



**DETERMINATION OF THE MOST IMPORTANT ASPECTS OF HEAD  
TEACHERS' LEADERSHIP PRACTICES INFLUENCING STUDENT  
ACADEMIC ACHIEVEMENT IN SECONDARY SCHOOLS:  
A CASE STUDY OF MACHAKOS COUNTY, KENYA**

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**Abstract:**

The purpose of this study was to assess the most important aspects of head teachers' leadership practices influencing student academic achievement in secondary schools of Machakos County, Kenya. Performance by many students in the Kenya Certificate of Secondary Education examination in most secondary schools in Machakos County has been low in the recent past years (2009-2013), and a study was therefore necessary to establish whether in the execution of head teachers' instructional leadership practices, the head teachers may have ignored important aspects which if put to consideration could help improve their instructional leadership practice, and subsequently the performance of pupils. The study applied Survey design. The target population was the head teachers, teachers and students of 176 public secondary schools in Machakos County. Stratified sampling technique was used to select 38 head teachers, 190 teachers and 345 students from among high and low performing secondary schools in Machakos

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County. The study used the Head Teacher Questionnaire (reliability 0.78), Teachers Questionnaire (reliability 0.74) and the students Questionnaire (reliability 0.75). The response was 87.5%. Factor analysis was then done to establish the most important indicators of the head teachers' instructional leadership practices. The study found that most indicators used in the head teachers' instructional leadership are reliable, with Cronbach's alpha values higher than 0.5. The study recommends in-service training for head teachers and preparatory training for deputy head teachers and heads of departments on effective instructional leadership practices so as to enhance balanced instructional leadership in schools.

**Keywords:** head teachers, factor analysis, mission, supervision, school working climate, incentives

## 1. Introduction

According to Hallinger (2005), one lasting legacy of the effective schools movement was the institutionalization of the term 'instructional leadership' into the vocabulary of educational administration. The need for research into instructional leadership was heightened by the increasing global emphasis on accountability, where the head teacher is seen as the principal lever for improved school performance and greater student achievement (Lashway, 2003, Day et al 2009).

### 1.1 Objective

The objective of this study was to isolate the most salient features of instructional leadership practices by head teachers in secondary schools of Machakos County, Kenya. The study was prompted by the continuous attainment of low quality Grades (D+ and below) by many students in KCSE examination in Machakos County, unlike its neighboring Kitui County (see appendix A), since one aim of effective schools is to produce excellent grades by many students in KCSE examinations (Sutton Trust, 2013). This poor performance has attracted the community's concern, as voiced in public meetings and official educational gatherings within the county.

## 2. Methodology

### 2.1 Population and study sample

The target population for this study was the 176 head teachers, 2,112 teachers and 16,000 Form three and Form four students from public secondary schools in Machakos

County, South Eastern region of Kenya, where examination statistics at the Machakos County Education Offices (2014) show that performance of KCSE in most secondary schools in this County was not sufficiently competitive in the years under study (2009 to 2013).

The researcher used stratified sampling technique to select 38 (42%) of target schools from high performing and low performing categories, to give a total of 38 head teachers. The study targeted the head teacher and an average of five teachers from each school. Simple random sampling was used to select the 380 form four and form three students on the basis that they have stayed in the school for at least two years.

## **2.2 Data collection tools**

This study used the head teacher questionnaire (HTQ), teacher questionnaire (TQ) and student questionnaire (SQ).

## **2.3 Data analysis**

Data were analysed using the Statistical Package for Social Sciences (SPSS). For consistency, the IBM SPSS statistics version 20 was used to classify information, investigate relationships, and analyze the data.

The objective of this study was to identify the factors of head teachers' leadership practices best influence student academic achievement in secondary schools. To achieve this objective, data collected were subjected to factor analysis.

Factor analysis is necessary in order to reduce the number of indicators or factors under each research variable, so as to retain the indicators capable of best explaining the influence of head teachers' instructional leadership practices on students' academic performance (Zinbarg, 2005). Factors with loading values of below 0.4 are discarded, while the other factors are retained and used for further analysis. Tabachnick and Fidell (2007) recommend the use more stringent cut offs going from 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good) to 0.71 (excellent).

To measure the reliability of the gathered data, Cronbach's alpha ( $\alpha$ ) was used. Cronbach's alpha is a coefficient of reliability that gives an unbiased estimate of data generalizability (Zinbarg, 2005). An alpha coefficient of  $\alpha=0.70$  or higher indicates that the gathered data is reliable as it has a relatively high internal consistency and can be generalized to reflect opinions of all respondents in the target population (Zinbarg, 2005). Zinbarg further adds that items with a loading value of less than 0.4 are considered to have too little correlation with the rest of the test items, and should therefore be discarded on the basis of lacking internal consistency. It may be that the

items with loading value less than 0.4 affect only few schools studied (in addition to the pilot schools) hence cannot be used to reflect the opinions of all respondents.

### 3. Findings

The following sub-sections present Factor analysis for each of the study indicators from the teachers' questionnaire.

#### 3.1 Defining the School Mission

One of the instructional leadership practices in this study was defining the school mission. This independent variable had five indicators that the respondents were asked to rate. In order to determine the most reliable indicators for defining school mission, factor analysis was done. The results are shown on Table 1 below.

**Table 1:** Reliability and Factor Analysis for Indicators on Defining School Mission

Cronbach's alpha before	Indicators	Component	Cronbach's alpha
.675	Framing a focused set of annual school-wide goals	.722	.781
	Ensuring staff input on goal development	.375	
	Using student performance data in developing the school's academic goals	.754	
	Effectively communicates the school's mission to members	.829	
	Ensure effective display of school's academic goals	.665	

Table 1 shows that when all the five indicators for defining school mission are loaded, Cronbach's alpha result of was 0.675, with individual factor loading between 0.375 and 0.829. The researcher therefore removed one of the indicators (Ensure staff input on goal development) that had a factor loading of below 0.4, which is below the acceptable level of reliability, while the rest of the indicators had loading factors above  $\alpha=0.7$  which is good (acceptable) since they were above 0.4 (Zinbarg, 2005). Using the retained distribution chain indicators, the value of Cronbach's alpha  $\alpha$  was computed again and generated  $\alpha=0.781$ . This value indicates good reliability according to Zinbarg (2005) since it is above 0.7. This indicates that data collected using the retained indicators for defining school mission were reliable. Therefore, one out of the five indicators on school mission was removed while the rest of the factors were taken as reliable and later used for further analysis.

### 3.2 Managing the Instructional Programme

Another instructional leadership practice used in this study was managing the instructional programme. This independent variable had eleven indicators that the respondents were asked to rate. In order to determine the most reliable indicators for managing the instructional programme, factor analysis was done. The results are shown on Table 2 below.

**Table 2:** Reliability and Factor Analysis for Indicators on  
 Managing the Instructional Programme

Cronbach's alpha before	Indicators	Component	Cronbach's alpha
.624	Ensuring consistency of classroom priorities of students with school goals	.899	.874
	Reviewing student work products when evaluating classroom instruction	.328	
	Ensuring proper professional records are kept (e.g. schemes of work, records of work and lesson notes)	.866	
	Pointing out specific strengths in teacher's instructional practices in post-observation feedback	.345	
	Pointing out specific weaknesses in teacher instructional practices in post-observation feedback	.294	
	Limiting interruptions of instructional time by address announcements	.762	
	Making clear who is responsible for coordinating the curriculum	.783	
	Drawing upon the results of school-wide testing where making decisions	.787	
	Monitoring curriculum to see that it covers the school's objectives	.710	
	Ensuring tardy and truant students suffer specific consequences	.762	
	Proper mechanism for compensating for lost instructional time in place	.869	

Cronbach's alpha result in the first column was  $\alpha$  computed using all the indicators and the results in the last column was  $\alpha$  computed after removal of the indicators with a factor loading of less than 0.4.

The Cronbach's alpha result was 0.624, using all the eleven indicators on managing instructional program but when the three indicators which had a factor

loading of below 0.4, and were removed, retained distribution chain indicators generated  $\alpha=0.874$ . This indicates that data collected using the retained indicators for managing instructional program were reliable since the Cronbach's alpha value was above  $\alpha=0.70$ . The researcher therefore deduced that eight out of the eleven indicators for managing the instructional program were reliable in determining its influence on students' performance. These indicators were later used for further analysis.

### 3.3 Promoting a Positive School Learning Climate

The third instructional leadership practice used in this study was promoting a positive school learning climate. This independent variable six indicators that the respondents were asked to rate. In order to determine the most reliable indicators for managing the instructional programme, factor analysis was done. From Table 3, Cronbach's alpha computed using the six indicators on promoting positive school learning climate was 0.843 which is high reliability (Zinbarg, 2015). Individual factor loading here was between 0.598 and 0.840. The researcher hence deduced that all the six indicators for promoting positive school learning climate were reliable in determining the influence of head teachers' instructional leadership on students' performance. These indicators were later used for further analysis.

**Table 3:** Reliability and Factor Analysis for Indicators on Promoting Positive School Learning Climate

Indicators	Component	Cronbach's alpha
Recognizing students who do superior work with formal rewards	.777	
Contacting parents to communicate exemplary student performance	.818	
Supporting teachers actively in their reward of student's accomplishments	.766	
Reinforcing superior performance by teachers in staff meetings, newsletters, and/or memos	.685	.843
Acknowledging teachers' exceptional performance by writing memos for their personnel files	.840	
Rewarding special efforts by teachers with opportunities for professional recognition	.598	

### 3.5 Advancement of Teachers' Interests

The fourth instructional leadership practice used in this study was advancement of teachers' interests. This independent variable three indicators that the respondents were asked to rate. In order to determine the most reliable indicators for advancement of

teachers' interests, factor analysis was done. The results for factor analysis in this instructional practice are shown on table 4 below

**Table 4:** Reliability and Factor Analysis for Indicators on Advancement of Teachers' Interest

Indicators	Component	Cronbach's alpha
Ensuring that in-service activities attended by staff are consistent with the school's goals	.820	
Actively supporting the use in the classroom of skills acquired during in-service training	.501	.815
Obtaining the participation of the whole staff in important in-service activities	.774	

Data in table 4 shows that Cronbach's alpha result of all the three factors on advancement of teachers' interest was 0.815 and the factor loading results were between 0.501 and 0.820. This implies that data collected using all the indicators for advancement of teachers' interest were reliable since the Cronbach's alpha value was above 0.70. The study hence deduced that all the three indicators on advancement of teachers' interest were reliable in determining the influence of head teachers' instructional leadership on students' performance. These indicators were later used for further analysis.

#### 4. Summary of findings

Cronbach's alpha showed that the most reliable factors for rating school mission were:

- A focused set of annual school-wide goals;
- Use student performance data in developing the school's academic goals
- Effective communication of the school's mission to members;
- Effective display of school's academic goals;

The most reliable indicators for managing the instructional programme were found to be:

- Consistency of classroom priorities of students with school goals;
- Ensure proper professional records are kept (e.g. schemes of work, records of work and lesson notes);
- Point out specific strengths in teacher's instructional practices in post-observation feedback;
- Limit interruptions of instructional time by address announcements;
- Make clear who is responsible for coordinating the curriculum;

- Monitor curriculum to see that it covers the school's objectives;
- Draw upon the results of school-wide testing when making decisions;
- Ensure tardy and truant students suffer specific consequences;
- Proper mechanism for compensating for lost instructional time in place;

Additionally the study indicated that in promoting a positive school learning climate, the head teacher should:

- Recognize students who do superior work with formal rewards;
- Contact parents to communicate exemplary student performance;
- Support teachers actively in their reward of student's accomplishments;
- Reinforce superior performance by teachers in staff meetings, newsletters, and/or memos;
- Acknowledge teachers' exceptional performance by writing memos for their personnel files;
- Reward special efforts by teachers with opportunities for professional recognition.

Finally, in advancement of teachers' interests, it was established that head teachers need to:

- Actively support the use in the classroom of skills acquired during in-service training;
- Ensure that in-service activities attended by staff are consistent with the school's goals;
- Obtain the participation of the whole staff in important in-service activities.

## 5. Conclusion and Recommendations

Cronbach's alpha showed that the most reliable factors for rating school mission were:

- A focused set of annual school-wide goals;
- Use student performance data in developing the school's academic goals
- Effective communication of the school's mission to members;
- Effective display of school's academic goals;

The most reliable indicators for managing the instructional programme were found to be:

- Consistency of classroom priorities of students with school goals;
- Ensure proper professional records are kept (e.g. schemes of work, records of work and lesson notes);



- Point out specific strengths in teacher's instructional practices in post-observation feedback;
- Limit interruptions of instructional time by address announcements;
- Make clear who is responsible for coordinating the curriculum;
- Monitor curriculum to see that it covers the school's objectives;
- Draw upon the results of school-wide testing where making decisions;
- Ensure tardy and truant students suffer specific consequences;
- Proper mechanism for compensating for lost instructional time in place;

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- Reward special efforts by teachers with opportunities for professional recognition.

Finally, in advancement of teachers' interests, it was established that head teachers need to:

- Actively support the use in the classroom of skills acquired during in-service training;
- Ensure that in-service activities attended by staff are consistent with the school's goals;
- Obtain the participation of the whole staff in important in-service activities.

It is therefore recommended that head teachers should be properly prepared and in serviced in order to practice balanced instructional leadership, which will see the human and material resources of their institutions properly utilised, for optimal school performance.

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**Appendix A:** Proportion of candidates who scored Grade D+ and below in secondary schools in Machakos County between 2009 and 2013

Year	County	
	Machakos County	Kitui County
2009	57.68%	51.27%
2010	54.07%	41.00%
2011	51.30%	30.10%
2012	52.76%	47.78%
2013	56.96%	42.28%

**Appendix B:** Study Sample Schools

		Mean grade							Mean grade				
School serial	'09	'10	'11	'12	'13	Av. '09-'13	School serial	'09	'10	'11	'12	'13	Av. '09-'13
HP 1	6.80	7.20	6.94	6.30	6.73	6.79	LP 12	2.70	3.22	3.50	3.68	3.73	3.37
HP 2	8.00	8.10	8.80	9.30	8.98	8.64	LP 13	3.80	4.1	4.21	4.41	3.43	3.99
HP 3	7.80	7.43	8.20	7.88	8.64	7.99	LP 14	3.30	3.11	3.4	4.06	3.17	3.41
HP4	6.00	7.42	7.69	7.92	7.18	7.24	LP 15	2.70	3.61	2.88	2.69	2.52	2.88
HP 5	5.40	7.17	5.90	6.60	6.26	6.27	LP 16	3.30	3.34	3.7	3.51	3.15	3.40
HP 6	6.30	6.24	7.03	7.37	7.76	6.94	LP 17	3.60	3.32	3.7	3.07	3.00	3.33
HP 7	7.00	6.72	6.96	6.55	7.37	6.92	LP 18	4.20	3.74	3.00	2.93	2.61	3.30
HP 8	5.60	5.81	5.54	6.11	7.06	6.02	LP 19	3.40	3.31	3.55	3.06	3.06	3.28
LP 1	3.60	3.91	4.26	3.90	4.70	4.07	LP 20	3.40	3.14	3.26	3.52	3.01	3.27
LP 2	3.80	3.30	4.15	4.51	4.45	4.04	LP 21	3.60	3.58	2.53	3.35	3.18	3.25
LP 3	3.50	2.78	2.81	3.13	2.89	3.08	LP 22	2.90	3.00	3.19	3.13	2.99	3.04
LP 4	3.70	3.89	4.16	3.92	4.48	4.03	LP 23	1.80	3.03	3.41	4.47	3.42	3.23
LP 5	2.80	2.25	2.67	3.33	2.79	2.77	LP 24	2.80	3.83	3.23	3.39	2.65	3.18
LP 6	4.40	3.97	4.13	3.41	3.68	4.02	LP 25	3.30	2.48	3.2	3.17	3.69	3.17
LP 7	4.40	3.22	4.35	4.15	3.93	4.01	LP 26	3.30	3.57	2.87	3.25	2.77	3.15
LP 8	4.10	4.18	3.71	3.91	4.6	4.01	LP 27	3.20	3.09	2.5	3.41	3.29	3.10
LP 9	2.80	2.94	2.66	3.05	3.54	3.00	LP 28	2.70	2.94	2.83	3.59	3.3	3.07
LP 10	4.00	3.93	4.22	4.38	3.68	4.00	LP 29	3.40	3.07	2.82	3.14	2.82	3.05
LP 11	2.60	3.00	2.30	2.40	2.43	2.61	LP 30	2.80	2.77	2.52	2.73	2.39	2.64

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