



Tracking Key Performance Indicators within Educational Institutions: The Balanced Scorecard Approach

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ABSTRACT

This research highlights the application of Balanced Scorecard methodology on relevant key performance indicators, with high impact on the development of Romanian educational services. Without pretending to be a comprehensive study with generalizable results, this research reveals the analysis of fifteen performance indicators, integrated in three dimensions: institutional capacity, educational efficiency and quality management. The Balanced Scorecard model enables an efficient management in order to deliver the best value to all educational stakeholders. We consider that the findings will have significant implications both on the educational decision makers and the managers of educational institutions from Romania, as the integration of relevant performance indicators in this survey purposefully challenge their minds.

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1. Theoretical background

In order to manage successfully, managers from educational institutions need information about the performance and tendencies of their organization. A group of Spanish researchers investigated the Key Performance Indicators that are definitely the key to higher education institutions (Lo-Iacono-Ferreira et al., 2018).

The importance of educational transformations and changes in order to improve schools management is essential. In order to be a successful school, the managers must be very interested in what they purpose, they must know very well their goals. Hardworking is a key word. Students must also have excellent specialized instruction, which goes together with effective learning. Students, teachers and managers must work together, they must know their goals and plans very well (Amoli and Aghashahi, 2016).

Higher education in the international context is the main goal-feature of the research conducted by Hemsley-Brown and Oplatka (2006). Using marketing theories and concepts proved to increase higher education marketing. A higher education international market must have strong goals and marketing strategies. Higher education institutions have the most important role in human success, represent the success of the entire society. Higher education must reveal its aims, actions and results. From the entire research, sustainability appraisal contributes to the development of sustainability actions in higher education institutions because it shows its real advantages (Mader, 2012).

In order to find the successful management of schools we tried to see if the practices of performance management are associated with improving outcomes in the public sector. New York City public schools were those we have issued to. What is certain is that student's performance goes together with management practices (Sun and Van Ryzin, 2014). Analyzing the activity of the Chicago public high schools for a couple of years we tried to see if decentralization improved performance or not. We wanted to see the efficiency of introducing site-based management to Chicago public high schools. In the future it will be very interesting to analyse private high schools and other public high schools, to compare the relative effectiveness of site-based management. What is absolutely certain is that performance must be improved (Grosskopf and Moutray, 2001). The first year at college has always a major impact on students' lives. Self-efficacy and optimism proved to increase the academic performance and personal adjustment for the first-year college students. The confidence of students is very important too, their abilities to success being obvious (Chemers et al., 2001).

Robert S. Kaplan and David P. Norton introduced the concept of balanced scorecard for the first time. The most important feature of this concept is that just the financial results are not enough to capture value-

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creating activities. Leading and lagging indicators of performance are the measures needed not only in business but in education sectors too. Using these indicators, the progress of students is well monitored, because each of them has their way of thinking, even if the perspective and goals are the same (Karathanos and Karathanos, 2005). It might be very exciting to apply the balanced scorecard concept on higher education institutions from the Indian perspective. Organizations should develop a comprehensive set of leading indicators, or predictors of financial performance. The application of the balanced scorecard is very well documented in the business sector and less research was conducted for the moment, in the education sector. Though, regarding the Indian higher education institutions, we must focus on the most important factors, that are critical if they are executed properly, in this way the institution achieving excellence in its own manner. The success will come only if they want to accept a change; some barriers shouldn't exist anymore; the fear of failure isn't the key to success, that's why the balanced scorecard comes to help, to increase maybe the whole system (Umashankar and Dutta, 2007).

Pouyioutas (2014) emphasizes the Teaching in Higher Education Quality Model (THEQM), which can be used to measure the commitment of educational institutions to teaching quality and provide a sample of Key Performance Indicators (KPIs) that can be used to measure and compare performances related to the quality indicators.

Performance indicators for higher education are essential, may be the key to success. The differences between the external accountability and internal assessment are obvious and debatable. This concept consists in a set of measures that allow for a holistic, integrated view of business performance. Its purpose is to supply, to substitute the traditional financial measures, in order to increase performance: "The balanced scorecard provides an integrated perspective on goals, targets and measures of progress". The most important for us though is to apply the balanced scorecard to the "complex world of academia", which is surely a big opportunity, reflection and challenge. The most important target for all these is the higher education performance, even if we have no guarantee it surely be a success. The balanced scorecard concept assigns concrete conversation about the ideas, state of mind and strategic goals (Stewart and Carpenter-Hubin, 2001). One of the most important tools for higher education is balanced scorecard, initially used in business. Nowadays everybody realises that we have to focus on identifying the real indicators for success. Leaders must find the way of a higher education performance and now this is possible with balanced scorecard, even if the results they've had before were good. We must see beyond the limits. Balanced scorecard is very useful because it makes it easier to identify and to use key performance measures. Higher education strategies, goals, targets will become successful with balanced scorecard. It's the easiest and concrete way to succeed (Beard, 2009).

Balanced Scorecard in educational institutions need specific adjustments. The customer perspective evaluates the educational institution performance from the perspective of students, parents, and community. The internal perspective is concerned with the teaching staff performance, in terms of measuring their educational content in quantitative terms and their administrative work. The organizational capacity perspective is related to teaching innovation and active learning, seeking for development of competences, capabilities and resources (Camilleri, 2020). The performance evaluation system in educational institutions, based on Balanced Scorecard, provides a framework for the successful implementation of the institutional strategy and creates the prerequisites to find new perspectives for strategic development of educational activities (Nazari-Shirkouhi et al., 2020).

2. Method

Balanced Scorecard Designer is a software that facilitates the analytical approach to performance management, facilitating the interconnection of processes related to the creation and computerized management of Balanced Scorecards.

Balanced Scorecard Designer generates reports at the user's request, characterized by graphical representations of key performance indicators, grouped into specific analysis dimensions, and integrated goals in strategic maps. Through the optimization features applied to system-integrated indicators, users of this software are informed when the performance of the project they manage fails to meet their expectations.

Selection of performance control indicators is achieved by linking to the strategic objectives assumed and transposed into software through strategic maps. Users of this IT program have the capabilities to create a range of indicators for performance control, defining the decision tree that establishes relationships between the dashboard and associated goals.

Balanced Scorecard Designer provides a flexible support for calculating performance-specific indicators based on target values set by the decision maker. The software allows the creation of a set of key indicators that can be grouped into categories; for each category and for each defined goal, the relative importance coefficients are assigned, depending on the importance they are given.

We have applied the Balanced Scorecard methodology to assess the performance indicators of 145 educational institutions from Romanian secondary education. We considered three perspectives (institutional capacity, educational efficacy and quality management), and five performance indicators per each perspective.

In the global evaluation approach, we had in view both quantitative and qualitative issues regarding the context of Romanian secondary education institutions. The evaluation scale has been from 0 (unsatisfactory) to 4 (excellent), the majority of grades being situated between 2 and 3 (good and very good).

3. Findings

The **institutional capacity** dimension groups a set of five indicators that we considered relevant from the point of view of the survey objectives: internal organization of the educational institution, quality of the internal and external communication system, quality of reports provided by information management systems, assurance of medical services and security for students and provision of institutional spaces.

The determination of the performance of each indicator was based on the application of the maximization function, taking into account the current value of the indicator, and the planned evolution range (0 to 4, according to the evaluation scale). We observe that the quality of the internal and external communication system provided the highest performance ratio (69.25%), while the assurance of medical services and security for students led to the lowest performance ratio (58.75%). The aggregate performance for this perspective has been 64.30% (Figure 1).

Name	Progress	Value	Baseline	Target	Measure
Balanced Scorecard_educational institutions	63.60 %				%
Institutional Capacity	64.30 %	2.572	0	4	Score
Internal organization of the educational institution	66.50 %	2.66	0	4	Score
Quality of the internal and external communication system	69.25 %	2.77	0	4	Score
Quality of reports provided by information management system	65.50 %	2.62	0	4	Score
Assurance of medical services and security for students	58.75 %	2.35	0	4	Score
Provision of institutional spaces	61.50 %	2.46	0	4	Score

Figure 1. Key performance indicators related to institutional capacity

The internal organization analysis reflects the educational offer insights on the processes that require planning, governance and control in order to ensure the educational content quality. The performance level (66.50%) of these processes in the educational institutions reflects a very good managerial capability to ensure effective strategic development, to mitigate the inefficiency risks. The second KPI – the quality of internal and external communication system in educational institutions outlines that educational processes need to be translated in efficient decisions, as well as in fluid communication processes. Consequently, the highest performance level (69.25%) assigned to this KPI reflects that the communication efficiency in educational institutions can be maximized in terms of management team, employees, students and other stakeholders’ efforts to be as more transparent as possible in their communication style. The reports provided by Educational Management Information System (EMIS) are conceived to monitor the performance of educational programs and to assign the educational resources to specific didactic activities. The performance level related to the quality of these reports (65.50%) highlight their roles to empower an educational institution to develop. Student Health Services all over the world are closely monitoring the situation of coronavirus pandemic (COVID-19) and its impact on students’ educational activities. We found that the performance level of assurance of medical services and security to students is in the yellow quadrant (58.75%). Educational facilities provide an interest to campus life and for learning. Educational partners (professors and students) benefit from sharing space when educational needs for projects are put in place. Thus, we appreciate that the performance level of provision of educational institutions spaces (61.50%) is an adequate one.

The **educational efficacy** dimension reflects other five relevant key performance indicators, as follows: curriculum design, promotion of the educational offer, existence of partnerships with community representatives, assessment of school results and financial activity assessment. All indicators embedded in this perspective are in the “green” zone, their values being under 60% (Figure 2). The aggregate performance for this perspective has been 65.15%.

Name	Progress	Value	Baseline	Target	Measure
Balanced Scorecard_educational institutions	63.60 %				%
Institutional Capacity	64.30 %	2.572	0	4	Score
Educational Efficacy	65.15 %	2.606	0	4	Score
Curriculum design	63.75 %	2.55	0	4	Score
Promotion of the educational offer	66.00 %	2.64	0	4	Score
Existence of partnerships with community representatives	69.00 %	2.76	0	4	Score
Assessment of school results	61.75 %	2.47	0	4	Score
Financial activity assessment	65.25 %	2.61	0	4	Score

Figure 2. Key performance indicators related to educational efficacy

Every educational institution needs to develop and implement a strategy for the on-going improvement of the quality of curriculum design, allocating the necessary level of human and financial resources to this priority, and integrating it in its educational mission. Curriculum design performance level (63.75%) could be perceived as adequate, being positioned in the green quadrant of the Balanced Scorecard. The quality of education depends to a large extent to both the quality of teaching and quality of the way it is promoted. Educational services clients are represented by students or pupils. To share knowledge in an effective way, they must take part to the education process. The pupils or students motivated by the promotion campaigns managed by schools become interested in educational services. The performance level of promotion of the educational offer (66%) is fair enough to reflect institutions efforts in creating awareness of their educational curriculum. Communities frequently provide opportunities for educational institutions to create partnerships for practical learning of their pupils and students. Moreover, through service-learning opportunities, communities provide schools and universities a place to enhance the students and pupils to be good citizens. The performance level of partnerships between educational institutions and community is near 70%, we consider this highly valuable. Assessment of school results and tracking operational performance in education can help leaders analyse return on investments and service level promises and provide decision makers the instruments to develop measurable improvements. The performance level of assessment of school results is adequate (61.75%). Financial activity assessment (performance level 65.25%) is critical in both public and private funded educational institutions. Cost structure optimization represents a top priority of educational managers.

The **Quality Management** dimension reveals the following five key performance indicators: existence of procedures for institutional self-assessment, application of internal procedures for quality assurance, optimization access to educational resources, periodical assessment of professors and students' activities and transparency of information regarding the study programmes. In this case, two indicators are in the "yellow" area, their performance ratios being situated between 50% and 60%. The aggregate performance for this perspective has been 61.35%.

Name	Progress	Value	Baseline	Target	Measure
Balanced Scorecard_educational institutions	63.60 %				%
Institutional Capacity	64.30 %	2.572	0	4	Score
Educational Efficacy	65.15 %	2.606	0	4	Score
Quality Management	61.35 %	2.454	0	4	Score
Existence of procedures for institutional self-assessment	57.75 %	2.31	0	4	Score
Application of internal procedures for quality assurance	59.50 %	2.38	0	4	Score
Optimization of access to educational resources	61.50 %	2.46	0	4	Score
Periodical assessment of professors and students activities	63.75 %	2.55	0	4	Score
Transparency of information regarding the study programmes	64.25 %	2.57	0	4	Score

Figure 3. Key performance indicators related to quality management

The mechanisms of institutional self-evaluation, reflected in Balanced Scorecard indicators, enable the processes to evaluate and monitor the performance of educational institution KPIs. The performance level related to procedures for institutional self-assessment is in yellow quadrant (57.75%); thus, the decision makers need to reflect on how to increase the performance in this case. The application of internal procedures for quality assurance (performance level 59.90%) is responsible for measuring how many resources are needed to carry out educational activities. Optimizing the use of resources to improve pupil/student learning is a precursor of enhancing the access to educational services. The optimization of access to educational services (performance level 61.50%) is favourable from the educational institutions' perspective. Periodic assessments of both students and professors (performance level 63.75%) provide schools' managers valuable information about student knowledge so that professors could tailor teaching to the learning needs of every student. Transparency of information regarding the study programme is critical in any educational system. The performance level of this indicator (64.25%) indicates that Romanian educational institutions are committed to transparency and open access to data. However, improvements in this area are still required.

Overall performance of the Balanced Scorecard has been 63.30%, as a result of weighted average of the three perspectives involved in the model. Educational managers are able to observe performance gaps among the Balanced Scorecard perspectives and implicitly they can adopt the necessary strategic adjustments.

4. Conclusions

Balanced Scorecard Designer Professional software offers its users the opportunity to manage customized dashboards by evolving a key performance indicator system by formalizing interconnected goals

in a strategy map and aligning the set of indicators to a plan of the measures necessary to achieve the objectives, which can be continuously updated.

Identifying and tailoring key performance measures tailored with educational institutions mission and seeking improvement of performances on an ongoing basis allow educational managers opportunities to capture value from all educational stakeholders. Balanced Scorecard is not only useful for private companies, but also to educational institutions to empower their management staff to turn strategies into actionable knowledge in line with their missions and educational values. Furthermore, the process of applying BSC Designer software offers valuable insights regarding the issues that really matters to educational stakeholders.

The findings of this research have implications at the level of managers from Romanian educational institutions: first, they have to assess institutional performances regularly, using Balanced Scorecard methodology, tailored to the specific situations of the organizations they manage. Second, they can upgrade Balanced Scorecard system, by integrating new dimensions, capable to dynamically capture the changes in the Romanian educational field. Further research will be focused on the analysis of causal configurations of conditions that could impact the performances of the Romanian educational institutions.

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