

CONTRIBUTIONS TO EFFICIENCY ISSUES IN HIGHER EDUCATION

Nouhad J. Rizk

ABSTRACT

The concept of effectiveness is hard to measure. There is no standard institutional process to adopt, enabling an evaluator to achieve his/her goals conforming to the default definition of effectiveness: lowering cost and improving services. The concept of technology was viewed as a "black box," something that could be bestowed on schools and classrooms from above. A higher education institution can be effective, if technology, teachers and administrators work together to provide challenging learning opportunities. This paper is concerned with the study of school effectiveness in primary and/or secondary schools. It proposes new key factors of effectiveness for higher educational institutions. Besides, through this study, a new model is developed for integrating technology effectively and efficiently in higher education institutions: "Higher education Effectiveness Bridge of Technology (HEBT)". This model emphasizes the vision of technology that best fulfils institutional goals and classifies all the functional areas based on the use of technology applications in terms of priority of improvements. Additionally, this model defines effectiveness as a system of change based on technological advances. In brief, to be effective, crossing this bridge must become a way of life in higher education institutions.

KEYWORDS

Efficiency, technology, policy-makers

INTRODUCTION

The efforts and ability of an institution to assess its effectiveness and use well-known information for its improvement are important indicators of institutional quality. The assessment process requires the gathering and analysis of evidence of agreement between an institution's stated mission, purposes, and objectives, and the actual outcomes of its programs and activities. Thus, assessment functions are a tool for the encouragement of sustained improvement as well as a basis for quality assurance. In the literature (Harris, 1998), the author defines the three D's of institution improvement. The first D, diagnosis, is used in defining the institution's type. The second D, development, is used in defining the types of developmental strategies needed to fit the needs of a specific institution. The third D, drive, is used in sustaining the improvement one needs in order to have energy, commitment and continuity.

Even though the concepts of accountability and quality assessment in higher education constitute an international phenomenon (Glick and Jones, 1999), it is the responsibility of each institution to define and describe its own goals, to place them in the context of peer group comparisons, and to demonstrate to the public the position it holds in higher education. Research (Townsend, 2001) shows that even the weakest higher education institution can excel in some areas, and it is important to build on these strengths when making plans for higher education institution improvement.

On the other hand, various authors have pointed out that those who work on effectiveness and those who are concerned with improvement oftentimes rely on each other findings (Reynolds, 1993). In fact, in a higher education institution, necessary changes have to be made in order to attain improvement.

Changes are based on the evaluation of certain effectiveness characteristics such as educational outcomes and student performance.

The turning point in school effectiveness was achieved by designing a conventional model as a result of a research study of twelve London secondary schools, "Fifteen Thousand Hours" (Rutter et al., 1979). This conventional model indicates very clearly that schools do make a difference in pupils' behaviour and attainments, and that variation in outcomes was 'systematically and strongly associated with the characteristics of schools as social institutions'.

In the literature (Hargreaves, 2001), the author proposes a theory that incorporates the evidence about the effectiveness of teaching. His theory seems to be more effective than the conventional model. The theory outlines school effectiveness based on four master concepts: outcomes, intellectual capital, social capital and leverage. Hargreaves tests this theory first on citizenship education. This test investigated the way this theory should predict circumstances in a school under which citizenship education will be effective. A second test of the theory was conducted on how to create a strong economy and an inclusive society. A third test investigated the way the present theory incorporates some of the key features of teacher effectiveness.

Blackmore considers that context factors outside school control have significant impact on student outcomes (Blackmore, 1999). Thrupp, who is critical of the school effectiveness research (SER) and of the effectiveness and improvement (E&I) work, judges these research traditions as insufficiently critical of the relationship between school intake and student achievement (Thrupp, 1999). Mortimore has defined an effective school as one in which pupils progress further than might be expected from considerations of intake (Mortimore, 1991). In other words an effective school adds value to its student outcomes in comparison with other schools serving similar intakes. By contrast an ineffective school is one in which students make less progress than expected given their characteristics at intake. (Sammons et al., 1997a).

The present study considers a synthesis of all the previous research concerning schools, and applies it to higher education institutions in order to identify and define valid and appropriate measures of higher education effectiveness that can be employed in the processes of evaluation and monitoring of performance. The findings will be of practical value to higher institution staff and teachers. The study deals with higher education institutions in Lebanon.

I start by describing the methods adopted for the research study and for devising and piloting the survey. In section 2, the description of the conceptual framework is presented with a justification of the need for an effective program that would first encompass the higher education strategic planning process, and secondly make it a necessity to have the ability to produce a wide variety of actionable data for analysis. Section 3 presents in detail the method used in this study. Section 4 deals with the need for a new model to introduce technology and to help policy makers. Section 5 presents the new model. Lastly, section 7 discusses the implications of this model for higher education policy and its importance in the improvement and effectiveness of educational institutions.

THE CONCEPTUAL FRAMEWORK

Key Characteristics

The common five key characteristics of the effective school are first listed by Edmonds (1979) as follows: (a) Strong leadership of the principal (b) Emphasis on mastery of basic skills (c) A clean, orderly and secure school environment (d) high expectations of student performance (e) Frequent monitoring of students to assess their progress. In the literature (Sammons et al., 1997b), the author focuses on the British context and identifies eleven factors, which are claimed to apply to both primary and secondary schools. This study focuses on the application of all the above factors at the level of higher education institution.

Similar factors enable a higher education institution to maintain the qualities of a good university. They will be described in detail later in this study.

Thus, a model summarizing the consistent work needed, enables the managers to analyze, design, verify, validate, implement, and maintain the educational system. Fung , (1996) suggests that the model begins by raising awareness of problems and solutions before moving on to various plans to be adopted. Besides, sustained interactivity (Huberman, 1999) at all stages of research studies reflects the communication between higher education institution effectiveness and improvement.

Managing change in educational institutions is not always an easy job for leaders because change represents risk (Merrill, 1995). Busher 2001 defines two different kinds of change: imposed change and preferred change. However, "imposing policies has an impact on students in schools, in some cases deleteriously for their attitudes to learning" (Busher et al., 2001). Therefore, preferred change copes better with the different contexts of an institution such as policy, socio-economic and structural organizational.

The endless cycles of change now sweeping the modern world will bring both opportunities and threats to higher education institutions. Technology counts show that the majority of the public evaluate technology by its ability to teach high technical skills and prepare students for the workplace (Seabourne, 1993). (Darby, 1994) has pointed out that the key catalyst of change in higher education is *modularisation*:

“modularisation will enable a new breed of small entrepreneurial education providers to exploit information and communication technology to deliver higher education modules at a lower cost than conventional universities and colleges. Students will not only find the new providers but they will also be attracted by the ability to study at a time and place of their choosing. ”

Policy-making

One of the goals of educational research on effectiveness and improvement is to find ways to improve the institution structure and work mechanism (Opedenkker and Damme, 2001). School policy making capacity can be defined as "the extent to which schools can independently perform their tasks in policy making" (Sleegers et al., 1994). There are various models of decision-making structures in educational organizations: the classic dichotomous model (Sleegers, 1991), the 'interacting sphere model (Hanson, 1979) and the multi-domain model (Bacharch et al., 1990). For many educational institutions, combining administrative policy usually made by managers, and educational policy made by teachers, is difficult (Sleegers and Bergen, 1992). Consequently, many educational institutions have limited policy-making capacity (Pelkmans and Vrieze, 1987).

Policy implementation relies on many ethical factors such as the positive relationship between students and faculty members, or the general well-being of students, staff and faculty members (Hargreaves, 2001). When the educational approach of policy-makers results in aims and policies which actively promote such characteristics; the institution is likely to have a good ethos.

While some educators are comfortable with interactive technology, others find it difficult to acknowledge the technological capacities and skills of their students, as well as the potential power of technology. The same challenge can be applied to policy-makers and practitioners, about the way the technological revolution can be exploited to improve the educational system (Riley, 2002).

METHOD OF STUDY

Target Population and Response Rate

The target population of this study consists of a group of 35 students in a higher education institution in Lebanon, with different classes and majors. All 35 students received a semi-structured questionnaire. The response rate was one hundred percent.

The Questionnaire

The questionnaire was designed along the above mentioned framework (Table 1). It contains questions concerning the institution as an organization, and its teaching practices and goals.

Table 1. Questionnaire's parts

01	Professional leadership
02	Shared vision and goals
03	Learning environment
04	Concentration on teaching and learning
05	Purposeful teaching
06	High expectations
07	Positive reinforcement
08	Monitoring progress
09	People rights and responsibilities
10	Home-University partnership
11	Learning organization
12	Use of technology
13	Suggestions for a more effective institution

Whereas the aim of the structured part of the questionnaire is to collect information in a systematic way in order to obtain uniform data that can be subjected to statistical analysis, the unstructured part of the questionnaire helps in making new policies. Open-ended questions enable participants to interact freely. Therefore, new ideas may emerge and will become the basis of the new model in higher education.

The main reason for choosing group questionnaire is that it is faster than any other survey. For it permits clarification of questions, even if not to the same extent as interviews. The sampling used is designed to include all possible points of view. But it does not proportionally represent different majors and levels in higher education. A priori considerations would suggest that students majoring in scientific disciplines might differ in attitudes and beliefs from students majoring in business.

The known qualitative and quantitative paradigms are basically antagonistic to each other and should not be combined. However, writers like Bryman (1988) suggest that there is no reason why quantitative and qualitative methods should be seen as mutually exclusive. In this study, quantitative and qualitative paradigms are used. The empirical part is utilized to define the institution variables, while the open-ended questions are used to define a new model of decision-making.

Data Analysis

The main outline of this research is based on the three D's described in section one and on all the factors (Sammons et al., 1997a; Edmonds, 1979) described in section 2. The aim of this study is to find out similar factors related to higher education institutions and to define a new model to improve the university by integrating technology into the educational framework and by taking into consideration the factors I arrived at. In order to have practical findings, the survey eliminates many poor quality questions and emphasizes the "value-added" to the student's outcome by using technology (Goldstein and Woodhouse, 2000).

The students' opinions as to the variable related to teachers (Table 1) were measured directly at the respondent level by the percentage of 'yes' answers. The percentage was relatively high, around 85 %. In fact, the participants think that the quality of the program is primarily dependent on the faculty member. According to some answers, the interests and qualifications of the faculty member must be sufficient both to teach the necessary courses, and to plan and modify the curriculum. Teaching loads must be consistent with the program objectives and the institutional expectations for research and professional development. Mechanisms must also be in place to insure the professional growth and development of the faculty. Besides, it is the responsibility of the faculty to facilitate and monitor the progress of students. The importance of parents' role in higher education is a good deal less than in elementary and secondary school.

The students' opinion as to the variable related to learning was measured directly at the respondent level as well. The curriculum integrates technical requirements with general education requirements and electives, to prepare students for a professional career in the field of his/her choice. The curriculum should enable students to achieve an understanding of the need for acquiring the ability to engage in life-long learning.

All students assign the highest priority to the need of integrating technology into almost all functional entities. They strongly wish for the availability of sufficient facilities so that they have adequate and reasonable access to the appropriate material for each course, and for communicating with other students and faculty. Adequate facilities must also be in place to support the work of the faculty. A functioning laboratory plan addressing hardware and software development, acquisition, management, and maintenance, must be present.

Concerning the mechanisms used for monitoring the performance and progress of students, most of the answers selected from the three choices: (Good - Fair - Bad) were 'Fair'. They ask for more appropriate measures, consistent with the institutional mission and program objectives, to guide students toward completion of the program in a reasonable period of time, and to evaluate the success of graduates in meeting the program objectives.

As to the open-ended question related to the suggestions for a more effective university, almost all the answers had to do with institutional support and/or technological support. Students' viewpoint was that institutional philosophy must insure program quality by supporting faculty members, faculty recruitment and retention, and sabbatical leaves. Teaching loads and competitive salaries are important in getting high quality faculty. The advisory function of the faculty must be recognized and given appropriate administrative support. Senior administrators must provide resources and atmosphere for the smooth running of the university. The faculty and students must have access to appropriate media resources such as up-to-date texts, reference books, and research publications that are relevant to programs. The institution must also provide modern office equipment and licensed software.

Table 2. Key characteristics of higher education institutions

01	High-expectation from a faculty member
02	Flexibility of the curriculum
03	Laboratory and computing resources
04	Program administration and advising
05	Institutional support and/or technological support

The eleven factors mentioned in the literature (Edmonds, 1979) can be cut down to the five factors listed in the above table (Table 2).

IMPROVEMENT IN RELATION TO TECHNOLOGY

The results show that participants confuse between improvement, effectiveness and technology. In their opinion, the use of information technology makes work more effective, more efficient, or both. One of the participants commented on whether the university is using technology effectively as follows:

"Yes, in the computer centre there is access to internet".

However, the use of basic technologies such as internet is not always a positive sign of a successful university. The direct users of technology are the teacher and support staff not the student (Rubovits and Mulberry, 1997). This point was noted by one of participants,

"Even though most of our teachers use PowerPoint to present their lectures, I think that all the administrative work should be computerized. Then I can say: Yes, technology is here".

Participant 11.

In this study, the hope was to make more people concerned with education, aware that technology is available for them. Student interaction with newly introduced technologies like online registration and online posting of grades is positive. Thus, one of the participants pointed out to the possible use of technology if funds are available.

"Our university needs more technology at all levels. Of course, this depends on how much money is allocated for this task".

Participant 4.

In brief, comparability across participants is dependent on personality-relevant information. For example, for some participants an institution's improvement consists merely in having well-equipped laboratories and computer centers, with continuous updates. For others institution improvement depends on administration and institutional support offered for students, such as secure environment, scholarship, cooperating with other reputable universities. According to student opinion, the university should offer well-organized effective courses that will prepare the student for the future, along with some elective courses which will widen his horizon.

Thus, the need is to design a new model for higher education institutions, with certain characteristics that make them more modern and effective. One important goal of this model should be to develop a better understanding of learning disabilities. This involves working on theoretical descriptions of the origin of learning difficulties and the nature of the cognitive changes that occur when performance improves. For instance, the data collected in this survey shows that students think that the extensive use of technology increases their ability to learn. Another goal of this model is to lead higher education institutions to guaranteed improvement. The model should be based on academic assessment and skill improvement. The results identify the lowest level of performance, and help policy makers to design policies to improve both the speed and accuracy of performance.

The findings of this study consist of the key characteristics of effective higher education (Table 2), and the design of a new model of technology to support decision-making. This will be explained in section 5.

RESULT: THE BRIDGE MODEL

The task of technology is not only the purchase of computers or videodisc players or satellite links. These gadgets, though important in themselves, do not automatically bring about a successful

university. Thus, the necessity arises of having a decision support system to evaluate performance (Stoll, 1997). Besides, for a balanced improvement, the new system should make better use of existing resources and should integrate technologies smoothly in the appropriate functional entities of the institution. For more efficiency, the new system should insure the correspondence between resources expended and benefits gained in achieving goals. Finally, the new model needs to be assisted by a regular program of assessments to insure the effectiveness and the quality of changes that need to be made.

The experience of the last decade tells us that serious reform efforts must address not just the classroom, but also the whole framework within which education takes place. For the achievement of an institution's goals, as well as the efficient integration of technology in higher education, one can take advantages of faculty great experience in the field of information technology. The new model, called the *bridge model*, has the following characteristics:

Table 3. The HEBT characteristics

Functional entity	% technology used	Needs improv.	Priority	Needs assess.	Effective role	Cost
1-Faculty science	50	Yes	High	Yes	50	Medium
2-Faculty Business	20	Yes	Medium	Yes	80	High
3-Placement Office	5	Yes	Low	--	--	Medium
4-Student Affair	5	Yes	Low	--	--	Medium
5-Administration	15	Yes	Medium	--	--	Medium
6-Business Office	50	Yes	High	Yes	50	Medium

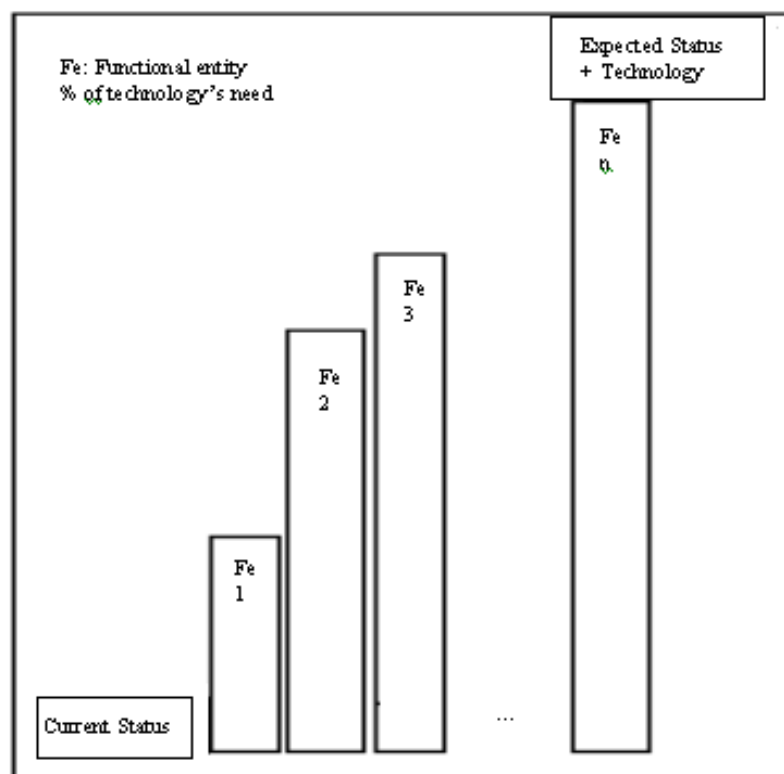


Figure 1. The HEBT Bridge

Figure 1 identifies functional entities, that is, areas where information technology is needed. It shows the percentage of possible improvement to be made in order to lead the institution to a higher status.

The model is based on defining all functional entities, and classifying them according to definite criteria such as the percentage of technology used in each entity, or whether or not a given entity needs improvement, or the steps to be taken to keep high quality of change, or the entity impact on the effectiveness of the institution as a whole, or the expected cost.

The way the institution makes progress in restructuring its educational system is by changing each functional entity status to a better one by introducing new technologies. An institution may adopt planning tables to identify the tasks and responsibilities that are essential to technology planning in higher education.

The implementation needs to be assisted by a regular program of assessments to ensure the effectiveness and quality of changes. The intensive assessment, and the development of the process of change, lead the institution to a more effective and successful status.

As the information technology of all entities is linked together, the height of this bridge represents the percentage of technology used in each entity. This highlights differences in the instructional purposes of various technology applications.

Finally, the planning team becomes responsible for the development of the overall technology plan by maintaining the functionality and improvement done with regular assessments. Team members develop a vision for the plan, determine the goals that must be met, and create steps to implement those goals.

Prediction of the lifetime of the bridge should be arrived at, as well as its capacity for change according to new needs. Therefore, integrating technology into the institution is based on the institution's educational vision, and is part of an overall institution-improvement plan. Evaluation plans should be elaborated to insure that technology generates the desired outcomes. The assessment process requires the gathering and analysis of evidence of agreement between an institution's stated mission, purposes, and objectives, and the actual outcomes of its programs and activities.

In the literature (Bell and Ramirez, 1997), application is more important than technology: "Effective technology plans focus on applications, not technology". The authors urge schools to "develop a plan based on what students, staff, and administration should be able to do with technology and let those outcomes determine the types and amount of technology plan requests". However technology plays an important role within our everyday life, and is a fundamental resource in education (Schawlbbe, 2002). This research attempts to prove that technology provides a set of very powerful tools with which everyone can move one's thinking and one's outcome much further ahead. Therefore, institutional changes are to be readjusted every five or ten years to advance from the current state to a new one according to advances in technology. Teachers are asked to rely more on computers and information technology to help them decide what kind of classroom activities are appropriate. Also, students can benefit from multimedia-presented information in handling and using such information to develop their autonomy and deepen their understanding.

POLICY MAKERS AND TECHNOLOGY

In order for technology to effectively promote student outcome, policy makers should address many issues such as the institution's ability to use and implement technology. In fact, many poor institutions will be precluded from the efficient implementation of the HEBT models because they may not have the funds to buy the needed technology. Their curricula and assessment programs focus on low-level skills even when technology is applied. Teachers may not have the support they need in order to develop instructional strategies with the information they can access through technology. Bureaucracies

keep communication and development from moving beyond the walls of the institution into business and community sectors (Standish, 2001).

Policies need to integrate curriculum, instruction, teachers' professional development, parents' role, and technology. Therefore, policy makers must provide opportunities for administrators, teachers and students to become informed about, and to experience the best technologies (Thamhain, 1996). They must establish curricula that reflect their commitment to technology.

They must allow teachers time to explore and experiment with new learning and instructional methods. They must provide ongoing professional development to enhance student outcomes. They must use the most effective technology to develop new learning methods and programs. Finally, parents and local community members should be encouraged to participate in teacher oriented programs, so that they understand the need for education to rely more and more on technology.

However, the opportunity of using technology to improve student outcome and university effectiveness could readily be frustrated by an evaluation approach in accordance with outdated educational practice, or by ignoring important factors such as time curriculum framework. Since a higher education institution is more student-focused than teacher-centred, the length limitation of the curriculum is critical. Therefore, HEBT is a scientific model of controlled experimentation and evaluating approach. Adopting this model will minimize certain problems in evaluating technology effectiveness in education. It will coordinate the rapid technological change with the slow pace of educational software development.

CONCLUSION

Achieving the most as to the effectiveness of an institution can only be reached by making appropriate major changes. The advantage of adopting the HEBT model is to increase productivity and accountability of universities by integrating technologies, while taking into consideration factors such as the need of change, and priorities. Besides, the model allows new ways to evaluate effectiveness, both qualitative and quantitative, including surveys of teachers and students, in-depth interviews, analysis of recorded communications and products, and classroom observations. These assessments look at changes in institutional organization, policy programs and practices. The challenge of implementing HEBT is in harmonizing human infrastructure with the technology infrastructure, and in avoiding uncontrolled cost. Wrong assessments of the cost of the human and technology factors in relation to other factors, may prevent the institution from achieving the expected goals and thus decrease its effectiveness.

"Technology will be a key vehicle by which we customize education to the individual student needs" (Glick and Jones, 1999). HEBT model is a technology effectiveness framework. Its role is to assist policy makers in spending less and getting better student outcomes.

The advantage of this model compared to other models is that it raises educational standards, and proposes future directions for practitioners and policy makers depending on the need for technology enhancement as opposed to present resources. All in all, higher education institutions are very complex and there are no 'quick fixes' in their improvement (Sammons et al., 1997a), this model suggests the slow but secure improvement relative to priority. Therefore, the measurement of university effectiveness, the effect of social disadvantages on a university performance, the role of national assessment tests, and the identification of low performance areas, are relatively easier to quantify.

On the other hand, though research can analyse the factors that make schools successful, it does not tell us much about how schools achieve success (Fullan and Erskine-Cullen, 1995). The Bridge model enables the low-performing universities to become better and more successful. The institution learns how to use technology to optimize outcomes within budget and other limitations by increasing services and customizing costs. The model explains how information technologies relate to each other. It also

shows how information technologies of different functions support each other. Besides, it explains how information technology is used in the most common business functions to make business processes more effective and efficient.

Many surveys should be undertaken to gather and analyse data for each entity. A variety of statistics and qualitative methods should also be used to analyse the resulting process data. Specialists can provide valuable perspectives on the strengths and weaknesses of an entity. Building the bridge starts by arranging the functional entities in ascending order, starting with the entity with the smallest need for technology and improvement. Updated policies and practices will be implemented with the assumption of reliable delivery of needed resources and services. For example, technology applications are well suited for teaching advanced thinking skills, especially with educationally disadvantaged students, but this always depends on the availability of these technologies to universities.

It is vital for all who are engaged in implementing this project to conduct their work in an ethical manner. This helps earn the confidence of parents, students, staff and faculty members (Yourdon, 1997). Therefore, everyone concerned should pledge to uphold high standards of integrity and professional conduct, and to abide by them.

To sum up, in order for a university to become more successful, it should focus on quality. Its policies and practices should focus on improved outcome. The intelligent use of technology is an important step in this direction. Another step is to implement the suggestions given in table 4.

Table 4. Future Recommendations

01	The institution should adapt technology to support learning, and should not support a technology design that does not empower learning.
02	The institution should plan on connecting together inter-universities technologies.
03	Professional development, and training and support services should accompany the implementation of technology.
04	Effective use of the technology in scheduling activities, optimizing the combined use of all resource including personal, machines, and tooling.
05	The institution should produce documents that should be continually revised through collaborative efforts to prevent the use of outdated information.
06	Privacy, in the context of information, is the institution's right to control its own information.

ACKNOWLEDGEMENT

I would like to acknowledge the support of Dr. Hugh Busher for providing valuable support and input for accomplishing the aims of this research study.

APPENDIX

Questionnaire: Interview university effectiveness

This questionnaire attempts to determine what are student's opinions related to the use of technology in their higher education institution and their opinion related to the institution's effectiveness. Please provide the answer that best represents your opinion. Be sure to answer all items.

- 1- Occupational class
- 1= Senior standing major
- 2= Junior
- 3= Sophomore

Part I: Professional leadership:

- | | | |
|---|-----|----|
| 2- Management of department is good | Yes | No |
| 3- Instructor fits | Yes | No |
| 4- Instructors should be involved in curriculum | Yes | No |
| 5- Instructors should be involved in policy decision. | Yes | No |
| 6- The chairperson should be involved in what goes on in the classroom, including the curriculum, teaching strategies and the monitoring of student progress. | Yes | No |

Part 2: Shared vision and goals

- | | | |
|------------------------------|-----|----|
| 7- In multi-sections courses | | |
| Section coordination | Yes | No |
| Same material | | |
| Same assignment | | |

Part 3: A learning environment

- 8- Teachers' goals are to empower learning in an attractive working environment
1- Strongly agree 2- disagree 3- neutral 4- agree 5-strongly agree

Part 4: Concentration on teaching and learning

- | | | | |
|--|-----|----|----|
| 9- Time for the course is enough? | Yes | No | |
| 10- Academic emphasis institution's students are well recognized outside | Yes | | No |
| 11- Focus on good achievement | Yes | No | |

Part 5: Purposeful teaching (efficiency)

- 12- The institution enforces
- | | | | |
|--|-----------|----------|---------|
| Preparing lessons in advance | Very much | somewhat | neither |
| Clarity of purpose | | | |
| Structured lessons | | | |
| Adaptive practice doing homework by themselves | | | |

Part 6: High expectations

- | | | |
|---|-----|----|
| 13- Teachers are taking a more active role in helping students | Yes | No |
| 14- The communication and reinforcement of expectations is good | Yes | No |
| 15- The university provides intellectual challenge compared to other universities | Yes | No |

Part 7: Positive reinforcement

- 16-Discipline is clear and fair
1- Strongly agree 2- disagree 3- neutral 4- agree 5-strongly agree
- 17- Direct and positive feedback such as praise and appreciation is fair enough
1- Strongly agree 2- disagree 3- neutral 4- agree 5-strongly agree

Part 8: Monitoring progress

- | | | | |
|--|------|-----|--|
| 18- Mechanisms for monitoring the performance and progress of student's homework | | | |
| Good | Fair | bad | |
| 19- Mechanisms for monitoring the performance and progress of a class | | | |
| Good | Fair | bad | |
| 20- Improvement in programs is efficient | | | |
| Good | Fair | bad | |

Part 9: Pupils rights and responsibilities

21- Please state your opinion on positions of responsibilities on the scale below
Instructor/student administration/ instructor administration/student
Fitting
Useful
Uncaring

Part 10: Home-University partnership

22- Parent's interference is important in selecting a university, a major?
1- Strongly agree 2- disagree 3- neutral 4- agree 5-strongly agree

Part 11: A learning organization

23- Teacher's development improves learning
1- Strongly agree 2- disagree 3- neutral 4- agree 5-strongly agree

Part 12: Use of technology

24- Rank the need of information technology in order of preference from highest to lowest need for technology (ordinal numbers 1 2 ...)

- _____ Classroom
- _____ Exam hall
- _____ Advising process
- _____ Placement office
- _____ Registrar
- _____ Student affair office SAO
- _____ Computer center
- _____ Labs
- _____ Library

Part 13: Suggestions for a more effective university

25- Do you think that a more effective university is based on introducing technology? Justify your answer

REFERENCES

Bacharach, S., Bamberger, P., Conley, S., and Bauer, S. (1990). The dimension of decision participation in educational organizations: the value of a multi-domain evaluative approach. *Educational Administration Quarterly*, 26 (2),126-167.

Bell, R. and Ramirez R. (1997). Ensuring equitable use of education technology. (ONLINE – <http://www.ncrel.org/sdrs/areas/issues/methods/technology/>).

Blackmore, J. (1999). Framing the issues for educational re-design, learning networks a Professional activism. In Sub-committee of the Australian Council of Educational Administration, 25. Victoria Publications, Australia:Howthorn.

Bryman,A. (1988). Quality and Quantity in social research. Unwin Hyman, London.

Busher,H.(2001). Schools, effectiveness and improvement, a political analysis. In School effectiveness and school improvement. Cassel, London

Busher, H., Barker, B., and Wortley, A.(2000). School leadership and organisational Change in turbulent circumstances. In BEMAS Research Conference 2000_ Cambridge: Robinson college, Cambridge.

- Darby, J. (1994). Education in the year 2000; Will We Recognize it?. In Conference of the Association for educational training Technology, Kogan Page, London.
- Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership*, 37(1) , 15-27.
- Fullan, M. and Eskerine-Cullen, E. (1995). Towards effective school improvement. *School Effectiveness and School Improvement*, 6(3), 279-282.
- Fung,A. (1996). Management of Educational Innovations: The ‘Six-A’ process model. In *Educational Leadership and change: An international perspective*. Hong Kong University Press, Hong Kong.
- Glick, m. and Jones, R.(1999). This little piggy went to market (ONLINE - <http://www.intered.com/public/>).
- Goldstein, H. and Woodhouse, G. (2000). School effectiveness research and Educational policy. *Oxford Review of Education*, 26, 353-363.
- Hanson, M.(1979). *Educational Administration and Organizational Behavior*. Allyn & Bacon, Boston.
- Hargreaves, D.(2001). A capital theory of school effectiveness and improvement. *British educational Research Journal*, 27(4), 487-503.
- Harris, A. (1998). Improving Ineffective Departments in Secondary Schools. *Educational Management and Administration*, 26(3), 269-278.
- Hubberman, M. (1999). The mind is its own place: The influence of sustained interactivity with practitioners on educational researches. *Harvard Educational Review*, 289-319.
- Merril, D. (1995). Evaluating of educational technology: What do we know and what can we know.
- Mortimore,P. (1991). School of Effectiveness research: Which way at the crossroads? *School Effectiveness and School Improvement*, 2 (3), 213-229.
- Opdenakker, M. and Damme, J. V.(2001). Relationship between composition and characteristics of school process and their effect on mathematics achievement. *British Educational Research Journal*, 27(4), 407-429.
- Pelkmans, A. and Vrieze, G. (1987). *Meer over coordinatie en management*. ITS, Nijmegen
- Reynolds, D. (1993). Linking school effectiveness knowledge and school improvement practice. In *school-based management and school effectiveness* . 185-200. Routledge, London.
- Riley, K. (2002). Schooling the citizens of tomorrow. In *International_Conference for School effectiveness and improvement Democratic learning*, Denmark.
- Rubovits, D. and Mulberry, J. (1997). *Comprehensive monitoring of student activities*
- Rutter, M., Maughen, B., Mortimore, P., and Ouston, J. (1979). *Fifteen_thousand hours: Secondary schools and their effects on children*. Open books London.
- Sammons, P., Hillman, J., and Mortimore, P.(1997a). *Key Charecteristics of effective schools: A review of school effectiveness research*.

Sammons, P., Thomas, S., and Mortimore, P., (1997b). Forging Links: Effective Schools and Effective Departments. Paul Chapman, London.

Schwalbe, K. (2002). Information technology. Course technology, Massachusetts.

Seabourne, P. (1993). The picture of IT Use in Schools. In The future curriculum with IT. NCET, London.

Slegers, P. (1991). School en beleidsvoering [school and policy making].

Slegers, P. and Bergen, T. (1992). De professionele oriëntatie van docenten en de Beleidsvoering door sholen [professional orientation of teachers and school policy Making]. Tijdschrift, 13(2), 5-9.

Slegers, P. and Bergen, T., and Gesbers, J. (1994). The policy making capacity of Schools: Results of a dutch study. Educational Management and Administration, 22(3), 147-159.

Standish, G. (2001). Chaos. (ONLINE-<http://www.standishgroup.com>).

Stoll, L. (1997). Successful schools: Linking school effectiveness and school improvement

Thamhain, H. (1996). Best practices for controlling technology-based projects. Project Management Journal.

Thrupp, M. (1999). Schools Making a Difference: Let's be Realistic! Open University Press, Buckingham.

Townsend, T. (2001). Satan or saviour? Reflections and futures of school effectiveness and school improvement research.

Yourdon, E. (1997). Surviving a Death March Project. Software development.

Nouhad J. Rizk,
Computer Science Department,
Notre Dame University,
P.o.Box 72 Zouk Mickael
Zouk Mosbeh – Lebanon
E-mail : nrizk@ndu.edu.lb

Leicester University
Education Management
Leicester LE1 7RF, UK