Research Article

Ali Coskun*, Mirgul Nizaeva

Strategic Performance Management Using the Balanced Scorecard in Educational Institutions

https://doi.org/10.1515/edu-2022-0198
received October 19, 2022; accepted July 24, 2023

Abstract: The balanced scorecard (BSC) is a mission-oriented and strategy-focused performance management tool for educational institutions. The study reviews the literature on the implementation of the BSC by different educational institutions as a strategic performance management. After a comprehensive review of the literature, we analyzed the documents based on the publication trends during the years, authors' affiliations by countries, sources from which the documents have been published, most frequently used keywords in the documents, and the highest cited documents in the Scopus database. A bibliometric mapping analysis was used to construct and visualize the bibliometric networks. We found that 267 documents that were published in the sources are indexed by Scopus. Finally, gaps in the relevant literature are identified, leading to several directions for future research.

Keywords: BSC, balanced scorecard, performance, education, literature review

JEL Classification Codes: I2, L25

1 Introduction

Educational institutions have been experiencing challenges such as increasing competition, resource constraints, accountability requirements, ethical concerns, globalization, and environmental uncertainties (Beard, 2009; Pires da Rosa, Saraiva, & Diz, 2001; Taylor & Baines, 2012; Yüksel & Coşkun, 2013). Recent COVID-19 crises increased these challenges for educational institutions and added more concerns like sustainability (Al-Bahi, Abd-Elwahed, & Soliman, 2021) and made it necessary to reorganize their strategic management approaches including performance measurement and management systems to satisfy all stakeholders, such as students, alumni, parents, faculty, employees, public authorities, and the community under any conditions. Since the primary mission of educational institutions is to serve the community by creating social value and supporting long-term social development, they need to give more importance to nonfinancial performance rather than financial. The balanced scorecard (BSC), as a comprehensive strategic performance management tool, helps educational institutions serve their missions and focus their strategies by providing a balanced performance system. Unlike traditional corporate performance measurement techniques, which mainly use financial indicators, the BSC complements financial measures with operational measures on customer satisfaction, innovation and learning, and internal process activities that are the main drivers of future financial performance (Kaplan & Norton, 1992, 1993, 1996). Therefore, since its initiation and introduction, many public and private educational institutions have implemented the BSC in the last three decades. The BSC has not only taken the attention of practitioners and administrators but also scholars worldwide have been interested in the topic and published papers on different aspects of the BSC implementation in the education sector.

In this study, we conducted a systematic literature review analysis on the BSC in educational institutions. First, we provided a comprehensive literature review for strategic performance management and BSC implementation in educational institutions, including universities, schools, and other educational services. Then, we analyzed the documents published in the sources indexed by Scopus. Even though some studies review the literature on the BSC, such as Hansen and Schaltegger (2016), Hoque (2014), and Kumar, Prince, and Baker (2021), this study contributes literature by conducting a systematic literature review analysis by focusing on the BSC in educational institutions.

2 Performance Management and the BSC in the Educational Institutions

The transformation of organizations and management practices as a response to the dramatic evolution of the business

* **Corresponding author: Ali Coskun,** College of Business, Quinnipiac University, Hamden CT 06518, USA, e-mail: alicoskun@hotmail.com
Mirgul Nizaeva: Regional Institute of Central Asia, 720033 Bishkek, Kyrgyzstan, e-mail: mirgulnizaeva@gmail.com
ORCID: Ali Coskun 0000-0002-4849-8499; Mirgul Nizaeva 0000-0001-6688-6172

environment (Taylor & Baines, 2012) triggered the discussion on performance management systems in recent years (Storey, 2002), both in business and in academia. Defining performance measures explicitly enables the organization to establish a position, communicate direction through targeting when and what is to be achieved, stimulate action by identifying what should be done by whom, to facilitate learning by explaining why it is measured (Amaratunga & Baldry, 2000). Over the last three decades, traditional performance management and control systems have been criticized; some of the views debated include misleading conventional performance information control for rational decision-making, failures to consider requirements of today's organization and strategy, encouragement of sub-optimization, and mainly short-term goals, and others (Amaratunga & Baldry, 2000). Measuring firm performance with financial indicators worked well in the industrial era, but nowadays, they are out of step with the skills and competencies companies seek to advance (Kaplan & Norton, 1992). Accordingly, several performance management and measurement approaches have been developed; some are still prominent and used in public organizations and business enterprises. Although in earlier years, the financial figures were the leading indicators of performance measurement, later, more comprehensive techniques that consider other dimensions of measurement were developed. Matching the companies' threats and opportunities with their weaknesses and strengths and systematically identifying the relationship between these factors, basing strategies on them, was a rational approach to remaining effective (Weihrich, 1982). However, the absence of matching between internal factors and items within external factors creates strategies that do not make sense (Lee, Lo, Leung, & Ko, 2000). As a performance measurement approach that aligns financial, customer, internal growth, and organizational capacity perspectives within strategic goals, vision, and mission of organizations, the BSC enables managers to track and revise their goals and strategies (Camilleri, 2021). Palmer and Short (2008) used BSC in analyzing the relationship between the mission statements of business schools and performances and found that the performance of schools depends on the content of their mission contents.

A BSC complements traditional financial measures with operational measures on customer satisfaction, internal process, and innovation and improvement activities of companies that are also considered drivers of future financial performance (Kaplan & Norton, 1992). Since recently many firms increased their commitment to the environment and corporate social responsibility has become an integral part of corporate strategy, environmental measures were also included in the BSC (Wynder, Wellner, & Reinhard, 2013). So, the BSC allows managers to draw the full portrait of the companies' current position from four perspectives. Kaplan and Norton (1992) stated that according to companies' experiences, an adopted scorecard combines many different measurement elements into a single management performance report and meets several organizational needs simultaneously. Furthermore, an effective BSC retains a balance between diagnostic measures and strategic measures, where the former assists in monitoring whether the organization is in control, and the strategic measures help evaluate if the strategic goals are achieved (Chang & Chow, 1999).

Researchers all around the world have been interested in the application of BSC at educational institutions. Several case studies and research on BSC implementation in educational institutions in different countries have been published, including both developed and developing countries such as Lithuania (Ambras & Tamošiūnas, 2010), the Philippines (Anastacio, 2016), Taiwan (Chen, Wang, & Yang, 2009), Thailand (Rompho, 2020), Indonesia (Amin, 2021), Malawi (Chimtengo, Mkandawire, & Hanif, 2017), Oman (Alani, Khan, & Manuel, 2018), Lebanon (Al Jardali, Khaddage-Soboh, Abbas, & Al Mawed, 2021), Jordan (Al Frijat, 2018), Iran (Bakhtiari, Bakhtiari, Jamei, & Jamshidi, 2012), Saudi Arabia (Alolah, Stewart, Panuwatwanich, & Mohamed, 2014), Latin America (Peris-Ortiz, García-Hurtado, & Devece Carañana, 2019), Austria-Germany (Hladchenko, 2015), the United States (Beard, 2009; Brown, 2012), and the United Kingdom (Cullen, Joyce, Hassall, & Broadbent, 2003; Taylor & Baines, 2012).

The BSC is a mission-oriented and strategy-focused performance management tool. Each organization has different strategic objectives, depending on its mission and priorities (Coskun, Dinc, & Tetik, 2021). Therefore, the strategic performance objectives of an ivy university, a community college, a state university, or a liberal arts college are entirely different. Primary and secondary education, distance education, and vocational education have other missions, strategies, and objectives. The literature shows the BSC implementation in various educational services, such as universities, schools, vocational, primary, and distance education. Some studies presented or developed a BSC for a university (Alani et al., 2018; Al Jardali et al., 2021; Chimtengo et al., 2017), and some studies focused on a unit of the university, such as the Faculty/College of Business and Management (Cullen et al., 2003; Papenhausen & Einstein, 2006), Engineering (Al-Bahi et al., 2021), Social Sciences Faculty (Ambras & Tamošiūnas, 2010), Department of Nursing (Brown, 2012), Department of Anesthesiology (Rimar & Garstka, 1999), University Libraries (Taylor & Heath, 2012), and Accounting departments (Al Frijat, 2018). Hladchenko (2015) and Peris-Ortiz et al. (2019) compared the BSC implementation at universities operating in similar cultures. Comparing the studies on the BSC at higher

educational institutions, there are fewer studies related to the implementation of the BSC in primary or secondary education: Anastacio (2016) studied BSC in Catholic schools, Amin (2021) discussed the BSC for Islamic Primary schools, Yüksel and Coşkun (2013) developed a BSC for schools, Gündüzalp and Arabacı (2017) developed a BSC for primary schools, and Rompho (2020) developed and tested BSC for public schools. Yaakub and Mohamed (2019) developed 22 items for all four dimensions of BSC and suggested the methodology as an alternative approach for university ranking systems.

The original BSC developed by Kaplan and Norton (1992) has four classical perspectives: Customer perspective (how do customers see us?), internal business perspective (what must we excel at?), innovation and learning perspective (how can we continue to improve and create value?), and *financial perspective* (how do we look to shareholders?). While some researchers such as Alani et al. (2018), Al Jardali et al. (2021), Amin (2021), Chen et al. (2009), and Cullen et al. (2003) used the traditional four perspectives of Kaplan and Norton (1992), some researchers adopted the BSC perspectives to educational institutions. For example, Al-Bahi et al. (2021) added a sustainability dimension to the educational BSC and included sustainable development goals. Some researchers limited the customer perspective and used students (Al Frijat, 2018), clients (Ambras & Tamošiūnas, 2010), or students and community (Brown, 2012) perspectives instead. Camilleri (2021) kept three perspectives but replaced the organizational capacity perspective with the learning and growth perspective. Ambras and Tamošiūnas (2010) also limited the learning and growth perspective and called it the personnel perspective. McDevitt, Giapponi, and Solomon (2008) suggested that the following perspectives are suitable for an academic unit: growth and development, scholarship and research, teaching and learning, service and outreach, and financial resources. Since Alolah et al. (2014) only focused on school safety performance, they used six unique perspectives: safety management and leadership, safety learning and training, safety policy, procedures and processes, workforce safety culture, and safety performance perspectives. Anastacio (2016) developed the BSC for Catholic Schools with five perspectives: spirituality, internal processes, learner and external community, learning organization, and fiscal resources. The spirituality perspective was placed in the middle of the scorecard and linked to all other perspectives. Rompho (2020) proposed four perspectives for public schools: student, internal process, learning and growth, and resources perspectives.

2.1 BSC Implementation

The initial initiatives of developing a more comprehensive and diagnostic performance measurement method and its application were in business enterprises. However, different corporate strategies, market situations, and competitive and economic environments require other enterprises to apply a BSC (Kaplan & Norton, 1993). Although performance evaluation and using different techniques in business enterprises are initiated by financial interests, education institutions mainly focus on academic measures. Therefore, many educational institutions have rearranged their scorecards to align the perspectives based on their missions and strategies. As business companies, they are creating a BSC that should be strategically determined considering the critical success factors, traceable performance measures, and certain arranged activities for every determined perspective (Cullen et al., 2003). The BSC is able to integrate and articulate the input, process, and output dimensions of quality assurance into assessable performance measures and may foster balanced endeavors in educational institutions (Reda, 2017).

Internationalization and technological advancements pose new challenges to educational institutions. For higher education, student recruitment to fill available contingents, quality issues, research and teaching, diversity, and other factors arising from intense competition and marketization. Funding is also a concern for the quality of teaching and research, retaining employees, and keeping prestige (Taylor & Baines, 2012). In universities, students are defined as customers, education as a product, and the domain in which universities operate is the educational market (Craig, Clarke, & Amernic, 1999; Hodson & Thomas, 2001; Lawrence & Sharma, 2002). In response to intensifying competition in the market for students, research funds, and quality assurance, education institutions are looking for innovative forms of internal management and measures for monitoring and revising their performance. As one such approach, the BSC assists managers in translating their missions of knowledge creation, sharing, and utilization into traceable measures (Umashankar & Dutta, 2007).

2.2 Motives Behind the Application of the BSC

Education institutions face challenges and uncertainties due to economic, social, environmental, political, and technological changes that demand new forms of management

that require them to be responsive to the changes and flexible functioning (Oliveira, Oliveira, Fijałkowska, & Silva, 2021). To gain a competitive advantage and to be more sustainable over time, they need to apply strategic management approaches as BSC as an instrument to coordinate the knowledge management process (Al-Hayaly & Alnajjar, 2016) for better accountability and transparency (Fijałkowska & Oliveira, 2018), more excellent performance monitoring and evaluation (Lassoued, 2018; Taylor & Baines, 2012), and beneficial results (De Jesus Alvares Mendes Junior & Alves, 2023).

As the literature exposes, the main drivers of implementing BSC in education institutions are performance management, academic and customer measures, school safety, financial perspective, and legislative reinforcements. One stream of the relevant literature found that the main motive behind applying BSC in education institutions is performance evaluation and revising the process toward institutional strategies. BSC is a strategy-based performance evaluation approach (Al Jardali et al., 2021), which enables education institutions to clarify their visions and missions (Camilleri, 2021), and evaluate and enhance their performance (Pietrzak, Paliszkiewicz, & Klepacki, 2015). According to Chen et al. (2009), universities implement BSC for self-appraisal to assess the operational performance of separate departments and schools and integrate different operating units. Taylor and Baines (2012) identified the desire to support corporate governance needs more effectively as one of two drivers of BSC adoption at universities in the United Kingdom. Accordingly, the BSC was considered a tool for accountability enhancement management.

Another stream of findings emphasizes the importance of customer perspective in implementing BSC in educational institutions. Student engagement and success proxied by higher grades, satisfaction with education provision, and graduates' employment in the field of study are the main indicators that lead toward the objective of education institutions (Fredin, Fuchsteiner, & Portz, 2015). According to Yüksel and Coşkun (2013), in this information age, staying competitive and rational responsiveness to continuous environmental and technological changes are the main concerns of educational services. Consequently, they advocate inclining on the customer perspective rather than the financial perspective of BSC adoption. In addition to students, Finch et al. (2016) recommended that a social organization customer perspective of BSC in education institutions needs to include a comprehensive stakeholder group of students, scholars, community, and practitioners.

From a financial perspective, the competition among educational services has been becoming fierce due to changes in the external environment. Some universities have encountered financial difficulties and borrowed debts; as a result, the board of institutions could not carry out operations. Hence, the motive behind implementing the BSC was, in addition, to acquire a competitive advantage, achieve financial stability, and acquire a way of efficient resource allocation (Chen, Yang, & Shiau, 2006). Taylor and Baines (2012) found that another driver behind the implementation of BSC in educational institutions is a desire to achieve significant step changes in performance. This desire consists of several objectives. Some universities faced financial pressure; their goal was to smooth that financial distress by adopting a BSC. Furthermore, they conclude that it is impossible to reach a corporate mission without a complete financial plan, including resources and budget. Additionally, vice-chancellors of other universities wished to elevate the university to a higher position among its peer group universities.

In line with these motives, BSC implementation has other drivers, such as research project coordination, intellectual capital evaluation, management, accreditation, safety issues, and legislative requirements. Developing a performance management system for industry-supported university institutes is required considering all activities undertaken within institutes, research coordination across a given multidisciplinary area, and performance of collaborative research projects, intangible factors such as researcher knowledge level and techniques (Philbin, 2011). Although monthly reports summarized the management performance, facilities, research, and teaching indicators, that kind of governance and reported data on many performance areas were dispersed, and there was a lack of a central location for information to be collated. Particularly at the research universities, the research and innovation results are appreciated in the long term. Therefore, the complexity of the research and innovation activities needs an integrated and multidimensional performance system provided by the BSC's leading performance indicators (Peris-Ortiz et al., 2019). According to Wu, Lin, and Chang (2011), in the education sector, the learning and growth perspective is the most significant influential factor affecting other perspectives. Bell, Nichols, Anderson, and Song (2023) examined the application of BSC as an instrument of strategic performance management to maintain the Association to Advance Collegiate Schools of Business accreditation and keep other stakeholders satisfied.

Al-Hosaini and Sofian (2015) argue that higher educational institutions have been under pressure because of the gap between labor market demand and skills acquired by university graduates. The critical value that educational institutions seek to create is making graduates' skills with practical needs of communication, problem-solving, systematic work-plan, and furtherance of work done (Gope & Gope, 2022). To do so, they must resort to innovative ways

and contribute to the economic and social growth of the country. Pietrzak et al. (2015) found the legislative enforcement of the government another reason for the employment of BSC in the management of higher education institutions. According to the recently amended law in Poland, public higher education institutions must develop an integrative managerial approach and implement strategies at the faculty and university level. There are specific committees that work on strategy formulation and ways of its implementation. In South Korea and China, open education resources are considered part of key strategies for the national competitiveness of higher education institutions (Marín et al., 2022). Alolah et al. (2014) and Arjunan, Habidin, Yusof, and Muniandy (2020) used the BSC perspectives for the evaluation of the safety practices of public education institutions.

2.3 Performance Outcomes

Implementing a BSC provides the opportunity to identify what is retardant for customers and stakeholders, the objectives, why the institution exists (Beard, 2009), and to what extent it may grow. The quantification of answers to each question can eliminate ambiguity and help evaluate every step of the path that goes from the objective establishment to achievement. Even though a comprehensive performance measurement approach, BSC was groundbreaking, innovative research and provided a construct for effective performance measurement, and it was limited in designing a scorecard (Manville, 2007). Most non-profit organizations, including educational institutions, experienced difficulty with the traditional architecture of the BSC, where the financial perspective is placed at the top of the perspective hierarchy. However, the mission of most non-profit organizations is accountability to their constituents – society – the rationale for their existence (Kaplan, 2001).

Notably, Karathanos and Karathanos (2005) stated that financial results are lagging indicators in business enterprises; student learning results in universities replace. The relevant literature on BSC reveals that educational institutions need to expand the definition of their customer. All other perspectives are considered leading indicators or drivers of student learning. Furthermore, at universities, under the learning and growth perspective, the human resources scores are replaced by faculty and staff measures; under the internal business process perspective, educational institutions may utilize factors that affect student performance and development instead of organizational effectiveness in for-profit firms. The most critical perspective that should be emphasized is the governance and social responsibility perspective. This perspective carries equal importance for business and educational organizations, which was added in 2003 after ethical collapses or even financially and operationally successful giant corporations. Hence, the success of BSC adoption lies in the logic that the mission should be featured and measured at the top level of the hierarchy.

Moreover, as the hierarchy of perspectives is arranged, the measures should be carefully identified so that the result of measurement will be valid and reliable, and the feedback from that measurement outcome will assist in managing the organization correctly. Generally, customer perspective is evaluated based on first-year applications and retentions, graduation rate, graduate job placement, alumni annual income, and others (Beard, 2009), the number of student complaints (Chen et al., 2006), and parent satisfaction measures (Yüksel & Coşkun, 2013). In the same line, internal process perspective measures include library and facilities usage ratio, full-time staff rate (Chen et al., 2006), undergraduate curriculums, distinctive programs (Beard, 2009), and reporting mechanisms (Cullen et al., 2003). The learning and growth perspective measures the total score of technology investment, staff satisfaction (Yüksel & Coşkun, 2013), educational support programs, and course performance results (Lee et al., 2000). The financial perspective consists of tuition fees, allowance amounts, assets, facility recycling rate (Cullen et al., 2003), and personal and utility expenditures.

Another critical issue mentioned in the literature is the timing of BSC adoption. The timescale of scorecard adoption in universities witnessed the slow adoption process of the new method in higher education (Taylor & Baines, 2012). Early adopters in the education sector had spent significant effort. The universities which already established their corporate structure defined departmental responsibilities and had an experience in strategic management and performance evaluation came up with successful results despite their early implementation. On the other hand, some institutions followed so-called “plagiarism” from other institutions’ way of application and implemented it in a short time.

Apart from those, the cost of implementing the BSC is another factor that should be considered. The staff time at all organizational levels was an important factor in initiating and implementing projects, and hiring external consultants was also costly (Taylor & Baines, 2012). External consultancy may require substantial investment to develop organization-wide scorecard measures, and software purchase and installation demand more funds.

3 Methodology

We applied a systematic literature review approach which consists of several steps that follow an iterative nature. As a first step, we identified keywords such as "balanced scorecard," "scorecard," "strategy map," "education," "school," "university," "college," "academic," and others. Subsequently, the selected keywords were used to construct a search string which was applied to the title, abstract, and keywords of the documents in the Scopus database. For the purpose of this study, we limited the studies that undertook the BSC in education institutions. We found documents published by authors from various disciplines, including business, education, economics, computer science, social sciences, medicine, and engineering, in several sources which are in different subject areas.

As for data extraction, all found documents were listed in a data extraction form, including author information, publication year, source title details, abstracts, etc. Since the implementation of BSC in education institutions is a relatively new field, we did not apply the time bound to data extraction. In addition, we did not focus on investigating the quality of individual papers but instead relied on the quality screening approach used by the Scopus database.

We analyzed the documents based on the publication trends during the years, authors' affiliations by countries, sources that the documents have been published, most frequently used keywords in the documents, and the highest cited documents in Scopus. We also implemented bibliometric mapping analysis using VOSviewer software to construct and visualize the bibliometric networks, including journals, authors, countries, keywords, and sources (Van Eck & Waltman, 2010; VOSviewer, 2022). Because we only found strong network relationships in the keywords of the documents, we visualized them.

4 Results of the Analysis

We found 267 documents published in the sources indexed in Scopus, including 188 articles, 61 conference papers, and 18 review papers and other documents, as of July 1, 2022. Totally 256 of the 267 documents were published in English. The documents by year are given in Figure 1. The number of documents was moderate between 1998 and 2005, then increased between 2005 and 2012. After that, the number of documents fluctuated and decreased in the last 3 years after reaching a peak in 2019 with 21 documents in a year. The results show that there has been a continuing interest in the authors to publish on the topic for 25 years.

The authors with affiliations from the United States, Indonesia, and the United Kingdom have published the highest number of documents related to the BSC in educational institutions (Table 1). The authors with affiliations from Iran, Malaysia, Taiwan, and China followed them. The results show an interest in authors from developing and developed countries to publish on the topic.

The sources of the documents and their subject areas show considerable diversity, including 218 sources, 119 in the social sciences, 100 in Business, Management, and Accounting, 65 in computer sciences, and 54 in the engineering subject areas. International Journal of Educational Management, Journal of Education for Business, and Measuring Business Excellence are the sources that have published the highest number of documents. In Table 2, the title of the sources, the total number of citations in those sources, and the average

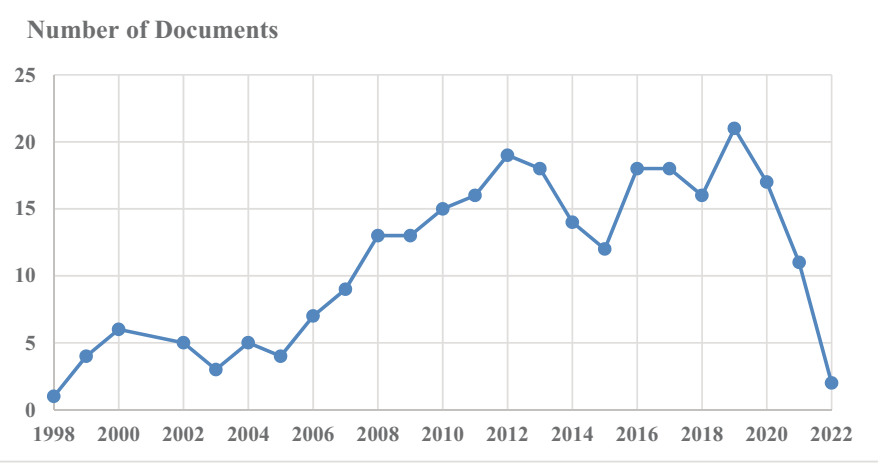

Figure 1: Number of documents in Scopus by year.

Table 1: Country of the authors' affiliations

Country	Number of documents
United States	47
Indonesia	25
United Kingdom	22
Iran	18
Malaysia	16
Taiwan	16
China	14
Australia	9
Brazil	9
Canada	8
Finland	8
India	8
Germany	7
Italy	7
Thailand	7

number of citations per document are summarized. The results show that researchers, not only in business and education but also in engineering and medicine, are interested in this topic. The editors and reviewers of the sources in all fields found the topic interesting to their readers.

We grouped the most frequently used keywords in the documents and summarized them in Table 3. Most documents used the BSC, academic scorecard, or scorecard as keywords. After that, the most used keywords are "performance" related terms, such as performance measurement, performance management, performance evaluation, and performance appraisal. "University," "higher education," and "higher education institutions" are also very frequently used keywords. Since the BSC's focus is the organization's strategy, "strategy" related keywords such as strategic planning, strategic management, strategy map, and strategic development are very frequently given as a keyword in the documents.

We also implemented a bibliometric mapping analysis for keywords, affiliations, authors, countries, and sources. We only found strong relationships in the keywords of the documents and visualized them in Figure 2. Due to the high interdisciplinarity of BSC and educational services, the documents were published across various disciplines, including accounting, management, computer science, and engineering. Only a few authors have published multiple publications on this topic, and the sources published in the documents are highly diversified. Therefore, there is no strong network relation between journals, authors, countries, and sources.

We visualized the co-occurrence of the author keywords by limiting the minimum number of occurrences of a keyword to five times. Repeated keywords with different variants were merged. Out of 627 keywords, 33 keywords with the most significant link strength, which met the threshold, were selected. For each of the keywords, the total strength of the co-occurrence links with other keywords was calculated, and the network visualization map was prepared. Based on the links, 33 keywords fell into six cluster groups shown in different colors on the map.

Among the 267 documents related to the BSC in educational institutions, the most cited documents by the other sources in Scopus are listed in Table 4. Studies by Cullen et al. (2003), Lawrence and Sharma (2002), and Wu et al. (2011) are the most cited documents. Most of the highest cited studies are on implementing the BSC at universities.

Table 2: Sources of the documents published and the number of citations

Source title	Number of documents	Total citations	Citation per document
International Journal of Educational Management	9	130	14.4
Journal of Education for Business	5	165	33.0
Measuring Business Excellence	5	97	19.4
Quality Assurance in Education	4	168	42.0
Advanced Science Letters	4	4	1.0
Academic Medicine	3	64	21.3
Procedia Social and Behavioral Sciences	3	56	18.7
Performance Measurement and Metrics	3	55	18.3
International Journal of Productivity and Performance Management	3	39	13.0
ACM International Conference Proceeding Series	3	2	0.7
Journal of Cleaner Production	2	86	43.0
Managerial Auditing Journal	2	71	35.5
Total Quality Management and Business Excellence	2	38	19.0
Journal of Business Economics and Management	2	35	17.5

Table 3: Most frequent keywords in the documents

Keyword groups	Frequency
BSC, academic scorecard, and scorecard	200
Performance measurement, performance management, performance evaluation, performance appraisal, performance assessment, organizational performance, performance measures, and performance indicators	159
Higher education, university, college, higher education institutions, academics, private universities, and public universities	123
Strategy, strategic management, strategic planning, strategy map, organizational strategy, strategic development, and strategic performance	86
Education, learning, teaching, training, school, and accreditation	62
Techniques include AHP, QFD, ANP, DEA, DEMATEL, VIKOR, Fuzzy AHP, ABC, Data mining, Delphi, and Topsis	55
Quality, quality assurance, quality improvement, quality management, quality assessment, and education quality	52
Information systems, information technology, ICT, digital, information management, IT scorecard, Data analytics, and management information systems	43
Management, organizational, business, management of educational institutions, and decision making	42
Business education, medical education, engineering education, adult education, vocational education, and basic education	41
Knowledge, knowledge management, academic knowledge, and knowledge capital	16
E-learning, distance education, and online learning	15

5 Conclusion

The study was undertaken with the expectation that a wide range of reviews would reveal more specific results in different cases of BSC adoption. The review of literature on the BSC implies that, from the viewpoint of users, it can provide both prospective and retrospective performance evaluation opportunities for managers, unlike traditional financial indicators. The BSC lets universities clarify their missions and translate them into traceable measures.

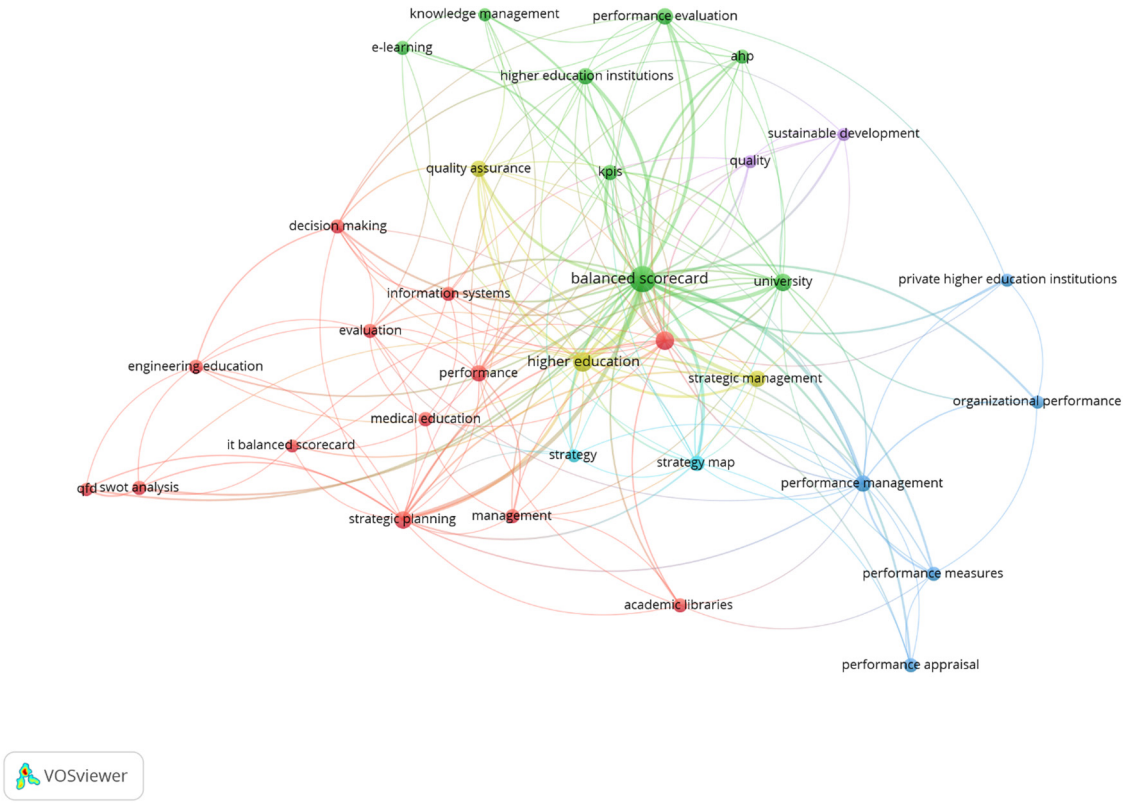

Figure 2: Keyword network analysis.

Table 4: Highest cited documents in Scopus

Authors	Title	Source title	Cited by
Lawrence and Sharma (2002)	Commodification of education and academic labor – Using the BSC in a university setting	Critical Perspectives on Accounting	154
Wu et al. (2011)	Performance evaluation of extension education centers in universities based on the BSC	Evaluation and Program Planning	122
Cullen et al. (2003)	Quality in higher education: From monitoring to management	Quality Assurance in Education	102
Palmer and Short (2008)	Mission statements in US colleges of business: An empirical examination of their content with linkages to configurations and performance	Academy of Management Learning and Education	97
Chen et al. (2006)	The application of BSC in the performance evaluation of higher education	TQM Magazine	91
Umashankar and Dutta (2007)	BSCs in managing higher education institutions: An Indian perspective	International Journal of Educational Management	85
Amaratunga and Baldry (2000)	Assessment of facilities management performance in higher education properties	Facilities	72
Karathanos and Karathanos (2005)	Applying the BSC to Education	Journal of Education for Business	71
Chen et al. (2009)	Establishment and application of performance measure indicators for universities	The TQM Journal	59
Lee et al. (2000)	Strategy formulation framework for vocational education: integrating SWOT analysis, BSC, QFD methodology and MBNQA education criteria	Managerial Auditing Journal	48
Taylor and Baines (2012)	Performance management in UK universities: Implementing the BSC	Journal of Higher Education Policy and Management	46
Beard (2009)	Successful Applications of the BSC in Higher Education	Journal of Education for Business	43

Accordingly, identifying and utilizing that performance measures consistent with the institution's core objective creates educational value in education.

Even though the BSC has been implemented in developed countries, the method rarely has been used in other developing or least developed countries. This study found that supervisors must support the approach since correct implementation promises successful results that can create educational quality and competitive advantage.

In addition to perspectives in existing literature, universities may include corporate governance and social responsibility perspectives so that their involvement in social activities and regulatory compliance are seen. Moreover, educational institutions should consist of international student measures from their customer perspective since the globalization and increasing competitiveness are the main drivers of scorecard implementation. As observed from the review of the given literature, the target constituent of universities in society ought to consider donors as investors rather than a customer. Because the mission of universities is to enhance the welfare of society, then considering fund supporters as customers may be a confusing and ambiguous objective. Furthermore, universities should strengthen the support academic quality of their staff and consider it as one primary measure since the "publish" or "perish" (Lawrence & Sharma, 2002) principle is getting fierce.

6 Further Research Directions

Since the BSC is a relatively new approach and there are differences between the performance management of business enterprises and education institutions, further empirical, conceptual, and case studies that focus on the implementation of BSC in the education sector are needed. To better understand, the implementation of the BSC in education institutions requires going beyond and addressing questions related to designing BSCs that link the individuals and the different units of an organization, comparisons between countries, or similar institutions in the same country. As emphasized by Hoque (2014) too, the literature mainly focuses on the organizational effectiveness of BSC implementation, but little is known about the use of BSC measures to consider incentives for individual employees.

Regarding the research approaches, there is a lack of studies that develop quantitative models for evaluating BSC implementation outcomes and result performance. Also, we observed a focus on generic BSC architects implemented by education institutions; future conceptual research is recommended to develop additional perspectives or items under existing perspectives that are specific to the management of educational institutions.

Currently, there is a growing interest in sustainability and social responsibility. Therefore, it is important that

future research examines existing frameworks on sustainability performance management and develops social responsibility measures, including environmental, social, governance, transparency, and other factors.

Funding information: The authors received no funding for this research.

Conflict of interest: Authors state no conflict of interest.

References

Al Frijat, Y. S. (2018). Activating balanced scorecard importance as a way to improve the accounting education in Jordanian universities. *International Business Research*, *11*(9), 66–78. doi: 10.5539/ibr.v11n9p66.

Al Jardali, H., Khaddage-Soboh, N., Abbas, M., & Al Mawed, N. (2021). Performance management systems in Lebanese private higher education institutions: Design and implementation challenges. *Higher Education, Skills and Work-Based Learning*, *11*(2), 297–316. doi: 10.1108/HESWBL-01-2020-0009.

Alani, F. S., Khan, M. F. R., & Manuel, D. F. (2018). University performance evaluation and strategic mapping using balanced scorecard (BSC): Case study–Sohar University, Oman. *International Journal of Educational Management*, *32*(4), 689–700. doi: 10.1108/IJEM-05-2017-0107.

Al-Bahi, A. M., Abd-Elwahed, M. S., & Soliman, A. Y. (2021). Implementation of sustainability indicators in engineering education using a combined balanced scorecard and quality function deployment approaches. *Sustainability*, *13*(13), 7083. doi: 10.3390/su13137083.

Al-Hayaly, M. A. M., & Alnajjar, F. J. S. (2016). Knowledge management processes and their impact on organizational performance, the adoption balanced scorecard: The moderating role of quality assurance standards – an applied study on Private Jordanian Universities. *International Journal of Business and Management*, *11*(6), 70–86. doi: 10.5539/ijbm.v11n6p70.

Al-Hosaini, F. F., & Sofian, S. (2015). A review of balanced scorecard framework in higher education institution (HEIs). *International Review of Management and Marketing*, *5*(1), 26–35.

Alolah, T., Stewart, R. A., Panuwatwanich, K., & Mohamed, S. (2014). Determining the causal relationships among balanced scorecard perspectives on school safety performance: Case of Saudi Arabia. *Accident Analysis & Prevention*, *68*, 57–74. doi: 10.1016/j.aap.2014.02.002.

Amaratunga, D., & Baldry, D. (2000). Assessment of facilities management performance in higher education properties. *Facilities*, *18*(7/8), 293–301. doi: 10.1108/02632770010340681.

Ambras, A., & Tamošiūnas, T. (2010). The Implementation of the balanced scorecard system in strategic management of Siauliai University Social Sciences Faculty. *Socialiniai Tyrimai/Social Research*, *18*(1), 5–18. https://epublications.vu.lt/object/elaba:6106762/6106762.pdf.

Amin, C. (2021). Balanced scorecard perspectives on school performance at the Islamic Primary School Lentera Hati. *ANP Journal of Social Science and Humanities*, *2*(2), 136–144.

Anastacio, S. E. L. (2016). Balanced scorecard model for Paulinian educational institutions. *International Journal of Curriculum and Instruction*, *8*(1), 69–89.

Arjunan, L., Habidin, N. F., Yusof, M. S. M., & Muniandy, R. (2020). Evaluate safety practices of Malaysian Public Universities by using balanced scorecard. *Journal of Cognitive Sciences and Human Development*, *6*(1), 20–43. doi: 10.33736/jcshd.1560.2020.

Bakhtiari, M., Bakhtiari, S., Jamei, R., & Jamshidi, B. (2012). Designing and implementing of balanced scorecard system in educational systems: Results obtained from a case study in Iranian universities. *African Journal of Business Management*, *6*(25), 7439–7445. doi: 10.5897/AJBM11.2700.

Beard, D. F. (2009). Successful applications of the balanced scorecard in higher education. *Journal of Education for Business*, *84*(5), 275–282. doi: 10.3200/JOEB.84.5.275-282.

Bell III, T. J., Nichols, T., Anderson, T. D., & Song, J. (2023). Leveraging the balanced scorecard for online MBA program development: A holistic approach. *Journal of Higher Education Theory & Practice*, *23*(7), 75–87.

Brown, C. (2012). Application of the balanced scorecard in higher education: Opportunities and challenges. *Planning for Higher Education*, *40*(4), 40–51.

Camilleri, M. A. (2021). Using the balanced scorecard as a performance management tool in higher education. *Management in Education*, *35*(1), 10–21. doi: 10.1177/0892020620921412.

Chang, O. H., & Chow, C. W. (1999). The balanced scorecard: A potential tool for supporting change and continuous improvement in accounting education. *Issues in Accounting Education*, *14*(3), 395–412. doi: 10.2308/iace.1999.14.3.395.

Chen, S. H., Wang, H. H., & Yang, K. J. (2009). Establishment and application of performance measure indicators for universities. *The TQM Journal*, *21*(3), 220–235. doi: 10.1108/17542730910953004.

Chen, S. H., Yang, C. C., & Shiau, J. Y. (2006). The application of balanced scorecard in the performance evaluation of higher education. *The TQM Magazine*, *18*(2), 190–205. doi: 10.1108/09544780610647892.

Chimtengo, S., Mkandawire, K., & Hanif, R. (2017). An evaluation of performance using the balanced scorecard model for the University of Malawia's Polytechnic. *African Journal of Business Management*, *11*(4), 84–93. doi: 10.5897/AJBM2016.8201.

Coskun, A., Dinc, M. S., & Tetik, S. (2021). Strategic performance management for soccer clubs: A quantitative model proposal. *Journal of Human Sport and Exercise*, *16*(4), 836–852. doi: 10.14198/jhse.2021.164.08.

Craig, R. J., Clarke, F. L., & Amernic, J. H. (1999). Scholarship in university business schools-Cardinal Newman, creeping corporatism and farewell to the "disturber of the peace"?. *Accounting, Auditing & Accountability Journal*, *12*(5), 510–524. doi: 10.1108/09513579910298453.

Cullen, J., Joyce, J., Hassall, T., & Broadbent, M. (2003). Quality in higher education: From monitoring to management. *Quality Assurance in Education*, *11*(1), 5–14. doi: 10.1108/09684880310462038.

De Jesus Alvares Mendes Junior, I., & Alves, M. D. C. (2023). The balanced scorecard in the education sector: A literature review. *Cogent Education*, *10*(1), 2160120. doi: 10.1080/2331186X.2022.2160120.

Fijałkowska, J., & Oliveira, C. (2018). Balanced scorecard in universities. *Journal of Intercultural Management*, *10*(4), 57–83. doi: 10.2478/joim-2018-0025.

Finch, D. J., Varella, P., Foster, W., Sundararajan, B., Bates, K., Nadeau, J., … Deephouse, D. L. (2016). The business school scorecard: Examining the systematic sources of business school value.

Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration, *33*(4), 277–289. doi: 10.1002/cjas.1391.

Fredin, A., Fuchsteiner, P., & Portz, K. (2015). Working toward more engaged and successful accounting students: A balanced scorecard approach. *American Journal of Business Education (AJBE)*, *8*(1), 49–62. doi: 10.19030/ajbe.v8i1.9016.

Gope, D., & Gope, A. (2022). Students and academicians views on the engineering curriculum and industrial skills requirement for a successful job career. *Open Education Studies*, *4*(1), 173–186.

Gündüzalp, S., & Arabacı, I. B. (2017). Applicability of Balanced Scorecard system in primary schools according to opinions of education inspectors, managers and teachers. *European Journal of Education Studies*, *3*(4), 161–180. doi: 10.5281/zenodo.321419.

Hansen, E. G., & Schaltegger, S. (2016). The sustainhosaability balanced scorecard: A systematic review of architectures. *Journal of Business Ethics*, *133*(2), 193–221. doi: 10.1007/s10551-014-2340-3.

Hladchenko, M. (2015). Balanced Scorecard–a strategic management system of the higher education institution. *International Journal of Educational Management*, *29*(2), 167–176. doi: 10.1108/IJEM-11-2013-0164.

Hodson, P., & Thomas, H. G. (2001). Higher education as an international commodity: Ensuring quality in partnerships. *Assessment & Evaluation in Higher Education*, *26*(2), 101–112. doi: 10.1080/02602930020018944.

Hoque, Z. (2014). 20 years of studies on the balanced scorecard: Trends, accomplishments, gaps and opportunities for future research. *The British Accounting Review*, *46*(1), 33–59. doi: 10.1016/j.bar.2013.10.003.

Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: Translating strategy into action*. Boston, US: Harvard Business School Press.

Kaplan, R. S. (2001). Strategic performance measurement and management in nonprofit organizations. *Nonprofit Management and Leadership*, *11*(3), 353–370. doi: 10.1002/nml.11308.

Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard–measures that drive performance. *Harvard Business Review*, *70*(1), 71–79.

Kaplan, R. S., & Norton, D. P. (1993). Putting the balanced scorecard to work. *Harvard Business Review*, *71*(5), 134–147.

Karathanos, D., & Karathanos, P. (2005). Applying the balanced scorecard to education. *Journal of Education for Business*, *80*(4), 222–230. doi: 10.3200/JOEB.80.4.222-230.

Kumar, J., Prince, N., & Baker, H. K. (2021). Balanced scorecard: A systematic literature review and future research issues. *FIIB Business Review*, *11*(2), 147–161. doi: 10.1177/23197145211049625.

Lassoued, K. (2018). Balanced scorecard implementation in higher education: An Emirati perspective. *Corporate Ownership & Control*, *15*(3), 205–216. doi: 10.22495/cocv15i3c1p5.

Lawrence, S., & Sharma, U. (2002). Commodification of education and academic labour – using the balanced scorecard in a university setting. *Critical Perspectives on Accounting*, *13*(5–6), 661–677. doi: 10.1006/cpac.2002.0562.

Lee, S. F., Lo, K. K., Leung, R. F., & Ko, A. S. O. (2000). Strategy formulation framework for vocational education: Integrating SWOT analysis, balanced scorecard, QFD methodology and MBNQA education criteria. *Managerial Auditing Journal*, *15*(8), 407–423. doi: 10.1108/02686900010353999.

Manville, G. (2007). Implementing a balanced scorecard framework in a not for profit SME. *International Journal of Productivity and Performance Management*, *56*(2), 162–169. doi: 10.1108/17410400710722653.

Marín, V. I., Zawacki-Richter, O., Aydin, C. H., Bedenlier, S., Bond, M., Bozkurt, A., & Zhang, J. (2022). Institutional measures for supporting OER in higher education: An international case-based study. *Open Education Studies*, *4*(1), 310–321.

McDevitt, R., Giapponi, C., & Solomon, N. (2008). Strategy revitalization in academe: a balanced scorecard approach. *International Journal of Educational Management*, *22*(1), 32–47. doi: 10.1108/09513540810844549.

Oliveira, C., Oliveira, A., Fijałkowska, J., & Silva, R. (2021). Implementation of balanced scorecard: Case study of a Portuguese higher education institution. *Management: Journal of Contemporary Management Issues*, *26*(1), 169–188. doi: 10.30924/mjcmi.26.1.10.

Palmer, T. B., & Short, J. C. (2008). Mission statements in US colleges of business: An empirical examination of their content with linkages to configurations and performance. *Academy of Management Learning & Education*, *7*(4), 454–470. doi: 10.5465/AMLE.2008.35882187.

Papenhausen, C., & Einstein, W. (2006). Implementing the Balanced Scorecard at a college of business. *Measuring Business Excellence*, *10*(3), 15–122. doi: 10.1108/13683040610685757.

Peris-Ortiz, M., García-Hurtado, D., & Devece Carañana, C. A. (2019). Influence of the balanced scorecard on the science and innovation performance of Latin American universities. *Knowledge Management Research & Practice*, *17*(4), 373–383. doi: 10.1080/14778238.2019.1569488.

Philbin, S. P. (2011). Design and implementation of the Balanced Scorecard at a university institute. *Measuring Business Excellence*, *15*(3), 34–45. doi: 10.1108/13683041111161148.

Pietrzak, M., Paliszkiewicz, J., & Klepacki, B. (2015). The application of the balanced scorecard (BSC) in the higher education setting of a Polish university. *Online Journal of Applied Knowledge Management*, *3*(1), 151–164.

Pires da Rosa, M. J., Saraiva, P. M., & Diz, H. (2001). The development of an Excellence Model for Portuguese higher education institutions. *Total Quality Management*, *12*(7), 1010–1017. doi: 10.1080/09544120120096179.

Reda, N. W. (2017). Balanced scorecard in higher education institutions: Congruence and roles to quality assurance practices. *Quality Assurance in Education*, *25*(4), 489–499. doi: 10.1108/QAE-09-2015-0038.

Rimar, S., & Garstka, S. J. (1999). The "Balanced Scorecard": Development and implementation in an academic clinical department. *Academic Medicine: Journal of the Association of American Medical Colleges*, *74*(2), 114–122. doi: 10.1097/00001888-199902000-00010.

Rompho, N. (2020). The balanced scorecard for school management: Case study of Thai public schools. *Measuring Business Excellence*, *24*(3), 285–300. doi: 10.1108/MBE-02-2019-0012.

Storey, A. (2002). Performance management in schools: Could the balanced scorecard help? *School Leadership & Management*, *22*(3), 321–338. doi: 10.1080/1363243022000020435.

Taylor, J., & Baines, C. (2012). Performance management in UK universities: Implementing the Balanced Scorecard. *Journal of Higher Education Policy and Management*, *34*(2), 111–124. doi: 10.1080/1360080X.2012.662737.

Taylor, M., & Heath, F. (2012). Assessment and continuous planning: The key to transformation at the University of Texas Libraries. *Journal of Library Administration*, *52*(5), 424–435. doi: 10.1080/01930826.2012.700798.

Umashankar, V., & Dutta, K. (2007). Balanced scorecards in managing higher education institutions: An Indian perspective. *International Journal of Educational Management*, *21*(1), 54–67. doi: 10.1108/09513540710716821.

Van Eck, N. J., & Waltman, L. (2010) Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, *84*, 523–538. doi: 10.1007/s11192-009-0146-3.

VOSviewer. (2022). *VOSviewer - Visualizing scientific landscapes*. https://www.vosviewer.com.

Weihrich, H. (1982). The TOWS matrix – A tool for situational analysis. *Long Range Planning*, *15*(2), 54–66. doi: 10.1016/0024-6301(82)90120-0.

Wu, H. Y., Lin, Y. K., & Chang, C. H. (2011). Performance evaluation of extension education centers in universities based on the balanced scorecard. *Evaluation and Program Planning*, *34*(1), 37–50. doi: 10.1016/j.evalprogplan.2010.06.001.

Wynder, M., Wellner, K. U., & Reinhard, K. (2013). Rhetoric or reality? Do accounting education and experience increase weighting on environmental performance in a balanced scorecard?. *Accounting Education*, *22*(4), 366–381. doi: 10.1080/09639284.2013.817802.

Yaakub, M. H., & Mohamed, Z. A. (2019). Measuring the performance of private higher education institutions in Malaysia. *Journal of Applied Research in Higher Education*, *12*(3), 425–443. doi: 10.1108/JARHE-10-2018-0208.

Yüksel, H., & Coşkun, A. (2013). Strategy focused schools: An implementation of the balanced scorecard in provision of educational services. *Procedia - Social and Behavioral Sciences*, *106*, 2450–2459. doi: 10.1016/j.sbspro.2013.12.282.