shahron Williams van Rooij**  
George Mason University, USA

### ABSTRACT

*This chapter examines the paradox of FOSS adoption in U.S. institutions of higher education, where campus-wide deployment of FOSS for e-learning lags far behind adoption for technical infrastructure applications. Drawing on the fields of organizational management, information systems, and education, the author argues that the gap between the advocacy for FOSS teaching and learning applications and the enterprise-wide deployment of FOSS for e-learning is a consequence of the divergent perspectives of two organizational sub-cultures—the technologist and the academic—and the extent to which those sub-cultures are likely to embrace FOSS. The author recommends (a) collaborative needs analysis/assessment prior to a go/no go adoption decision, and (b) broad dissemination of total cost of ownership (TCO) data by institutions deploying FOSS for e-learning enterprise-wide. This discussion satisfies e-learning administrators and practitioners seeking research-based, cross-disciplinary evidence about the FOSS decision-making process and also assists educators in graduate degree programs seeking to expand student knowledge of e-learning technology options.*

### INTRODUCTION

Higher education has been delivering courses and programs via e-learning in a variety of disciplines and fields for more than a decade. In its sixth annual report on the state of online learning in U.S. higher education, the Sloan Consortium

reports that more than three quarters of all public institutions in the U.S. are either engaged or fully engaged in offering education online and that future enrollment growth will be fueled by adults seeking to switch or advance careers in a changing labor market, as well as by the rising costs of commuting (Allen & Seaman, 2008). As noted by the Gartner Group (Zastrocky, Harris, & Lowendahl, 2008), e-learning has become

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mainstream and is now part of higher education's effort to meet student needs.

As new information and communications technologies (ICTs) continue to emerge, institutions of higher education are increasingly faced with the need to anticipate what impact these new technologies will have on teaching, learning and research. The technology expectations of students who were born digital (Palfrey and Gasser, 2008; Caruso and Salaway, 2008), as well as the financial challenges posed by the current economic downturn, are forcing institutions to improve efficiencies and enhance organizational performance while adopting new technologies to remain competitive. Free/Open Source Software (FOSS)—software that is distributed with its source code according to the criteria established by the Open Source Initiative (Open Source Initiative, 2006) - is already recognized by the U.S. Government as a means of advancing infrastructure efficiencies in a time of flat budgets (Beizer, 2008). There are also indications that the new Administration will strengthen government commitment to FOSS. In higher education, campus-wide FOSS adoption for technical infrastructure applications (e.g., databases, operating systems) reflects this same commitment. However, campus-wide adoption of FOSS for e-learning is still limited, despite the use of selected FOSS applications by individual faculty or departments (Williams van Rooij, 2007a; Green, 2008).

In this chapter, the author draws on the fields of organizational management, information systems, and education to examine this gap. The author argues that the gap between the advocacy for FOSS teaching and learning applications and the enterprise-wide deployment of FOSS for e-learning is a consequence of the divergent perspectives of higher education sub-cultures, particularly the technologist and academic sub-cultures. Those divergent perspectives determine the extent to which the two sub-cultures are likely to embrace FOSS for e-learning. Recommendations for closing the gap are also discussed. The

chapter concludes with emerging trends in FOSS for e-learning and suggests opportunities for future research.

## **BACKGROUND**

Before addressing the role of organizational sub-cultures on U.S. higher education adoption of FOSS for e-learning, a clarification of the terminology used in this chapter is in order, particularly regarding e-learning, and the various e-learning technologies. The concepts of organizational culture, sub-culture, and technology adoption will then be addressed.

## **E-LEARNING**

The term “e-learning” first appeared in a 1999 White Paper published by SmartForce, a consulting company that developed electronic learning solutions for corporate and government clients (Priest, 1999). The term initially meant learner-focused training and skills development for corporate knowledge workers delivered via the Internet, an organization's intranet, or other similar means. That is probably why the term e-learning is deemed to be a business term by some in the field of education (Berge, 1998). Moore (2003) addresses the terminology issue by differentiating between generic and subordinate concepts. For Moore, distance education is a generic term for all forms of education in which all or most of the teaching is conducted in a different physical space than the learning, with the result being that all or most communication between teachers and learners is through a communications technology. Subordinate concepts include (a) e-learning and tele-learning, which emphasize the use of a particular communications technology, (b) distributed and distance learning, which focus on the location of the learning, and (c) open and flexible learning, which point to the

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