

Measurement Of Performance Index Of Higher Educational Institutions by Using The Balanced Scorecard In The Northern State Of India

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Abstract

Higher Education plays a paramount role in the growth and development of the country which is linked to the efficacious management and an imperative factor to be considered to achieve the objectives of promoting quality education by higher education institutions. This study projects the performance measurement index for academic institutions as per the Balanced Scorecard approach based on the extracted factors from stakeholders' perceptions and the interpretation of the results, and this has been formulated with the help of four perspectives. In this research, a Multistage sampling scheme was used to comprise various stakeholders like students, faculty and Management people from 22 institutions both private and public in the Northern State (Punjab). The data has been collected from the 715 respondents which include all the stakeholders of the educational fraternity and empirically verified the Balanced Scorecard Approach with the help of Factor Analysis Approach to clinch out the diverse factors. The development of the performance measurement index is very important because it integrates the large information in a single easy format and it also allows us to set the benchmark and compare the performance for improvements in the future. Even this index provided input to the top management for strategic planning for improvement. Hence, the effectiveness of higher education institutions can be obtained by setting the benchmarking, evaluating and comparing the performance. Therefore, this study proves that the performance index is very efficacious for academic institutions for making the strategy for academic.

Keywords: Higher Education, Performance Index, Balanced Scorecard, Efficacious Management, Performance Measurement.

Introduction

Education is like an intellectual ecosystem as it acts as the key to life in shaping the future of the nation and thus the growth and development of the nation are heavily influenced by higher education. Recently, there has been a paradigm shift in the quality and quantity of private institutions/Universities due to globalization and this has reflected a

change in the educational scenario that demands efficiency, competitiveness, and transparency. Higher education institutions especially private institutions are desperately finding new ways to improve their financial health for survival and there lies a role for efficacious management to improve their effectiveness. Further, in Punjab, various institutes and private universities have made meticulous efforts to achieve name and fame in the education field and got positive accreditation from

government agencies which further necessitates a need to study the performance measurement index of higher education institutions which can foster the measure of quantitative and qualitative parameters and can also enable comparativeness amongst them.

A Balanced Scorecard is a dual system of management and measurement which enables the organization to craft and implement its strategies into action through an effective management system (Kaplan and Norton, 2001a; Niven, 2002). The first time, it was introduced by Robert Kaplan and David P Norton (1992) in the Harvard Business review article. Initially, BSC was established in Business because a balanced presentation is a pre-requisite for managers in the context of the parameters like financial and operational measures. BSC provides feedback on the internal process as well as an external output level of the organization for the continuous improvement of strategies in different fields such as the banking sector (Chet et al, 2008), performance measurement system of higher education institutions/Universities (Reda, 2017) and management in workplace network (Rasila et al., 2010) for the growth of the organization. Therefore, the whole arena is open to setting the goals and measurement points according to the business objectives.

Thus, the Balanced Scorecard considers the customer perspective along with the other three perspectives. Just like a business, higher education also has conventions for measuring quality. Every business has a motive to increase profit. However, major higher educational institutions are based on the notion of fostering social and educational inclusivity so they give more emphasis on quality education and academic measures.

Review of Literature

Performance measurement in higher education institutions is an essential evaluation process that guides decision-making in academic institutes. So, it is not an end but is used to measure &, motivate, promote, learn and improve (**Behn, 2003**). Although, performance measurement does not deal with the improvement of higher education institutions but is being used for the betterment of social lives and to increase the awareness of the public. As a result, all institutions need to have accrediting institutions for the "self-study" that determines how well they serve as knowledge-transfer bodies in society (Astin,2012). **Karathonos and Karathonos (2005)** used examples of three main higher education institutes in the USA to prove the BSC criteria are indispensable for the formulation of a measurement system that reflects the strategic objectives and unique mission of all the three institutes of higher learning. They described how the Balanced Scorecard can be adapted to the education sector and discussed the significant similarities and gaps in a Balanced Scorecard for industry and academia. **Umashankar and Dutta (2007)** addressed the application process for BSCs at Indian higher education institutions. He proposed some important success factors which are critical for achieving excellence in HEIs if executed properly and then academic institutes can achieve quality in the specific field.

Venkatesh and Kirti (2007) enlisted the importance of the balanced scorecard for all types of institutions and they proposed that BSC is a fundamental formulation for the measures which align with the mission of knowledge creation, sharing and usage of all elements and aspects related to higher education, and help external stakeholder for mobilizing framework. **Rollins (2011)** developed a relationship between higher education and a balanced scorecard which is employed as a measurement method for

management performance to define academics as non-profit public and private two years colleges and four-year universities.

In addition to this, traditional financial evaluations for universities depict strong constraints on the academic potential, such as higher educational organizations do not provide an overview of the overall structure of the academics and they do not evaluate the contribution of non-physical assets namely executive skills, the efficacy of functional procedures, employee engagement, the loyalty of customers etc. in the design of ethics within the corporate structure. Secondly, long-term directions are neglected by them. **(Lynch and Cross, 1991)**. **Schobal and Scholey (2012)** analyzed that higher academic organizations with well-defined financial strategies that are linked to educational outcomes will be well-positioned for success even as their funding models change. The research was based on the BSC in a higher education distance learning scenario and concluded the importance of financial strategies for higher education at a time for universities are focused on performance metrics associated with learning. **Sordo et al. (2012)** proposed that a Balanced Scorecard is an essential tool that is used for developing a strategy for multidimensional aspects of universities' performances for the administration and other stakeholders. **Alani et al. (2017)** concluded that the development of the framework that is based on the strategic map is determined by the vision and aims of the higher educational institution. Their research pointed to the strong positive correlation between perspectives of BSC and strategic map. BSC acts as the main tool for performance evaluation as well as enhancing the quality services of academic organizations. **Reda (2017)** highlighted the compatibility and contribution that a balanced scorecard provided in higher

educational institutions and also offered a model as a quality tool for Higher Education Institutions. This study explored the perspectives of the BSC and its congruence with the input, process and outcome dimensions of the quality assurance process. Moreover, if all the imperative parameters are represented in the perspectives, then the BSC seems to be more significant for the three dimensions in HEIs and ultimately, would be more helpful for the alignment of these with the ultimate vision and mission of the institution. **Kaur & Singla, (2019)** have already discussed the perceptions of students, Faculty perceptions and Management perceptions (Kaur & Singla, 2021) to measure the performance measurement index and identified the extracted factors in their research paper. Now this research will attempt to link the variables under the extracted factors with four perspectives of the balanced scorecard as discussed by Kaplan & Norton. BSC proposed the four perspectives to measure the academic performance of higher education institutions (Kaplan and Norton, 1996b, 2001a) and which have provided the translation design to academia (Dorweiler et.al, 2005). **Camilleri, (2020)** critically explained the merits and shortcomings of using the Balanced Scorecard which can be used as a performance measurement tool for the continuous analysis of higher education.

Following are the four perspectives of the Balanced Scorecard.

1. The Customers' Perspective: The customer's perspective discussed the customers' expectations from the organizations and in other words "How stakeholders see an organization". The organization focuses on the customer's satisfaction and gives value to each customer. And in academia

stakeholder perspective involves the satisfaction of students, faculty, management, parents, alumni etc.

2. The Internal Business Process Perspective: This perspective discussed the internal operational process of the organization. What must we excel in? This perspective

includes the attributes such as teaching/learning excellence, campus placement, digitization of academic awards, high profile faculty, Staff development, Research work, seminars and industrial visit, best curriculum, rewards for faculty and staff etc.

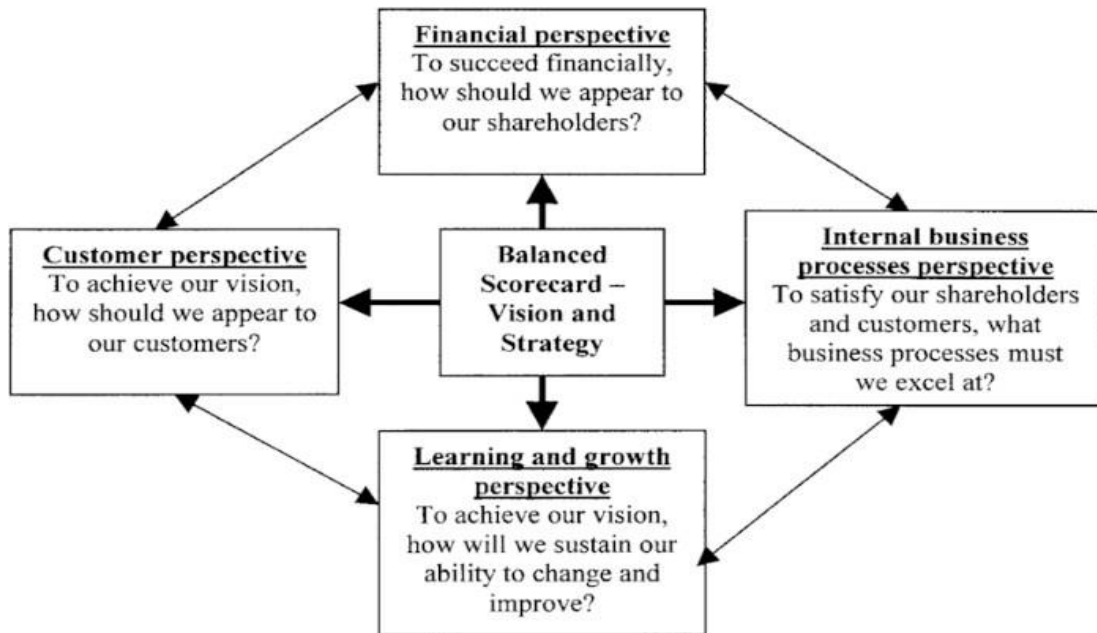


Figure 1 Balanced Scorecard's Perspectives

Source: Kaplan and Norton, 1996a

Human capital investment and External relationships.

3. The Learning and Growth Perspective: (Can we continue to improve our ability to grow and create value?) This perspective considers the employee capabilities, company culture and values for the organization along with self-growth. The attributes included in this perspective are faculty motivation and professional growth, extra-curricular activities, adequate physical facilities, research environment and availability of resources etc.
4. Financial perspective: How do we look to customers? Fundraising,

Objectives of the Study

Based on the extensive review of literature, the following objectives have thereafter been formulated to support the study:

1. To explore the formulation of a performance measurement index for higher educational institutes.
2. To empirically verify the design and performance of BSC (Performance Measurement Index) for selected institutes.

Research Methodology

To fulfil the aforementioned study's objectives, the primary data has been collected from the management institutes. In this research, a Multistage sampling scheme was used to comprise various stakeholders like students, faculty and Management people from 22 institutions private and public in the Northern State (Punjab) of India. The further region is divided into three parts Majha, Malwa and Doaba regions. To evaluate the effectiveness of management institutions, views and perceptions of students, faculty and principals/Directors/Deans/Hods have been asked for filling out the questionnaire (Kaur & Singla, 2019, 2021). The factor scores from the extracted factors (research papers on the perceptions of stakeholders have already been published) have been used to measure the Balanced Scorecard. Further, a separate questionnaire has been constructed for the selected institutes 'stakeholders. Hence, the total sample size of the study was 715 respondents. Besides, factor analysis has been conducted to identify the factors for the performance measurement index of the higher academic institutions to know the perceptions of the students, faculty members and management people. This study proposed the performance measurement index for academic institutions as per the Balanced Scorecard based on the extracted factors from stakeholders' perceptions and the interpretation of the results. And this was formulated with the help of four perspectives.

Development of Empirically verification of Performance Measurement Index

Once the extracted factors have been obtained by the perceptions of all stakeholders and formulated the balanced scorecard with the help of its four perspectives as per the Kaplan & Norton Model, then the following steps were

carried out for developing the performance measurement Index.

1. A separate data has been collected from the selected institutions for developing the Balanced Scorecard. A total of 70 questionnaires were filled out by the different stakeholders of the selected institutions.
2. From this data, weighted average, Z-test and Chi-square were analyzed. Further, only significant measures were selected in the formulated Balanced Scorecard.
3. Then the value was given to each variable according to its factor score. After that multiplied by its percentage of variance. Then estimated the weights of students, Faculty and management people. Further, Attribute share in performance measurement was calculated by multiplying the average weights of stakeholders by the weighted average score of the selected institutions.
4. Then these steps calculated the average of each perspective.

Perspective Average= Sum of Attribute shares in perspective /No. of measures selected in the perspective.

As a result, the Index value was found after getting the average of all four perspectives in the last column

Index value= Sum of perspective average/ No. of perspective in the Index.

Formulation of a Performance Measurement Index as per the Balanced Scorecard

This study proposed the performance measurement index for academic institutions as per the Balanced Scorecard based on the extracted factors from stakeholder's perceptions and the interpretation of the results (Chang et al., 1999; Stewart et al., 2000, Ivy, 2001; Cribb et al., 2003; Karathanos, 2005; Venkatesh, 2007; Farid et al. 2008). Tables I, II, III, & IV depicted the measures which were selected after extracting the factors by applying factor analysis and all these tables explained the Customer perspective, the Internal process of the organizations, the Learning and Growth perspective and the

last perspective is Financial (How much amount spending by the organizations for the satisfaction of the stakeholders and how much they are getting in the form of profits). The first Customer perspective is very important because the quality of education is associated with the satisfaction of stakeholders such as students, faculty members and management people. Moreover, institutions/Universities can only increase the quality when their stakeholders are satisfied. All the measures would not work if the demands of all stakeholders are conflicting with each other.

Table 1 Stakeholder's perspective-including students, Faculty and Management

Perspectives	Objectives	Extracted Factors	Measurements
Customer perspective-including students, Faculty and Management	Customer Satisfaction (Students)	Digitization of academic awards	Students have a link to NAD
			Students may claim their awards from NAD
			Digital Certificates are available on NAD
			Students can take a printed copy of digital certificates from NAD
		Campus Placement	Effective student placement
			Students have a success rate in competitive exams
		Extra-Curricular Activities	Sufficient playgrounds and sports material
	The institution pays sufficient scholarships /grants in sports competitions to the students		
	Infrastructure	Good Infrastructure	
	Seminars and Industrial Visits	Organized industrial visits	
	Faculty (Growth and, Learning Opportunities)	Research And Staff Development	Institute provide the platform for the overall personality development of students
			Salaries are as per scale
			Teachers always teach as per the specialization
Well-planned staff development programs			

			Adequate Training/ induction opportunities for the new faculty	
			Well-maintained study rooms and Staff cabins	
			Sufficient Research material in the Library	
			Research Papers published by faculty are sufficient	
			Institute give the proper awards, honors and increments for the contributions of the faculty	
			Accept suggestions of the faculty member	
	Management (Teaching quality, Academic Excellence, Quality research, staff complaints)	Staff Motivation and Development		Each member of the faculty and staff has the opportunity to participate in a variety of seminars, FDPs, conferences, workshops, and refresher courses to keep up with current events.
				The institute spends a decent amount on employee development.
				To keep teaching and learning materials up to date, there are enough monitoring and evaluation.
				Institute give the proper awards, honors and increments for the contributions of the faculty
				Encouragement is given to faculty to put forward new ideas.
		Research Environment		Sufficient seminars and conferences are organized by the institute.
				Sufficient Research material in the library
				Availability of Research plagiarism in the institute
				Sufficient Research Papers published by faculty
		Staff Constraints		Teaching and research work suffers due to other' work assigning
				Politically connected employees receive inappropriate favours.
				Extraneous variables play a role in both the hiring process and staff promotions.
				Faculty have the excessive teaching workload

Table 2 Internal Process

Perspectives	Objective	Extracted Factors	Measurement
Internal Business perspective (Student/Stakeholder Focus)	Teaching/Learning Excellence (Student Satisfaction, Faculty rewarded & Course Evaluation)	Campus Placement	High Campus placement
			Institute covers the knowledge gap of students with different course backgrounds
			Students that register in courses that are career-focused are placed earlier than other students.
			pass-out students get easy admissions to higher education courses
			Students have a success rate in competitive exams
		Digitization of academic award	Students may claim their awards from NAD
		Seminars and Industrial Visits	Organize industrial visits
		Extra-Curricular Activities	Sufficient playgrounds and sports material
		Staff Motivation and Development	Promotion Chances for faculty
			Institute give the proper awards, honors and increments for the contributions of the faculty
	A platform for overall personality development		
	Teaching and learning material is under review through proper monitoring and evaluation		
	Cost Efficiency	Student facilities	The number of students and equipment ratio in labs is quite satisfactory
		System Support	The Institute pays considerable attention to student's overall development
	Quality of Faculty, Currency of faculty and classroom material/experiences	Student Teacher interrelationship	Teachers always teach as per the specialization
Teachers stimulate students thinking through strategy and learning material			
Availability of a good educational environment for the intellectual qualities and capabilities of the faculty			

			Family atmosphere and mutual trust exist in the teaching faculty
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Table 3 Learning and Growth Perspective

Perspectives	Objectives	Extracted Factors	Measurements
Learning and growth Prospective	Faculty Motivation/ Development/ Professional growth	Staff Motivation and Development	Sufficient seminars and conferences are organized by the institute.
			Teachers are encouraged to put forward new ideas.
			A platform for overall personality development is available.
			The institute assigns duties fairly.
			The institute properly acknowledges employee contributions by giving them medals, awards, promotion, and other benefits.
			Staff development programs are well planned.
			The amount spent on research development is satisfactory (approximately 50%)
	Teaching /Learning Innovations	Student Teacher interrelationship	Teachers always teach as per the specialization
			Teachers stimulate students thinking through strategy and learning material
	Reward System	Staff Motivation & Development	Institute give the proper awards, honors and increments for the contributions of the faculty
		Extra-Curricular Activities	The institution pays sufficient scholarships /grants in sports Competition/Cultural activities to the students
	Adequate physical facilities	Infrastructure	Material such as IT and stationery
			fully equipped lecture halls with the latest technology
			Well-maintained study rooms and individual Staff cabins available for faculty
			Projectors and an audio facility are available in lecture halls
		Facilities of fresh drinking water, washroom and common rooms & parking are nearby.	
	Research Environment &	Availability of Teaching material in Library	

		availability of Resources	Organized Proper Seminars and conferences
			Sufficient Research material in the library
			Library possesses digital data and access to e-journals
			Library collection for research is sufficient in the institution.

Table 4 Financial Perspective

Perspectives	Objectives	Extracted Factors	Measurements
Financial Perspective	Prosper, Succeed, Grow & Survive	Staff Motivation and Development	The amount spent on research development is satisfactory (approximately 50%)
		Research Environment & availability of Resources	The amount spent on staff development is satisfactory in the institute
		Extra-curricular activities and Infrastructure	The institution pays sufficient scholarships /grants in sports competitions to the students

Similarly, the second and third perspective in table 2 & 3 shows an internal process and the Learning & Growth Perspective of academic organizations. The next perspective involves the internal operational process. The higher education institutions must have a high quality if they are running a strong and smooth internal process in their functioning. This perspective focuses on teaching/learning excellence, student and faculty satisfaction, faculty rewards, cost efficiency, quality of faculty and its experience, teaching methods etc.

In addition to this, quality achievement is the result of collective efforts of all the stakeholders and acquisition of limited resources and the main focus on the qualified experienced faculty and staff, best facilities for the students and faculty, better

research work, availability of the types of equipment and best faculty-student ratio and good financial support by the management for the productive activities for the development of the students and faculty members etc. Moreover, all the acquired resources must be utilized effectively so that the wastage of resources can be reduced. Therefore, surpluses can be implemented only if higher academic institutions will deliver the new programs which must be relevant for the public context and imperative for the employment generation but dearer to implement.

Table 4 depicted the financial perspective which is the root of the higher education institutions and where the money amount comes from for the development. As per Kaplan & Norton, the main objective of this perspective is revenue growth due to success and improving asset utilization for

the product strategy. For public institutions, there is government funding for academic development. Government is liable to only public institutions. However, private institutions do not have any government funding. Only NGOs and research agencies provided the funds for the development of academics. Moreover, institutes earned the revenue from the fee and management is liable to provide the funds to the private institutions/Universities. The main limitation of this perspective in the evaluation is the monitoring process and difficulty to gather the data and no institute was ready to share the financial data during the survey. Therefore, all the data was collected on the Likert scale for the formulation of the performance measurement index.

Figure 1 reveals the design of the Balanced Scorecard which is proposed by Kaplan and Norton (2001). They said that organizations are using the BSC to

- Clearly define the mission and vision of the organization;
- Strategic policies;
- Share the strategic goals and measures with their stakeholders;
- Align the institution's objectives as per its mission, vision & strategy;
- Associate the strategic goals with the long period targets and with the budgets of the organizations;
- Conduct the annual reports of the performance to learn about and for improvements in the strategies;
- Get feedback for the improvement of plans and strategic measures.

All the above merits of the BSC are relevant for higher learning academic

institutions in the context of Punjab. Panday (2005), proposed that "BSC is very simple and systematic. Moreover, it is easy to understand the process of performance measurement and evaluation. Further, it is also easy to communicate strategic goals to all levels of the organization". Apart from this, Kaplan & Norton (2001) gives the most imperative benefit of it that BSC aligns the strategic goal which leads to better communication and as a result gets better performance. Therefore, considering all associations, we can say that the following merits can be helpful:

- Induced investment in the stakeholders and staff/faculty development leads to improve service quality;
- High quality leads to increased satisfaction of stakeholders;
- High satisfaction of stakeholders leads to promotion its retainment/loyalty;
- High customer loyalty spreads positive thoughts all over and leads to positive word of mouth, rise in revenue and grants can lead to injecting new investment into the system for further development in the organization.

Empirical Verification of Performance Measurement Index for Selected Institutes

Based on selected attributes from the extraction of factors to measure academic performance, the resources have selected weights for the attributes using perceptions of students, faculty and management members. And the same has been used in determining their role in the four perspectives of the Balanced Scorecard and is being reported in table 5. All the statements/measurements have been taken

from the perceptions of the stakeholders and only significant measurements were selected after applying the Z- test to the data which is collected from the two

selected institutions, one is private and another one is public for the evaluation of the performance measurement index.

Table 5 Chi-Square and Z-Test

Variables	Chi-Square	p-value	Weighted Average	Z-Test
Students have a link on NAD(National Academic Depository)	56	0.000	2.97	-5.0*
Students may claim their awards from NAD	43.2	0.000	3.17	-4.58*
There is an Effective student placement	13.286	0.010	3.09	-5.34*
Sufficient playgrounds and sports material is Available	36.857	0.000	2.34	-9.67*
Well Organized industrial visits	40.743	0.000	3.14	-4.43*
Institute provide the platform for overall personality development of students/Faculty	43.8	0.000	2.80	-6.06*
Salaries are as per scale	36.429	0.000	4.46	1.49
Teachers always teach as per the specialization	16.429	0.002	2.86	-5.27*
Well-planned staff development programs	43.8	0.000	3.87	-0.54
Adequate Training/ induction opportunities for the new faculty	13.314	0.021	3.64	-1.48
Availability of Individual cabins for faculty	23.943	0.000	2.49	-8.08*
Sufficient Research material in the library	64.743	0.000	3.31	-3*
Research Papers published by faculty are sufficient	26	0.000	3.66	-1.62
Institute give the proper awards, honours and increments for the contributions of the faculty	28.2	0.000	4.39	1.65
The faculty is involved in the decision-making of the institute	12.457	0.029	3.47	-2.53*
Each member of the faculty and staff has the opportunity to participate in a variety of seminars, FDPs, conferences, workshops, and refresher courses to keep up with current events.	79	0.000	2.89	-5.28*
To keep teaching and learning materials up to date, there are enough monitoring and evaluation	57.714	0.000	2.83	-6.98*
Availability of Research plagiarism in an institute	32.686	0.000	3.74	-1.27
Institute covers the knowledge gap of students with different course backgrounds	29.857	0.000	2.77	-6.62*
Students pursuing job-oriented courses get placement earlier than other students	65.4	0.000	3.40	-3.05*
Proper Promotion Chances for faculty	21.8	0.001	3.61	-1.64
Teaching and learning material is under review through proper monitoring and evaluation	59.429	0.000	2.99	-5.85*
The number of students and equipment ratio in labs is quite satisfactory	45.029	0.000	3.16	-3.63*

Family atmosphere and mutual trust exist in the teaching faculty	65.257	0.000	2.76	-5.68*
Sufficient seminars and conferences are organized by the institute.	136.571	0.000	2.56	-7.8*
Teachers are encouraged to put forward new ideas	67.486	0.000	2.89	-5.38*
A platform for overall personality development is available	59.771	0.000	3.19	-3.69*
The institute assigns duties fairly	53.771	0.000	2.71	-6.92*
Staff development programs are well planned	36.971	0.000	3.59	-1.78
Teachers always teach as per the specialization	41.6	0.000	3.36	-2.89*
Teachers stimulate students thinking through strategy and learning material	88.057	0.000	2.66	-7.78*
Well-maintained study rooms, and individual Staff cabins available for faculty	51.2	0.000	2.99	-5.23*
Projectors and an audio facility are available in lecture halls	26.514	0.000	3.13	-3.86*
Library possesses digital data and access to e-journals	30.629	0.000	3.21	-3.94*
Library collection for research is sufficient in the institution	28.914	0.000	3.21	-4.21*
The amount spent on research development is satisfactory (approximately 50%)	32.8	0.000	3.86	-0.66
The institution is getting a sufficient amount of grants from any funding agency	34.6	0.000	3.89	-0.5
The amount spent on staff development is satisfactory in the institute	32	0.000	3.99	-0.06
The institution pays sufficient scholarships /grants in sports competitions to the students	49.829	0.000	2.99	-4.94*

*Significant at 5% (where $Z > 1.96$)

The Chi-square and Z-Test have been applied to the data which is collected from the selected institutions to empirically verify the performance measurement index. Only significant statements have been selected for the performance measurement index. The Z-test column * shows the significant value at the 5 % level and in other words, when the calculated value Z is more than 1.96 at the significance level.

In the formulation of the Balanced Scorecard, more statements have been used. Apart from this, the value of the Z-test of some statements was insignificant because Z-value is less than 1.96. However,

in the index, only significant measures have been included. Further, it can be seen from the chi-square test which was applied to the data of 70 respondents and analyzed that all the statements are significant whereas the p-value < 0.05 . i.e., the null hypothesis is rejected and concluded that there is a significant relationship between the choices of respondents.

Table 6 proposed the performance measurement index for higher education institutions, which analyzed the four perspectives with the help of pre-set objectives and extracted factors from the perceptions of the stakeholders as per the balanced scorecard. It can be seen, that

each perspective's average value from table VI, which showed that the customer perspective, internal process, Learning & Growth and Financial perspective have an average of 0.51, 0.46, 0.52 and 0.71.

The value of the Internal process describes the below level. In addition to this, the weighted average score of the selected institutes represented that all the weights were less than the 4 except for a few variables which reflect that the lesser value of weights describes the satisfaction level of the stakeholder. The perceptions of the stakeholder's measured on 7 points Likert scale. Therefore, above the value of 4 presents the disagreement level of the stakeholder. Lastly, the index value of performance measurement was 0.55. Since value lies at the beginning of the third quadrant, these institutions may be termed as above average in performance. But the attribute share shows the poor condition of the institutions for a few measures like customers were not satisfied with the effective student placement, and the lack of playgrounds and study material. And attribute share was very low for the 'Encouragement gives to faculty to put forward new ideas. Similarly, in the fourth perspective, stakeholders were not more satisfied with 'Library collection for research material'.

The results reflected that the performances of academic institutions are not up to the mark for some of the attributes and so for match performance with their mission and vision. Institutions are required to take steps for improvement in those items. Thus, there is a need to improve each perspective of the balanced scorecard if we want to improve the quality of higher education institutions by using the performance measurement index.

Hence, the help of weights and performance measurement indicators

allows the academic institutions to decide what is more important from all four perspectives. This index highlights the performance areas where the parameters want proper attention. The development of the performance measurement index is very important because it integrates the large information in a single easy format and it also allows us to set the benchmark and compare the performance for improvements in the future. For example, the table shows the 0.46 internal perspective average value which determined that institutions are below average in their operational process and this value can be used to compare the internal system of the organizations.

Table 6 Performance Measurement Index as per Balanced Scorecard

Perspectives	Objectives	Extracted Factors	Measurements	Weights			Average Weights	Weighted Average Score from Selected Institutions	Attribute share in Performance Measurement	Perspective Average	Index Value
				Students	Faculty	Management					
Customer perspective including students, Faculty and Management	Customer Satisfaction (Students)	Digitization of academic awards	Students have a link to NAD	0.10	0.45	0.83	0.46	2.97	1.37	8.23/16=0.51	2.21/4=0.55
			Students may claim their awards from NAD	0.10	0.44	0.86	0.47	3.17	1.48		
		Campus Placement	Effective student placement	0.07	0.63		0.04	3.09	0.11		
		Extra-Curricular Activities	Sufficient playgrounds and sports material	0.06			0.06	2.34	0.15		
		Seminars and Industrial Visits	Organized industrial visits	0.63			0.63	3.14	1.99		
	Faculty (Growth and, Learning Opportunities)	Research And Staff Development	Institute provide the platform for the overall personality development of students			0.11	0.11	2.8	0.32		
			Teachers always teach as per the specialization			0.09	0.09	2.86	0.27		

		Well-planned staff development programs		0.12	0.08	0.10	3.87	0.38
		Adequate Training/ induction opportunities for the new faculty		0.11		0.11	3.64	0.42
		Well-maintained study rooms and Staff cabins		0.08		0.08	2.49	0.21
		Sufficient Research material in the library		0.11	0.11	0.11	3.31	0.36
		Research Papers published by faculty are sufficient		0.09		0.09	3.66	0.31
		Institute give the proper awards, honours and increments for the contributions of the faculty		0.08		0.08	4.39	0.36
Management (Teaching quality, Academic Excellence, Quality research, staff complaints)	Staff Motivation and Development	Each member of the faculty and staff has the opportunity to participate in a variety of seminars, FDPs, conferences, workshops, and refresher courses to keep up with current events.		0.10		0.10	2.89	0.29
		To keep teaching and learning materials up to date, there are enough monitoring and evaluation.			0.08	0.08	2.83	0.22
		Encouragement is given to faculty to put forward new ideas.		0.10	0.11	0.01	3.47	0.02

Internal Business Perspective (Student/stakeholder perspective)	Teaching /Learning Excellence (Student Satisfaction, faculty rewarded & Course evaluation)	Campus Placement	Institute covers the knowledge gap of students with different course backgrounds		0.08	0.10	0.09	2.77	0.25	2.31/5 =0.46
			Students pursuing job-oriented courses get placement earlier than other students	0.08	0.66	0.09	0.28	3.4	0.94	
		Staff Motivation and Development	Teaching and learning material is under review through proper monitoring and evaluation		0.06	0.08	0.07	2.99	0.20	
	Cost Efficiency	Student facilities	The number of students and equipment ratio in labs is quite satisfactory	0.06	0.25	0.06	0.13	3.16	0.40	
		Student Teacher interrelationship	Family atmosphere and mutual trust exist in the teaching faculty		0.19		0.19	2.76	0.53	
Learning and growth Prospective	Faculty Motivation/Development/Professional growth	Staff Motivation and Development	Sufficient seminars and conferences are organized by the institute.		0.08	0.12	0.10	2.56	0.25	5.8/11 =0.52
			Teachers are encouraged to put forward new ideas.			0.11	0.11	2.89	0.32	
			A platform for overall personality development is available.			0.11	0.11	3.19	0.36	
			The institute assigns duties fairly.			0.09	0.09	2.71	0.25	
			Staff development programs are well planned.			0.08	0.08	3.59	0.27	

	Teaching /Learning Innovations	Student Teacher interrelationship	Teachers always teach as per the specialization		0.35		0.35	3.36	1.17	
			Teachers stimulate students thinking through strategy and learning material		0.29		0.29	2.66	0.78	
	Adequate physical Facilities	Infrastructure	Well-maintained study rooms and individual Staff cabins available for faculty		0.08	0.08	0.08	2.99	0.25	
			Projectors and an audio facility are available in lecture halls		0.57		0.57	3.13	1.78	
		Research Environment & Availability of Resources	Library possesses digital data and access to e-journals			0.07	0.07	3.21	0.24	
			Library collection for research is sufficient in the institution.			0.05	0.05	3.21	0.17	
Financial Perspective	Prosper, Succeed, Grow & Survive	Extracurricular activities and Infrastructure	The institution pays sufficient scholarships /grants in sports competitions to the students	0.07	0.58	0.07	0.24	2.99	0.72	0.71

Moreover, targets can be set to achieve more in this perspective by comparison. The key contribution of this study is to frame the index to measure the performance of higher educational institutions. Even this index will provide input to the top management for deciding steps for future improvement.

Besides this, by using the performance measurement index, it would be easy to identify the problems from a specific perspective and solve it rather than improve at the general level. This performance measurement index will work more if educationists of Punjab are keen to do efforts for excellent education or quality performance. Further, this index would be more useful when the survival of the institutions required steps for improvement in the changing environment. However, for this performance measurement index, it would have the limitation that difficult to collect the related data as per the vision of the academics.

The popularity of Indian graduates and engineers has been increasing abroad (Chhaparia, 2006). Therefore, Indian institutes have to improve world-class quality. Hence, if higher education institutions implement the performance measurement index for academic improvement, they would improve the position of the stakeholders as per the programs in the minds of the international audience. All higher education institutions and universities can get benefit through the balanced scorecard application using additional variables as per future needs and academic institutions can rank the four perspectives according to their importance. There are some important steps before following the Balanced Scorecard and Performance Measurement Index

1. The selection of four perspectives of the balanced scorecard opens with a clear definition of the mission and vision of the institution. Therefore, the role of management in this area should be significant to communicate the vision, mission and strategy with the

involvement of all stakeholders. Then it would be more helpful to each staff member to understand features and all would reach a common understanding of the academic policies and goals. The outcome of this analysis depends extensively on the continuous involvement of the top management.

2. This research study confirms that the balanced scorecard and performance measurement index is a nascent concept for the stakeholders. Hence, more deliberation must be maintained at various levels. To this end, there should be high responsibility of top management along with stakeholder's involvement.

The Indian institutions/Universities may be benefitted from this application of the Balanced Scorecard and performance measurement index to inculcate the areas that they are required to urgently focus upon and design appropriate strategies.

Conclusion

The research also formulated the four perspectives for the empirical verification of the performance measurement index such as stakeholder's perspective, Internal Business Process, Learning and Growth perspective and financial perspective. This formulation analyzed that the index can be framed as per the mission and vision of the organization and it can be implemented to evaluate the performance of the higher educational institutions because initially it was used in the industry.

Therefore, the help of weights and performance measurement indicators allows the academic institutions to decide what is more important from all four perspectives. This index highlights the performance areas where the parameters want proper attention. The

development of a measurement index is very important because it integrates the large information in a single easy format and it also allows us to set the benchmark and compare the performance for improvements in the future. Hence, the effectiveness of higher education institutions can be obtained by setting the benchmarking, evaluating and comparing the performance of higher educational institutions. This study proves that the performance index is very efficacious for academic institutions. Therefore, organizations can plan the strategy and should fix the benchmarking to achieve success in this competitive era. Thus, to get a better future, strategic planning is a must. On the other hand, there is a large chunk in the number of establishments of universities. By using the performance measurement index, shortcomings of the different institutions can be measured and rectified measures could be used in the specific area.

The Indian universities and institutions of higher education may be benefitted from this application of the Balanced Scorecard and performance measurement index to inculcate the areas that they are required to urgently focus upon and design appropriate strategies.

As a result, performance measurement is essential in this competitive world. Further, this evaluation model could be helpful for higher educational institutions to achieve the final target and compare past plans. Further, implementation of the planned strategies and fixing the performance targets for the employees.

Scope of Further Research

To know the perceptions of stakeholders and frame the performance measurement index is a very broad study. The limitations of the present study as the base can be used for future research. Moreover, the following are the points for further research.

1. The same study could be conducted in other states of India.
2. This study considered only management institutions. However, further research can be conducted at the general level such as in the field of Agriculture, Engineering, Law colleges and medical science.
3. The present research included only three stakeholders like students, Faculty and Management (Directors/Principals/Deans/HoDs), but in further research parents, alumni and employers can be included to know the perceptions at the broad level.
4. With the help of the performance measurement index, cross-comparison of the different institutions/Universities can also be made and ranks can be identified as per the index value.
5. In the present study, we did not include the non-teaching staff. Researchers can also be added to further research.

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