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The cascade model of teachers' continuing professional development in Kenya: A time for change?

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Abstract: Kenya is one of the countries whose teachers the UNESCO (2015) report cited as lacking curriculum support in the classroom. As is the case in many African countries, a large portion of teachers in Kenya enter the teaching profession when inadequately prepared, while those already in the field receive insufficient support in their professional lives. The cascade model has often been utilized in the country whenever need for teachers' continuing professional development (TCPD) has arisen, especially on a large scale. The preference for the model is due to, among others, its cost effectiveness and ability to reach out to many teachers within a short period of time. Many researchers have however cast aspersions with this model for its glaring shortcomings. On the contrary, TCPD programmes that are collaborative in nature and based on teachers' contexts have been found to be more effective than those that are not. This paper briefly examines cases of the cascade model in Kenya, the challenges associated with this model and proposes the adoption of collaborative and institution-based models to mitigate these challenges. The education sectors in many nations in Africa, and those in the developing world will find the discussions here relevant.

Subjects: Continuing Professional Development; Education Policy; Educational Research

Keywords: teachers' continuing professional development; cascade; collaboration; school-based

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PUBLIC INTEREST STATEMENT

Teachers' Continuing Professional Development is of global interest. There are several approaches to this aspect, the cascade model being one of them. This is a model where a group of teachers are trained and they in-turn train their colleagues, on a particular skill or knowledge. The cascade model thus makes use of a number of layers depending on the numbers being targeted. Most developing countries make use of this model as it is perceived to be among other benefits, cost-effective and able to reach many teachers within a short period of time. Unfortunately, this model is associated with a number of challenges, for example dilution of content as it is transferred from one group to another, inability to meet teachers' needs, a focus on skills and knowledge and not attitudes and values, etc. This paper examines the challenges of the cascade model in the Kenyan context, and proposes alternatives.

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1. Introduction

Increasingly, developing countries in Africa and elsewhere are realizing the importance of investing in their teachers for meaningful outcomes in education to be realized. As Adedeji and Olaniyan (2011) have argued, there has been a gnawing concern to improve teacher quality especially in rural areas of Africa where the bulk of the population dwells. However, the majority of teachers in Africa are not suitably qualified (Sifuna & Kaime, 2007): while some are untrained, others leave their training institutions with scant and sometimes inappropriate teaching skills (Hardman, Ackers, Abrishamian, & O'Sullivan, 2011; Pryor, Akyeampong, Westbrook, & Lussier, 2012). One key area that can help to mitigate against this predicament is Teachers' Continuing Professional Development (TCPD). Even though Kenya has made notable strides to this end, TCPD in the nation needs revisiting, more so regarding the cascade model being used in such programmes.

2. TCPD in Kenya

Ideally, the needs on the ground should inform the structure and programme of any effective TCPD. Effective TCPD should fill the gaps created by inadequate pre-service training teachers receive. In Kenya, pre-service courses for teachers [offered by Teacher Training Colleges (TTCs), and Universities' Schools of Education] have been lampooned for producing graduates whose skills are incongruent with the expectations in the field (Gathumbi, Mungai, & Hintze, 2013; Hardman et al., 2011; Pryor et al., 2012). This poses an immediate challenge that needs serious consideration. Comparatively, Olakulehin (2007) in his argument on the state of teachers in Nigeria, observed that the country faces the dual problem of numbers and relevance; i.e. the few teachers and the dearth of qualified ones in schools. The situation of teachers in Kenya, while not entirely unique, needs to be examined and ways suggested that can address these inadequacies. Strengthening of TCPD, especially in the approaches used is one important step that can be adopted to yield better quality teachers.

While the Kenyan government has done much to ensure that the number of untrained teachers has been decreased, the weak links between bodies responsible for teacher training and Ministry of Education Science and Technology (MOEST) in the nation have often led to trainee teachers who are handicapped in one area or another. For example, while ICT is now the norm rather than the exception globally, the teacher training bodies in Kenya are yet to either fully incorporate technology in their training or even produce tech-savvy graduates (Mingaine, 2013). Also, according to Nyarigoti (2013), teachers of English interviewed in her study were of the opinion that many of them were inadequately prepared to teach integrated English subject in high school since their college training handled the teaching of the two subjects (English and Literature) separately. Pryor et al. (2012) similarly observed that less time was awarded to reading pedagogy during pre-service training in Kenya, and preference given to subject knowledge in language. This eventually becomes a challenge to the teaching of reading by the affected teachers. These among others, point to glaring gaps in professional development of teachers in Kenya that if left unchecked, will with time gravely affect the education sector.

In Kenya, the cascade model has often been the "default" model resorted to whenever TCPD has been required. One of the cases is outlined in a study by Hardman et al. (2011) and Pryor et al. (2012) where the cascade model, alongside school-based and distance-learning approaches were utilized. The School-based Teacher Development programme for primary school teachers made use of Key Resource Teachers (KRTs) who would in turn train their colleagues all the way from national to district levels. According to Pryor et al. (2012), one of the key findings from this study was that the KRTs' teaching largely improved as a result of the training they had received while that of the teachers they had trained could not be documented. However, as shall be discussed in another section in this paper, the use of the cascade model in this case was not without concomitant negative effects.

The cascade model in the country was also used in the case of the joint Kenya/Japanese International Cooperation Agency (JICA) project-dubbed "Strengthening Mathematics and Sciences in Secondary Schools" (SMASSE)—which aimed at enhancing the teaching of Mathematics and Sciences in Secondary schools in Kenya (Gathumbi et al., 2013; JICA, 2013). This project, which took

about fifteen years, was done in cycles with the first one being the piloting of the project in nine districts; phase two expanded to all secondary schools in Kenya and the final phase was extended to primary schools (JICA, 2013). A number of studies carried out on the SMASSE programme, one of the largest in the country, seem to point out to a number of shortcomings related to teaching methodology, summative assessment and teacher participation.

Currently, Kenya is in the process of introducing laptops for all pupils in class one in public primary schools. Consequently, the cascade model of TCPD is being used by MOEST to train ICT champions, who are high school teachers meant to help train primary school teachers in the implementation of this project (Ngeno, 2015). Characteristically, the cost-effective nature of the model makes it an ideal fit for the nation in this endeavour. This case of the cascade model, alongside the two others already discussed, shows that the model will likely be used whenever large-scale TCPD is required in the nation, even though many of the studies document a number of challenges associated with this approach.

3. Advantages of the cascade approach

The cascade model has been widely adopted in many African nations, Kenya included, as an approach to enhancing TCPD (Gathumbi et al., 2013). In this model, a number of teachers are often trained in a particular content, and they in turn go ahead and train their colleagues on the same (Kennedy, 2005). The process often goes on from one level to another. For example, during one of the INSET programmes in Kenya, a two-tier level was used with secondary schools while a three-tier one with primary schools, according to Gathumbi et al. (2013). This is an immediate benefit of the cascade model: the ability to reach a large number of teachers within a short period of time. Kenya, grappling with large number of teachers, finds using such a model relevant.

A concomitant benefit to this is the cost-effectiveness of the cascade model. According to Ono and Ferreira (2010), Hardman (2011) and Dichaba and Mokhele (2012), many teachers can be reached at once using less resources, making the entire programme cost-effective to nations that adopt it. Gilprin (1997, cited by Hayes, 2000) argued that the cost effectiveness of the cascade approach is due to the use of existing teachers to train others. Since it may take longer for countries such as Kenya to be confident in instituting continuous programmes that will develop all her teachers professionally, the cascade model provides an easy way out to address this concern.

Hayes (2000, p. 138) outlines five criteria that should be present if the cascade approach is to be successful. These are:

(1) The method of conducting the training must be experiential and reflective rather than transmissive;

(2) The training must be open to reinterpretation; rigid adherence to prescribed ways of working should not be expected;

(3) Expertise must be diffused through the system as widely as possible, not concentrated at the top;

(4) A cross-section of stakeholders must be involved in the preparation of training materials;

(5) Decentralization of responsibilities within the cascade structure is desirable.

Notably, TCPD projects in developing countries are sometimes donor-funded, and consequently approaches in most cases are dictated by the funder. While the criteria pointed out by Hayes (2000) become useful if followed, there are occasions when the funder is more focused on the final product than on the key ingredients of the approach adopted. For example, sometimes the aim to reach as many teachers quickly and at a lesser cost, coupled with other logistical issues may not allow much time for reflection of content covered after a training session.

4. Criticisms of the cascade model

Popular as it appears to be among developing nations, the cascade model is however not without challenges. One of the areas that this model has been faulted in is its "trickle-down effect", which is the watering down of content as it is passed on to trainees (Hayes, 2000). Apparently, owing to the layers of transfer of information, the original content most of the times becomes "adulterated" as it is passed down onto the recipients. The three-tier and two-tier cascade approach used for primary and secondary schools in Kenya, respectively (according to Gathumbi et al., 2013), contributed to dilution of content being covered, hence leading to the ineffectiveness of the entire programme. In a related study, when the cascade approach was employed in Curriculum 2005 and Outcome Based Education in South Africa, important information was not only diluted as it descended from one level to another, it was also misinterpreted (Engelbrecht, Ankiewicz, & de Swardt, 2007; Fiske & Ladd, 2004). This scenario can only be compared to the communication game—Chinese Whispers (or Telephone)—where information gets distorted as it passes from one person to another. Naturally, the higher the gap between levels, the more the dilution and misinterpretation that is likely to take place.

The cascade model is also disadvantageous due to its inability to meet the needs of teachers (Nyarigoti, 2013; Wanzare & Ward, 2000). Like the training model, the cascade model is often founded on the notion of an "expert" delivering valuable ideas to often "inexperienced" or "ignorant" teachers. Teachers have unique needs and experiences and when these are ignored or rubbished at the altar of perceived superior advice, the process is set to fail from the start. As Mwangi and Mugambi (2013) point out in their study, this inability to meet teachers' needs is the reason why as many as 70% of the teachers under the SMASSE programme in Kenya looked forward to the end of the INSET programme as they felt it was a bother to them. Apparently, to the teachers, the programme was serving other needs—like that of the school administration, but not theirs. Bantwini (2009, p. 178), in examining the challenges of the cascade and training models used in one district in South Africa, argued: "Although there is no reason to discourage the use of these models, it should be noted that contextual factors and teachers' needs play a major role in the success of new reforms". The bane of the cascade model is often the exclusion of the teacher in the preparation and execution process, save for those who are meant to be trainers. Dadds (2014) is critical of the "delivery" models (such as the cascade one) that view teachers as "empty vessels" who need external expertise. The challenge here is the assumption that all teachers are similar in experiences and expectations, and will obviously require what is being offered.

One key characteristic of the cascade model is that it is often carried out in settings different from those of the school environment, in an attempt to reach many teachers at a lower cost. This eventually works against the objectives of TCPD as school contexts vary from the training grounds. Consequently, teachers on many occasions fail to link training to context, hence experience challenges in classroom application (Hardman et al., 2011; Hunzicker, 2011; Kennedy, 2005). For example, a concept may be successfully taught and applied during the training, but may be unsuccessful in the teachers' context owing to absence of facilities or relevant equipment. One of the reasons the cascade approach was not as successful in Kenya, according to Sifuna and Kaime (2007) was because of lack of relevant equipment for use in the actual teaching. Possibly, such equipment was available during the training but not on the ground. It is also probable that this factor contributed to the teacher-centred methods the teachers in this particular study still used. Gathumbi et al. (2013, p. 8) observed that teachers who are de-contextualised (trained away from their contexts) face challenges of applying in their schools what they are taught since the training in itself is "removed from the reality awaiting them on the ground". It needs to be understood that schools in Kenya have dissimilar resources which pose varying levels of challenges after such trainings. Thus, the assumption that teachers will respond almost expectedly to the training received, is flawed.

An examination of INSET programmes in Kenya, Zambia and Malawi by Banda (2013) revealed that there was poor coordination of these programmes. Most TCPD programmes in Africa and other developing countries are often NGO-sponsored, hence likely get implemented without adequate prior planning. As a result, crucial elements are overlooked which eventually boomerang on the

entire process. Hardman et al. (2011) have argued that one of the reasons the KRTs were ineffective in the INSET programme among primary school teachers in Kenya was due to their workload, and that of the entire team of the teachers they worked with. Seemingly, planning for the training had not factored in this crucial element while allocating more work onto the teachers. The critical element of involvement of stakeholders in preparation of training as posited by Hayes (2000) appeared to have been overlooked, resulting in an unsuccessful project.

In their Kenyan study, Gathumbi et al. (2013) point out the massive shortage of teachers in Kenyan schools which often prompts the government to use INSET approach in an attempt to improve quality in schools. However, the authors observed, the cascade model used often leads to shallow coverage of content, as the teachers aim at covering up the syllabus. Sadly, shallow coverage is sometimes worsened by more focus on skills and knowledge than on attitudes and values (Solomon & Tresman, 1999; Villegas-Reimers, 2003). Possibly, this is the reason why the study by Mwangi and Mugambi (2013) revealed that despite the SMASSE programme running for ten years in the nation, the Kenya Certificate of Secondary Education examinations' results (attained at the end of four years of high school study in Kenya), had not improved much. Relatedly, it has been observed that owing to the short period of time allocated during the cascade sessions, many TCPD sessions are facilitated by ill-equipped trainers (Engelbrecht et al., 2007; Ono & Ferreira, 2010), sometimes chosen more out of necessity than qualification. This inevitably leads to ineffectiveness of the programme as the trainers may not cover the content as deeply as desired.

From the foregoing discussion, it is evident that the cascade approach being used in Kenya needs rethinking. The fact that a sizeable portion of teachers entering the workforce are inadequately equipped for the schooling experience (as argued by Hardman et al., 2011; Pryor et al., 2012, etc.) foregrounds the crucial role that TCPD should play in the nation. However, simply opting for the cascade model in TCPD may not adequately meet the anticipated needs among teachers in schools. For example, teachers being coerced to attend INSET programmes (under the cascade approach) may lack the drive to implement what is being offered.

5. Kenyan TCPD: the way forward

One of the errors in handling TCPD in Africa and other developing nations is the mistaken belief that what has worked elsewhere, especially in the developed nations will most likely work successfully in other contexts (Hardman et al., 2011; Nyarigoti, 2013). In a critical discourse analysis of TCPD in Ethiopia and related contexts, Akalu (2014, p. 5) observed:

> Any analysis of the professional development of teachers in low-income and developing countries thus needs to pay particular attention to the specific local contexts within which schools are located, the conditions under which teachers discharge their day-to-day activities and how schools are broadly linked to processes of state formation and the ideology of the state.

What this seemingly implies is that a careful analysis of contexts is a key ingredient in the successful implementation of any TCPD programme in countries such as Kenya. The prescriptive solutions often proffered to Africa in matters TCPD are likely to be counterproductive. What is required instead is an approach, or set of approaches that will work in countries such as Kenya.

Many studies on TCPD in Kenya, for example that by Hardman et al. (2011), have vouched for a school-based model rather than the cascade one. Similarly, Wanzare and Ward (2000) observed that the INSET programmes used in Kenya need revision to be in tandem with the professional needs of teachers in the land. This is also in line with the report on Education for all by UNESCO (2015, p. 208) which in addressing the TCPD experiences in Kenya, claimed: "This experience shows that field-based models, made up of school-based training supported by distance learning materials, school clusters and follow-up in the classroom, can help close the gap between theory and practice and raise the quality of teaching practices". The foregoing arguments emphasize the fact that Kenya

needs to consider institutionalizing TCPD thereby allowing teachers to identify the core needs of their contexts and work on improving them. Since the cascade model trains teachers away from their contexts, A TCPD on the ground will help teachers face the reality in their contexts. For example, Kenyan students are currently in danger of being radicalized to join extremist groups, yet some regions such as the Kenyan Coast are more prone to this than others (Gitau & Masha, 2015). TCPD for teachers in such a region, thus, may prioritize enhancing of skills, attitudes and knowledge of handling learners who are at risk of being radicalized. This will be a more fitting issue for their context.

Collaboration is another core ingredient that has been found to make TCPD effective, especially when coupled with other factors such as a common context (Lydon & King, 2009). Taylor (2010) and Kafyulilo (2013) have vouched for teachers working collaboratively, especially in a common environment, as it has the advantage of harnessing teachers' synergies on lesson planning and execution. Also, through collaboration, teachers are able to benefit from the expertise of those who are seasoned in the field (Ushie, 2009). One of the setbacks with the cascade model is its inability to differentiate teachers according to experience hence leaving out many potential beneficiaries (Bantwini, 2009). It is here that the collaborative school-based models might prove useful. Besides, while teachers can collaborate during the cascade model sessions, this relationship is likely to be fickle owing to the set-up of the entire programme, and time allocated to the training. School-based collaboration may thus be the solution to this.

Working as a team is also advantageous to teachers as they can identify common issues affecting them and work on a joint solution. Fraser, Kennedy, Reid, and Mckinney (2007) suggested that transformative change is likely to be witnessed where a collaborative inquiry that helps teachers reconstruct their knowledge is adopted. Collaboration is likely to lead teachers to own the entire process rather than one that is thrust upon them (Kafyulilo, 2013; Taylor, 2010); hence mitigate against findings such as those by Mwangi and Mugambi (2013) whose study revealed that majority of the teachers being trained using the cascade model were demotivated and actually looked forward to the end of the programme. On the contrary, a school-based collaboration is likely to increase teachers' motivation while enhancing their expertise, especially since it gives teachers the latitude to decide on what should be included in their TCPD (Hustler, McNamara, Jarvis, Londra, & Campbell, 2003; Ushie, 2009). For example, teachers in one region in Kenya can focus and enhance particular teaching strategies, as Desimone, Porter, Garet, Yoon, and Birman (2002) suggested, and this best happens when a collaborative institution-based approach is adopted.

Collaboration can also be in the form of action research by teachers, where they work together to improve situations in their contexts. Action research is bound to actively involve teachers, hence likely to bring about positive changes (transformation) unlike the traditional models (Kennedy, 2005). Action research recognizes the valuable role that the teacher as an individual plays in the education process. In her argument, Dadds (2014, p. 10) argued:

> Teachers and headteachers do not enter into CPD as empty vessels. They bring existing experiences, practices, perspectives, insights and, most usually, anxieties about the highly complex nature of their work. They usually enter CPD courses brimful of thoughts and feelings; with implicit or explicit beliefs about education and their work with children. They come with differences, disagreements, preconceptions, uncertainties, missions. These are all useful resources which can be drawn upon and studied in CPD processes.

Action research puts the teacher at the centre, questioning matters within his context with an intention of improving them. This is what the foregoing author seems to be advocating for. Such valuable inputs as these (teacher as the reflective practitioner) can be tapped from Kenyan teachers to improve school experiences. The experiences of teachers from diverse areas of the nation should be brought forth, and utilized in action research to make better learning environments. It is noteworthy to remember, also, that action research deals with teachers' values, which are often magnified through the process of continuous self-reflection. Solomon and Tresman (1999) in their criticism of

the cascade approach the British curriculum once implemented with the science teachers, observed that the greatest challenge with the model was the absence of transference of values, which happens best when action research is adopted. In their argument, "teaching is a kind of professional action that has to be built upon values, beliefs and knowledge" (p. 315). Kenyan teachers will benefit more from action researches since their attitudes and values will also be strengthened, as compared to the cascade model where only skills and knowledge are emphasized.

Garet, Porter, Desimone, Birman, and Yoon (2001) in their study came to the conclusion that for a TCPD to be effective, it needs to be sustained and intensive; it must actively involve the teacher; it should focus on the content area and be integrated into the daily life of the teacher. Similarly, Hunzicker (2011, p. 177) argued that "... effective professional development is anything that engages teachers in learning activities that are supportive, job-embedded, instructionally focused, collaborative, and ongoing". Other researchers such as Hardman (2011) are in support of this view by advocating for an active involvement of teachers in a collaborative environment if TCPD has to be effective. A proposed solution to TCPD in Kenya therefore needs to make up for the shortcomings of the cascade model, such as advocating for programmes carried out within schools, engaging teachers actively alongside their colleagues, and done on a continuous basis.

6. Conclusion

A possible avenue for addressing TCPD issue in Kenya is by empowering teachers to focus more on action research. While a number of them in reality do carry out action research in one way or another, many cases often go unreported as they are not documented. Since many primary and secondary school teachers in Kenya have taken up to improving their academic qualifications during school holidays ('*Universities should review teachers*',' 2014); bodies involved in teacher training and professional development in Kenya should make effort to train teachers in this form of research as it not only benefits the individual teacher but the surrounding community as well. One study by Kitawi (2014) has documented how one university in Kenya is using action research projects by teachers and other educational managers in Kenya to enhance community capacity development, the kind that third world countries will benefit from. If part of the assessment for such teachers involved action research on their schools, for example, instead of meaningless regurgitation of theoretical knowledge, many individuals, schools and communities would witness great positive changes.

To contextualize TCPD in Kenya, a focus on the counties in the nation (created after constitutional amendments done in 2010) will be a step in the right direction. Since each of the forty seven counties largely run independently, creation of TCPD programmes for teachers in every county is possible. At the county level, more than from the central government, running and monitoring of programmes for teachers is more feasible, hence likely to yield better results. For example, it is possible at the county level to factor in the number of teachers present, the kind of TCPD relevant for them and how best to execute it. According to a 2014 survey, there are noted disparities in pupil–teacher ratios (PTR) across counties in Kenya: case in point being Turkana County having a high PTR of 101:3, while Baringo County's is 25:4 (MOEST, 2014). The implication here is that TCPD for these two counties cannot be carried out in the same way; Turkana County with schools far between may benefit more from focusing on individual schools as compared to Baringo which may succeed in having a number of schools engage in collaborative TCPD.

While the onus for TCPD in Kenya lies mainly with the government, other educational stakeholders in the nation such as universities and colleges, TTCs and Non-Governmental Organizations have an immense role to play. Yet what is important first of all is the realization that the cascade approach that has largely been preferred in TCPD before has not yielded the intended results. It is this realization that will prompt the search for better, more practicable ways of addressing this challenge. There is need to revisit and revise the TCPD programmes in Kenya to incorporate models that are collaborative and contextualized to the school setting, for only then can effective TCPD be witnessed.

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