

A SUGGESTED GLOBAL FRAMEWORK FOR E-SCHOOL

Fawaz Ahmad AL Zaghoul¹

Department of Software Engineering

AL Zaytoonah University of Jordan

Amman Jordan, Fawaz@ju.edu.jo

prof_fawaz@alzaytoonah.edu.jo

¹On sabbatical leave from the University of Jordan

Abstract- E-Schools today can benefit from a framework for them to be ready for challenges and issues they may encounter in the near future. As many new components are entering the market, both from the traditional academic institutions wanting to extend their services as well as the corporate organizations attempting to establish their learning organization concept. Such a framework would be very helpful. It is recognized that education is a key to achieving development of society health and further economical growth. Information and Communication Technology (ICT) could enable educational systems to serve students better by addressing key problems at a reasonable cost. For any systematic implementation of national policy for improving educational system starting point is agreed framework concept, which will align phased technological development by using broader deployed technological elements. This paper suggests a global framework for E-Schools implementation and emphasizes the key development phases for successful deployment.

Keywords: *E-School, global framework, ICT, and key development elements.*

I. INTRODUCTION

Eschooling was first employed in the mid-1990s and has become a common method of distance education used in K-12 class authorities. The most accepted definition of an E-School is an entity approved by a state or governing body that offers courses through distance delivery, most commonly using the Internet [1]. While E-Schools can be classified in different ways, the three common methods of delivery are by independent, asynchronous or synchronous means. Presently, the vast majority of E-School students tended to be a select group of academically capable, motivated, independent learners. The benefits associated with eschooling are expanding educational access, providing high-quality learning opportunities, improving student outcomes and skills, allowing for educational choice, and achieving administrative efficiency. However, the research to support these conjectures is limited at best. The challenges associated with eschooling include the followings:

1. Decision makers focus on deploying the Information and Communication Technology (ICT) in schools without emphasizing on educational objectives.
2. Decision makers often focus on purchasing ICT hardware and software and no consideration given to acquiring the appropriate content, training of the

teachers, mandatory teaching license, support and maintenance, teacher preparation, etc.

3. Budgets only consider the immediate costs and seldom, if ever, consider the long term costs of purchasing, deploying and maintaining ICTs. For example, costs for replacements, disposal or even operating costs for refresher training,
4. Lack of global frameworks and research in E-School
5. Risk analysis and mistakes recognition incurred in when introducing ICTs in Schools.
6. The only students typically successful in online learning environments are those who have independent orientations towards learning, highly motivated by intrinsic sources, and have strong time management, literacy, and technology skills. These characteristics are typically associated with adult learners. This stems from the fact that research into and practice of distance education has typically been targeted to adult learners. The problem with this focus is that adults learn differently than younger learners. Researchers are calling for more research into the factors that account for K-12 student success in distance education and E-School environments and more design research approaches than traditional comparisons of student achievement in traditional schools and E-School[2]. E-School today can benefit from a framework for them to be ready for challenges and issues they may encounter in the near future. This paper suggests a global framework for E-School implementation and emphasizes the key development elements for successful deployment. In the following sections, a brief background about E-School is given, then in section 3, we present our suggested global framework for E-School. In section 4, we summarize our work.

II. BACKGROUND

A growing number of countries (e.g. Canada, Finland, Germany and Lithuania) already claim to require electronic education for all high school students [3]. In many cases, however, the programs are too narrowly focused on programming and therefore do not give an appropriately broad view of the global framework. An examination of the experiences of an international panel of educators from Canada, Scotland, South Africa, and the United States [4] supports the argument that such global framework will be

successful only to the extent to which they meet the following criteria:

- There is a link between the outcome required and the strategies used.
- Change is driven by real learning needs and not politically manufactured needs.
- Educational change must be seen in the context of larger social and economic forces.
- All of the stakeholders must agree to the need for change and on the strategies put in place to achieve it.
- Change requires the commitment of adequate resources through all phases of the design, implementation, and testing of the new curriculum.
- Change is a long-term process, not a short-term intervention.

As countries grapple with programming curricular implementation and reform, we believe developed and developing countries will be benefited from our suggested global framework. Our framework will focus on a clear link between technology, innovation, and course educational objectives, training of the teachers, mandatory teaching license, teacher preparation and plan next phase E-School education.

III. A SUGGESTED GLOBAL FRAMEWORK FOR E-SCHOOL

Figure 1 in the appendix A shows the suggested global framework which reflects our perspective of the future situation of the E-School education program. Our framework can be considered as new application of the basic spiral model of Boehm [5, 6].

The framework is based on the following four phases:

1. Well defined objectives for the courses of the E-School, and curriculum setting (including text books and teaching guides). National curriculum describes the rationale for the students and structure of each course education in the E-School and the content of each of its units.
2. Evaluate alternatives and resolving the risk with respect to the technology innovation. For each of the identified course, a detailed analysis is carried out. Steps should be taken to reduce risk.
3. A mandatory teacher training to get course teaching license, teacher preparation programs (and in-service training), and research in course education. In order to teach a course in E-School, a teacher should have a Bachelor degree in that course and a teaching license. For example, only then will he/she be authorized by

the Ministry of Education to teach a Computer Science (CS) course in E-School teacher preparation programs are very essential. Such programs must be taught in universities. The perspective CS teachers study for a Bachelor degree in CS while at the same time take teacher preparation program courses during his study or after graduation. A typical teacher preparation program includes general pedagogical courses such as, psychology and educational technology of CS.

4. Plan the next phase of E-School education. The courses are reviewed and a decision made whether to continue with the further loop of the spiral. If then it is decided to continue, plans for the next phase of the course education.

The suggested framework is dealing with the education process as a spiral. Each loop in the spiral represents a major phase of the education process. Thus, the innermost loop might be concerned with E-School feasibility, the next loop with E-School requirements definition, and so on.

IV. SUMMARY AND FUTURE WORK

This paper suggests a global framework for E-School implementation and emphasizes the key development phases for successful deployment. The suggested framework is based on the global experience of the author who teaches in local and global institutions with respect to the establishment of a nationwide curriculum in CS courses. E-School today can benefit from the suggested framework for them to be ready for challenges and issues they may encounter in the near future. As many new components are entering the market, both from the traditional academic institutions wanting to extend their services as well as the corporate organizations attempting to establish their learning organization concept. Such a framework would be very helpful. For this purpose, we present the following questions that will be open for future works:

- What can be learned from the framework?
- What components of the framework can be applied to suit each individual country?
- What disadvantages does the framework have?

The framework consists of four phases which are interrelated and may interleave. A cycle of the spiral in each phase of the framework begins by elaborating course objectives, curriculum and syllabus setting such validity and suitability for the students. Alternative ways of achieving these objectives and the constraints imposed on each of these alternatives are then enumerated. Each alternative is assessed against each objective. This usually results in the identification of sources of the risk.

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V. REFERENCES

- [1] Michael K. Barbour, and Thomas C. Reeves, "The reality of virtual schools: A review of the literature", the Journal of Computers and Education, Elsevier Science Ltd. Oxford, UK. Vol. 52(2), 2009.
- [2] A report by the Global E-Schools and Communities Initiative' <http://www.gesci.org>, accessed on 20-1-2011, version 4.0.6, June 2006.
- [3] Lenore Blum and et al. "A Model for High School Computer Science Education", The Four Key Elements that Make It!, SIGCSE'08, March 12–15, 2008, Portland, Oregon, USA.
- [4] Stephenson, C., Gal-Ezer, J., Haberman, B. and Verno, A., "The new educational Imperative: Improving High School Computer Science Education", Final Report of the CSTA, Curriculum Improvement Task Force, <http://csta.acm.org>, 2005.
- [5] Boehm, B. W. "The spiral model of software development and enhancement", IEEE, Computer, 21(5), p. 61-72, 1988.
- [6] Ian Sommerville, "Software Engineering", Addison Wesley, 9th edition 2011.

Appendix A

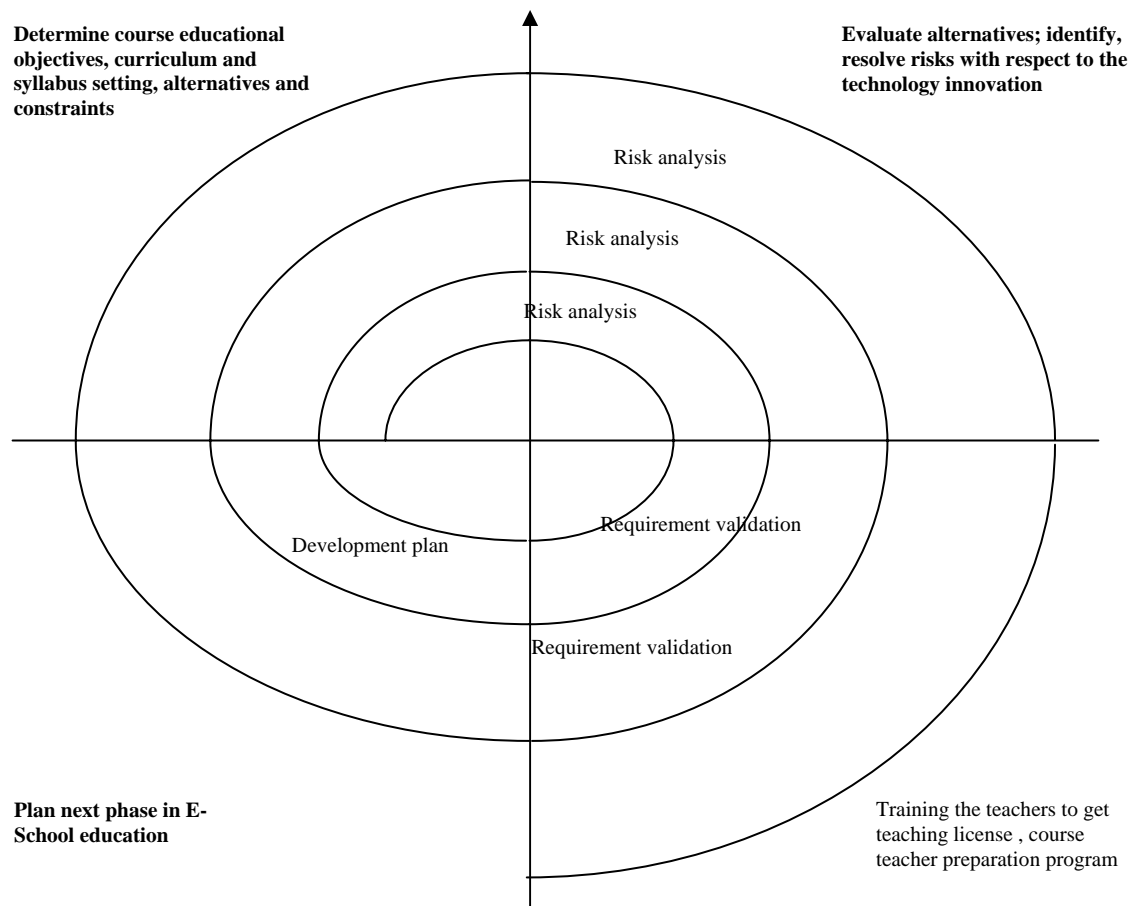


Figure1: the suggested global framework for E-School