The impact of an inclusive education intervention on teacher preparedness to educate children with disabilities within the Lakes Region of Kenya

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Abstract

There has been little empirical study within low- and middle-income countries on how to effectively prepare teachers to educate children with disabilities. This paper reports on the impact of an intervention designed to increase teaching self-efficacy, improve inclusive beliefs, attitudes and practices, and reduce concerns around the inclusion of children with disabilities within the Lakes region of Kenya. A longitudinal survey was conducted with in-service teachers (matched $N = 123$) before and after they had participated in a comprehensive intervention programme, delivered in the field by [name of organisation removed for review]. Results showed that the intervention increased teaching self-efficacy, produced more favourable cognitive and affective attitudes toward inclusive education, and reduced teacher concerns. However, there was little evidence regarding the impact on inclusive classroom practices. The increase in teaching self-efficacy over the intervention period was also found to predict concerns over time. Results are discussed in terms of implications for international efforts, as well as national efforts within Kenya to promote inclusive education.

Introduction

Education is an enabling condition for sustainable and inclusive development and a human right which is central to the well-being of all persons (Miles & Singhal, 2010). Within the international agenda this was encapsulated by the goal of "Education for All" (EFA), set by the World Education Forum (2000) in Dakar, Senegal. However, despite some progress within those fifteen years toward achieving this goal, not even the outcome of universal primary education, or more the ambitious targets of EFA have been achieved (UNESCO, 2015). Thus, while the world of education has now focused on the post-2015 sustainable development agenda, there is still a gap in understanding of why the global community ultimately fell short of the EFA goals and, consequently, how to meet the mantra of 'leave no one behind'. This represents an urgent concern, as many disadvantaged and vulnerable children, including those with disabilities, remain excluded from education (UNESCO, 2015). The Sustainable Development Goals (SDGs) have the potential to be truly transformative for persons with disabilities (DFID 2015) and education remains a key focus of the SDGs (SDG 4: *Ensure inclusive and quality education for all and promote lifelong learning).* However, to realise this opportunity, the international development sector needs to understand "What can be done to ensure that these children are included in mainstream education?".

Background

An important factor affecting the provision of education for all is the quality of teachers (OECD, 2005), and the training that is offered to them (Sharma, Forlin, Deppeler, & Guang-xue, 2013). A large body of research (e.g., Avramidis & Kalyva, 2007; Donahue & Bornman, 2015) shows that when the quality of teacher training is low, teachers may not be able to meet the expectations placed on them of fully and effectively including children with

disabilities in the classroom. When teachers receive high quality training, the resultant quality of their teaching can strongly shape classrooms to be inclusive, as well as benefit teachers' own development as more effective practitioners (Mariga, McConkey, & Myezwa, 2014). Although global expectations of high quality provision of inclusive education form part of the international agenda of achieving EFA, there has been surprisingly little empirical investigation regarding how to effectively train teachers, particularly within low- and middle-income countries (Colleague, Author 4, & Colleague, 2013).

While the UN Convention on the Rights of Persons with Disabilities (2007) enshrines the need for governments to commit to providing education for people with disabilities, the concept of inclusion, which originated in the global north, is still considered relatively new in low-and middle-income countries (Sharma et al., 2013; Wapling, 2016). Teachers in many countries are trained by taking either a mainstream or special education class, as opposed to learning to teach in an inclusive classroom setting (Wapling, 2016). In addition, training on inclusion often occurs in-service rather than being offered pre-service, which means it is ad hoc and usually delivered by a variety of providers, in particular NGOs. This raises issues about ownership and scalability if local school districts and national governments are not engaged, given the range of other challenges they face in the education sector. Moreover, past research shows that the education sector in many low-and middle-income countries has tended to view disability from a medical perspective, placing focus on the prevalence of various disabilities and strategies for rehabilitation (Singal, 2010), rather than the human rights perspective that is central to the Education for All movement. Consequently, relatively little attention has been paid to how well teachers are prepared to deliver inclusive education in these settings (Srivastava, de Boer, & Piji, 2015), including routes by which effective teacher training can be achieved.

What little research that has been carried out indicates that teachers' in low- and middle-income countries are not given adequate training and resources to facilitate the inclusion of children with disabilities in their classroom (e.g., Donohue & Bornman, 2015; Kuyini & Desai, 2007). For example, Donohue and Bornman (2015) observed that teachers' held low expectations for the reading ability of learners with a visual disability and suggested that this was associated with their unfamiliarity with both non-visual methods of reading and Braille. Moreover, in many low- and middle-income countries obstacles such as this are often compounded by large class sizes (Hove 2014; Nkonyane, & Hove, 2014), engendering reluctance on behalf of teachers to work with children with disabilities, who they perceive as creating an additional workload (UNICEF, 2003).

These challenges, and other factors (e.g., lack of experience with different impairment types) mean that the majority of teachers may ultimately hold neutral or negative attitudes towards inclusive education, as suggested in a global literature review conducted by de Boer, Piji, and Minnaert (2010). The literature review, on primary school teacher attitudes toward the inclusion of children with disabilities in mainstream classes, differentiates between the cognitive (i.e. beliefs), affective (i.e. feelings) and behavioural (i.e. intentions) components of attitude, based on the predominant conceptualisation of attitudinal structure within social psychology (e.g., Eagly & Chaiken, 1998). Across 26 studies, de Boer et al. (2010) found that teachers hold neutral or negative attitudes toward inclusive education across these three components, though they noted that the majority of studies focused only on the cognitive and affective components of attitude, and that no single study measured all three (see Srivastava et al., 2015 for a similar conclusion). Thus, there is currently a paucity of knowledge regarding how interrelated these components are within the inclusive education context and how each component might be effectively targeted by intervention strategies. This is especially concerning in light of evidence that suggests that while teachers may agree with

the general philosophy of inclusive education, there is frequently a lack of consensus regarding what inclusive education philosophy entails (Miles & Singal, 2010), resulting in many teachers remaining hesitant to address the practical realities of inclusion within their own classrooms (de Boer et al. 2010; Wapling, 2016). This highlights the need to focus on understanding the direct attitudinal antecedent of behaviour (i.e. intentions), in addition to the other components.

Previous empirical research has identified teacher attitudes and concerns as two sources of barriers toward inclusion (e.g. Agbenyega, 2007; Forlin & Chambers, 2011; Sharma, Forlin, Loreman, & Earle, 2006). However, these studies frequently do not offer clear theoretical definitions of either construct (see also de Boer et al., 2010). Within social psychology, attitudes are defined as a *general* psychological tendency to evaluate an entity as favourable or disfavourable (Eagly & Chaiken, 1998), while, in most cases, concerns comprise *specific* expectancies made in response to situations (Stephan, 2014), like teaching an inclusive class. Such concerns are thought to be prompted by the anticipation of negative consequences (Stephan, 2014; Stephan & Stephan, 1985) and are generally investigated within the context of social interactions between majority and minority social groups (e.g., people with and without disabilities; Crowson & Brandes, 2010). Moreover, evidence has shown that that the expectancies associated with concerns can be self-focused (e.g., worry about one's own actions) or other-focused (e.g., worry about the actions of another) and that each dimension has distinct antecedents and outcomes (Greenland, Xenias, & Maio, 2012). Where such concerns are investigated within the context of inclusive education however, more attention is generally paid to the self-focused element (i.e., teacher concern about their own capability or about the impact of inclusion on their lives; e.g., Forlin, Earle, Loreman, & Sharma, 2011). Moreover, teacher concerns as barriers to inclusion have not been widely examined within low-and middle-income countries, especially within sub-Saharan Africa. In

order to gain an accurate understanding of whether interventions can lead to inclusion in practice within these settings, their effectiveness must be tested on both teacher self-focused and other-focused concerns about inclusive education.

The [name of programme] inclusive education training programme within Kenya

The Constitution of Kenya (2010) guarantees every citizen a right to education and every child a free and compulsory basic education, thus encompassing people with disabilities, but does not guarantee access to inclusive schools, accessible transportation, modified curriculum, and other facets that are integral to the provision of inclusive education (Elder, 2015). However, the Kenyan Ministry of Education (MoE, 2008, p. ix) states that Kenya has shifted away from "the traditional view of inclusive education as 'providing education for children with special needs'." and further conceptualises inclusive education as "an approach in which learners with disabilities and special needs, regardless of age and disability, are provided with appropriate education within regular schools'' (MoE, 2009, p. 5). Subsequent policy frameworks have also signalled a commitment to inclusive education and outlined means through which inclusive education for children with disabilities can be achieved (e.g., use of Braille and sign language in delivery of education; MoE, 2012, p. 24).

Notwithstanding, whereas in practice children with disabilities may be placed in within inclusive classrooms in mainstream schools, they are still more typically sent to segregated special schools. Therefore, while overall enrolment in primary education is increasing in Kenya, the number of children with disabilities accessing primary education remains low, although precise numbers are not known due to weak reporting systems, and a lack of clarity about definitions of disability and assessment of impairments (Author 2, Author 1 & Author 4, 2017). In many countries, including Kenya, rates of education among girls are lower than among boys and these rates are even lower among girls with disabilities (UIS, 2017). Clearly, the provision of high quality inclusive education is an essential to

closing the gap between children with and without disabilities. To address the gender gap in education more broadly [funder name] initiated the [name of programme] which aims to "…help up to a million of the world's poorest girls improve their lives through education and find better ways of getting girls in school and ensuring they receive a quality of education to transform their future." [weblink removed for review]. The research presented here forms part of this programme of work.

This paper reports on a field test of a teacher intervention developed by [organisation] as part of a broader inclusive education (IE) programme, funded by [funder name]. The [name] approach has been honed over several years, and is based on set of six main interlinked components – each essential for the successful delivery of the programme (see Organisation, 2017). The component designed specifically to impact teacher preparedness to educate children with disabilities is the delivery of in-service teacher training to promote the use of inclusive teaching methods in the classroom. This training places emphasis on developing practical skills rather than conferring purely theoretical information, and is designed to give participating teachers the skills to train colleagues, so that there is on-going support for teachers, which is a key principal of the [name] approach. Additionally, to facilitate this goal of on-going support, opportunities for teachers to share experiences and challenges are created (e.g., formation of small discussant groups) and a refresher training course is offered to teachers (Organisation, 2017).

Research indicates that teacher training programmes lead to more positive attitudes toward inclusion and can ameliorate teacher concerns because they increase teaching self-efficacy (e.g., Emam and Mohamed, 2011; Miles, 2009; Miles and Singal, 2009; Wapling, 2016). That is, when teachers are high in self-efficacy they are better able to deal with the challenges that are part and parcel of the inclusive classroom; where self-efficacy is low, they lack the confidence to do so (de Boer et al. 2010). This suggests both that at first recourse,

effective teacher training should increase teaching self-efficacy, and that these changes in self-efficacy should predict positive attitudes and reduced concerns among teachers. Generally however, even though attitudes may be positive there is overwhelming concern in the literature that in practical terms, teachers are not well prepared to include children with disabilities in mainstream classes. Teachers report that while increasing the diversity of their classrooms is good for fostering social inclusion and equality, they remain much more sceptical about its effectiveness from an academic perspective (de Boer et al., 2010).

The Present Study

This paper reports on the impact of an intervention designed to increase teaching self-efficacy, improve inclusive beliefs, attitudes and practices, and reduce concerns around the inclusion of children with disabilities within the Lakes region of Kenya. Specifically, we had two main objectives. Our first objective was to evaluate the impact of the intervention on teaching self-efficacy, attitudes to inclusion (i.e. beliefs, feelings, and intentions) and concerns (self-focused, other-focused). A second objective was to assess whether the change in teaching self-efficacy, as a proposed mechanism by which the intervention may have been effective, predicted the remaining outcome variables impacted by our intervention.

Method

Participants

Participants were 130 in-service teachers from 50 schools in five districts of the Lakes region of Kenya that were selected to participate in the teacher training intervention through consultation with and recommendations from the Kenyan Ministry of Education at the point when permission was sought to conduct the study in the region. Twenty teachers from each of 5 districts, and 30 trainers of teachers (TOTs; refers to teachers who have previously received government-provided special education needs training and were selected to cascade

the intervention training to other teachers who had no prior training) were selected. At the pre-intervention stage, the average age of teachers was 43.40 ($SD = 8.96$, range: 26 to 59 years), while the average age of TOTs was 43.10 ($SD = 7.04$, range: 28 to 57 years). There were approximately equal number of males and females among both sets of teachers (53.1% male; 46.1% female) and TOTs (56.7% male; 43.3% female).

Seven teachers dropped out during the course of the study (for example to take a job outside of the project area), leading to an attrition rate of 5%. All TOTs participated in both waves of the study (an attrition rate of 0%). Consequently, all analyses were conducted with the matched sample (i.e. $N = 123$).

Design

The study utilised a two- wave quasi-experimental design, in which both groups of participants completed a survey containing all measures at two time periods. Pre-intervention data were collected from teachers and TOTs in April/May 2014 by specially trained data collectors before any intervention activities took place (see below). Post-intervention data were collected from both teachers and TOTs in September 2016, six months prior to the conclusion of activities, using an identical methodology.

Procedure

The research described here was part of the larger [funder name removed for review] project focusing on addressing physical, cultural and social barriers to the education of girls with disabilities in Kenya [weblink]. At the beginning of the study, both teachers and TOTs attended a five-day inclusive education training programme. Pre-intervention data were collected from participants as they arrived for the training programme through individual structured interviews utilising a survey tool. In the interviews, data collectors read out the

questions and response options and either recorded participant responses or these were provided by participants themselves. Interviews took approximately one and a half hours (Author 2, Colleague, & Author 4, 2015).

In the subsequent training programme, participants were led though various strategies to ensure participation of all learners across the full range of learning environments, using an inclusive education training manual (Organisation, 2011) which covered subjects such as key concepts in inclusive education, the identification of children with disabilities, child-centred approaches to learning and classroom management.[1] Given that the overall focus of the project was on the inclusion of girls with disabilities, gender sensitization activities were also provided (Author 2 et al. 2015). Refresher teacher training was undertaken in 2015, using a specially designed manual (Organisation, 2015) and wider programme activities (e.g., provision of assistive devices to children) facilitated on-going support for the teachers involved throughout the project.

Post-intervention data were collected from participants six months prior to the conclusion of [programme name] activities using the same methodology as the pre-intervention data collection.

Measures

Participants were asked a series of questions about inclusive education and the inclusion of children with disabilities in their classroom. For all variables, participants were asked to select the response that best matched their opinion on a four-point scale (1 =

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[1] For TOTs this training was delivered by experts on the project staff. For teachers, this training was delivered by the TOTs, closely supervised by the project staff. The TOTs subsequently cascaded the training to a further 600 teachers (not sampled) as part of the projects wider programmatic aims.

Strongly disagree, 4 = *Strongly agree*) and for each variable, individual items were averaged together to form a single index measuring the variable of interest for analyses.

Teaching self-efficacy. Four items measured participants' perceived teaching self-efficacy ("I am able to teach students with disabilities effectively, no matter the specific nature of disability"; "I am able to develop lesson plans that do not leave any students with disabilities behind"; "I am able to adapt assessment procedures to take account of specific needs of students with disabilities"; "I am able to build a relationship with parents of children with disabilities to improve their learning at home"), where high scores indicated greater perceived teaching self-efficacy (pre-intervention α = .72, post-intervention α = .72).

Beliefs. Six items measured participant beliefs about inclusive education, but two were subsequently excluded due to low reliability[2]. The remaining four items were: "I believe that students with a disability should be taught in special education schools"; "I believe that any student can learn in the regular curriculum of the school if the curriculum is adapted to meet their individual needs"; "I believe that students with a disability should be segregated because it is too expensive to modify the physical environment of the school"; and "I believe that students with a disability should be in special education schools so that they do not experience rejection in mainstream school" (adapted from Mahat, 2008). Items 1, 3, & 4 were reverse-coded so that high scores reflected positive beliefs for all items (pre-intervention α = .63, post-intervention α = .61).

Feelings. Six items (adapted from Mahat, 2008) measured participant feelings about inclusive education, but one was subsequently excluded due to low reliability[3], leaving five

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[2] These were: "I believe that an inclusive school is one that encourages academic progression of all students regardless of their ability" and "I believe that inclusion facilitates socially appropriate behaviour amongst all students".

[3] This was: "I am concerned that students with a disability are included in the regular classroom, regardless of the severity of the disability".

remaining (e.g., "I get frustrated when I have difficulty communicating with students with a disability"; I get upset when students with a disability cannot keep up with the day-to-day curriculum in my classroom"; "I get frustrated when I am unable to understand students with a disability"). All items were reverse-coded so that high scores reflected positive feelings (pre-intervention α = .63, post-intervention α = .74).

Intentions. Six items measured participant intentions to adopt inclusive practices (e.g. "I am willing to encourage students with a disability to participate in all social activities in the regular classroom"; "I am willing to adapt the curriculum to meet the individual needs of all students regardless of their ability"; "I am willing to modify the physical environment to include students with a disability in the regular classroom" (adapted from Mahat, 2008). On all items, high scores indicated a greater willingness to implement inclusive practices (pre-intervention α = .83, post-intervention α = .76).

Self-focused concerns. Nine items measured participants' self-focused concerns about the inclusion of a child with a disability in their classroom (e.g. "I will not have enough time to plan educational programs for students with disabilities"; "I will have to do additional paperwork"; "It will be difficult to give equal attention to all students in an inclusive classroom."; (adapted from Sharma & Desai, 2002). High scores indicated a greater degree of self-focused concerns on all items (pre-intervention α = .75, post-intervention α = .80).

Other-focused concerns. Twelve items measured the degree to which participants were concerned about how others (i.e. non-disabled students, the school, other teachers) may react or be impacted by the inclusion of a child with a disability in the classroom (e.g. "The academic achievement of non-disabled students will be affected"; "The overall academic standards of the school will suffer"; "Parents of non-disabled children may not like the idea of placing their children in the same classroom as children with disabilities"; (adapted from

Sharma & Desai, 2002). On all items, high scores indicated a greater degree of other-focused concerns (pre-intervention α = .81, post-intervention α = .86).

Analytic strategy

First, we present correlations between all measured variables. Secondly, addressing our first objective to investigate changes due to the intervention, we conducted a series of two-way mixed ANOVAs on our dependent variables. In these analyses, we included intervention (pre-intervention, post-intervention) as the repeated-measures factor and group (teacher, TOT) as the between-subjects factor. We disaggregated our findings by group, because although all participants received the same intervention, TOTs had pre-existing expertise having received prior government training in inclusion. However, we expected the intervention to exert a positive impact on outcomes across participant group (i.e. a main effect of intervention, the repeated measures factor). Thirdly, addressing our second objective, we examined the relationship between teaching self-efficacy and the variables impacted by our intervention over time.

Results

Table 1 shows the cross-sectional and longitudinal correlations between all measured variables.

[Table 1 about here]

Impact of the Inclusive Education Intervention

In the following analyses, there was one case of missing (teacher) data for the beliefs, feelings, and intentions measures. The remainder utilised the full sample (i.e. $N = 123$). Means and standard deviations for all measured variables are shown in Table 2.

Teaching self-efficacy. Consistent with our prediction, there was a main effect of the intervention on TOT and teacher perceived teaching self-efficacy, $F (1, 121) = 13.48$, $p <.001$, partial $\eta^2 =.100$. There was also a main effect of group, $F (1, 121) = 8.38$, $p = .005$, partial $\eta^2 = .065$, but no interaction effect, $F (1, 121) = 1.02$, $p = .314$, partial $\eta^2 = .008$. That is, the intervention increased both teacher and TOT perceived teaching self-efficacy, though teachers reported generally less teaching self-efficacy across the intervention period, compared to TOTs.

Beliefs. Consistent with our prediction, there was a main effect of the intervention on beliefs about inclusive education, $F (1, 120) = 22.13$, $p < .001$, partial $\eta^2 = .156$. There was also a main effect of group, $F (1, 120) = 17.79$, $p < .001$, partial $\eta^2 = .129$, but no significant interaction effect, $F (1, 120) = .659$, $p = .422$, partial $\eta^2 = .005$. In other words, the intervention was successful at promoting positive beliefs among both teachers' and TOTs toward inclusive education, though teacher beliefs were generally less positive across both times, compared to TOTs[4].

Feelings. There was a main effect of the intervention on feelings about inclusive education, $F (1, 120) = 5.89$, $p = .017$, partial $\eta^2 = .047$. There was no main effect of group, $F (1, 120) = 1.17$, p $= .282$, partial $\eta^2 = .010$, but there was a significant interaction effect, $F (1, 120) = 7.47$, p $= .007$, partial $\eta^2 = .059$.

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[4] The assumption of the homogeneity of variance was violated for both pre-intervention and post-intervention beliefs (i.e. Levene's test $p < .05$). Further inspection revealed that the variance in the larger group (i.e. teachers, $N = 122$) was larger than that of the smaller group (i.e. TOTs, $N = 30$), meaning that the group analyses may be underpowered (Maxwell & Delaney, 2004). Notwithstanding, a significant group difference was identified ($p < .001$).

Further analysis revealed a simple main effect of the intervention among teachers, F (1, 91) = 26.40, $p < .001$, partial $\eta^2 = .225$, but not TOTs, F (1, 29) = .034, p = .855, partial η^2 = .001. Analyses also revealed a simple main effect of group at the pre-intervention stage, F (1, 120) = 6.65, p = .011, partial $\eta^2 = .053$. However, there was no corresponding main effect of group at the post-intervention stage, F (1, 120) = .827, $p = .365$, partial $\eta = .007$. That is, while initially the teachers reported more negative feelings toward inclusive education, post-intervention ratings between groups were not significantly different (see Table 2).

Taken together, these findings suggest that there was an impact of the intervention on the feelings of teachers', rather than TOTs'. It also indicates that the post-intervention feelings of teachers increased to a level comparable to TOTs before any intervention took place.

Intentions. Contrary to our prediction, there was no main effect of the intervention on intentions to adopt inclusive practices, F (1, 120) = 1.68, $p = .197$, partial $\eta^2 = .014$. There was also no main effect of group, F (1, 120) = 2.09, $p = .151$, partial $\eta^2 = .017$, nor an interaction effect, F (1, 120) = .022, $p = .881$, partial $\eta^2 < .001$. In other words, the intervention did not impact teacher or TOT intentions to adopt inclusive practices.

Self-focused concerns. Consistent with our prediction, there was a main effect of the intervention on self-focused concerns, F (1, 121) = 25.42, $p < .001$, partial $\eta^2 = .174$. There was also a main effect of group, F (1, 121) = 14.58, $p < .001$, partial $\eta^2 = .108$. There was no interaction effect between intervention and group, F (1, 121) = .142, $p = .707$, partial $\eta^2 = .001$. That is, the intervention reduced both teacher and TOT self-focused concerns, though teachers possessed generally more self-focused concerns across the intervention period, compared to TOTs.

Other-focused concerns. Consistent with our prediction, there was a main effect of the intervention on other-focused concerns, F (1, 121) = 22.38, $p < .001$, partial η^2 = .156. There was also a main effect of group, F (1, 121) = 4.73, $p = .032$, partial η^2 = .038. There was no interaction effect between intervention and group, F (1, 121) = .684, p = .410, partial η^2 = .006. In other words, the intervention reduced both teacher and TOT other-focused concerns, though teachers possessed less other-focused concerns across the intervention period, compared to TOTs.

[Table 2 about here]

Change in teaching self-efficacy

We examined the relationship between change in teaching self-efficacy and those remaining variables that were significantly impacted by the intervention. Specifically, we conducted a series of regression models, in which we tested the ability of *chan*ge in teaching-self efficacy (i.e. pre-intervention levels subtracted from post-intervention levels) to predict these variables (i.e. beliefs, feelings, self-focused concerns and other-focused concerns) at post-intervention, while controlling for the respective test-retest association with the pre-intervention score.

We found that the change in teaching self-efficacy over the intervention period did not significantly predict beliefs, (B = .02, β = .03, t = .394, p = .694), or feelings (B = .04, β = .04, t = .458, p =.647). Conversely, change in teaching self-efficacy did significantly predict both self-focused concerns (B = -.32, β = -.38, t = 4.93, $p < .001$) and other-focused concerns (B = -.29, β = -.31, t = 5.66, $p < .001$). That is, participants who experienced a greater increase in teaching self-efficacy over the intervention period reported lower levels of both self-focused and other-focused concerns.   The test-retest association for all outcome variables was positive and significant (range: B = .15 to .52; β = .22 to .54; t = 2.41 to t =

6.96; p = .018 to < .001) bar for feelings, which was marginally significant (B = .15, β = .15, t = 1.67, p = .098).

Discussion

The present research makes an important contribution by conducting a rare assessment of a field intervention designed to prepare teachers and build their effectiveness to teach children with disabilities within the Kenyan context. Specifically, our study had two objectives, the first of which was to assess the impact of the [name] IE intervention and the second which was to shed light on a proposed mechanism (i.e. teaching self-efficacy) by which the intervention may have built the preparedness of teachers.

Addressing our first objective, the findings revealed that pre- to post-intervention, teaching self-efficacy increased among both TOTs and teachers, and both groups reported more positive beliefs about inclusive education. Moreover, both groups reported a significant reduction in self-focused and other-focused concerns. However, only teachers, and not TOTs, reported more positive feelings about inclusive education pre- to post-intervention and neither group reported a shift in their intentions to adopt inclusive practices. Addressing our second objective, we found that the change in teaching self-efficacy predicted self-focused and other-focused concerns, but did not predict beliefs or feelings about inclusive education. Additionally, compared to TOTs, teachers reported less teaching self-efficacy, less positive beliefs about inclusive education and greater self-focused and other-focused concerns over the intervention period.

Thus far, relatively little attention has been paid to teacher attitudes towards inclusion in low-and middle income countries (de Boer et al., 2010, Srivastava et al., 2015). Moreover, as noted previously, extant work has generally not measured the three components of attitude together (de Boer et al., 2010) and consequently, the degree to which teacher training

interventions may operate effectively across these components is unclear. Our findings indicate that the [name] IE intervention was able to positively impact the cognitive and affective dimensions of attitude (i.e. beliefs and feelings), but not its behavioural one (i.e. intentions), speaking to the need to differentiate and specifically address these components when assessing inclusive education interventions.

As the behavioural component of attitude is the most understudied within these contexts (de Boer et al. 2015), there is also a pressing need to design and test further interventions that can specifically target teacher intentions effectively , especially given that these intentions are the direct antecedent of the practical realities (i.e. behaviour) of inclusion in the classroom. In relation, the results suggest that TOT and teacher post-intervention beliefs and feelings about inclusive education were not predicted by a corresponding increase in teaching self-efficacy, suggesting that the cognitive and affective component of inclusive education attitudes may in part be disassociated from the practical realities of teaching (see de Boer et al. 2010; Wapling, 2016).

Within the literature, there is also paucity of knowledge regarding teacher concerns about inclusive education within low- and middle-income countries; these have mostly been investigated within high-income settings (e.g., Forlin & Chambers, 2011; Sharma et al., 2006), with an emphasis on self-focused concerns (i.e. concerns about own ability; Forlin et al., 2011), rather than other-focused concerns (i.e. concerns about the reactions of another; see Greenland et al., 2012). Our findings indicate that the [name] IE intervention was able to reduce both self-focused and other-focused concerns about educating children with disabilities within an inclusive classroom in a low-income setting. Moreover, results show that post-intervention levels of both self-focused and other-focused concerns were predicted by an increase in teaching self-efficacy over time, suggesting this is a key mechanism by which the intervention reduces teacher concerns.

Compared to TOTs, we observed that teachers reported less teaching self-efficacy, positive beliefs and greater self-focused and other-focused concerns over the intervention period in general. As TOTs were selected for the study on the basis of having previously participated government-provided special education needs training, this highlights the additional value that this training has within the Kenyan context. This agrees with Wapling (2016) who highlights the benefits of pre-service special education needs training for the maintenance of positive attitudes toward inclusion. However, given the relatively high levels of post-intervention other-focused concerns, this indicates that teachers in Kenya deem there to be certain factors that are outside of their control with regard to their preparedness to educate disabled children. This could signal the need for broader change not only around teacher training, but other aspects of inclusive education in Kenya. Future research can shed light on whether this is the case.

Limitations

Two limitations must be highlighted. Firstly, like other work recently published in this journal (e.g., Peebles & Mendaglio, 2014) this study lacked a comparison control group, meaning that it is not possible to empirically rule out if the observed changes would have happened naturally over time in the absence of any intervention. However, we believe this to be unlikely, given the scale of changes that were implemented within target schools (i.e. school adaptations to ensure accessible facilities, including classrooms and toilets; child-to-child clubs and parents groups to encourage peer support and experience-sharing; community engagement with teachers to increase awareness, understanding and acceptance of disability and inclusive education). Additionally, control groups present an ethical dilemma in field research, particularly in low- and middle-income settings, as they mean that some participants do not benefit from the often transformative changes produced over the lifetime of the research programme. Secondly, while this study sheds light on what is needed to prepare

teachers effectively for the practical realities of an inclusive classroom, there is an inherent limitation to how far self-reported survey measures can be used to understand the actual behaviour of participants. This point was emphasised by de Boer et al., (2010, p. 349) who called for extensive research focusing on all three components of attitude and teachers' actual behaviour in the classroom. This research contributes to the first aim, but like de Boer et al. (2010) we suggest that, going forward, the durability of our findings be tested by research which investigates actual classroom behaviour.

Conclusions

In conclusion, our findings suggest that the [name] IE in-service intervention may be a useful tool to improve teachers' inclusive beliefs and attitudes among participants, particularly among those who are generally open to inclusive education. Moreover, the intervention may be particularly effective as part of a multi-faceted approach designed to address the self-focused and other-focused concerns held by teachers, which these findings also suggest may pose a particular challenge to implementing inclusive education. Given the encouraging results within the Lakes region of Kenya, the intervention thus may have broader application in other similar national and international contexts, especially if additional resources are made available, for example to address teacher concerns (see also Author 2 et al., 2017; Author 1, Author 2 & Author 4, 2016). However these findings also underscore a critical gap in the current Kenyan training system whereby more attention to practical solutions are needed to enable and encourage teachers to translate their new-found teaching knowledge and insight on inclusive education into their own classroom practices.

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Table 1. *Cross-sectional and longitudinal correlations between all measured variables.*

Measure	1	2	3	4	5	6
1. Teaching self-efficacy	**.35***	**.30**	**.12**	**-.06**	**-.21***	**-.11**
2. Beliefs	.07/.40***	**.22***	**.01**	**-.001**	**-.18***	**-.09**
3. Feelings	.26**/-.05	.36***/.16	**.16**	**.10**	**-.34***	**-.25****
4. Intentions	.18*/.17	.36***/.22*	.10/.07	**-.02**	**-.25***	**-.16**
5. Self-focused concerns	-.51***/-.53***	-.24**/-.28**	-.50***/-.14	-.25**/-.28**	**.44***	**.33****
6. Other-focus concerns	-.44***/-.35***	-.16/-.12	-.29**/-.20**	-.16/-.22**	.72***/.75***	**.38****

Note. Coefficients on or above the diagonal in bold type are pre-intervention and post-intervention correlations (e.g., from pre-intervention values of variables in column 1 to post-intervention values of variables in top row). Below the diagonal are cross-sectional correlations at pre-/post-intervention. $N = 122\text{-}123$, due to one case of missing data for beliefs, feelings and intentions, $*p < .05$, $**p < .01$, $***p < .001$.

Table 2. *Mean scores and standard deviations (SD) of all measured variables pre- and post-intervention*

Measure	Pre-intervention		Post-intervention	
Teacher (N = 92-93)	Mean	SD	Mean	SD
Teaching self-efficacy	3.03^a_a	0.67	3.38^b_a	0.55
Beliefs	3.26^a_a	0.67	3.66^b_a	0.48
Feelings	2.77^a_a	0.72	3.28^b_a	0.73
Intentions	3.66^a_a	0.53	3.77^a_a	0.45
Self-focused concerns	2.51^a_a	0.62	2.13^b_a	0.60
Other-focused concerns	2.71^a_a	0.60	2.42^b_a	0.65
TOT (N = 30)	Mean	SD	Mean	SD
Teaching self-efficacy	3.41^a_b	0.56	3.61^a_b	0.67
Beliefs	3.67^a_b	0.35	3.95^b_b	0.15
Feelings	3.17^a_b	0.75	3.14^a_a	0.74
Intentions	3.78^a_a	0.56	3.86^a_a	0.28
Self-focused concerns	2.08^a_b	0.58	1.76^b_b	0.52
Other-focused concerns	2.53^a_b	0.66	2.11^a_b	0.67

Note. Within rows means with different superscript notations are significantly different from each other at $p < .05$. Within columns means with different subscript notations are significantly different from each other at $p < .05$.