Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.4, No.8, 2013

Readiness for Data-Driven Decision Making in Education in Ghana

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Abstract
The study examined the technological readiness of school district educational administrators in Ghana to carry out data-based decisions for school improvement. A descriptive study was conducted to gather data from the study population (n=169) comprised of district education directors. Random sampling technique was used to select 120 participants. Data collected were analysed using Data Use Continuum and means and standard deviations. The findings showed that data-based decision making for school improvement is not pervasive in the school districts. There is limited use of data and these data cover only a small fraction of school activities and student performance. Also, the respondents indicated that there is more room for improvement in their technological readiness, in terms of both trained personnel and equipment, to embark on system-wide data-based decisions. Policy recommendations included the training of personnel in the utilization of data for decision making.
Key notes: Data-based decisions, School improvement, Decision making, Technological readiness.

1. Introduction

Key decisions in education are focused on improving student learning and creating schools that produce the type of graduates with the competence and skills to productively function in the society. The key decisions address identified shortfalls and explore innovative ways of enhancing the operations of the school. According to Schmoker (2006), for such decisions to be relevant and yield the expected results, they should be based on data instead of intuition and gut feelings. Data-driven decisions enable administrators to identify strengths and weaknesses in existing structures; know which programmes are producing the results the school wants, decide what needs to be changed, replace speculations with facts, and proffer solutions that are focused on improving the system. Data-driven decision making replaces hunches with hard evidence for best practices in school improvement.

Data-based decision making is a disposition and a skill. School administrators who adopt data-based decision making systematically develop purposeful questions that assist them in thinking about how to explore the multiple problems they encounter each day in educating learners (Kowalski, Lasley, & Mahoney, 2008). The use of data for decision making has been identified by various researchers as a powerful tool for school improvement. For example, Picciano (2006) points out that, meaningful decisions are reached when data are used to determine courses of action involving policy and procedures. Bowers (2009) sees data-driven decision making as the gathering of data in order to decide on the optimum use of the limited resources in a school district to improve student learning. In other words, data-driven decision making entails the making of choices based on relevant information.

2. Problem Statement

The education sector in Ghana has seen several interventions aimed at school improvement. However, there continues to be mounting dissatisfaction among stakeholders about the inability of educational institutions to produce graduates that meet societal expectations. The stakeholder dissatisfaction raises major concerns about the nature and type of educational interventions carried out for school improvement. The public losing confidence in the education system brings to fore questions about how the interventions were determined. *Were the interventions the appropriate ones for school improvement? How were the interventions determined? Were the interventions based on empirical evidence?* These concerns and similar ones have focused discussions on data-driven decision making for school improvement and the readiness of school administrators to adopt data-based decisions. *Are educational administrators ready to engage in data-driven decision making?*

Educators are far more likely to become proficient in making data-driven decisions if they possess a foundational knowledge in engaging in evidence-based practice. This foundational knowledge entails developing the skill necessary to access, store, analyze, and apply data to practice. In addition to practitioner knowledge and skills, school districts must have the technological infrastructure.

2.1 Purpose of Study

The study sought to find out from district directors of education their perception of readiness to adopt data-based decisions for school improvement in Ghana. Specifically, the study was framed by two research questions:

1. What is the perception of study population of the use of data for decision making?
2. What is the adequacy of the technological readiness to support data-based decisions?

The scope of the study was focused on the opinions of directors of education in Ghana. The district director of education in Ghana is in charge of managing the formal education system at the district level. The duties include: implementing decentralized functions of the Ghana Education Service, ensuring effective resource management to promote quality learning, ensuring that all children gain access to quality pre-tertiary education without any form of discrimination, and keeping accurate and up-to-date statistics for the purpose of planning, budgeting, monitoring, and evaluation.

The findings and conclusions reported in this study will provide data for future policy analysis and development concerning school improvement efforts in Ghana. They also will provide information on the readiness of educational administrators to use data for school improvement.

2.2 Review of Related Literature

The emerging role of district directors of education in school improvement efforts in Ghana have been guided by the policy on decentralization in the 2007 Education Reform and the 2008 Education Act. The education reform entrusted the responsibility for the management of basic and second cycle education to the district assemblies. The 1992 Constitution of Ghana provides legislation on decentralization which resulted in the creation of district assemblies. The key goal of the legislation was to deconcentrate and devolve administration, development planning, and implementation to the district assemblies.

Concurrent to the creation of the districts was the prominence given to the position of the district director of education. The district director plays a major role in educational planning and implementation. It is in the educational planning functions of the district director that the use of data becomes pronounced. The district directorate of education provides input for the preparation of the Annual Education Sector Operational Plan (AESOP), and prepares the Annual District Operational Plan (ADEOP) and the Annual District Performance Report (ADPR). The ADEOP is a three-year annualised rolling work plan. It projects educational progress toward achievement of strategic mission, goals, and objectives. The ADEOP is the basis for and the justification of an annual operating budget request (Ghana Education Service, 2012).

The ADEOP is informed by various performance indicators and data spanning outcomes, outputs, operations and projects, and costing with regard to access, quality, and physical infrastructure. Specifically, the preparation of the ADEOP utilizes the following data: school identification, school programmes, school facilities, learner demographics, teacher demographics, enrollment, attendance, dropout and graduation, management, funding, and community involvement. The ADPR examines both the qualitative and quantitative performance indicators of the ADEOP, as well as results of operations and projects planned in the ADEOP.

The urgency for the use of data in planning for educational outcomes is affirmed by renowned authors in school improvement. For example, Bernhardt (2004) intimates that data make it possible for schools to identify the types of educational programmes, expertise, and process adjustments needed to close any existing gaps. The use of data leads to the identification of strategies that are working and those that are not working to yield desired results. The strategies that are working are reinforced. For the strategies that are not working, new approaches are adopted. . As observed by Schmoker (1996), "data have the capacity to reveal strength and weakness, failure and success" (p.33). The use of data thus provides basis for questioning current practices and then proffer alternate approaches to improve teaching and learning.

In high stakes environment; where educators are held accountable for school performance, basing decisions on accurate and meaningful data about student learning and achievement is not an option (Earl & Fullan, 2003; Lachat, 2002). Given the extensive reporting requirements of various government agencies at all levels, school administrators must have access to provide critical data about their schools.

The use of data for school improvement is not without challenges. Many reasons have been assigned for the infrequent use of data for decision making in school districts. Bernhardt (2004, pp. 6-7) identifies five main barriers:

1. District personnel have job definitions that often do not include, as a priority, helping individual schools with data.
2. Gathering data is perceived to be a waste of time
3. Few people in schools and districts are adequately trained to gather and analyze data or to establish and maintain databases

4. Schools do not have databases that allow for easy access and analysis of data
5. Data have been used in negative ways in the past.

Lachat (2002) pinpoints cultural resistance as a significant barrier to the frequent use of data for school improvement. Educators have not been socialized to use data and that there is minimal emphasis on the use of data during job preparation (Kowalski, 2007).

In spite of the barriers, various researchers (e.g., Fullan, 2008; Mason, 2002; Rudner & Boston, 2003) opine that school administrators have taken a stance that building a data-rich culture in the school district is the obvious path to school improvement. Thus the purpose of data use is not to prove, but to improve (Kowalski et al., 2008).

3. Methodology

A non-experimental design using survey research was conducted to collect data from the study population. The study population was made up of district directors of education in Ghana (n=169). A simple random sample ($n=120$), using the lottery method, was selected to constitute the study participants. The survey instrument was distributed—in person or mail—to the respondents. A postage-paid envelope with a return address of the researcher was added to the survey instrument. The survey instrument consisted of two sections. A Data Use Continuum, an adaptation of Bernhardt's (2004) model of the Continuous Improvement Continuums (CICs), was used for section one. The continuum extends from one to five horizontally and represents a continuum of perceptions related to the readiness to use data for school improvement. A one rating, located at the left of the continuum represents a district that sparingly uses data. A five rating, located at the right of each continuum represents a district with an exceptional use of data (Bernhardt, 2004). Section two consisted of a check list modeled on a Likert-type scale. The responses to ascertain the adequacy of technological readiness (personnel and infrastructure) were selected from one of four response choices: *woefully inadequate, more room for improvement, adequate,* and *excellent* and coded as "1", "2", "3", and "4" respectively. Frequency counts were used to determine the relative positions of the respondents on the continuum to indicate perceptions of readiness to use data. Means and standard deviations were computed to determine the amount of adequacy of technological readiness.

4. Findings and Discussion

The data analyses were based on the returned survey (n = 81). For research question one, frequency counts were used to identify the modal position of the respondents on the Data Use Continuum:

Continuum One: The use of data is minimal. Anecdotal information is used and problems are solved individually.
Continuum Two: Some data are tracked for decision making. However, there is no systematic process for data gathering and analysis.
Continuum Three: The school district collects data which are mostly school-related data; information about school and student performance.
Continuum Four: There is systematic reliance on data, including data for subgroups, as basis for decision making.
Continuum Five: Data are comprehensive in scope and administrators and teachers gather data on their own performance.

Seven areas were analyzed over the continuum: information and analysis, student achievement, quality planning, professional development, leadership, partnership development, and evaluation. The distribution of frequency counts on the Data Use Continuum is depicted in Table 1.

Table 1 *Perception on use of data*

Items	One	Two	Three	Four	Five
Information and Analysis of Trends	0	15	48	11	7
Student Achievement	0	10	32	34	5
Quality Planning	0	7	26	43	5
Professional Development	0	21	50	8	2
Leadership Selection	10	13	43	10	5
Partnership Development	14	11	44	7	5
Monitoring and Evaluation	0	9	18	46	8
Total	24	86	261	159	37

The study findings revealed that majority of the respondents were in continuum three with regard to the use

of data for providing information and analysis of trends (59%), professional development (62%), leadership selection (53%), and partnership development (54%). Approximately 53% and 57% of the respondents were in continuum four as far as using data for quality planning and for monitoring and evaluation are concerned respectively. The respondents were about evenly spread (approximately 42%) in continuum three and four with regard to the use of data for student achievement. Continuum one and five had relatively smaller respondents in all the seven areas.

When all the responses are put together, continuum three (n = 261) was the modal continuum. The findings showed that in general, the respondents have the perception that data are used for decision making, but the data cover only a small fraction of school activities and student performance. The district directors are not yet fully ready to utilize data for decision making. Data are utilized to just meet certain official requirements. The findings are at variance with the observation of the Mid-continent Research for Education and Learning (MCREL, 2003). According to the MCREL, the hallmark of schools pursuing continuous improvement is the consistent adoption of data for decisions about both policies and programmes. Adopting a culture of data-based decisions in the school entails thoughtful data collection, analysis, and purposive application for school improvement plans.

The study findings support the Education Sector Report of Ghana in 2010, which points out that even though, the Education Management Information System (EMIS) is in operation, data gathering and analysis is yet to be appreciated by district directorate personnel. Data are collected and used for decisions because it is a requirement for the operation of the EMIS. The study findings also support the assertion that because the decentralization policy, which gives prominent role to district directors, is yet to be implemented fully, the use of data as a tool for accountability and decision making is not receiving much attention. Authors, such as, Picciano (2006) and Bernhardt (2004), opine that the use of data becomes pervasive when educational administrators set the vision for the school district and are held accountable for their decisions.

For research question two, respondents indicated the extent of adequacy of technological readiness for decision making. Frequency counts were used to analyze the responses of the study participants. The information is presented in Table 2.

Table 2 Adequacy of technological readiness by respondents (n=81)

Item	Woefully Inadequate	More room for Improvement	Adequate	Excellent
Computer laboratories	23	46	11	1
Computers	11	37	27	6
Updated software	18	42	20	1
Number of trained personnel	30	37	14	0
Management information system	10	48	19	4
Internet facilities	22	51	8	0
Networking facilities	13	53	15	0
Data warehouse	18	51	11	1
Regular power supply	12	65	4	0
Data collection	8	54	15	4

Means and standard deviations were computed for each of the responses to the technological readiness by the study respondents. The computed means were rank-ordered and the information is presented in Table 3.

Table 3 Means of adequacy of technological readiness by respondents (*n=81*)

Item	Mean	Standard Deviation
Computers	2.35	0.41
Management Information System	2.20	0.22
Data collection	2.19	0.24
Updated software	2.04	0.35
Networking facilities	2.02	0.18
Data warehouse	1.94	0.31
Regular power supply	1.90	0.44
Computer laboratories	1.88	0.10
Internet facilities	1.82	0.26
Number of trained personnel	1.80	0.31

The findings show that the study respondents did not consider their technological readiness as being "*adequate*" or "*excellent*." The computed means show the technological readiness (personnel and infrastructure) identified by the study respondents as belonging to the class range of 1.5 – 2.4; which is the category of "*more room for improvement*." The findings show that the respondents perceive the school districts as not meeting the minimum acceptable standards for incorporating data into decision-making processes. Bernhardt (2004) opines that school districts should demonstrate commitment to the use of data. The commitment translates into capacity building of personnel and provision of infrastructure which are necessary in meeting adequacy for technological readiness. According to the Ministry of Education (2010), there is a general lack of support and commitment toward making data-based decisions pervasive in education in Ghana.

The Academy for Education Development (AED) report in 2009 identifies lack of capacity (i.e., personnel and equipment) as the main obstacle to creating a culture of data use in school districts. The study respondents identified "trained personnel" as the area that requires greater attention for "*more room for improvement*." Kowalski and Lasley (2009) suggest that having trained personnel to handle data collection and analysis is essential to establishing a culture of data-based decision making in education. The need for comprehensive capacity building in readiness for data-based decision making is given further credence by the report of the Ghana Education Service (GES) in 2012 on the quality of the Annual District Education Operation Plans from the school districts. The GES expressed utter dissatisfaction with the data collection and analyses in the districts and suggested series of capacity building workshops for personnel in the district directorates (GES, 2012).

5. Conclusion and Recommendation

Data-based decision making for school improvement is not pervasive in the school districts in Ghana. There is limited use of data and these data cover only a small fraction of school activities and student performance. The school district administrators indicated that there is more room for improvement in their technological readiness, in terms of both trained personnel and equipment, to embark on system-wide data-based decisions.

This study examined the readiness of school district administrators to use data for school improvement and did not address the impact of data-driven decisions on educational outcomes. A further study should be conducted to ascertain the extent to which data-driven decisions affect the nature of educational outcomes. Also, the study recommends to the Ghana Education Service to have a sustained training programme to build the capacity of personnel at the district directorate to gather and analyze varied data.

References

Bernhardt, V. L. (2004). *Data analysis for continuous school improvement*. (2nd ed.). Larchmont, NY: Eye on Education

Bowers, A. J. (2009). Reconsidering grades as data for decision making: More than just academic knowledge. *Journal of Educational Administration, 47*(5), 609-629.

Earl, L., & Fullan, M. (2003, November). Using data in leadership for learning. *Cambridge Journal of Education*, 33(3), 383-394.

Fullan, M. (2008). *The six secrets of change: What the best leaders do to help their organizations survive and*

thrive. Hoboken, NJ: John Wiley & Sons.

Ghana Education Service. (2012). *District education operational planning and performance review: Training manual.* Accra, Ghana: Author.

Kowalski, T., & Lasley, T. (2009). Handbook of data-based decision making in education. New York: Routledge.

Kowalski, T. J., Lasley, T. J., & Mahoney, J. W. (2008). *Data-driven decisions and school leadership: Best practices for school improvement*. Boston: Pearson.

Lachat, M. (2002). *Data-driven high school reform: the Breaking Ranks model*. Providence, RI: Northeast and Islands Regional Educational Laboratory.

Mason, S. (2002, April). *Turning data into knowledge: Lessons from six Milwaukee public schools.* A paper presented at the annual conference of the American Education Research Association, New Orleans.

Mid-continent Research for Education and Learning (2003). *Sustaining school improvement: Data-driven decision making.* Retrieved March 20, 2013 from www.mcrel.org.

Ministry of Education. (2010). *Monitoring and evaluation plan 2010 – 2013*. Accra, Ghana: Author.

Piccianio, A. G. (2006). *Data-driven decision making for effective school leadership*. Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Rudner, L. M., & Boston, C. (2003, February). Data warehousing: Beyond disaggregation. *Educational Leadership*, *60*(5), 62-65.

Schmoker, M. J. (1996). *Results: The key to continuous school improvement*. Alexandria, VA: Association of Supervision and Curriculum Development.

Schmoker, M. (2006). *Results now: How we can achieve unprecedented improvement in teaching and learning*. Alexandria, VA: ASCD.

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