

## eLearningCampus: A Decade of Lessons Learned

**Raafat George Saadé, Fassil Nebebe, and Dennis Kira**  
**Department of Decision Sciences and MIS, John Molson School  
of Business, Concordia University, Montreal, Quebec, Canada**

[raafat.saade@gmail.com](mailto:raafat.saade@gmail.com); [dkira@jmsb.concordia.ca](mailto:dkira@jmsb.concordia.ca);  
[fnebebe@jmsb.concordia.ca](mailto:fnebebe@jmsb.concordia.ca)

### Abstract

The elearning paradigm continues to gain momentum, and there are no signs of slowing down. From a research standpoint, little has been done to anchor elearning in theory. The scarce elearning theoretical work comes short in its utility. The large amount of empirical work shows little insight and contribution to enhancing the theory. Most of the research is descriptive. Following an action research methodology, a group of professors teaching quantitative and qualitative courses have transformed them into online courses. Over the last decade, we have experimented, reflected and then experimented again numerous times, pushing the envelope of elearning theory, empirical work, design, implementation and experience at various levels of management, content, quizzes, exams, peer to peer, student support, and departmental support. Our attempts continue to focus on uniting theory, assessment, and practice into an adaptable and efficient elearning environment. To that effect, we share our elearning journey over that last 10 years spanning technologies, teachers, administration, governance, students, teaching assistance, funding, policies, successes, failures, and of course learning. In our account, we hope to inspire theoreticians and practitioners, to persist on breaking elearning barriers.

**Keywords:** elearning, success factors, performance, institutional, management

### Introduction

Today's global, digitally networked economy, information technology represents a substantial investment for all, no matter how you slice it. This is no truer than in the learning & training sector where subject matter is delivered online for various types of learning purposes, continues to grow at rates higher than any other fields. Online instruction is not anymore a new phenomenon. Despite this, and its global proliferation, many critical stakeholders such as faculty members have not embraced it, and for those who have, they do so in a very limited sense.

Since the time I started working with information technologies (IT) and learning (1996), I have

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not observed a renewal of the elearning paradigm, which has been traditionally and primarily, the use of IT to share documents. Most of the research today (and I have been observing and reporting for the last decade) still reports on differences between face-to-face and online teaching, and new student experiences in online learning. To a lesser extent, other studies include student achievement and attitudes, course design

and delivery, course evaluation and instructor behaviors and attitudes. Evaluation of these factors utilizing well-developed research methodologies are scarce and the need to tie learning/pedagogy theory, context, and IT is still paramount (Saade, 2007, 2010; Saade & Bahli, 2005; Saade, Elgaly, & Nebebe, 2011; Saade & Kira, 2009; Saade, Kira, & Nebebe, 2012, 2013; Saadé, Kira, & Otrakji, 2012; Saade, Nebebe, Mak, & Leung, 2011; Saadé, Morin, & Thomas, 2012; Saade, Tan, & Nebebe, 2008).

In this article, we review a theoretical model for learning process and its interpretation into a model for elearning based on knowledge management perspective (Saade et al., 2011). This knowledge-based elearning model assumes the course content as knowledge that the instructor manages its creation and dissemination. Theory leading to model representation and resulting to information system implementation and use is the message of this article. Operationally, measures of learning are identified and analyzed using quantitative and qualitative information. Strategically, measures of institutional dimensions for elearning transformation are identified and discussed.

## The Knowledge Basis for eLearning

The knowledge paradigm (as viewed in this article) for elearning is primarily a process that supports the acquisition, dissemination, organization, and assimilation of information. This process is facilitated by information technologies and associated management (hence ‘LearningCampus’). This system is designed to meet the challenges associated namely with the human, social, and IT factors. To that effect, knowledge is bound up with human cognition and it is created, used, and disseminated in ways that are inextricably entwined with the social milieu. In this study, we adopt this viewpoint that knowledge-based elearning systems should consider human, social and IT factors in the design.

This paper is then motivated by the need to share the elearning experiences of a group of professors in a higher education institution, and spanning over a decade of assess-design-evaluate cycles occurring within 3 different institutional strategies, presidents, and deans.

## The Knowledge Learning Model

IT-bases systems for learning are not document upload and download, Sharing content, Discussions about subject matter, viewing videos; participating in Facebook, etc.

*eLearning is an art whereby the artist (creator) visualizes from fundamental color theory (physical systems) with personal skills (brush strokes and such) using tools (brushes, spatulas, etc...) to express their understanding of knowledge and create opportunities for others to construct this expression in their mind.*

One learning model that seems to be promising for elearning (Saade, Nebebe, Mak, & Leung, 2011), which is anchored in Mayer’s (1989) learning process model, knowledge management paradigm and Sunal et al. (2003) IT-supported instructional framework, is show in figure 1 – The Knowledge Learning Framework (KLF). Saade, Elgaly, and Nebebe (2011) provides details of this model.

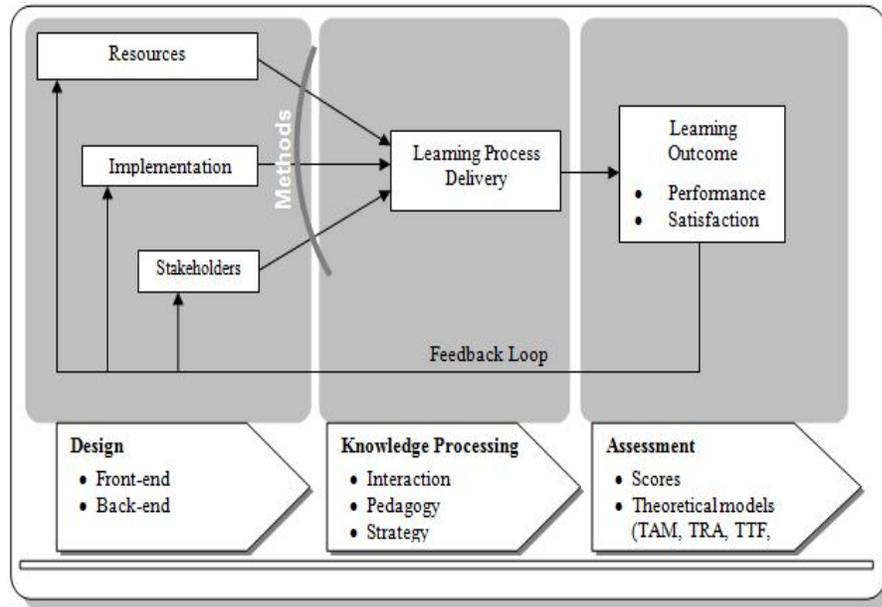
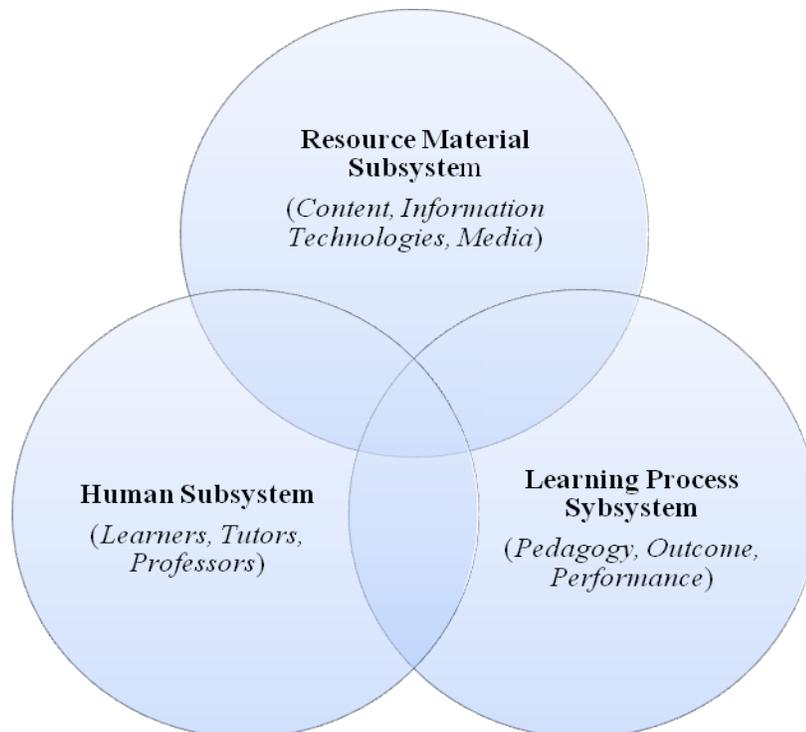


Figure 1. The Knowledge Learning Framework.

## LearningCampus Information Architecture

The primary goal of elearning is the accurate transmission, reception, and assimilation of knowledge, facilitated by information technology. This goal is the guiding principle for knowledge construction and communication occurring between learner and content, instructor and learner and among learners. The key to implementing these strategies lies in the appropriate design of the mental structures and processes and the associative structure and hyper-linking processes of the web. The challenge is to construct a learning environment so that it accurately reflects the instructor's knowledge structure with appropriate and effective transformation tools providing ample opportunities for learners to receive and assimilate the communication of the intended knowledge.

Retalis and Avgeriou (2002) provide an excellent example of instantiating the KLF and providing a model for a web-based instructional system. Their model proposes an explicit division of the instructional system into specific subsystems. These subsystems should meet instructional and pedagogical principles elucidating communication between learner and content, instructor and learner and among learners. (Details are found in Retalis and Avgeriou, 2002). Following the terminology presented by Retalis and Avgeriou (2002), three constitutive subsystems for effective learning are identified. The model is presented in figure 2: The human subsystem, the resource material subsystem, and the learning subsystem (aligned with Meyer's (1989) learning process model).

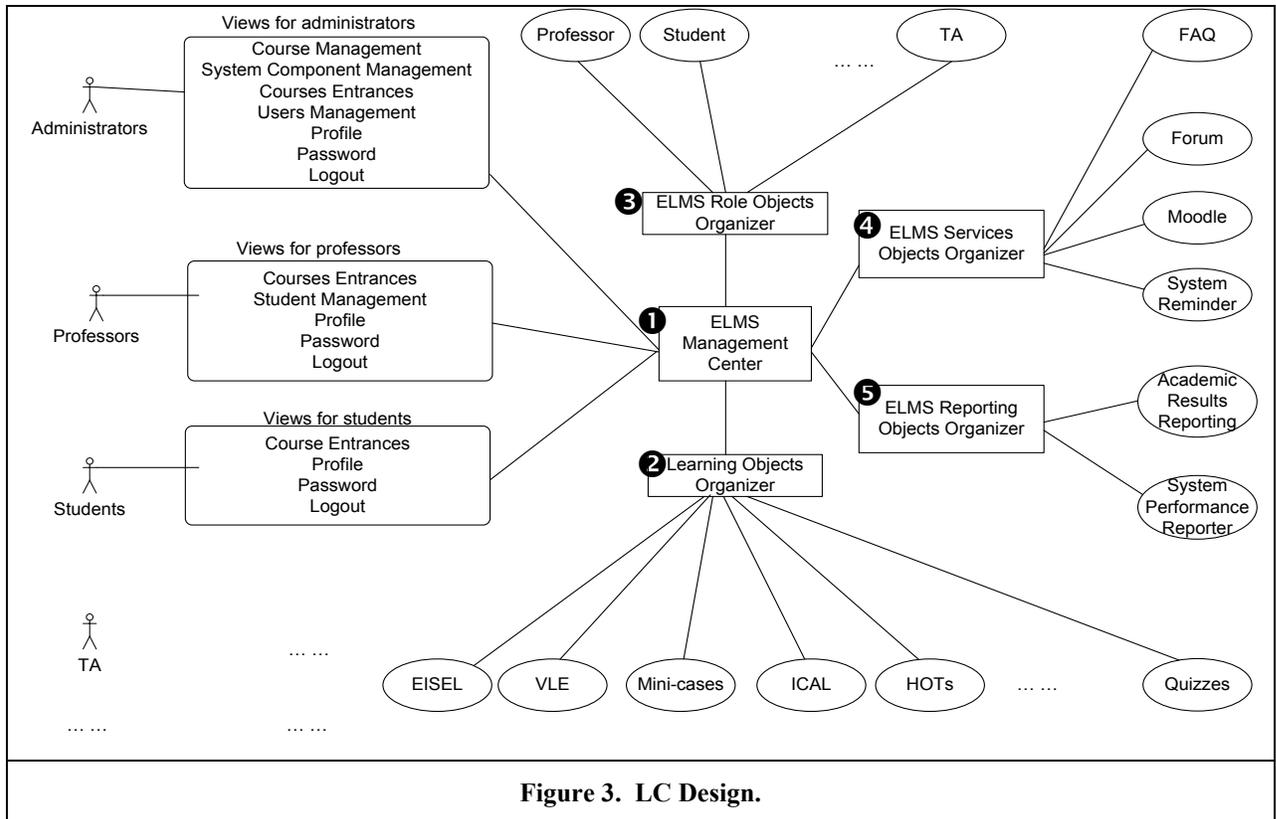


**Figure 2. Model of Web-Based Instructional System**

## **From Architecture to Design**

For simplicity, the elearning website will be referred to LearningCampus (LC). All components in LC are classified into one of four types of objects (authentic to the model presented in figure 2): (1) role objects, (2) service objects, (3) reporting objects, and (4) learning object. The details of the design can be found in Saade & Huang (2009) and will be briefly discussed here. Each type of objects is presented by a unified interface managed by its organizer. Defined objects have similar data structure. LC is a database-driven system where the definition of each object is described in the database. Figure 3 below shows the LC architecture which entails five major components that identify different integrated solutions.

1. Management Center
2. Learning objects & Learning objects organizer
3. Role objects & Role objects organizer
4. Service objects & Service objects organizer
5. Reporting objects & Reporting objects organizer



## Methodology

**Study context and participants:** Students registered in introductory undergraduate on-line courses at Concordia University, John Molson School of Business, department of Supply Chain and Business Technology Management (SCBTM) (formerly Decision Sciences and Management of Information Systems). The online courses are: Fundamentals of information technology and business productivity; Introduction to management of information systems; and Business statistics.

**Data acquisition:** A large number of data is being captured, in real-time, ad-hoc, and specified periods of the semester. The data collected include objective data, subjective data and descriptive data spanning over a decade. Most importantly, the organizational memory since the start of online courses at the department (and business school as well) has been document and is still in-house (i.e., Not lost). The following are some specifics to data captured:

- Objective
  - Log files of system usage (time stamped)
  - Performance metrics
  - Engagement
  - Support required
  - Performance in other online components such as quizzes
  - Demographics
- Subjective
  - Student perceptions and beliefs about elearning
    - Attitude
    - Intentions
    - Motivations

- Usefulness
  - Ease of use
  - Anxiety
  - Behavioral control
  - Etc...
- Support threads
- Discussion threads
- Environmental
  - eLearning initiatives (university and faculty levels)
  - Faculty reactions to elearning
  - Evolution of adoption of various document and content management systems
  - Political environment
  - Strategic environment
  - Etc...

## Discussion & Conclusions

This research was motivated by a need to formulize an end-to-end elearning cycle – similar to the concept of enterprise resource planning system. As such, we may call it elearning resources planning – eLRP. This end-to-end cycle spans the following parts: plan-create-deploy-interact.

In the following tables, we demonstrate the changes in elearning paradigm at the university as they are reflected by the courses mentioned above. We take a snapshot when it was first created and one today, over a decade apart. This evolution is complex and clearly merits rigorous treatment.

In the conference presentation, more details will be presented and discussion, revealing the intricacies of information technologies used, the transformation of student demographics, the adaptation environment of faculty and staff caused by IT, institutional and environmental pressures.

### COMM301 – FALL – 03 vs 08

Grade Summary															
A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	Fail	F*/DNW	Others	Total
0	0	9	15	19	40	18	13	14	2	5	0	0	6	17	158
0.0%	0.0%	5.7%	9.5%	12.0%	25.3%	11.4%	8.2%	8.9%	1.3%	3.2%	0.0%	0.0	3.8%	10.8%	
9			74			45			7			0	6	17	
5.7%			46.8%			28.5%			4.4%			0.0%	3.8%	10.8%	

Grade Summary															
A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	Fail	F*/DNW	Others	Total
16	19	40	41	43	44	25	27	13	4	8	3	0	5	19	307
5.2%	6.2%	13.0%	13.4%	14.0%	14.3%	8.1%	8.8%	4.2%	1.3%	2.6%	1.0%	0.0	1.6%	6.2%	
75			128			65			15			0	5	19	
24.4%			41.7%			21.2%			4.9%			0.0%	1.6%	6.2%	

## DESC200 05/1,2 vs 14

Grade Summary															
A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	Fail	F*/DNW	Others	Total
4	11	7	2	0	0	0	0	0	0	0	0	0	1	3	28
14.3%	39.3%	25.0%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	3.6%	10.7%	
22			2			0			0			0	1	3	
78.6%			7.1%			0.0%			0.0%			0.0%	3.6%	10.7%	

Grade Summary															
A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	Fail	F*/DNW	Others	Total
6	25	41	27	32	21	4	7	11	5	7	3	1	5	19	214
2.8%	11.7%	19.2%	12.6%	15.0%	9.8%	1.9%	3.3%	5.1%	2.3%	3.3%	1.4%	0.5	2.3%	8.9%	
72			80			22			15			1	5	19	
33.6%			37.4%			10.3%			7.0%			0.5%	2.3%	8.9%	

Grade Summary															
A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	Fail	F*/DNW	Others	Total
111	161	212	97	154	63	24	64	16	7	16	7	0	69	84	1085
10.2%	14.8%	19.5%	8.9%	14.2%	5.8%	2.2%	5.9%	1.5%	0.6%	1.5%	0.6%	0.0	6.4%	7.7%	
484			314			104			30			0	69	84	
44.6%			28.9%			9.6%			2.8%			0.0%	6.4%	7.7%	

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## Biographies



**Dr. Raafat George Saadé** has been teaching in the faculty since 1998. He obtained his Ph.D. in 1995 (Concordia University) after which he received the Canadian National Research Council postdoctoral scholarship, which he completed at McGill University in Montreal. Dr. Saadé has published in journals such as *Information & Management*, *Decision Sciences*, and *Expert Systems with Applications*. His research interests include information-systems-driven organizational change, supply chain of digital information products, and change management.



**Fasil Nebebe** (Ph.D., P.Stat.) is a Professor and Chair of the Department of Decision Sciences & MIS of the John Molson School of Business, Concordia University, Montreal, Canada. His research focuses on statistical methods using Bayesian modeling and has made contributions with results published in different areas such as small area estimation, the bootstrap, Gibbs sampling, statistical computing, regression models and simulated MLE. He has served as Managing Editor of *Liaison – The Newsletter of the Statistical Society of Canada* (2004 – 2007), and as President of the *Statistical Society of Montreal* (2002/2003). He is the founding President of SSENA (1999-2002).



**Dr. Dennis Kira** is an associate professor at the Decision Sciences MIS department, John Molson School of Business, Concordia University, Canada. He has been with the Faculty since 1983. He obtained his Ph.D. from University of British Columbia. Dr. Kira teaches System design, decision support systems, data management, data mining, Internet related programming, and e-commerce His research activities include Ecommerce, web design, distance learning, decision making under uncertainty, neural networks, machine learning, and financial modeling. Dr. Kira has published in IEEE, ORQ and management science among other journals.