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Sustaining learner participation and progression through networked schooling: a systemic approach for Mobile Out of School Children

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Abstract

In response to repeated calls for education systems to respond more flexibly to enable children from nomadic communities to gain education access, progress in engaging all those termed here Mobile Out of School Children (MOOSCs) has been limited. For those who do access a school at the beginning of the school year, livelihood-related mobility is likely to precipitate later drop-out because education provision lacks the requisite flexibility to accommodate learner movement. Finding ways to retain them is a challenge that, if not addressed, leaves enrolled learners at risk of relapsing into MOOSC status and being 'left behind'. The paper reviews past global experience and proposes a re-framing of the notion of 'school' that, consistent with the needs of mobile learners, is spatially dispersed. It examines the case of a networked approach to schooling provision for children in mobile pastoralist communities in Ethiopia which embeds education within the system of pastoralist resource management and orientates service provision accordingly. It concludes that networked schooling has useful potential to address ongoing challenges of enabling mobile learners to enjoy sustained access to schooling provision, but also highlights numerous challenges associated with leaving none behind.

Keywords

access, retention, mobile pastoralist, network, migrant, leave none behind.

1 Introduction

Children in families whose livelihoods depend on mobility are over-represented among global counts of Out of School Children (OOSCs) (UNESCO 2010, 2018). We term these children Mobile Out of School Children (MOOSCs) in this paper. Internal (in-country) migration, such as that practised by pastoralists and seasonal labour migrants, is under-researched (King and Skeldon 2012, Dyer 2017) and formal education participation among these groups still receives limited scholarly attention (Bengtsson and Dyer 2017). Close attention to the particular circumstances of MOOSCs is a priority for the global pledge to 'leave none behind', and achievement of the fourth Sustainable Development Goal.

Even if initial enrolment is achieved in areas where migration is prominent, intermittent attendance and possible eventual drop-out are reflected in fluctuations in enrolment that are largely predictable, and reflect both time of year and location (Hadley 2010). Although children may successfully enrol, they are likely to be at high risk of dropping out during the school year because schools are rarely sufficiently flexible and appropriately orientated to accommodate student mobility and interrupted learning during the annual cycle. We focus here primarily on retention because, despite growing policy awareness at both global and national levels of the need to improve access to formalised education for all children from mobile communities (cf. UNESCO 2010 and 2015, WDEFA 2000, Bengtsson and Dyer 2017, ESDP V 2015, Anis 2008), policy frameworks have tended to focus on enabling initial access rather than on specific measures that support retention of mobile learners. While much undoubtedly still needs to be done on extending opportunities for MOOSCs to access good quality, relevant formal education (Krätli and Dyer 2009, Jackson 2011, Dyer 2014 and 2016), it is important to consolidate those gains for children who, once enrolled, are vulnerable to dropping out - and returning to being MOOSCs – because institutional arrangements are incompatible with livelihood-related mobility.

The negative spiral of 'gradual exclusion' (Govinda and Bandyopadhyay 2011) can be mitigated for mobile children if there is a challenge to what is essentially a sedentary norm of year-long attendance in a single school (Dyer 2013). We argue here for a re-framing of the notion of 'school' that, consistent with the needs of mobile learners, is spatially dispersed. In this re-framing, 'going to school' means being able to attend all year via several schools that are networked within the system of provision to enable sustained learner participation. This re-framing of 'going to school' has useful potential to benefit girls and boys across the wide spectrum of livelihoods that depend on mobility (cf. Dyer 2016). In this paper, we provide an illustration of how it has been worked through in Ethiopia's pastoralist-dominated Somali region, and reflect in closing on wider policy implications.

Mobile pastoralists have seen limited benefits from the Education For All (EFA) momentum (Dyer 2014). In pastoralist-dominated, dryland regions, primary school enrolment and retention ratios remain consistently well below national averages (UNESCO 2010, 2015; MoE/ESDPV 2015). For boys and girls in families who practise mobile pastoralism, livelihood-related mobility is an integral part of life for at least some, if not all, household members. Although the face of pastoralism itself is changing, and despite growth of education service provision, there is little evidence across the Horn of Africa of significant improvement in pastoralists' formal education status relative to those living in towns or other parts of a given country (Catley 2017). We propose therefore that leaving none behind in the

sustainable development era requires a much closer focus on possibilities to adapt education systems in the dryland contexts in which pastoralists live.

Drylands, where pastoralism is the dominant occupation, are of global significance for many reasons. They comprise approximately 41% of the world's land mass and are home to some 2.3 billion people (Middleton et al. 2011). They have links with the rest of the world through trade, economic migrants, and refugees; through the opportunities they offer – such as carbon storage, tourism, and biodiversity; and because of the disproportionate impact climate change is already having on their economies and societies (Herrero et al. 2016) which is exacerbating existing structural marginalisation in dryland regions (Catley et al. 2016). Historical legacies of inappropriate development policies have left these areas politically marginalised and prone to violent conflict and outmigration, and under-performance across global targets (Middleton et al. 2011). Dryland populations typically face governance challenges (Anbessa and Abdulahi 2015), and consistently experience poor access to social and economic services, often accompanied by disproportionate burdens of poverty (Lind et al. 2016). All of these need to be addressed to enable achievement of the Sustainable Development Goals, but without resorting to sedentarising pastoralists, which is a strategy that states tend to favour in order to reach targets and (mis)fit mobile pastoralists into services that are intended by default for sedentary users (Danaher et al. 2007, Dyer 2014).

Methodology

This paper is an output of a Knowledge Exchange partnership[1] between Dyer (University of Leeds) and Echessa (Save the Children UK) which focused on educating marginalised children in dryland contexts. Dyer worked with the Ministry of Education (MoE) in Ethiopia from 2016-18 on an empirically-driven situation analysis of implementation of the 2008 Pastoralist Education Strategy (PES 2008) (Dyer and Engdasew 2016), production of the 2017 national Pastoralist Education Strategy (PES 2017) and subsequent guidelines for PES 2017 implementation. She conducted desk-based documentary analysis and then, in 2016 and 2017, field research in Ethiopia's Somali and Afar Regions, which generated qualitative data from semi-structured interviews with regional education officials and teacher educators; visits to nine ABE centres and interviews with facilitators, parents and enrolled students in each; and interactions with MoEofficials, development partners and civil society organisations, including Save the Children's representatives in the Addis Ababa headquarters and field offices in the Afar and Somali regions. Echessa has provided technical assistance to Ethiopia Somali region projects since 2008, working on the BRIDGEs, Peace and Development Programme (PDP), and regional development protection programme [2]. In February 2016 she conducted a field visit to assess the quality, utility and effectiveness of networking cards and make recommendations for a tracking tool and process, during which she held focus group discussions with girls and boys in 3 purposively selected schools using network cards in Gashamo and Duror woredas of the Somali Region; and conducted semi-structured

[1] This project was sponsored by the Leeds University Social Sciences Impact Acceleration Account in association with the Economic and Social Research Council.

[2] BRIDGEs (Building Relationships through Innovative Delivery of Growing Education Services) piloted delivery of quality education services in Ethiopia's developing regions. It paved the way for the Basic Services Programme under the PDP in Ethiopia Somali Region, delivered by a consortium led by Save the Children, with IRC, OWDA and Islamic Relief as sub agencies (DABDRT 2017).

interviews with project staff, teachers, woreda officials, kebele leaders, parents and Parent-Teacher Association members (see Echessa 2016) [3].

This paper seeks to provide some specificity to a group of children who have poor visibility to policy - MOOSCs – and to offer some optimism that education systems can adapt in ways that have potential to eliminate the need for such labels. Following from this introductory first Section, Section 2 begins with discussion of mobile pastoralists' marginalisation by the EFA movement. It reflects on the continuing challenges of identifying MOOSCs, sets out why mobility and labour organisation are intrinsic to a sustainable pastoralist livelihood but problematic for education service providers, and examines forms of education provision that, despite evident diversification in the EFA era, have nevertheless left mobile pastoralists behind. Section 3 discusses the re-framing of 'going to school' via a networked schooling approach that can interrupt the negative impact of mobility on learner retention, and illustrates its arguments through a case study of networked provision for mobile pastoralists in Ethiopia's Somali region. Section 4 reflects on the emerging challenges of mainstreaming a networking approach both within Ethiopia and more widely, and on the potential for this kind of re-framing of provision for retaining learners from other communities practising livelihood-related mobility.

2 Mobile pastoralists: left behind by Education For All

Identifying Mobile Out Of School Children (MOOSCs)

Livelihoods that depend on mobility are very diverse (Dyer 2014), with subtly nuanced differences from place to place, between communities, and even within 'households' (Krätli and Swift 2014, Shapiro 2009). The relationship between educational inequality and migration is, also, context-specific (Harttgen and Klasen 2009); and both stronger evidence and sharper awareness of diversity and the context-specificity of educational outcomes (Shapiro 2009) are needed to address the SDG call to 'leave none behind'. But unequivocally, and at a global scale, the evidence about mobile learners that is needed to drive forward progressive policy strategies for their sustained enrolment is currently insufficient.

First, large population surveys such as national censuses routinely omit particular populations, including pastoralists, if they are absent when the count takes place (Carr-Hill 2012; see also Randall 2015, Krätli and Swift 2014). In Ethopia's pastoralist-dominated Somali region techniques of data gathering suited to sedentary populations persist. This trend of omission is replicated when national household sample surveys derive their sample from the larger count (ibid).

Second, the overall effort of the count focuses on population stocks. Stocks matter (although the totals are likely to be inaccurate for the above reason), but population flows are at least as important to planning service delivery for mobile communities (Deshingkar & Aktar 2009). Thus, even if improved, procedures of data capture that retain a focus on stocks would continue to provide a potentially misleading static snapshot of a variable and dynamic

[3] A *kebele* is the smallest unit of local government in Ethiopia, similar to a 'ward'; and numerous *kebeles* make up the higher level *woreda* or 'district' administrative unit.

process on the ground. This snapshot fails to reflect seasonal variations in enrolment and attendance rates that are caused by migration.

Third, official statistics in the education sector typically attest to enrolment, retention and learning outcomes by regional distribution, and do not capture specific, group-based inequalities well. This is acknowledged to be problematic. In Ethiopia, a country with over 80 ethnic groups, a joint report by the Ministry of Education and UNICEF on OOSCs (MoE/UNICEF 2012, viii) comments that 'unavailability of enrolment data by ethnic group […] has been challenging […]. The EMIS administrative data and other data sources do not capture enrolment by ethnic group. As a result it was not possible to analyse the disparity among the various groups'. This is still the case. The same report recommends that: i) 'A concerted nation-wide effort should be made to identify those children who have dropped out and those who are at risk of dropping out and search for the means to help these children continue their education' (MoE/UNICEF 2012, xiii); and ii) 'Tracking the dimensions of exclusion requires new systems of capturing OOSC data, along with better tracking systems of those who are likely to drop out […] to facilitate monitoring on their access and integration in mainstream schools and progress' (ibid, p. xiv).

Finally, OOSC reporting by its very nature does not take into account those whose enrolment is fragile, and are vulnerable to becoming OOSCs. Here again, the 'snapshot' effect that is a reflection of data collection procedures may provide a misleading overview. This paper discusses how this vulnerability can be addressed. It responds to both recommendations in the above-cited OOSC report by adopting a geo-spatial and livelihood-orientated lens to examine an intervention that promotes retention of enrolled children, and shows how understandings of the local livelihood context is informing systematic effort to improve both sustained access and progression in Ethiopia's pastoralist-dominated Somali region.

Living as a mobile pastoralist

As noted above, pastoralism is the dominant drylands land use system (ODI 2009). Mobile livestock rearing lends itself to these non-equilibrium, or 'uncertain' environments (IIED 2010, Nori, Taylor and Sensi 2008, ODI 2009), where agro-ecological resources are limited, variable and unpredictable (Yimer 2015). Pastoralists manage this uncertainty by moving livestock to fodder, balancing labour requirements and herd composition to ensure optimal animal health and reduce risk of animal loss. Across the Horn of Africa, pastoralist populations are dispersed across vast geographic areas. Extensive mobile livestock rearing in these regions generates both wealth and employment when it is well managed (African Union 2010), but it does so under increasing pressures in many contexts (Catley et al. 2016). Structural scarcity is a predominant feature of drylands 'development' across the Horn, manifest in the lack of investment in basic infrastructure and the services needed to create an enabling environment for pastoralism and options for livelihood diversification (Catley et al. 2016, Yimer 2015, Middleton et al. 2011, ODI 2009). Many mobile pastoralists experience limited political representation (Scott-Villiers et al. 2016) and constrained resource access; and the mobility on which lives depend is increasingly curtailed by unfavourable land tenure agreements, promotion of sedentarisation, and extensification of irrigated agriculture. Droughts, induced by climate change, are becoming more frequent (Opiyo et al. 2015), making it increasingly difficult for pastoralists avoid a downward spiral from loss of animal assets into poverty and vulnerability to food insecurity. Drought-induced distress is also

reflected in earlier, and longer, periods of mobility (IIED 2010) that have adverse effects on meaningful participation in basic education for girls and boys in pastoralist communities.

The right to education is recognised as an individual right (UNDHR 1948), while pastoralist children grow up in families that have a communitarian rather than individualistic orientation. Without getting into debate about rights and cultural relativism it is also worth noting that the 'child' is a social construct. A pastoralist 'child' may contribute labour to ensure the welfare of the productive unit (family, household): this form of labour distribution is integral to mobile herd management, and not an outcome of poverty. It is also linked to reproduction of cultural identity and a way of life that pastoralists are proud of and seek to defend from schooling if it threatens to erode their culture and identity (Jackson 2011, Scott-Villiers at el. 2016). Tensions abound between the relative values to pastoralists of intergenerational, cultural education through socialisation and of formal education.

The public and private value of schooling for pastoralists

Policy discourses at global and national levels understand formal schooling as both a public and private good, an assumption on which policy agendas around inclusion are built. In practice, the value of formal education is contested, and there may be demand-side contradictions to the underpinning assumptions of supply. At levels beyond 'basic' education – the acquisition of basic literacy and numeracy skills in the early years - the formal education system provides a pathway to knowledge and qualifications that facilitate employment in the formal sector. The relevance of this pathway for those who work within the informal sector is not self-evident. For pastoralists, for example, the curricular content and orientation of formal schooling offers little in the way of knowledge or skills that might support them in pursuing their traditional livelihood with greater resilience to contemporary pressures; nor does it reinforce the legitimacy of pastoralism as a sustainable contemporary livelihood (IIED 2009, Dyer 2014); and it may be so antagonistic to cherished cultural values that it fails to be attractive (Jackson 2011, Scott-Villiers et al. 2016).

Livestock inheritance, the traditional pastoralist form of future-proofing for the next generation (Lesorogol et al. 2011), is no longer the only available choice. Formal schooling can enable pastoralists to diversify a household's income generation capabilities (Dyer 2014, Chatty 2008), although it typically comes on 'terms of inclusion' (Dyer 2013) that pastoralists may accept when this inclusion is valued and practices of pastoralism can feasibly be adapted without harming animal welfare. Among pastoralists, rather than being seen as an individual right, participation in formal education reflects priorities about the allocation of household resources (Lesorogal et al. 2011) and decisions about how much livestock wealth to invest in education-related costs (with labour factored into those costs) against retaining livestock (and the labour this requires) for future growth of the family's holdings and development. Pastoralists often face a difficult choice between the 'two worlds' represented by modern schooling and pastoralism (Swift et al. 2010, Scott-Villiers et al 2016), but there is evidence of an intergenerational shift towards seeking formal education for at least some of their children as parents realise that constraints to pastoralism are reducing its capacity to provide a good living for all (Catley et al. 2016). Then, however, the quality of provision affects whether the expected long-term benefit of allocating household resources in the short term to education participation materialises; and so too does the availability and accessibility of forms of employment for which formal education is required (Jackson 2011).

Barriers to retention in primary schooling

Structural barriers to retention of children in families pursuing livelihood-related mobility are often imposed by the education system itself, and some are not exclusive to these children. Further, girls in particular face multiple gender-related discriminations (Sanou and Aikman 2005). Many children in rural areas experience education provision that is under-resourced and of poor quality (UNESCO 2010 and 2015), and despite the expansion of access to lower primary provision, availability of upper primary / secondary provision remains limited. A constrained infrastructure for progression, along with often poor quality feeder schools, hampers learner transition to higher educational levels and acts as a disincentive to both enrolment and retention (for discussion in relation to pastoralists specifically, see Scott Villiers et al. 2015 for Kenya, Jackson 2011 for Ethiopia). A further and common difficulty for many mobile children, however, is an incompatibility between school timings / calendar and the exigencies of livelihood-related movement: a national norm is set for the number of school days that comprise an annual calendar, but those days are customarily delivered across the year in a way that often has a poor fit with local contexts (UNESCO 2010). At its most extreme, this gives rise to 'shadow' schools, where the infrastructure of a school exists, but learners are absent when the school is officially in session. This trend is showing signs of worsening because climate change across the Horn of Africa is leading to earlier, more extensive and less predictable pastoralist mobility (Nori et al. 2008, ODI 2009; pers comms to Dyer by Ibrahim Ahmed November 2017, Somali REB officials November 2017).

Many countries have introduced policies of automatic grade promotion / no detention of children to reduce the burden of examination in early years education and improve retention. In Ethiopia, no detention for grades 1-4 was mandated by the 1994 Education and Training Policy (MoE 1994). While thus not dependent on a child's passing an end of year grade examination, 'automatic promotion' is nevertheless problematic for mobile children, as the number of days a child is expected to attend within a school year in order to progress to the next grade is stipulated (although it is not necessarily closely monitored).

At school level, various informal mechanisms have exclusionary effects. If children who have been absent are re-enrolled but there are no arrangements to support them in catching up, low performance and demotivation may be difficult to avoid. Teachers may be reluctant to re-enrol children who have missed a large portion of the school year: they may not consider taking extra measures for migrating children their responsibility and often blame children themselves - explicitly or implicitly - for falling behind (UNESCO and UNICEF 2010, Smita 2008). Insufficient prior learning and gaps of attendance often mean that, regardless of age or learning needs, inflexible school procedures force learners to repeat the same grade level (UNESCO and UNICEF, 2010), sometimes even repeatedly (pers comms to Echessa from teachers and Somali REB officials 2016). Interruptions may also prevent children from developing the relationships with teachers and classmates that help them progress (Coffey 2013).

The impacts of short-term micronutrient deficiencies and other forms of malnutrition on cognitive function and educational participation are well recognised (Snilsveit et al. 2016). Vulnerability to food insecurity is found among pastoralists and school feeding programmes are used as a hunger safety net in Ethiopia – leading to a surge in enrolment when food is available and a dropping off when rations are withdrawn as rains return (pers comms to Echessa, pastoralist community representatives and REB officials 2016). While the wider

literature on pastoralism suggests that food relief is often insufficient (Lind et al. 2016), Dyer's field visit in 2016 found no provision at that time of food relief in government schools in the Somali region.

Interventions to enrol pastoralist MOOSCs

Various interventions have sought to improve access for children in mobile pastoralist communities. Some of the pros and cons of these are briefly summarised here, to set the context for the discussion of networked schooling in Section 3 (see also Krätli 2009, Krätli and Dyer 2009).

Residential schooling may enable children to enrol full-time in school while other family members migrate. State-provided residential schooling for pastoralists has a generally poor history of quality and cultural relevance (Smith 2009, Krätli 2001) although there are historical exceptions at scale in Mongolia and Iran (Kratli and Dyer 2009); in Kenya, residential primary schools for pastoralist girls enjoy political and community support and have been positively welcomed (Kalla 2016). The offer of separate provision for pastoralists may perpetuate a social distance from other groups that contradicts schooling's potential to contribute to social integration, yet it is this very separation that has been shown to enable attendance (Dyer 2014). In all documented cases, residential schools for pastoralists offer national curricular content (Krätli 2001, Krätli and Dyer 2009, Shahbazi 2006, Chatty 2006), and sometimes also unfamiliar foodstuffs (Krätli and Dyer 2009), which points to their instrumentality in socialising learners into 'mainstream' cultural values en route to gaining qualifications that enable employment in the formal sector.

Making schooling itself mobile – using boats, buses, tents and camels, according to context - appears an obvious solution. For highly mobile learners, actions on the ground rarely match policy aspirations (Swift et al. 2010, Dyer 2016, Krätli 2001, Manyire 2011, Koissabe 2013), although robust evidence of what has actually been tried is slim (Dyer 2016, Bengtsson and Dyer 2017). Depending on mobility patterns in local contexts, mobile schooling provided at small scale, within well-resourced NGO-led programming, seems to have demonstrated some success (cf. Hailombe 2011), but attempts to scale up such provision and pass it to state ownership have consistently questioned the feasibility of this approach by demonstrating vast challenges of: recruiting and retaining teachers; maintaining a stable concentration of learners (Krätli and Dyer 2009); keeping school mobile (Manyire 2011; Hailombe 2011); and monitoring and support (USAID 2012).

There is an emerging reliance on community schools / Alternative Basic Education (ABE) provision to 'reach' learners, who include (but are not only) pastoralists, in 'remote' rural areas (Dyer 2015, CED 2017). Alongside cost effectiveness, a key justification for rolling out provision that is highly dependent on non-state providers, community contributions and para-teachers is its presumed advantage of flexibility (WDEFA 2000). In practice, this is debatable. Ethiopia has long experience of ABE, which was introduced by non-state actors and initially aimed to enrol over-age learners who previously had no access to a schooling facility (CED 2017). ABE has since been rolled out nationally as a system that is 'complementary' to the mainstream system (Rose 2009), with levels that are equivalent to formal schooling (currently to level 4 although extending to level 6 is under preparation). Despite the emphasis on community ownership, ABE provision still assumes that learners remain in one place throughout the school year; and that facilities exist to provide the next

level of formal education. Neither is a given for mobile pastoralists. Expansion of ABE has raised a wide range of issues about governance and quality, which often reflect capacity limitations in the lower tiers of rural local government to direct, coordinate and resource provision adequately (Onwu and Agu 2010, CED 2017) and enable ABE to sustain the flexibility that is its claimed singular advantage. Although ABE has egalitarian intentions, it relies everywhere on institutional arrangements that lack status equivalence, which 'lends implicit support to the unequal workings of society' and 'leaves mainstream provision unchallenged by learners who most trouble its broad normative assumptions' (Dyer 2014, 184).

Finally, distance/ICT-supported education, which removes barriers of space and time, is recognised to have strong potential for mobile populations (de Souza/MOEK/UNICEF 2006) but there has been very little specific programming for pastoralists. An ODL-based policy strategy for 'hard to reach' pastoralists proposed in Kenya in 2010 (MDNKOAL 2010, Krätli and Dyer 2009) failed to maintain the political support needed to translate policy into action. Programmes such as Mongolia's Gobi Women's project (Robinson 1990) and Somalia's SOMDEL (Brophy & Page 2010) have focused on adults rather than on children and/or family learning. To realise its potential for them, ODL would not only require investments in communication technology, but also positioning ODL centres close to learners and deploying mobile tutors to support younger girls and boys who might find the self-study orientation of programmes for older learners difficult.

For children who are able to use formal schools, bridging courses providing concentrated curriculum inputs can help children make up missed learning and facilitate re-enrolment and retention. However, this intervention is generally dependent on non-state providers, which makes it unequally distributed and not necessarily available for all children whom it might benefit; and it still assumes a re-integration into unaltered mainstream provision is possible and effective.

This overview of international interventions demonstrates mixed progress in addressing the continuing presence of MOOSCs in pastoralist communities. Meanwhile, the second Millennium Development Goal has helped to catalyse significant expansion of school provision, including ABECS, in dryland regions across the Horn of Africa. While acknowledging that improving its quality is in many contexts an imperative, it is nevertheless timely to re-visit the question of how this expansion of formal schooling might develop capacity to attract and retain learners in families practising livelihood-related mobility. Reports suggest an increased incidence of MOOSCs in drought-affected drylands, and call for education systems in these regions themselves to become more resilient to shocks (Scott-Villiers et al. 2016, Lind et al. 2016).

3 Tackling the left behind: the potential of networked schooling

The pastoralist periphery and challenges of education enrolment and retention

Ethiopia has a land area of about 1.1 million km^2, approximately 60% of which comprises arid and semi-arid lands, which are home to about one fifth of the national population (estimated at 88 million in 2014) (MoE/ESDP V 2015). The historical neglect of the dryland regions has placed pastoralism on the periphery of both state and social order (Anbessa 2015, Markakis 2011, African Union 2010), although an estimated 14% of the national population

is from pastoral and agro-pastoral groups (Anbessa and Abdulahi 2015). Mobile pastoralists are highly dependent on animals for their livelihoods, while agro-pastoralists have smaller livestock holdings and also pursue agriculture. Pastoralists are present in seven regions: the four that are pastoralist-dominated are Afar, Oromia, Gambella and Somali (EFA 2005).

The socio-economic and political marginalisation of pastoralism is reflected in severe under-provisioning of education services (ESDPV 2015, Dyer 2018). The need to address inequalities and provide education services for pastoralist communities has been articulated at a general level in the third and subsequent Education Sector Development Plans (ESDP III 2005-10; ESDP IV; ESDP). Two national Pastoralist Education Strategies (PES 2008, PES 2017) have proposed modalities, vision and approaches to education service provision specifically for pastoralist populations. The situation analysis conducted for PES 2017 (UNICEF 2016) found that at regional level, and in keeping with national guidance (PES 2008, MoE 2015), the key strategic emphasis since PES 2008 has been on enabling access by establishing ABE Centres (ABECs) (Dyer 2018) and expanding the number of primary schools. In pastoralist zones, ABECs were to be built in areas where the community is settled permanently or for at least 8 consecutive months in a year (pers comm to Dyer,MoE official April 2016). While expansion of facilities contributes to enabling access by reducing home-school / ABEC distance, it does not in itself address the realities of the movements that are intrinsic to mobile pastoralist livelihoods. The networking approach can, however, address this.

The Ethiopian Somali Region, to the south-east, covers a land area of 325.1 km^2 and is Ethiopia's second largest region. Divided into 68 Districts (woredas), it is almost entirely inhabited by the Somali, with a population total estimated in 2012 at 5,318,000[2] (44% female, 56% male) (MoE 2011) and average household size of 6.6. The Somali region is an entirely pastoralist region and was one of the worst affected areas in the 2011 drought across the Horn. Many households lost their animal assets and struggled to maintain their livelihoods at the minimum sustainable threshold. The current situation is one of flux: some have 'stepped out' from pastoralism, often settling in peri-urban areas and experiencing material poverty (CHF 2012, Lind et al. 2016) while others manage to 'hang in'; some are able to 'step up' (increase their animal holdings); and others are 'stepping back in' to pastoralism (Catley et al. 2016).

Somali is one of Ethiopia's four officially designated Developing Regional States: in these regions, indicators of poverty and social development lag significantly behind national averages. Despite a rapidly expanding Gross Enrolment Ratio (GER) between 2000 and 2014 (Table 1), drop-out is officially identified as a significant concern (MoE 2015).

Table 1: GER at the Primary (1-8) Level in Somali region compared with the national average in 2000/01 and 2013/14

	GER in 2001/02 (%)			GER in 2013/14 (%)		
	M	F	All	M	F	All
Somali	13.4	7.2	10.6	141.8	126.5	134.9
National	67.3	47.0	57.4	104.8	97.8	101.3

Source: MoE 2015, npn.

There are many pastoralist MOOSCs in the Somali region, for reasons that inter alia reflect the availability, quality and relevance of state provision; household choices about investments in education; and, increasingly, the impact on livelihoods of increasingly unpredictable rainfall. When rains fall according to the regular cycle (two rainy and two dry seasons), pastoralists' movement is predictable and can theoretically be accommodated by the school calendar (see Table 2). Even in a 'regular' year changing rainfall patterns now mean that families tend to migrate earlier, reducing the former average eight month period of settlement to about six. Drought further distorts this pattern, precipitating movement that is less predictable and more opportunistic. Pastoralists are likely to respond by splitting into smaller concentrations and moving in all directions in search of pasture and water, and being away from home for prolonged periods. Further, when the normal rainfall cycle is delayed, floods may also occur and cause disruption. In order to manage these increasing uncertainties, children's labour is an asset that is available for families to draw upon to avert livestock death. Under these circumstances, it is difficult for families not to de-prioritise education: girls and boys drop out of necessity, in order to migrate with their families and livestock; and for those remaining in school, attendance is likely to become erratic as pressures on the household increase (Carr-Hill 2006). How, then, can the schooling system best respond?

Table 2: Seasonal and school calendar, Somali region

April	**May**	**June**	**July**	**August**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**March**
Gu - Main rains			Hagaa - 2nd dry season			Deyr - Minor rains			Jilaal - Dry/hot season		
					Flooding						
Semester 2				Vacation	Semester 1					Semester 2	

Source: Draws on CHF International 2012, 7.

Networked schooling: responding to drylands conditions

The context of pastoralism set out thus far calls for a system of provision that provides mobile pastoralist children with flexibility in accessing schools, and continuity in their learning while safeguarding and protecting them against separation from their families. A networked schooling system offers a means by which the cycle of migration-induced drop-out can be interrupted, by enabling children's learning to continue during migration. The model we examine here was introduced by Save the Children under its BRIDGEs project in 2013, later scaled up by UNICEF (CED 2017) and, by 2018, had attracted federal government interest as a viable national strategy to support pastoralist learners' retention within the formal education system. It is an education intervention that has roots in drought cycle management, which promotes early recovery activities to increase household and community resilience to future shocks and decrease reliance on emergency assistance (Echessa 2016, CHF International 2012). It hinges on an understanding of education as a resource that, just like water and fodder, needs to be continuously available and is made so by prediction and preparation. This approach to education as a resource is, thus, embedded within pastoralists' traditional patterns of managing uncertainty through mobility and labour distribution (IIED 2010).

How networked schooling works

During the season when fodder and water are available at 'home', pastoralist learners are enrolled in the school / ABEC. As the dry season nears (moving from the 'normal' to the 'alert' stage of the drought management cycle), pastoralists use their social networking and resource management systems to identify the direction of migration and projected availability of natural resources. School networking adds a new dimension to this pre-planning, requiring pastoralists to identify education provision in the areas to which they will move. Learners will enrol in these once the migration is triggered (the 'emergency' stage), and will continue their education in one or more schools or ABECs on their migratory route, until they return home at the end of the cycle (the 'normal' stage).

This process is supported by a networking card, which is a tool that enables learner tracking, monitoring and progress – all of which, as noted in Section 1, UNICEF (2012) has called for. The card records a child's educational history, home and host school details, school grades, subjects covered and the cumulative results of continuous assessments. The system kicks in with pre-planning for migration when parents ask the school or ABEC in which children are enrolled at 'home' to issue each learner a card. After migration has begun, learners submit their card to the host schools/ABECs in the place(s) to where they migrate. This enables them to be enrolled and placed in the right grade level to continue their learning. Host school teachers include migrating learners, recording on the network card information about their progress and attainment. When the rainy season resumes and pastoralist learners return home, teachers and Parent Teacher Assocations encourage them to attend the 'home' school/ABE again: the card provides information that helps re-integrate the child appropriately.

The staged approach, adapted from the drought management cycle, enables system preparedness. During the 'normal' stage, local authorities (ie. the Woreda Education Office (WEO) and kebeles) along with project staff and pastoralist communities are all active in mapping community mobility patterns, identifying areas that receive good rain and the availability of schools/ABECs, and generating awareness of the networking system. Education system actors/project staff print and distribute networking cards; build capacity of parent-teacher associations, Cluster supervisors and kebele education training board and woreda-level education officers; map teachers in the woreda; and pre-position blackboards and chalk. At the 'alert' stage, which triggers migration, awareness-raising on the networking card is intensified and families are urged to collect the cards from their child's school; authorities ensure there are adequate stocks of networking cards and supply more if needed.

At the 'emergency' stage, when migration it at its peak, networking cards are presented to host schools where the children migrate to, enabling them to be placed at the appropriate grade level and continue learning. Teachers are expected to provide catch-up classes if needed. If families have migrated to a place where there is no education facility, the WEO assigns volunteer teachers, using the pre-positioned blackboards and chalk and community resources to create learning spaces and re-deploying teachers from schools/ABECs that have been seasonally vacated.

On the return to 'normal' when families return home, the Parent Teacher Assocation and teachers ensure children are re-enrolled and provide catch-up classes. Project officers continue to strengthen the system, assessing the capacities of teachers and local officials to support networking and strengthening them where indicated, while also continuing to raise

community awareness of the importance of the networking card. At the 'recovery' stage, networking cards are reprinted and stocks replenished, and further refresher courses are conducted to strengthen the capacity of system actors to use the networking approach effectively.

If there is drought, pre-planning of the migration and education enrolment is more complicated as pastoralists move in all directions and for prolonged periods. Although a high level of pre-planning may not then be possible, the networking card still enables learners to join schools / ABECs as they migrate.

Monitoring

The networking system needs to be supported by a multi-level, interconnected monitoring system which informs any corrections needed. The first system level - child and family – is monitored to check the card is obtained and moved from home to host schools. At the second level - school director, teachers and PTAs – the card triggers host school enrolment and is used to monitor each child's progress in a continuous cycle until the family hands it back to the original home school. Each school keeps a record of the number of cards issued to children, desegregated by gender and school locations of migrations. PTAs are responsible for reminding parents to collect and use the card. At the third – kebele – level, the kebele leads in identifying those who plan to migrate or have migrated; which students have or still need a card; issues any missing cards; monitors card utilisation and effectiveness; records and reports the number of cards issued by both host and home schools; and is responsible for community mobilisation to ensure families do not leave without the card. At the fourth level – cluster supervisors and woreda education officials – there is further monitoring of the utilisation and quantities of networking cards, to generate a record that is used to aggregate to regional levels and corroborate the project's own records. Woreda officials ensure the understanding of the card and enforce its use, and act on information provided by supervisor assessments of school records as to which children have left without the card. At the fifth level – project – project staff in the field offices monitor networking processes and report back on a quarterly basis to project leads in the regional office, who aggregate numbers, corroborate with woreda education office sources, and report back to the donor.

Impact

The networking system has so far been evaluated only as part of the wider PDP project evaluation (DABDRT 2017) and not as a separate component. Before it was introduced, Save the Children's project staff and government officials had routinely found that children who migrated with their families would not enrol in another school but wait until they returned home to re-enrol, which might mean a three month study interruption; and that schools did not necessarily then admit children who had migrated. Since inception in 2013, 37,100 network cards have been printed and distributed to the 371 formal schools and ABECs covered by the project. Save the Children staff who were undertaking monitoring visits to schools / ABECs in the PDP project area integrated discussion of networking card usage with parents, children, teachers and government officials and reported that respondents had found that using the cards had strengthened integration and smooth transfers of migrating children across schools (Echessa 2016). This was corroborated by the wider external evaluation conducted in 2017 (DABDART 2017). In practice, also, Cluster supervisors and woreda education officials often accompanied project staff on monitoring visits, as government

resources are inadequate and distances between schools are great, some taking two days to reach. Joint monitoring helped to avoid duplication of effort, improve frequency of government supervision and bring the government closer to communities; and in this way, oficials also gained a close familiarity with the intervention that fuelled enthusiasm for systemic take-up.

Pending a more detailed evaluation, testament to the success of networked schooling and optimism about its potential to address the persistent challenge of learner retention in the region is provided by system-level uptake of the intervention. Use of the card beyond the project area has begun, with governments of non-project woredas taking ownership of reprinting and issuing cards to ABECs and formal schools in their own areas. At the regional level, the Somali Regional Government has informally signed up to the networking card. This is an important signal of its commitment to being involved in assigning teachers to move with the communities, and to adapting, printing and supplying networking cards. For the project intervention to be integrated fully into the state system, the government will have to merge the networking card with its own annual progress card. Other agencies have shown interest: most notably, UNICEF has provided funding support for 6000 children to use the networking card system that Save the Children piloted and for the government to print the cards. By 2017, scaling up was being discussed in the federal education policy review committee with a view to including the networking system in the next national education sector plan, and the Somali Regional Education bureau was planning to scale up the intervention under its own management.

4 Implications of 'networking' as a re-framing of provision that supports mobile learners' retention

In conclusion, we reflect on some aspects of what has been learned from this case in order to draw out implications and learning for wider applications with other mobile groups in other regional and country contexts. These reflections all underscore the need for close consideration of the context when considering how to enhance flexibility of the formal education system.

The first point to note concerns the availability of schools to use. The density of the network of facilities is an important factor, as if it is too sparse the resulting gap undermines continuity – but it is pastoralists rather than education authorities who know what 'too sparse' means on the ground. Further, a weak basic physical infrastructure of host schools (inadequacies of shelter, water supply and toilets) is put under further pressure when there are more learners to accommodate. In the case explored here, under the PDP umbrella, programme staff could ensure that there was in place a network (comprising 371 ABECs / formal schools, each provided with school furniture, water, sanitation and teachers), at a radius of 20 - 25km apart. In some parts of the Somali region, there is still a very sketchy network of even ABECs, and recurring drought is reported to be triggering migration into areas with very low coverage (pers comm to Dyer by MoE official 2017). In such cases, a mobile schooling approach may be more effective.

Additional pressure of numbers on a host school also compounds existing issues: the student-teacher ratio is generally high and student numbers are usually already fluctuating long before incoming learners arrive, so their presence intensifies these difficulties. School

provisioning and funding formulae reflect sedentary norms and are not designed to enable the system to cope with ebbs and flows (Dyer 2016). While practices on the ground in rural areas may not adhere to the learner: teacher ratio norm (ca. 40:1), it is that norm that triggers teacher deployment (Ruto et al. 2009). Learner mobility means this ratio cannot be constant in host or receiving schools throughout the year. Under PDP, project management worked closely with teachers and education offices to forecast and plan to deploy some teachers / facilitators to schools to cover demand, which requires attention to logistics of teacher accommodation, travel and incentives. Teachers, in turn, need support in adjusting their classrooms to enable temporary learners to join, which has implications for future teacher education programming in contexts where systemic flexibility needs to be enhanced.

The case of networked schooling in Ethiopia has shown that to be effective, the system needs to respond to the immediate necessity of knowing who are where the children are, via some form of migration register that, ideally, enables actors to know migration trends (direction, destination, duration, timings, etc.). Such information may gained by techniques such social mapping in the school catchment area to identify migration sensitive households; or in consultation with community representatives. These forms and foci of communication and information gathering, while typically intrinsic to non-state actors' modus operandi, are not routinely deployed by state actors, who may themselves need considerable support and orientation to engage in such activities (Bengtsson and Dyer 2017). Further, a networking approach needs to combine a migration register with a learning register, to complement knowledge of learners' whereabouts with tracking the progression of their learning to grade completion.

The case study underlines that education retention is not a mere technical exercise, facilitated by these registers. In this context, as we set out, retention is a reflection of effort to embed education participation socially and economically as an active, integrated component of the wider pastoralist resource management system. Ongoing attention also needs to be paid to working with communities to ensure that the networking system is well understood, both conceptually and practically in relation to correctly completing cards and managing transitions from one school to another. Implementing the networked schooling approach is also challenging for education authorities, and time-consuming. In Ethiopia, the challenge of becoming familiar with its use is compounded by reportedly high turnover of officials (pers comms from MoE and REB officials to Dyer 2017, PES 2017, Dyer 2018), in which case orientation of responsible actors needs to be recurrent. None of this is easy, and all of it is resource intensive in ways that underline challenges of the SDG commitment to putting the last first.

On that note, while networked schooling can contribute to retention by enabling continuity of participation, it is the delivery capability of networking that has so far been in focus. This system innovation is in itself highly significant but does not entirely address substantive reasons for mobile learners' education marginalisation (UNESCO 2010, Dyer 2014). With respect to mobile pastoralists, specifically, and reflecting the discussion of the political economy of pastoralism in Section 2, the values of national curricula are a known limitation when it comes to assuring pastoralist futures and resilience (Krätli and Dyer 2009). We want to emphasise that pastoralists themselves view the latter as an underlying objective of education provision in drylands contexts (Catley et al. 2016, Scott Villiers et al. 2016; pers comms to both authors). The evidence in the international literature shows that pastoralists

participate in formalised education not only because it supports livelihood diversification (absorption in the formal economy, towards which the national curriculum is orientated) but also because they believe it should help them to live well in drylands (Scott-Villiers et al. 2016) and become more resilient as pastoralists (e.g. Lind et al. 2016). Learner retention demands the flexibility not only to create the infrastructure of a networked approach, but also to ensure that learners engage with curricular content that validates all drylands livelihoods to help meet the needs of service users who wish to stay in mobile pastoralism as well as those who seek to step out.

Finally, networked schooling as described here is a learner tracking and support initiative for children who are already enrolled in schools, and focuses on retention and preventing them from returning to MOOSC status. It does not directly target unenrolled children, such as MOOSCs who have never enrolled, or who have already dropped out - although its promise of improved continuity can act as an incentive for enrolment.

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