"A Theoretical Study on Improving Management of Innovation in Higher Education towards Industry 4.0"

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ABSTRACT: *Today's higher education administrators, who must balance the fiscal pressures of running a large organization influenced by external forces such as rankings and increased competition for students and faculty and internal stresses produced by boards and accrediting agencies who are demanding more transparency, accountability, and tangible evidence of success, are best served by seeking continued innovation in curricular programs, delivery mechanisms, support services, and operations. In this paper, we have presented ideas for new ways of conducting business within the context of higher education. These, and more, are crucial to the continued success of institutions of higher learning. An attempt is made to find the sources of innovating, key issues hampering management and ways to attend the challenges.*

KEYWORDS: *Education System, Excellence, Higher Education, Innovation, Student & Staff.*

INTRODUCTION:

Education in today's fast changing societies requires innovation. In common parlance, the term innovation refers to the introduction of a new idea, method, or device. From a management perspective, Peter Drucker suggested that innovation is a "change that creates a new dimension of performance". From an institutional perspective, as put forth by the U.K. Department of Trade and Industry, innovation is the successful exploitation of new ideas. The same range of meanings applies in higher education, where innovation can refer simply to some new way of doing things, or a change that improves administrative or scholarly performance, or a transformational experience based on a new way of thinking.

Innovation can offer flexibility to enable institutions to adapt more readily in a constantly changing environment, a means by which colleges and universities can address concerns typically associated with mature enterprises, tools to ease increasing cost pressures, and efficiency gains through better operations and better matching of resources and requirements. Each of these benefits is addressed in this paper.

The ability to measure innovation is essential to an improvement strategy in education. Knowing whether, and how much, practices are changing within classrooms and educational organisations, how teachers develop and use their pedagogical resources, and to what extent change can be linked to improvements would provide a substantial increase in the international education knowledge base.

Measuring Innovation in Education offers new perspectives to address this need for measurement in educational innovation through a comparison of innovation in education to innovation in other sectors, identification of specific innovations across educational systems, and construction of metrics to examine the relationship between educational innovation and changes in educational outcomes.

OBJECTIVE OF THE STUDY

- To understand the scope of Innovation Management in Higher Education.
- To analyze the main sources of innovation in Higher Education.
- Innovation and associated Issues that hampers the management.
- Examine some ways in which higher education is evolving and improving to meet the challenges of the contemporary landscape.

Need of the Hour

Do teachers innovate? Do they try different pedagogical approaches? Are practices within classrooms and educational organizations changing? And to what extent can change be linked to improvements? A measurement agenda is essential to an innovation and improvement strategy in education. Measuring Innovation in Education offers new perspectives on addressing the need for such measurement.

Innovating Management & Education Interface

The institutes have been pursuing application-oriented research, which led to amassing an excellent knowledge pool. However, the extent of knowledge flow from such centers of excellence to the industry for its actual exploitation for the prototype development and reaching out to market has been limited. Various policy interventions were directed and organizational structures along with the fiscal incentives were designed by the Government from time to time to bridge the gap.

The majority of MBA programs need to improve their nurturing of innovation, according to a recent survey of business school deans and directors. Meanwhile, blended learning MBA delivery modes are likely to become more common place in the coming years. Of the 200 business school deans and directors responding to a survey held at the Association of MBAs (AMBA) International Deans and Directors Conference, only 2.5% believe their business school is the best it can be at innovating. 60% of respondents feel that their school is either good or reasonably good at innovating. In the same survey, 58% said that they believe that innovation is very important to the future of business school education.

“It is clear that innovation is here and now and schools have no choice but to innovate,” explains Sharon Bamford, chief executive of the AMBA, the UK-based international MBA accrediting body and organizers of the conference. The benefits that such a blend could hold are countless, and so are the beneficiaries:

Students & Staff

Giving a voice to these two separate audiences, and allowing them both to collaborate would generate fantastic results. There would be obvious advancements in the quality of teaching that would offer more value to students while simultaneously making the jobs of the lecturers easier.

Innovation Management has a proven track record of increasing employee engagement with the businesses that use it. The same would apply in this setting, but for not only the employees but also the students. Engaging students at university can be a big problem, as attendance record often shows, so a platform likes this which immerses users in both departmental and university-wide issues can be an invaluable tool.

The University

The university itself also has a lot to gain in these situations. The backbone of all innovation management systems is process improvement and cost reduction, and the value that institutions would gain through this process alone is more than enough justification to invest in it.

An unexpected benefit would be the improved marketability that this approach to innovation and collaboration would give to a university. Having a voice is very important to students, and so providing this would be a massive bonus to the marketing efforts of any institute of higher education.

The benefit with the highest potential value for any organization is radical innovation; these are ideas that involve thinking outside the box which often leads to the generation of brand new revenue streams, products, or services. With all the innovative creative minds to utilize at universities, it is guaranteed that some brilliant radical ideas would be generated.

Open Innovation

While there are many different ways to utilize innovation software internally within an organization, sometimes the most valuable ideas come from external stakeholders such as customers, experts, and academics. This has some very interesting connotations for collaboration between universities and businesses. As we have established, universities are a breeding ground for innovative ideas, and creative problem solving. So undoubtedly there would be a long queue of business that would be interested in utilizing the creativity and knowledge of this unique audience. For using this service universities could charge a fee and students could earn a commission for contributing while also gaining valuable work experience. Students could of course also collaborate with students from other universities. While there is sometimes a rivalry between local institutions, individual departments would undoubtedly be willing work together to overcome challenges and make advancements together.

Innovation and Flexibility

Higher education continues to evolve worldwide. Curricular innovation, as exhibited by Western Governors University and the Leadership Foundation for Higher Education in the United Kingdom, is

a hallmark of innovation and flexibility within the academy, they discuss initiatives in the western countries that have effected change beyond the confines of one institution. In addition to program development and curricular reform, innovations such as these can help institutions meet standards dictated by accrediting agencies and drive changes in the accrediting processes themselves. Information technology affects not only the delivery of academic content but also ancillary operations. If today's students are more technologically savvy than the majority of the faculty, the implications for the academy surely include a wide range of opportunities to leverage the fruits of new hardware and software tools in ways that truly enhance the learning experience. This will require flexibility on the part of the faculty. In addition, as schools are more ratings conscious, new ways to innovate in the delivery of supporting services will emerge; institutions whose operating processes are most open to change will reap the most benefits.

Innovation and Cost Pressures

The following quotations paint a picture of rising costs coupled with declining fiscal support for higher education, bringing into question the long-term viability of the current model of higher education funding:

- Education is supposed to be an equalizer. But with costs rising, students are trading down dreams of a lavish education for one at a state university, and from a state university to one at a community college. While all education will bear fruit, we are creating a bifurcated system in which the best education will go to those who can pay for it. Students of color and those of modest means will most likely be the ones left behind.
- External support for major academic innovation in colleges and universities has significantly decreased in the past decade. State and per capita funding has decreased, a number of major foundations have shifted their priorities away from higher education, and business and industry have changed their focus to supporting only those projects that are seen as having an immediate and positive beneficial impact on their bottom line.
- IT innovations can support UDL and other new programs and initiatives. New technology typically comes with a higher price tag than administrators hope to see. However, the potential efficiency gains that can be realized with efficient and effective deployment can offset the initial expense and help achieve more attractive cost structures in the long term. These innovations must be managed to take advantage of the continuous refinements and improvement in the hardware and software itself while not being perpetually postponed awaiting the introduction of the next generation.

The main sources of innovation in higher education

Any assessment of the management of change in higher education has to consider the main sources of any likely innovation, and in most institutions there are four:

(a)individual people and groups within an institution;

(b)the formal decision-making system for the whole institution;

(c) departments, schools or the main unit of organization;

(d)innovation resulting from external pressure.

(a) People and groups: A study of the people and groups involved in the management of change in higher education might reveal some interesting personal characteristics concerning age, background, education and so on. Individual innovators tend to have the following characteristics:

- They tend to have relatively high social status in terms of education and social standing.
- Innovators are generally young in relation to the age of their peers.
- Their sources of information are largely outside the existing organizational system as well as inside.
- They are highly cosmopolitan compared with their peers.
- They are frequently viewed as deviant by their peers and by themselves.
- They may be socialized for part of their formal career outside the conventional status route of their peers.

(b) *The decision-making system*: Another major source of innovation within a typical institution of higher education is the formal decision-making system. Often this is based on the notion of participation by academic staff, and sometimes students, and despite Improving the effectiveness of the management of innovation and change in higher education its advantages in terms of the spirit of collegiality it has been noted above that it has been subject to considerable criticism for being slow, cumbersome, costly, and unable to address crucial institutional issues in a proactive way .In many universities a frequent approach to the management of innovation is to establish a specialist group or working party to consider the desirability of a particular proposal and the w a y that it might be implemented. The gap, between the proposers of an innovation and those responsible for carrying it through, is a fundamental problem for the management of change in higher education, and a common cause of innovation failure.

(c) *The departmental level:* At the departmental level, where a number of questions about the management of innovation are raised. For example: What is the role of heads of departments in encouraging innovation? How can departments be best organized to ensure effective teamwork? What incentives operate at the departmental level to encourage and support change? Are heads of departments selected on the basis of their ability to manage change successfully? And what kind of training is provided for them?

d) *Pressure from external bodies:* These pressures are usually from those providing funding, for example, government ministries and the like. Institutions manage such interventions or 'reforms' in various ways depending on their relationships with the State, and the overlap of individuals involved. The success or failure of any change or innovation is clearly dependent not only on who the innovators are but on how able and ready the institution is to tackle the problems. More practically, institutional readiness for innovation has been strongly determined by the financial growth and contraction in m a n y systems in the last two decades. The experience in m a n y developed countries of a contraction in higher education funding from State sources has led to an increasing realization that institutions must be prepared to respond proactively to protect themselves and their core activities and values.

The implementation of change in higher education

There are numerous factors identified in the literature on innovation which influence the implementation of change and the rate at which its spread and success m a y be diffused within an organization. It has already been noted that strong commitment to any particular proposal or innovation is crucial. There are three distinct issues here:

(i) the nature of institutional commitment;

(ii) the commitment of individuals within the institution;

(iii) the commitment of the academic discipline concerned.

A further problem specific to the implementation of change in higher education is the question of speed. The provision of effective information about any major innovation is also held to be a crucial determinant of whether it can be successfully implemented. Thus, although information is frequently widely available within higher education institutions to those who take the trouble to seek it out, many institutions are poor at managing the information flow so as to ensure that any innovation has the greatest chance of success.

CONCLUSION

The older an organization is, the harder it can be to implement change within it. This is very relevant to not only higher education, but democracy, which is also taking too long to step into the future and embrace the age of communication. However the issue is arguably even more crucial within education, where innovation within medicine could lead to the curing of diseases, or in engineering where innovation could lead to eco-friendly transportation which reduces global carbon emissions.

Universities and their students are the closest thing that society has to a physical embodiment of knowledge, and it is essential that they be given the right tools to help them achieve what they are capable of. As Benjamin Franklin once said “an investment in knowledge pays the best interest”, so I think it is about time that we invest.

The challenges facing higher education today are both new and familiar. Flexibility, maturity, fiscal responsibility, and efficiency gains are not innovative in and of themselves. However, the shrinking world in which we live, which journalist Thomas Friedman in Newyork Times (2006) refers to as the flat and highly interconnected world of the twenty-first century, brings new insight and urgency to

these issues. Although a single volume cannot address every concern, the thought-provoking chapters here will provide an impetus for the next round of innovations in the areas of institutional processes, program design, the application of technology in many facets of an institution's operations, and curricular evolution. This paper is the beginning of a new journey: it calls for innovations in the field of measurement – and not just of education.

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