Educational design based research (DRB): a key to successful leadership in Botswana schools

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Abstract: This paper advocates for educational design research approach for school leaders or managers in Botswana. This approach allows school leaders or managers to address complex problems in educational practice for which no clear guidelines for solutions are available. Researchers perceive Educational design research as a systematic study of designing, developing and evaluating educational interventions like programs, teaching-learning strategies and materials. This paper looks at research in the context of school heads in Botswana as they are at the helm of schools which of late have been characterized by declining academic results and morals. This is a concept paper based on desktop review intended to argue for the value of educational design research approach in addressing school head challenges.

Keywords: educational leadership, management, education, design research

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1. FUNCTIONS OF RESEARCH IN THE CONTEXT OF THE BOTSWANA EDUCATION SYSTEM

This paper posits that the role of research in education management and leadership cannot be overemphasized as an anchor to those holding the positions of responsibility and a good recipe for the success of Botswana public schools in particular. Research as a tool for Botswana education leaders and/or managers is very crucial in that it can help them describe barriers Batswana students experience in their learning, compare programs looking at similarities and differences to make adjustments where needs be, do SWOT analysis of their programs, explain or predict their performances and advance well informed reasons for poor or good performance in this era of accountability as well as design and develop learning/teaching strategies that are relevant to the caliber of their students[1].

THE STRENGTH OF EDUCATIONAL DESIGN RESEARCH APPROACH

According to Wikimedia project

> *Design-based research (DBR) is a type of research methodology commonly used by researchers in the learning sciences. Within design-based research methodology,*

> *interventions are conceptualized and then implemented iteratively in natural settings in order to test the ecological validity of dominant theory and to generate new theories and frameworks for conceptualizing learning, instruction, design processes, and educational reform. Data analysis often takes the form of retrospective, cross-iteration comparisons [2]*

There are quite a number of approaches that education leaders/managers can draw from as they conduct research in their respective work environments. Amongst these are the survey, the case studies the experiments, action research, ethnography, correlation research, evaluation research and design research. The Design research is the one this paper advocates for with regards school heads to embark on in order to tackle emerging issues in the Botswana public schools. The paper advocates for educational design research as the most appropriate research approach that school leaders/managers should adopt in their quest for excellence or success in their schools. Much of educational research that has been conducted within the domain of education lacks relevance for educational practice which relegates most of what must have been done to rhetoric [3].

For example it is argued that "educational research is often divorced from the problems and issues of every day –a split that results in a credibility gap creating a need for new research approaches that speak directly to problems of

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practice and that can lead to the development of 'usable knowledge" [3]

It is argued that many 'traditional' research approaches such as surveys with their emphasis on description, hardly provide prescriptions that are useful for design and development problems in education [4]. It is further argued that instead of doing more studies comparing whether in a certain context method A is better than method B, it is better to undertake design research aimed at developing an optimal solution for a problem in context [5].

Design based research is relevant for educational practice and therefore also for educational policy as it aims to develop research-based solutions for complex problems in educational practice [1].

It is further posited that "the starting point for design research are educational problems for which no or only a few validated principles (how to do guidelines or heuristics) are available to structure and support the design and development activities [1].

WHY DESIGN RESEARCH IS PPROPRIATE FOR LEADERS/MANAGERS IN BOTSWANA SCHOOLS

It is common knowledge within the public domain that the Botswana education system like any other systems has issues that need to be addressed at different levels, but in particular at the grassroots level, the school level. According to some authors [6] the list of issues is extensive. For instance they argue that teacher-employer relations have deteriorated, national examinations results are continuously declining, child protection in schools is getting eroded, and the list of issues is endless. The intellectuals go on to pose a question in which they ask what is going on in education planning to address these many problems or issues. The research experts from high echelons of education ladder further embark on conventional research and come up with results which tend to gather dust on the office shelves seemingly not appealing to the practitioner, the education leader. Non- improvement in the school outcomes despite research by intellectuals from universities connotes an adage of 'dust gathering reports' if the research results are not put into use to improve school performance.

The paper does not attempt to answer the questions about why the school grades are not good but attempts to argue that the traditional research approaches used in conducting research intended to improve school outcomes in the Botswana education system, which researches should inform practice appear not appealing to the practitioner. The paper notes that, in particular, School Heads are the ones caught at the cross roads of poor academic performance as the overseers of schools. In this regard, as they are at the center of schools, and for them to be able to untangle the leadership knots, they should be well vested in and use appropriate research approaches, the design research approach which is a practitioner based. This approach by its nature involves participants and is context specific. It is the contention of the authors of this paper that such an approach, as compared to the traditional and conventional ones, has a lot to offer for

academic improvement in Botswana schools if school leaders were to adopt it.

As noted elsewhere educational leadership and management is centrally concerned with the purpose or aims of education, as such, school heads decide the aims and visions of schools often working in association with parents children and teachers associations [7]. He further points out those schools are also strongly influenced by pressures from the external environment particularly the Governments. The question that arises is also focused on whether given the scenario school heads find themselves in, they should just follow the script or ad lib? [8] It is the contention of the authors of this paper that school heads have a role to play in research in order to make informed decisions and address any issues posed by both the external and internal school environments.

To be precise the Botswana education system is going through a difficult transformation period given the social, economic and political issues experienced which make life in the public schools challenging. As famously put it can no longer be business as usual [9]. Something ought to be done and that thing, the paper argues for, is vigorously embarking on research that can bring about change and inform policy development as well as practice. It is for this reason that this paper argues that research is a tool which can play a very significant role in educational leadership and management particularly so for the school heads. In particular the paper argues for the design research based paradigm which advocates for the concurrent use and application of a research design, processes and practice [10]. In other words, the research design can evolve as a result of a simultaneous implementation and evaluation of research interventions. By implication, as noted in the research sectors [11]and confirmed by a number of other authors [12] research based design comes in the form of experiments which when one conducts, may produce certain results, which results can inform how one can adjust the experiment or the design. Accordingly design based research is a process of discovering, exploring, confirming and dissemination of information [13]. It is in a way some form of action research in which one plans, acts, observes, evaluates or reflects and re-plans, acts, observes evaluates in a cyclical manner.

The argument by the design research approach is that, research must be owned by the implementers of the policies and decisions, it must be context specific, must be flexible in design which design has to be informed continuously by the outcomes of interventions, while interventions also must be informed by the design. This design research implies flexibility as per the situation. The design research approach has similar characteristics as the participatory action research which should be controlled by the affected, or the community it has to benefit [14]. In this case, the school heads would form the community of practice and hence ought to be participants in the research conception and the rest of the processes. If for some reason they need

professional research assistance from research experts, it should be by way of these experts providing direction or facilitation rather than them being the sole researchers as is the case currently in Botswana education system which puts upfront, the traditional research practices. It is common knowledge that participation in the research process by school heads would generate a sense of ownership of the research findings and on implementing these, the owners of the findings will be able to reflect better, evaluate and re-think better how to re-design in the event that the expected outcomes are not realized by a given intervention.

It is further noted that as practitioners, school heads in Botswana are immersed in the school issues, they understand better that which is of most priority in terms of challenges which must be addressed. In a nutshell, the problems addressed will be real to them, and the interventions designed would be most appropriate to what they perceive as a problem. Their intention as practitioner-researchers would be to change their situations in the best way that can improve their school performance. As they will be on the spot, as insiders, providing views from inside, they would design interventions, apply them, observe how they work, reflect on these and come up with an informed evaluation package. Depending on the results of the evaluation, positive or negative, they can re-design and come up with yet another useful and meaningful intervention as per their lived experiences and context

As a cyclical and a participatory process, design research approach calls for cooperation and collaboration. This is in view of the fact that the idea of this approach is to effect change in the situations at school level. For this to be efficient and effective, design research advocates for collaborative research. Change is a process which must be upheld by all those affected, it can never be a one person show hence design research recommends collaboration, the benefits of which are that knowledge created will be owned by all and therefore institutional memory cannot be lost even if a school head leaves the place of work. The knowledge would belong to all not one individual. Collaboration in design research also can motivate staff when they see what they have conceived as having an impact in the behavior change hence their desire to do more, apply more interventions, evaluate them and change them as appropriate [15].

Conceptual Framework of the Design Research in

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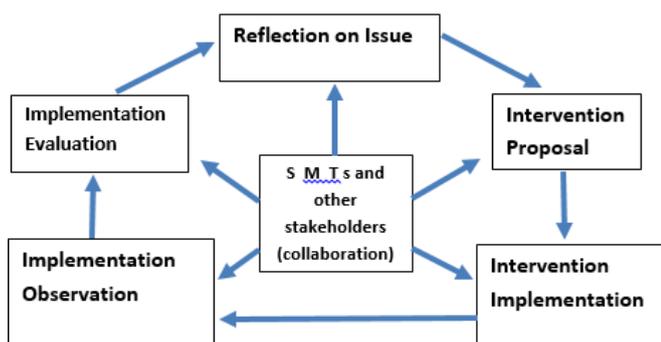**the Botswana Educational School Leadership**

The design research approach to research borrows a lot from the constructivist approach to knowledge creation. School managers and leaders as practitioners therefore, ought to do research which will help them explore their challenges, and discover why such challenges. As they discover the causes of challenges, they then must implement interventions which interventions should either confirm or disconfirm their assumptions with regards the causes of challenges. In the process they are constructing their own knowledge. If the interventions do not produce desired results, they must be re-designed or the research design must be changed and then be tested again and again. In the context of the Design Research approach, practitioner researchers are on the spot of practice, they do purposeful research to address the lived experiences of the prevailing issues and therefore have no luxury of doing research for its sake but rather for addressing current problems they live with. Design based research approach is viewed as an outgrowth of product development processes with participants observer inclinations. It is in the spirit of phenomenology and its lived experiences concept that solutions to the challenges must be informed. It is therefore argued that with that insider information, self-constructed knowledge, indulgence in issues and their solutions, there is a high likelihood of ownership of decisions and more commitment and dedication to improvement by school leadership. Design based research is based on active memory strategies that would help enhance the human memory and developmental memory tasks [11]. As school leadership gets engaged in design based research, their memories are actively engaged hence cognitively alert to school issues and the possible interventions which they would implement, monitor, evaluate and redesign as appropriate.

In some way of thinking, of some authors research for practitioners should be a collaborative effort amongst actioners, or participants [11], who must design and implement interventions systematically at the same time continuously refining and improving the initial designs .

> *As such rather than attempting to isolate all the various factors that impact learning as in traditional research, the learning sciences employ design based research methodologies which appeal to an approach to the study of learning – in particular human learning both inside and outside of school – that embraces the complex system nature of learning systems. Learning scientists often look at the interactions amongst variables as key components to study, yet acknowledge that within learning environments the interactions are often too complex to study all or completely understand. [2]*

This approach therefore acknowledges the complexity of social systems which have a myriad of variables some of which may not be easily identifiable by a researcher as in deciding which questionnaire items to ask. Rather, the approach adopts a phenomenological stance of inquiry of the leadership lived experiences by the leadership themselves with regard to their institutional issues or phenomena. Phenomenological stance enables interpretation of these lived

experiences, formation of relevant interventions which are home grown and therefore owned by these educational leaders. Design based research is praxis oriented where such practice also informs theoretical designs. In other words, the theories or interpretations that can come to play are grounded in the lived experiences of the school leaders. They are recognizable to these implementers of interventions and therefore real. As noted by some authors design research enhances motivation and improves team work as the practitioners [16] who in this case will be school leadership will have an opportunity to be participants researchers, who through their continued engagement with their lived experiences and amongst themselves share ideas, bring different viewpoints which in the process would complement one another. The researchers in this case are not 'hired guns' that would in most cases be alien to the context of those researched. The researchers would manage research "*in collaboration with participants, design and implement interventions systematically to refine and improve initial designs and ultimately seek to advance both pragmatic and theoretical aims affecting practice.*" [10].

CONCLUSION

Even though this paper tends to be putting or casting some doubts on many 'traditional 'research approaches such as surveys it should not be interpreted as a mark of no confidence in these other approaches but rather as a way of attempting to situate an appropriate research approach of applied research to a social entity which has feelings interests and assumptions from which it is critical to draw conclusions from. Schools as entities made of thinking beings should not be manipulated and taken for granted as they have their thinking abilities which can be used to conglomerate ideas through engaging them in collaborative research practices. Pre-determined variables may be very appropriate for the quantitative approaches to research, but these seem to lack in being informative when it comes to researching social institutions. School leaders must succeed because they get support from other people around them, and therefore to motivate these other beings, collaborative research, which argues for involvement of the researched recognizes this aspect. This paper puts more faith in design research as focuses on designing interventions in the real context of education, is collaborative in nature, is cyclical in approach in an effort to understand and improve leadership conditions.

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