REFORMULATION OF TECHNICAL EDUCATION-A SYSTEM DYNAMIC APPROACH

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ABSTRACT

The present finding discusses about counter intuitive behavior of technical education system. System dynamic model developed is used for analyzing dynamic behavior of technical education system for enhancing quality of technical education system. The model developed is simulated for time horizon of 10 years and policy for quality is tested and proposed for quality up gradation of technical education system.

Keywords: Counter intuitive behavior, Time horizon.

INTRODUCTION

The primary goal of Technical education is to develop technical skills among the youth for creating technical man power in country. India produces large number of engineers annually. As per review report of All India council of technical education 2015 the total enrollment for engineering education is around 12 lakhs. In spite of having such a huge capacity of awarding technical education country is facing poor employability rate due to poor quality of engineers produced as per international bench mark Dewanga (2013). This is one of the major drawbacks for technical education of India and there is imperative need to review the existing policy and to redefine them and to test policy that can upgrade the existing quality Kurt (2003).

Why System dynamics as Methodology

System dynamics is adopted as a methodology for analyzing dynamics of student satisfaction on the quality of technical education as it provides both dynamic thinking and good representation of modelling real world. System dynamics is a computer based approach for solving complex problems of systems having non linear relationship among variables Barnabe (2004). The basic emphasis of this approach lies in the fact that it considers structure of the system responsible for its behavior as the system is interconnected and change in one component affects the change in other Oya, (2008).

LITERATURE REVIEW

Number of research scholars has examined the effect of each individual item constituting the overall studying impression such as library, canteen, personnel, Infrastructure development etc and consequently their effect on students satisfaction. Jayassundra(2010) have worked in the area of library science and its affect on student satisfaction. Parasuraman (1998) has proposed model for measuring service quality and its affect on student satisfaction. Alves (2013) has found the influence of faculty reputation and budget on student satisfaction. Exclusively reviewing contributions made by system dynamics community in the field quality of technical education there are some well known findings such as Kennedy (1998) elaborates model which incorporates factors such as planning, resources and human resource management. Vahdatzad, (2000) has proposed about the combined task of government and University for expansion of planned quality education. Kennedy (1999) reveals on the role of fund management for quality education. Barlas (1996) Discusses the importance of facilities, infrastructure and projects for quality education. Mohamed (1999) emphasizes on the importance of faculty in quality education. Hermann (1996) overviewed role of academic planning for quality education.

Development of system dynamic model

System Dynamic model for studying dynamics student satisfaction on quality of higher technical education is developed in two steps first the causal loop diagram is constructed taking variables which are proposed by experts in several researches. In second step stock and flow diagram is constructed which is a system dynamic model and then model is simulated for 10 years and the dynamic behaviour of student satisfaction is studied from the model.

Causal loop Diagram

Causal loop diagram is shown in the figure 1 in which sub loop R1clearly depicts about quality of technical education that increases as students satisfaction increases and as student satisfaction increases training programs related to student development increases which results in increase in placement of students which increases quality of technical education. Loop B1 depicts as student satisfaction increases it attracts new admission as a result fund generation is increased that again improves quality of technical education. Balancing loop B1 depicts as student satisfaction increases new admission increases which results in decrease in quality of technical education. Taking causal loop as a base stock and flow diagram is constructed which is simulated and scenario are generated for long run.
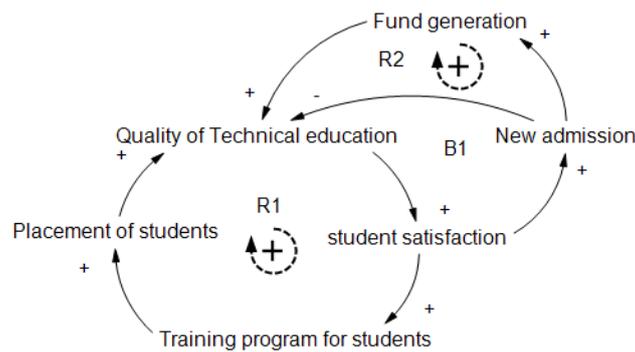

Figure 1.Cuasal loop diagram of student satisfaction

ANALYSIS OF RESULT

	Quality of technical education in Numbers		
YEAR	Student Satisfaction growth base case	Student Satisfaction growth Increased to 30%	Student Satisfaction growth Increased to 50%
2004	12.35	13.50	13.70
2005	182.89	184.05	184.25
2006	170.82	171.97	172.17
2007	157.57	158.72	158.92

TABLE 1.WHAT-IF SCENARIO FACULTY SATISFATION

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	Student Satisfaction growth base case	**Student Satisfaction growth Increased to 30%**	**Student Satisfaction growth Increased to 50%**
2004	12.35	13.50	13.70
2008	77.53	78.68	78.88
2009	134.85	136.00	136.20
2010	124.39	125.54	125.74
2011	164.73	165.88	166.08
2012	165.66	166.82	167.02
2013	166.25	167.40	167.60
2014	109.03	110.18	110.38
2015	110.72	111.87	112.07
2016	112.42	113.58	113.78
2017	114.12	115.27	115.47
2018	115.82	116.97	117.17
2019	117.52	118.67	118.87
2020	119.21	120.36	120.56
2021	120.91	122.06	122.26
2022	122.61	123.77	123.97
2023	124.31	125.47	125.67
2024	126.00	127.16	127.36
2025	127.70	128.86	129.06

CONCLUSIONS

From the simulated results shown in table 1.The results clearly depicts as the comparison of behaviour of student satisfaction with base case scenarios as student satisfaction is increased by thirty and fifty percent the quality of technical education rises and if student satisfaction is raised furthermore the quality of technical education is again

increased. This indicates that student satisfaction can be taken as policy decision for achieving quality in the long run.

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