Implementation of School Management Based on a Balanced Scorecard and Its Relationship with Headmaster Attributes in Indonesia

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School management is an important factor that determines school performance. Only through effective management will optimal processes and work outcomes be achieved in schools. To improve the quality of education, it is absolutely necessary to effectively manage school performance. There are many school management models that can be applied by headmasters. An effective school management model is school management based on a balanced scorecard. The purpose of this study is to describe balanced scorecard-based school management that is used by headmasters in primary schools. The study was conducted in the city of Batu, East Java, Indonesia. The samples included 30 headmasters and 39 teachers. They were chosen using a random cluster sampling technique. The data analysis techniques used in this study include descriptive statistics, t-tests and Pearson Product-Moment Correlation. The results showed that the implementation of school management, based on a balanced scorecard, were good. The highest dimension is the customer's perspective, while the lowest dimension is in financial management. There is no significant difference in the results of the headmaster and teacher assessments. The main attributive variable that was significantly positively related was the rank and tenure of the headmasters with a growth perspective.

Keywords: *School management, balanced scorecard, customers, finance, internal processes, organisational growth.*

INTRODUCTION

Improvement in the quality of education is one of the prioritised programs for national development. The Strategic Plan of the Ministry of Education and Culture or the Strategic Plan of the Ministry of Research, Technology and Higher Education of Indonesia emphasise that improving the quality of education is a priority in educational activities. On the other hand, when examined based on existing data, the quality of education is still not fully satisfactory. This can be seen in the processed data and educational results that have been achieved. Until 2013, the level of school accreditation achieving a minimum of a B qualification at the primary school level was only 68.7%. It was 62.5 for junior high school and 48.2% for high school. National examination results reaching the minimum limit for pure national examination scores are also still low, at 56% for junior high schools and 66% for high schools (Ministry of Education and Culture, 2015).

The quality of headmaster management in Indonesia

When viewed globally, the quality of education achieved in Indonesia is still below neighbouring countries, such as Singapore, Malaysia, Thailand and Vietnam. The government has implemented several policies in an effort to improve the quality of education. Some of these policies, including teacher certification programs, teacher induction programs, teacher competency tests, teacher performance evaluation and ongoing professional development, have not yet been able to improve the quality of education.

The main factor that determines the quality of education in schools is school management. A headmaster is the school's education manager who is fully responsible for managing all school resources. If a headmaster is able to manage school resources effectively, then the implementation of education in schools will work well and quality education can be achieved optimally. Some research results show that the quality of management or leadership has a very strong influence on organisational effectiveness (Reinhard and Beach, 2004).

The study results of Jaafreh and Al-Abedallat (2013) show that there is a very strong relationship between the dimensions of management quality and organisational performance. The study results of Alami et al. (2015) also show that the quality of human resource management was very effective in improving employee performance. The study results of Akhtar et al. (2014) showed that integrated quality management had a positive impact on the performance of an organisation. Therefore, it is clear that the quality of management has a very strong influence on the effectiveness of organisations.

When investigated properly, it was assumed that a headmaster's management capacity had not yet met the expected qualifications. The results of the Djalil's study, reported by Kummerer (1990), show that in managing schools, the majority of headmasters tend to deal only with administrative issues. They monitor teacher attendance and report to supervisors. This obviously does not reflect quality, professional management coming from headmasters. Their coaching activities have been carried out by the education office through upgrades,

workshops, training or other coaching activities. Ever since nine-year basic education has been carried out, headmasters' coaching activities have been promoted through a forum known as the Principal Working Group or the Principal Work Meeting.

This policy is expected to have a significant effect in increasing the capacity of headmasters. However, this has not yet been proven. Moreover, Wiyono et al. (2001) suggested that headmasters still need better coaching. The government has adopted a series of policies to improve the leadership competency of headmasters. The issuance of the Regulation of Minister of National Education Number 13 of 2007, concerning main standards, was aimed at improving the competency of headmasters. Headmasters must possess five dimensions of competency. These are personal, managerial, supervisory, entrepreneurial and social competencies. So far, this has not delivered the expected results. The quality of school management is not yet higher. The study results of Wiyono et al. (2017) also indicate that headmasters have not conducted supervision of their teachers optimally.

Balanced scorecard-based school management
Many school management models can be applied to schools. One school management model currently being developed is school management based on a balanced scorecard (Cheung, 2012; Hadiyanto & Santoso, 2017). A balanced scorecard is an approach used by managers at all organisational and institutional levels to measure results and develop strategic programs in all key areas of responsibility equally. When using a balanced scorecard, there is a perspective that offers a comprehensive view of organisational performance. It also reveals the causal relationship between each component of each perspective associated with visas and organisational development strategies.

Broadly speaking, there are four main dimensions that are referred to in the measurement and development of a balanced scorecard, based on the strategic plans. They are the perspective of customers, finance, internal processes and organisational growth (Hsiao and Wen, 2011; Taylor and Baines, 2012). From the customer's point of view, the community has the satisfaction and expectations of the implementation of education. Consequently, the drive for schools to participate in education arises. From a financial perspective, schools can manage finances effectively and efficiently by empowering existing financial resources. From an internal process perspective, schools can develop quality learning processes, and educational goals can be optimally achieved. From an organisational growth perspective, all components of a school organisation can grow and develop in a sustainable manner.

Based on a balanced scorecard view, there are four perspectives contained. These are the process perspectives, i.e. internal, finance, learning as well as growth and customers' satisfaction. The internal process refers to the learning process, which is conducted in a quality manner and carried out on a continuous basis (Kangpheng, Kunlong, Mityodwong, Sirikul, & Buddeevong, 2018; Sada, 2019; Tuyen, 2018). The financial perspective refers to efforts to improve revenue growth, productivity, efficiency and effective use of funds. In

other words, it refers to continuous efforts to improve the competence of teachers and education personnel. It also regards the improvement of other professional services where emphasis is placed on learning and growth. These four perspectives are a benchmark in measuring organisational performance and planning.

Some research results indicate the potency of an effective balanced scorecard in improving organisational performance. The study results of Kairu et al. (2013) show that a balanced scorecard affects the performance of firms in the service sector. The study findings of Ridwan et al. (2013) also show the same outcomes (that a balanced scorecard has an impact on overall organisational performance). The study results of Davis and Albright (2004) show that a balanced scorecard has a better effect on banks' financial performance. Pimentel and Major (2014) also found that a new management model, based on an organisational measurement (which refers to a balanced scorecard dimension), has proven effective. This shows that the principle of a balanced scorecard is very effective in improving organisational performance. However, existing research is applied in the non-educational field. The way to fully implement it in education has not yet be majorly discovered. The study results of Taylor and Baines (2012) show that the implementation of balanced scorecard management ensures tertiary institutions maximise their strengths. However, it still faces many challenges in development, evaluation and policy changes. For this reason, research is needed. The implementation of balanced scorecards in the field of education is also important. This research was carried out on this basis. The main objective of this study is to describe school management based on a balanced scorecard applied by headmasters at the basic education level in Indonesia. In addition, the purpose is also to find the attributes of the headmasters who influence the implementation of school-based management (Brundrett, 2002; "New School Management Approaches (Summary in Spanish)," 2002).

METHODOLOGY

This research was conducted in the city of Batu, East Java, Indonesia, using a descriptive, correlational research design. The initial research was carried out in four stages. First, the results of previous research on school management were reviewed. Second, a literature review on balanced scorecard-based school management was conducted. Third, data collection in the field was carried out. Lastly, the data was processed and interpreted. The research sample had 69 people consisting of 30 principals and 39 teachers. They were selected using cluster random sampling.

Two kinds of data collection techniques were used in obtaining data, based on the purpose of this study. First, a questionnaire technique was used to collect data about the implementation of school management based on balanced scorecards. Secondly, a documentation technique was used to collect documentary data, i.e. the headmasters' backgrounds, teachers' backgrounds and school characteristics.

The instruments used in this study were developed based on research variables. This was done by inspecting their construction, checking existing instruments and examining conditions on the ground. In total, there were 50 instrument items, which were divided into 15 customer satisfaction components, 10 financial perspectives, 12 internal quality processes and 13 growth perspectives.

In order to obtain the validity of the instruments, the first step performed involved conducting an in-depth study on the construction of variable theory. This took into account the situation and conditions in the field and formulated an outline based on an accurate theoretical study. Thus, good content validity was obtained. In addition, the instruments were empirically tested in the field. The type of empirical validity analysed was construct validity using item analysis. The reliability of the questionnaire instruments was estimated using Cronbach's alpha formula. The results of the instrument test showed that the analytical findings of the instrument items obtained $r > 0.3$ and the reliability coefficient obtained $r > 0.7$ (Martens, D.M. 2010). Thus, it can be concluded that the research instruments were valid and reliable.

Based on the research objectives and the types of data available, the data analysis techniques used in this study were descriptive statistics, t-tests and Pearson product-moment correlations. Descriptive analysis techniques were used to describe data. This involved both data on the process of implementing school management and the results obtained. Some of the techniques used involved finding the mean and frequency distribution. The t-test was used to analyse different sources of data scores from headmasters and teachers. Pearson's product-moment correlation analysis technique was used to find the correlation coefficient between the headmasters' background and that of the teachers. This involved correlating the level of education, class rank and years of service with the implementation of balanced scorecard-based management (Johnson and Christensen, 2004).

The implementation data's description of school management, based on a balanced scorecard, is classified into five categories. These are very high, high, moderate, low and very low. The formula for determining these categories is as follows: First, to determine the range, the lowest value is subtracted from the highest value. Second, to determine the class size, the range is divided by the number of classes. Thirdly, the class intervals are determined. Lastly, the frequency of each class interval is determined. According to these calculations, and by examining the items of each component, the classification of management data, based on a balanced scorecard, is as follows: For the customer satisfaction classification component, 15-27 = very low, 28–39 = low, 40–51 = average, 52–63 = high and 64–75 = very high. For the financial component, 10-18 = very low, 19-26 = low, 27-34 = average, 35-42 = high and 43-50 = very high. For internal and growth process components,13-24 = very low, 25-35 = low, 36-46 = average, 47-57 = high and 58-68 = very high. For overall management implementation based on a balanced scorecard, 50-90 = very low, 91-130 = low, 131-170 = average, 171-210 = high and 211-250 = very high.

RESULTS

Before describing the results of the data analysis, it is necessary to present the characteristics of the analysis unit, namely the headmasters and teachers. Table 1 presents the characteristics of the headmasters in terms of gender, education level, class rank and length of service.

Based on Table 1, it can be emphasised that the gender study sample, consisting of men and women, has more women. As for the level of education, which consists of bachelor's and master's degrees, most of them have bachelor's degrees. Class rank varies from group IIIA to IVB. The headmasters' tenures also vary, ranging from under 10 years to over 30 years. The teachers show results that are not too different, which are presented in Table 2.

In Table 2 it can be seen that the gender study sample, consisting of men and women, has more women. In terms of their level of education, which consists of bachelor's and master's degrees, most of them have bachelor's degrees. Class rank varies from group IIA to IVB. The teachers' tenures also vary, ranging from under 10 years to over 30 years. This difference occurs because, while most of the teachers are in class IIIA, most headmasters are already in class IIID and IVA. Similarly, the headmasters' tenures are generally longer than the teachers' tenures. This is because becoming a headmaster requires sufficient work experience and a relatively high rank. Therefore, this is representative of the population.

Table 3 provides a broad description of the implementation of school-based management in schools based on the perceptions of headmasters and teachers.
In consideration of Table 3, it can be emphasised that the concept of school management based on balanced scorecards was well applied in schools based on the responses of headmasters and teachers. Based on the criteria, all components of management (based on balanced scores) were applied in the high category. There are differences in scores between headmasters' and teachers' data sources, but they are not too significant. Table 4 describes the analysis results of differences in scores between teachers' and headmasters' data sources.
In consideration of Table 4, it can be seen that there is no difference between headmasters and teachers in the implementation of balanced scorecards in the management of schools. These results confirm that the implementation of balanced scorecard management in average schools was managed well. However, when the standard score is considered (which ranges from 1 to 5), there were differences in quality between components. Broadly speaking, the quality of each component is presented in Figure 1.

Based on Figure 1, it can be deduced that the highest quality of management implementation, based on a balanced scorecard, came from the perspective of customer satisfaction, followed by internal processes, growth and financial performance. Hence, it can be concluded that school services are the highest position in the community, while the lowest position is financial performance.

The relationship between education level, rank level, headmasters' work periods and the implementation of a balanced scorecard

A headmaster is an educational leader who manages a school. For this reason, the second problem that needs to be resolved in this study is whether there is a relationship between the attributes of a headmaster and the implementation of school management based on a balanced scorecard. Some of the headmasters' attributes that were seen in some schools were gender, education level, rank and years of service. Table 5 presents a general analysis of the relationships of the four variables.

Based on Table 5, it can be gathered that most of the headmasters' attributes are not significantly related to the implementation of balanced scorecard-based school management. The variables that were significantly related were the rank and tenure of headmasters and a growth perspective. The higher the rank and work experience of a headmaster, the greater the chances that a headmaster will increase the school's resource capacity. Even the headmasters' level of education, although not significant, show a high correlation coefficient. The findings indicate that the higher a headmaster's vision and the longer their experience, the greater their tendency to develop school resources, especially human resources.

Discrete variables, such as the gender of the headmasters, did not show significant differences. The results of the analysis of differences showed a relatively small t-value with a value of $p > 0.05$. This is presented in Table 6.

Based on Table 6, it can be gathered that the value of t is small for all components and the value of $p > 0.05$. Likewise, it also shows a small t value with $p > 0.05$ overall. Therefore, it can be concluded that there are no significant differences between men and women in the implementation of a balanced scorecard-based management system.

DISCUSSION

The results of this study showed that the average school implemented balanced scorecard-based management in a fairly good manner (categorised as high). This is in terms of four components: customer perspective, finance, internal processes and organisational growth. The outcome of this study corresponds with the findings of Wiyono (2017) and Bafadal et al. (2019). They show that the average school headmaster has implemented school-based management in a similar manner. There are a number of school-based management components contained in the concept of implementing school management based on a balanced scorecard. These include the fullest empowerment of school resources in line with the appropriate perspective and with emphasis on the quality of internal processes and organisational growth.

When viewed in terms of the balanced scorecard's dimension, the highest value applied by the headmaster is the customer dimension. The lowest value is the financial dimension. This also confirms the fact that schools are educational institutions that emphasise social aspects.

They are less concerned with the aspect of profits. Efforts have been made by headmasters to establish more harmonious relationships with parents of students and the community. Therefore, the quality of school management, based on a balanced scorecard, is applied by headmasters (Dimmock, 2011; "Managing Conflict," 2012). The existence of rules and regulations that schools must comply with in financial management is also an obstacle for headmasters in managing healthy and productive school finances. The results of Taylor and Baines's analysis (2012) show that one of the challenges faced by tertiary institutions in implementing a balanced scorecard is the need for hard work and adequate costs at all levels. The results of the research indicate that the only dimensions that show a positive correlation between the headmasters' attributes and the quality of school management are rank, work experience and an organisational growth perspective. The results of this study are also in accordance with Wiyono's (2018) research, which discovered that the leadership of a headmaster has an impact on school improvement. The more effectively a headmaster applies transformational leadership, the more significant a school's improvement. One aspect of transformational leadership involving headmasters is individual consideration. This is similar to the level of organisational growth, where headmasters attach great importance to the development of organisational members (Mcewen & Salters, 1997).

The results of this study are in line with the results of Rashad et al. (2017), which found that there was no significant difference in the ability of teachers to work in terms of rank and working period. The results also show that the rank and tenure of headmasters are not related to the level of implementation of school management, based on a balanced scorecard. However, the results of the analysis of each dimension showed different findings. For instance, there was a significant correlation between the rank and tenure of teachers and the quality of organisational growth. For this reason, further investigation needs to be carried out. The temporary deduction is that there are differences in the measured variables. A study by Rasyad et al. (2017) stressed the importance of teachers' enthusiasm in carrying out tasks, which influences teachers' performance. This study refers to the variable efforts made by a headmaster to develop the resource capacity of a school. These include teachers, who place greater emphasis on the area of organisational development.

The results of the research also did not show any relationship between the headmasters' educational backgrounds and the quality of school management, based on a balanced scorecard. The results of this study also correspond with the results of Wiyono's (2016) research. They show that there is no difference in teachers' work motivation in terms of the educational level of teachers. In other words, the educational level of the teachers has no effect on their work motivation. These results correspond with the findings of this study. The level of education of headmasters does not affect the quality of school management, based on a balanced scorecard.

Furthermore, the results do not differ in terms of the quality of school management, based on a balanced scorecard, regarding of gender. This also confirms the results of Wiyono's (2016)

research, which show that there is no remarkable difference in teachers' work motivation in terms of gender. The outcomes of the 2016 study agree with the findings of this study. That is, a headmaster's gender does not affect the quality of school management, based on a balanced scorecard.

Previous studies have linked many school-based management concepts with other modern management concepts. Hsiao and Wen (2011) used balanced scorecard management as a strategy to achieve knowledge management. This is the most important aspect of achieving and maintaining a company's competitive advantage. However, it is difficult to measure with financial metrics. For this reason, a balanced scorecard is a strategy that can be used to measure performance, both in financial and non-financial aspects. The study by Pimentel and Major (2014) linked a balanced scorecard with total quality management. The results showed that the integration of total quality management and a balanced scorecard can bring organisational change. Eleyan and El-Sawalhi (2010) used a balanced scorecard to review projects in project management. The results showed that a balanced scorecard can provide relevant information, regarding both financial and non-financial aspects. Zaman et al. (2011) used a balanced scorecard for performance measurement and planning strategies for indigenous knowledge management. The results showed that a balanced scorecard cannot only measure and quantify accurately but can also provide a qualitative analysis of knowledge management in native communities. The results confirm the findings of this study; that a balanced scorecard can be applied in educational organisations. However, its implementation needs to be examined more carefully in accordance with the characteristics of the dimensions of educational organisations (Ceretta, Warne, Stirling, & Bain, 2002; Nemati, 2013).

CONCLUSION

Based on the results of data analysis, it can be deduced that the average headmaster expects school management to be based on a balanced scorecard, but not entirely. The highest dimension is the customer perspective, while the lowest is the financial perspective. This is in accordance with the characteristics of educational organisations that focus more on the social aspects than making profits.

The results of data analysis also discovered that overall, there was no relationship between educational background, gender, rank or years of service and the quality of the headmasters' management in implementing a balanced scorecard. This confirms that the ability of headmasters to implement school-based management is not influenced by factors of educational background, gender or years of service. The quality of a headmaster's management in implementing school management, based on a balanced scorecard, is driven more by experience. These results support the partial analysis of each dimension. This indicates that there is a significant positive relationship between the rank and tenure of a headmaster and the quality of school management in terms of organisational growth. The higher the rank and the more extensive the work experience of a headmaster, the better their

focus will be in developing institutional capacity, especially human resource capacity. The opportunity to develop organisational innovations is greater when a headmaster's experience is extensive.

This research is not conclusive, and further findings need to be made. This is especially true regarding the impact of the implementation of balanced scorecard-based school management on improving the quality of education. Conceptually, results on the implementation of a balanced scorecard are a good strategy to be used to measure and arrange strategic planning. However, the way the impact improves the quality of education still needs further clarification. The use of mixing methods in research is highly recommended for obtaining comprehensive results.

Figure 1

The quality of management implementation based on a balanced scorecard
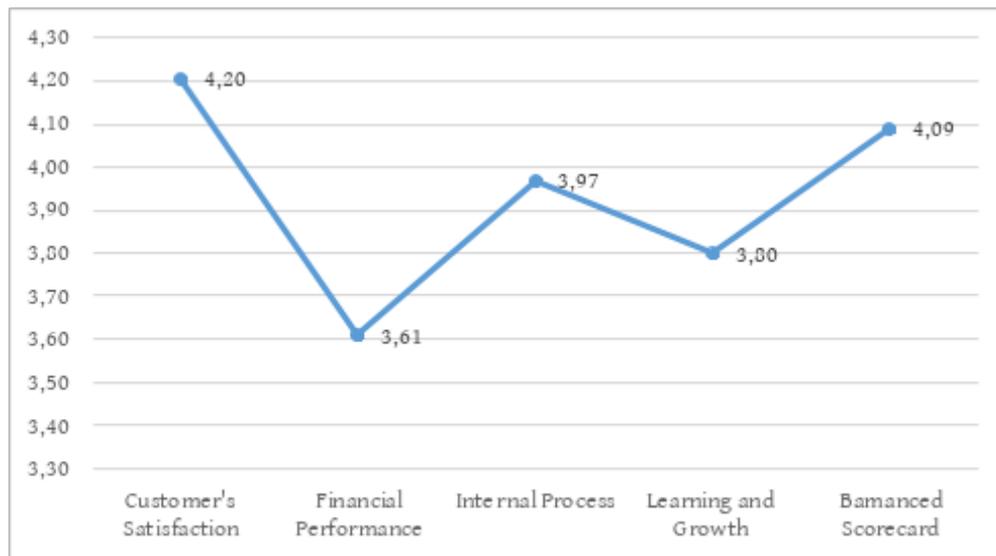
Table 1

Headmasters' characteristics

S/N	Variable	Characteristics	Total Frequency (F)	Percentage (%
1	Gender	Male	10	33.3
		Female	20	66.7
2	Level of education	Bachelor	23	76.7
		Master	7	23.3
3	Group	IIIA	5	16.7
		IIIB	2	6.7
		IIIC	3	10.0
		IIID	7	23.3
		IVA	7	26.7
		IVB	8	16.7
4	Years of service	1-10 years	4	13.3
		11-20 years	8	26.7
		21-30 years	14	46.7
		> 30 years	4	13.3

Table 2

Teachers' characteristics

S/N	Variable	Characteristics	Sum	
			Frequency (F)	**Percentage (%)**
1	Gender	Male	10	25.6
		Female	29	74.4
2	Level of education	Bachelor	32	82.1
		Master	7	17.9
3	Group	IIA	1	2.6
		IIIA	16	41.0
		IIIB	6	15.4
		IIIC	9	23.1
		IIID	2	5.1
		IVA	3	7.7
		IVB	2	5.1
4	Years of service	1-10 years	11	28.2
		11-20 years	20	51.3
		21-30 years	6	15.4
		> 30 years	2	5.1

Table 3

Implementation of school management based on a balanced scorecard

S/N	Component	Respondents	Average	Criteria
1	Customer	Headmaster	59.49	high
		Teacher	60.49	high
2	Finance	Headmaster	33.63	high
		Teacher	36.90	high
3	Internal process	Headmaster	50.30	high
		Teacher	51.10	high
4	Growth	Headmaster	47.47	high
		Teacher	50.56	high
Balanced scorecard-based school management		Headmaster	190.83	high
		Teacher	199.05	high

Table 4

*Analysis results of differences in the scores of headmasters and teachers regarding data
sources*

S/N	Component	T	H	Conclusion
1	Customer	0.733	0.47	No difference
2	Finance	2.006	0.54	No difference
3	Internal process	0.521	0.803	No difference
4	Growth	1.530	0.131	No difference
5	Balanced scorecard	1.558	0.124	No difference

T, Teacher; H, Headmaster.

Table 5

*The relationship of the education level, rank and working period of headmasters with the
implementation of school management based on a balanced scorecard*

S/N	Independent variable	Dependent variable	r	p	Information
1	Level of education	Customer	-0.146	0.440	Not significant
		Finance	-0.258	0.169	Not significant
		Internal process	0.180	0.342	Not significant
		Growth	0.297	0.111	Not significant
		BSC	0.057	0.763	Not significant
2	Rank group	Customer	-0.013	0.944	Not significant
		Finance	0.219	0.244	Not significant
		Internal process	0.294	0.115	Not significant
		Growth	0.457	0.011 *	Significant
		BSC	0.354	0.055	Not significant
3	Years of service	Customer	0.117	0.539	Not significant
		Finance	0.140	0.460	Not significant
		Internal process	0.271	0.148	Not significant
		Growth	0.368	0.045 *	Significant
		BSC	0.256	0.173	Not significant

Table 6

*Results analysis of differences between male and female headmasters in the implementation
of balanced scorecard-based management*

S/N	Component	t	p	Conclusion
1	Customer	-1.322	0.197	No difference
2	Finance	-7.775	0.445	No difference
3	Internal process	-1.640	0.112	No difference
4	Growth	-0.553	0.585	No difference
5	Balanced scorecard	-1.212	0.235	No difference

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