Future Market and Technology Oriented Curriculum Development in Higher Education: Students' View

Mohammad Abul Kashem   Assistant Professor, Department of Marketing, Faculty of Business Administration, Feni University, Bangladesh.

Abstract: The quality of education is often subject to debate in higher education in Bangladesh. One of the major concerns goes with the quality, design and development of curriculum to create the backbone of quality education practice. By encompassing the theories and model across a wide range of curricular issues and the evolutionary thinking, this study strived to cover the tricks perpetuate on the trade of curriculum development. The key purpose of the study was to assess the impact of the factors to ensure effectiveness and efficiency of the curriculum development in selected universities through personal interview from the faculty members and the students. Relevance of the curricula in different aspects likely to specific needs, scope and specialization has been justified. Along with the several factors Creativity & Flexibility, and Opinions of Industry Expert and Practitioners, and Society and Culture have greater influence in the justification of curriculum development in selected universities in particular and all universities in general. The result indicated that the Students' Needs & Preference in updating curriculum development is comparatively less considerable than Future Market Demand & Technology oriented curriculum development.

Keywords: Curriculum development; Higher education; Future market demand; Technology.

1. Introduction

One of the critical problems of higher education system in university level is how to cope and to become familiar the students with the updated and advancing technology and relevant fields by incorporating the apparatus and essentials of the same by developing curriculum. Curriculum is considered to be efficient as long as meets the needs of the job market and the industry by direct learning. Very concerning about the same, students need quality education in order to meet competency levels required by workplace as for priority skills and sufficient knowledge (Yildirim and Simsek, 1997). In view of these new realities, teaching institutions face a challenge to constantly examine course content, strategies and implementation, as well as to update course curricula, and explore new areas to include in the overall curriculum (Yildirim and Simsek, 1997). One of the greatest challenges of curriculum planning for higher education has traditionally been the integration of academic competencies into education curricula (Martinez and Badeaux, 1994). This integration is significant for workplace success for the students reinforcing academic and practical skills in a broad level (Lankard, 1996). Therefore, It has been found that the curriculum should be continuously updated through research (Yildirim and Simsek, 1997).

Furthermore, curriculum development deals with the principles that is guided through assessment, planning and review of the contents with respect to acquire some positive changes in students' learning (AYENI, 2013). A fundamental challenge facing higher education is curriculum structure. The structure of a curriculum is going to be determined by the goals of the program. In this regard, a thorough understanding of the curriculum can be made keeping in mind the requirements of the job market as well as career dream of graduates.

It has been observed that graduates are emerged as job seekers as well as job creators i.e. entrepreneurs. Again, self-assessment of the curriculum may open up new opportunities for the assessment of curriculum. Curriculum assessment is a process of gathering and analyzing information from multiple sources in order to improve student's learning in sustainable ways, and it serves some major purposes (Wolf, 2006). These objects are (i) identify aspects of a curriculum that are working and those that need to change (ii) assess the effectiveness of changes that have already been made (iii) demonstrate the effectiveness of the current program (iv) meet regular program review requirement (v) satisfy professional accreditation.

2. Objectives

The study has been covered the following key objectives, as such:

(i)   To develop a valuable sketch of factors that used for evaluation of curriculum development process;

(ii)   To measure the impact of key factors on curriculum development.

(iii) To provide support for the guidelines as a continuous system of curriculum development in higher education level.

To fulfill the objectives, the following research questions would be addressed:

a. Is there any significant relationship between Future Market Demand & Technology and Curriculum Development?
b. Is there any significant relationship between Society & Culture and Curriculum Development?
c. Is there any significant relationship between Students' Needs & Preference and Curriculum Development?
d. Is there any significant relationship between Opinion from Industry Expert & Practitioners and Curriculum Development?
e. Is there any significant relationship between Creativity & Flexibility and Curriculum Development?

3. Literature Review

In 1965, Benjamin Bloom headed a group of educational psychologists who developed a classification of levels of intellectual behavior important in learning. During the 1990's a new group of cognitive psychologist, lead by Lorin Anderson (a former student of Bloom's), updated the taxonomy reflecting relevance to 21st century. There are two versions of Bloom's Taxonomy such as; old version and new version. In the light of Bloom's Taxonomy, the education domain of a learner may be classified in three categories e.g. i. Cognitive domain, ii. Psychomotor domain, iii. Affective domain.

Literature review reveals that curriculum assessment can be used as inputs for curriculum changes in several areas like (a) curriculum/course design (b) curriculum/course delivery (c) assessment (d) learning environment. Thus, curricula may be defined as learning that is expected to take place during a program of study in terms of knowledge, skills and attitudes. They should specify the main teaching, learning and assessment methods and provide as indication of the learning resources required to support the effective delivery of courses (Mackimm, 2007). Thus the courses, contents and structures, constituting the technical aspect, should stand the test of relevance by falling line with the needs of contemporary business world.

The mapping of curriculum reflects internal learning objectives (ILOs). There are some criteria for good assessment in quality education. These criteria for good assessment are- validity, reliability and practicality. The structure may incorporate value addition components e.g. summer job, weekend job, internship work, work as a trainee with professional and the likes. This type of curriculum is known as hidden curriculum. The students may add values in learning chain through creating relational resources as well as developing business skills by applying socialization theory for their career planning and development. One of the major objectives of curriculum is to educate and train people to become productive graduates in order to meet the demand of job market both at home and abroad, of knowledge economy and globalization.

However, Peyton and Peyton (1998) developed a cycle for curriculum development matching with the requirement of lifelong learning of the students to create competitive advantage in the learning chain of students. On the context of curriculum development, few experts opined on different viewpoints which mentioned as follows:

AUTHOR	MODEL/PROCESS	FACTORS/STEPS	FINDINGS
(Tyler, 1949/1969)	Rational curriculum planning	(i) Education purpose, (ii) Attainable experience through curriculum, (iii) Organizing, & (iv) Achievement and evaluation.	Focused on how the set purposes achieved through curriculum and chance to achieve so based on the philosophy of education and psychology of education.
Taba (1962)	Curriculum design	(i) Objectives, (ii) Content, (iii) Learning experience, (iv) Teaching strategies, (v) Evaluation.	Designed to establish a theory and practice oriented curricula with an external view.
Guba and Stufflbeam (1970)	Curriculum evaluation	(i) Planning intentions; (ii) Planning Procedures; (iii) Implementation procedure; & (iv) Outcomes.	The Center of attention were on objectives, personnel, methods and materials employed, and finally assessment of their attainment.
Nicholls and Nicholls (1974)	Situation analysis based on students' need.	a) Cultural and social changes and expectations, b) Educational system requirements and challenges, c) The Changing nature of the subject matter to be taught. d) The potential contribution of teacher-support system, e) Flow of resources f) Pupils: aptitudes, abilities and defined education needs. g) Teachers: value, attitudes, skills	The situation analysis is considered to be the 'fundamental precept' of curriculum development and it's helpful to know about the context particularly on students, teachers and school

		knowledge, experience, social strengths and weaknesses, roles. h) Institutions ethos and political structure, i) Material resources j) Perceived and felt problems and shortcomings in existing curriculum.	environment and need of the students.
Macdonald (1975)	Approaches to curriculum design	(i) Control, (ii) Consensus, (iii) Emancipation.	Focused on control oriented curriculum with consensus of students and clarity of involvement of teachers in a form of social and political theorizing.
Eisner (1979)	Orientation to curriculum	(i) Academic Rationalism, (ii) Personal Relevance, (iii) Development of Cognitive Process, (iv) Social Adaptation and Reconstruction, (v) Technology.	Focused on how to learn through intellectual abilities and skills enhancement by functionalizing with society's interest.
Nicholls et al. (1980)	Curriculum process	(i) Aims and Objectives; (ii) Methods; (iii) Content; (iv) Assessments; (v) Feedback and Analysis.	Curriculum is not static but cyclic and continuous process where the importance of the result of assessment and of the various types of feedback to the continuous curriculum process has been considered.
Nieveen N. M. (1999); (Nieveen N., 2009)	Quality criteria for Curriculum Development	(i) Relevance (ii) Consistency; (iii) Practicality; (iv) Effectiveness;	The curriculum design should be based on state-of-the-art knowledge that leads to desired outcome. It has been notified that those factors varied through curriculum levels whereas contents and objectives have greater importance than issues regarding pedagogy, educational materials and the learning environment in macro level.
Akker (2003)	Curriculum components	(i) Rationale; (ii) Aims & Objectives; (iii) Time; (iv) Location (v) Grouping; (vi) Teacher role (vii) Learning activities; (viii) Content; (ix) Assessment; & (x) Materials & Resources.	Here each of the factors concerned with the aspects of learning and learning program for pupils. The major concern goes with why and how people learn, goals of learning, the role of teachers, resources required and finally the assessment and the coherence and relations among the factors also considered.
Fink (2007)	Integrated Course Design	(i) Learning goals, (ii) Teaching and learning activities, (iii) Feedback/assessment.	Focusing on students learning, how to learn and how students achieve so.

The process of curriculum development basically includes two components such as course contents and structure of the curriculum. Thus, the curriculum development process includes course contents, processes, learning experiences, resources and students assessment strategies and so on. It seems that the course content and structure

will be designed considering the learning objectives of the curriculum. It appears that a course has always to be assumed a particular duration, contract hours per week experience. It has been observed that the learning can be more holistically designed and implemented meeting the requirements of quality education. Moreover, course level decision for quality education is influenced by four components: i) effectiveness ii) efficiency iii) appropriateness iv) value addition.

In the review of literature, it has been observed that maximum philanthropists and researchers stretching how to develop curriculum whereas this study focused particularly on the factors having influence on curriculum development based on the direct and indirect influence on curriculum development namely Future Market Demand & Technology, Creativity & Flexibility, Students Needs & Preferences, Opinions of Industry Expert & Practitioners, and Society & Culture.

4. Methodology

The study is descriptive in nature conducted by using a survey method. The population was the population was the faculties working at and the students of undergraduate and graduate level studying at Chittagong University, Feni University, BGC Trust University, and University of Information Technology and Sciences (Ctg.). Data regarding the variables have been collected through a questionnaire. Structured questionnaire was used as a means of data collection and was collected via personally administered questionnaire. The questionnaire was distributed to the respondents based on considering representatives by personal judgment. In total 250, i.e., 100 faculties and 150 students were randomly selected from the sample universities where response rate was 80%. The instrument was made up of sections of questions as per the factors in prearranged order. All items were measured on a five-point Likert Scale ranging from 1 'Strongly Disagree' to 5 'Strongly Agree'. The questionnaire covered questions on factors of Future Market Demand & Technology, Creativity & Flexibility, Students Needs & Preference, Opinions of Industry Expert & Practitioners, and Society & Culture, and Curriculum for University. Factor analysis was performed on all questionnaires items to establish their suitability for performing the subsequent multivariate analysis. The results obtained are based on parsimonious sets of variables, guided by conceptual and practical consideration with loadings of 0.50 and above (Hair *et al.*, 1996) and cross-loadings below 0.20. Maximum likelihood rotation was employed for the analysis. High commonality values were recorded or all the variables, indicating the total amount of variance. In the analysis, Kaiser-Meyer-Olkin measures of adequacy gives a high total of 0.896 and the Bartlett's test of Sphericity value is significant (p = 0.000). The collected data then were analyzed through using SPSS 17.0.

5. Analyses & Findings

5.1. Reliability Analysis

The internal consistency of the instrument was tested via reliability analysis. The Cronbach's Alpha for the construct is as follows: Future Market Demand & Technology (0.833), Creativity & Flexibility (0.714), Students Needs & Preference (0.853), Opinions of Industry Expert & Practitioners (0.772), and Society & Culture (0.846) and finally Curriculum for University (0.897). All results exceed 0.60 i.e., the lower limit of acceptability recommended by Hair *et al.* (1996) suggesting a high degree of reliability.

5.2. Correlation among Variables

Pearson coefficient of correlation was used to test for association. The result for Pearson Correlation (As shown on Table-1) supported the notion that there were significant relationship among Curriculum for University and Future Market Demand & Technology, Creativity & Flexibility, Opinions of Industry Experts and Practitioners, Students Needs & Preference, (r = 0.650, 0.529, 0.407, 0.379) at 0.01 level of significance respectively. And there was relationship between Curriculum for University, (Knight, 2001) Society & Culture (0.122) at 0.05 significant level.

5.3. Regression Analysis among Variables

Again investigating the scenario by using multiple regression analysis (As shown in table -2), the results showed that all the five factors (Future Market Demand & Technology, Creativity & Flexibility, Opinions of Industry Experts and Practitioners, Students Needs & Preference, and Society & Culture) have contributed significantly to Curriculum for University as F = 93.866; p = 0.000. The combination of all factors predicts about 58 percent of variations in Curriculum Development for University. Looking at the variables individually, it is realized that the relationship between Students Needs & Preferences (p=0.598) and Society & Culture (p=0.20) with Curriculum for University are not significant. On the other hand, Future Market Demand & Technology based Curriculum development seemed to have the highest impact on Curriculum for University with Beta = 0.445. Now, the model with the largest impact is Future Market Demand & Technology oriented Curriculum development.

6. Guidelines for Curriculum Development

Curriculum assessment should ideally take place in all stages of the curriculum development for quality education. The qualitative research identifies when and how it will be done. In this level students' attitudes towards learning experience have been evaluated in the evaluation process. Liking/disliking of the students of curriculum may be evaluated to provide data for its improvement. Apparently, self assessment process identifies the areas of improvement for making the education qualitative and competitive in the education market.

In an academic setting, determining the results of curriculum comes directly from the outcome of program mission and vision of the ideal graduate. It is the level that ensures the accountability of the curriculum development program. The indicators of evaluation of these levels are graduation rates, job placement rates, success rates in competitive scholarship/fellowship available in the existing market. More recently, benchmarking standards have been accepted for the development of curriculum strategy in all subjects in general and in business education in particular. As persuggested a convincing idea for curriculum development in higher education by 'outcomes-led rational approach' stressing the coherence in a curriculum.

In a true system four basic components are worth considering: what you teach, how to assess, what the best curriculum to achieve so is and what are the best teaching method available for doing so (Richardson, 2010). Furthermore, Barnett *et al.* (2001) advocated three domains model consisting Knowledge as discipline wise subject matter, Action as required skills of discipline and Self as one's competency identification.

Again, ACARA (2012) suggested the curriculum development process incorporating four interrelated phases as such:

(i) Curriculum Shaping: It includes the broad outline on purpose, organization and structure of the learning area with the consultation from the public consultation as well as targeted consultation with key stakeholders.

(ii) Curriculum Writing: It considers the curriculum for learning area with respect to validation of achievement standard and specifications of contents by education authority with teams of writers and consultation group.

(iii) Preparation for Implementation: It involves the delivery of the curriculum to the concern authority/institution in time and to support their ongoing implementation planning.

(iv) Curriculum Monitoring, Evolution and Review: It is an ongoing process for issues identified, any recommendation or further investigation if required. Finally, the process may result in minor changes to, or a revision of, the curriculum.

Finally, the following points to be noted for future curriculum development process:

Students' Participation: As UK HE sector, students can be considered to be an active participant in shaping their learning experience through the development of curricula and that is also applicable in higher education sector.

Open Access Resource Bank: One of the exemplary ways to induce students engagement in curriculum development by open access facilities for the students by including their opinion and students satisfaction with existing curricula and processed all recorded information through MIS for next modification in curriculum development.

Large Scale Curriculum Reform: With the flexibility of curriculum development, large scale curriculum reform can be utilized in greater extent with provision to reform or modification for precise outcomes for students though it is difficult to predict the same with certainty.

Realistic Innovation Ambitions: realistically, innovation should welcome in the institution based on the teachers' willingness to change and commitment and culture infrastructure of the institutions for development of both teacher and institution.

Flexibility: The curriculum should be flexible enough to accommodate the reality of student, teacher and institution diversity and has high expectations and standards that are challenging but realistic.

Evidence Base: the curriculum should be launched through strong evidence including the implications of the curriculum for learning, pedagogy and what works in professional practice and has been benchmarked against international curricula.

Ease: The curriculum should concise and expressed in plain language while preserving a complexity appropriate for professional practitioners and is consistent in terms of language and broad structure.

7. Conclusion & Discussions

The result has proven that the most influential factors for curriculum development under study is Future Market Demand & Technology. Basically, the curriculum is established on a strong evidence base, including the implications of the curriculum for learning, pedagogy and what works in professional practice, and has been benchmarked against international curricula whereas objectives of curriculum should be to develop learners' skills and knowledge which finally featuring successful learners in job market and enriched confidence and become responsible citizens and effective contributors in particular discipline (Education Scotland, 2009). However, higher education continues operating in an unstable socio-political and economic context where the pressure for change is constant. Recognizing and understanding the factors which have a significant influence in curriculum development have been isolated and examined based on the students' opinion and their interrelationship also judged based on true complexity and richness. Though the study focused into the influence of students as obvious one and the students themselves influence rest of the factors of curriculum development. In one of the studies Ulrikson used the term 'implied student' in a sense of assumption have been considered in the development of curricula as such what the

students like, how they learn, and how they interact. The assumptions once set as set rules and prediction against the students' opinion as usually have been found different in certain circumstances in sample universities. In the same concern, Jackson (1968) referred the same assumptions in another name as 'Hidden Curriculum'. Despite of attempting to identify the roles and influence of the factors having greater /vast brunt in curriculum development, the students have never been negatively affected from the existing curricula. The weakness of this paper lies in the preference given to students and faculty members only in opinions and considering only four universities. Perhaps, if the respondents comprise of all other universities both in public and private will add a more value and interesting results to be discussed.

References

ACARA (2012). Curriculum development process, Version 6, Australian Curriculum, Assessment and Reporting Authority. Available: www.acara.edu.au/verve/_resources/ACARA_Curriculum-Development_Process_Version_6.0_-_04_April_2012_-_FINAL_COPY.pdf

Akker, J. v. d. (2003). *Curriculum perspectives: an introduction. In J. van den Akker, W. Kuiper & U. Hameyer (Eds.), curriculum landscapes and trends.* Kluwer Academic Publishers: Dordrecht. 1-10.

AYENI (2013). Curriculum development for developing countries. Available: http://www.isprs.org/proceedings/XXIX/congress/part6/227_XXIX-part6.pdf

Barnett, R., Parry, G. and Coate, K. (2001). Conceptualizing Curriculum Change. *Teaching in Higher Education,* 6(4): 435-49.

Education Scotland (2009). *The purpose of curriculum.* Available: http://www.educationscotland.gov.uk/learningandteaching/thecurriculum/whatiscurriculumforexcellence/thepurposeofthecurriculum/index.asp

Eisner, E. W. (1979). Connoisseurship, Criticism and the art of education. Available: http://infed.org

Fink (2007). *The power of course design to increase students engagement and learning*: Available: http://aacu-secure.nisgroup.com/peerreview/pr-wi07/documents/PRWI07_fink.pdf

Guba, E. G. and Stufflbeam, D. L. (1970). *Evaluation: The process of stimulating, aiding and abetting insightful action in Smith, C.B (ed) Monograph series in Reading Education No. (1 June 1970).* Hameed Indian University.

Hair, J. G., Anderson, R. E. and Rajan, R. (1996). Managing the Buyer- Supplier Interface for On-time Performance in Product Development. *Journal of Operations Management,* 15(1): 57-70.

Jackson, P. W. (1968). *Life in classrooms.* Holt, Rinehart , Winston: New York.

Knight, P. T. (2001). Complexity and curriculum: A process approach to curriculum-making. *Teaching in Higher Education,* 6(3): 369-81.

Lankard, B. A. (1996). Training versus career development: What is voc ed's role? *ERIC Digest*, No. 249. ED376273.

Macdonald, B. (1975). *Some thoughts on the nature of curriculum.* Avilable: https://www.uea.ac.uk/documents/4059364/4410085/MacDonald-1974-Evaluation+and+the+Control+of+Education.pdf/f71bc9b9-d32f-4e7f-8d8b-8475293339f3(Viewed

Mackimm, J. (2007). *Curriculum design and development.* Imperial College Centre for Educational Development: London. 2.

Martinez, R. L. and Badeaux, A. (1994). This time, physics and chemistry. *Vocational Education Journal,* 69(4): 35-39.

Nicholls, A. S. and Nicholls, H. S. (1974). *Development curriculum: A practical guide.* George Allen and Unwin Ltd: London.

Nieveen, N. (2009). *Formative evaluation in educational design research. In Tj. Plomp & N. Nieveen (Eds.), An introduction to educational design research.* SLO: Enschede. 89-101.

Nieveen, N. M. (1999). *Prototyping to reach product quality. In J. van den Akker, R. Branch, K. Gustafson, N. Nieveen, & Tj. Plomp (Eds.), Design approaches and tools in education and training.* Dordrecht: Kluwer Academic Publishers. 125-36.

Peyton, R. and Peyton, B. (1998). *500 tips for talor's.* Kojan Page: London.

Richardson, J. (2010). College knowledge: An interview with David Conley. *Phi Delta Kappan,* 92(1): 28–34.

Taba, H. (1962). 'Curriculum development: Theory and practice', (New York: Harcourt, Brace, Jovanovich).

Tyler, R. W. (1949/1969). *Basic principles of curriculum and instruction.* The University of Chicago Press: Chicago, London.

Wolf, P. (2006). *Hand book for curriculum assessment.* University of GUElph, Educational Research and Development Units. 3

Yildirim, A. and Simsek, H. (1997). A qualitative assessment of curriculum development process at secondary vocational schools in Turkey. *Journal of Career and Technical Education,* 18(1): Available: https://ejournals.lib.vt.edu/index.php/JCTE/article/view/374/255
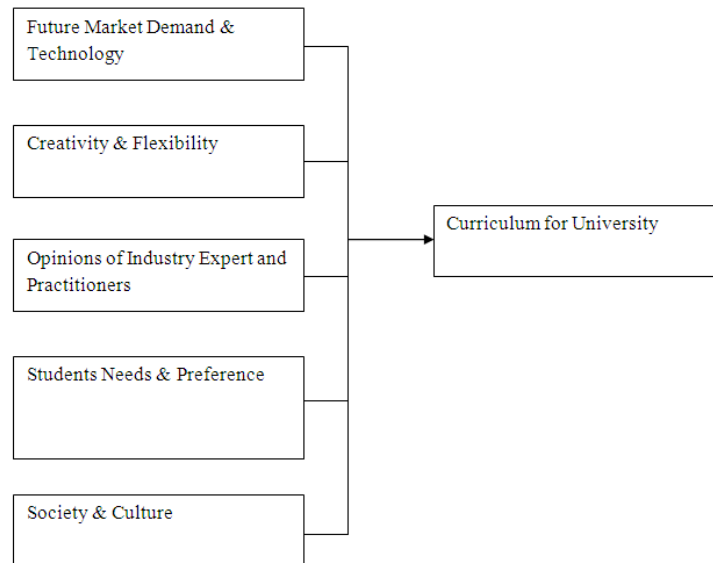
Figure-1. Framework of the study

Table-1. Correlation among variables

	CF	SNP	FMDT	SC	OIEP	CU
Creativity & Flexibility (CF)	1.00					
Students Needs & Preferences (SNP)	0.485**	1.00				
Future Market Demand and Technology (FMDT)	0.333**	0.392**	1.00			
Society & Culture (SC)	0.295**	0.297**	0.039	1.00		
Opinions of Industry Experts & Practitioners (OIEP)	0.063	0.116*	0.380**	0.295**	1.00	
Curriculum for University (CU)	0.529**	0.379**	0.650**	0.122*	0.407**	1.00

**Correlation is significant at the level at the 0.01 level (2-tailed)
*Correlation is significant at the level at the 0.05 level (2-tailed)

Table-2. Summary of Regression Analysis

Summary		ANOVA				β	T	P	Collinearity Statistics	
R	R^2	F	Sig.	Dimensions					Tolerance	VIF
0.760	0.578	93.866	0.000	Creativity & Flexibility (CF)		0.352	8.525	0.000	0.722	1.384
				Students Needs & Preferences (SNP)		-0.23	-0.527	0.598	0.665	1.503
				Future Market Demand & Technology (FMDT)		0.445	10.651	0.000	0.706	1.416
				Society & Culture (SC)		0.93	2.334	0.020	0.784	1.276
				Opinions of Industry Experts & Practitioners (OIEP)		-0.246	-6.082	0.000	0.755	1.324

Predictors (constant) : Future Market Demand & Technology , Creativity & Flexibility, Students Needs & Preferences, Opinions of Industry Experts & Practitioners, Society & Culture.