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School and pastoralism in the Senegalese Sahel: tensions, adaptations, and social transformations

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The Senegalese Sahel, characterised by arid conditions and savanna landscapes, is predominantly inhabited by Fulani pastoralists. Fulani herders are often perceived by researchers and policymakers as resistant to change and socially isolated, while their mobility has long been analysed through nomadism and transhumance, overlooking dynamics linked to globalisation, education, and urban migration. This article examines how formal schooling is experienced, negotiated, and reconciled with pastoral livelihoods among Fulani families in the Senegalese Sahel, and what this reveals about broader social transformations in pastoral society. Based on approximately thirty semi-structured interviews with herders, school-going youth, teachers, pastoral experts, and local actors in Mboula, Tésékère, Louguéré Thioly, and Oudalaye, the data were analysed using thematic and conceptual analysis. Findings show profound change driven by public policies and circulation of people and ideas in a globalised context. Young people express aspirations toward 'modernity', including new economic opportunities, mobility, and changing gender roles, generating tensions with pastoral life. Rather than rejecting schooling, families actively negotiate and adapt it, developing hybrid strategies combining formal education and pastoral knowledge transmission. Study highlights the need for education policies adapted to transhumance cycles, integrating pastoral knowledge and strengthening vocational training and girls' access to schooling in pastoral areas.

KEYWORDS

education policy, Ferlo, Fulani, pastoralism, schooling

Introduction

Sahelian pastoral societies are still frequently represented, in both research and policy circles, as closed, mobile, and largely impervious to the institutions of the modern state. An image rooted in a long tradition of scholarship that has analysed Fulani mobility primarily through the lens of nomadism and transhumance (Touré and Arpaillange, 1986). While this literature has produced a detailed understanding of pastoral mobility itself, it has paid comparatively little attention to how globalisation, formal schooling, and rural–urban migration are reshaping the social fabric of these societies from within. Existing work on pastoral education in the Sahel has tended either to document, at the macro level, the structural mismatch between school systems designed for sedentary populations and the rhythms of pastoral life (Dyer, 2014; Krätli and Dangbet, 2018), or to focus on the reconfiguration of traditional ecological knowledge under the combined pressures of schooling and market integration (Sharifian et al., 2022). What remains underexplored is how Fulani families and youth themselves experience, negotiate, and reappropriate schooling in their daily

lives, and what this process of negotiation reveals about broader dynamics of social change in pastoral societies.

This article addresses this gap by asking how Fulani families and youth in the Senegalese Sahel negotiate the relationship between formal schooling, pastoral mobility, and aspirations toward ‘modernity’, and what this negotiation reveals about the capacity of pastoral societies to adapt or transform. To answer this question, the article pursues three objectives: first, to situate contemporary tensions around schooling within the longer history of social change in the Ferlo; second, to document the aspirations of educated youth and the structural constraints they face in accessing schooling; and third, to analyse the concrete strategies through which pastoral families reconcile formal education with the transmission of pastoral knowledge. These objectives are examined through the conceptual lenses of situated learning and communities of practice (Lave and Wenger, 1991), the plurality and hierarchisation of knowledge (Hountondji, 1994; Scott, 1998), and the everyday practices of hybridisation and bricolage through which actors navigate institutions not originally designed for them (De Certeau, 1990).

The sylvo-pastoral zone of Senegal, or Ferlo, extends across the administrative regions of Saint-Louis, Louga, and Matam. It covers an area of 57,269 km², which is about 29% of the national territory. Fundamental characteristics distinguish this zone from other regions of the country: aridity of the climate, predominance of a wooded savanna, and development of extensive livestock farming. This livestock farming is predominantly practised by the Fulani people (Demante, 2006). However, when Fulani herders use the term “Ferlo,” they refer specifically to the northeastern part of the sylvo-pastoral zone, which some scientists have dubbed the ‘armoured Ferlo’ due to the ferruginous aspect of its soils, as opposed to the rest of the sylvo-pastoral zone, the “sandy Ferlo,” which the Fulani call Kooya and Jolof (Ka, 2016). In this research, the term Ferlo is used in its broadest sense without overlooking the existence of some social and ecological diversities between these two subsets (Ka et al., 2021). The survey was conducted in the heart of the sylvo-pastoral zone crossed by the Great Green Wall project.

During the French colonisation, the administration initially undertook the drilling of several boreholes scattered throughout the area, with the aim of settling the transhumant Fulani herders. These permanent water points radically changed the lifestyle of the herders. Subsequently, significant restoration projects for a nature degraded by the droughts of the 1970s were implemented as part of a large partnership between the State of Senegal and the international community (Barral, 1982). The Senegalese Sahel continues to be perceived by many researchers and policymakers as a society resistant to change, living somewhat in an ‘exotic autarky’ (Manoli and Ancey, 2013). While the movements of Fulani herders have been widely analysed through the lens of pastoral mobility, the effects of globalisation, education, and urban and international migrations remain insufficiently addressed in the literature. Yet these elements play a significant role in the process of social change. More recent research in the Ferlo has begun to document the increasing complexity of pastoral land use and livelihoods (Ka et al., 2021; Mugelé et al., 2023), as well as the growing vulnerability of Sahelian drylands to climate change (Yessoufou et al., 2024). However, the social and educational dimensions of these transformations remain comparatively underexplored.

The aim of this work is to question the capacity of pastoral societies to adapt or transform in the face of profound social changes. Researchers and policymakers typically pose questions about the future of pastoralism in light of climate and environmental changes, but the question is less frequently asked regarding social changes. What will become of pastoralism led by a generation that has been fully educated? Is pastoralism in danger, or does this process reveal the springs of adaptation?

The following results draw on qualitative data collected through field surveys conducted in the Senegalese Sahel, particularly in the sylvo-pastoral zone of the Ferlo. Based on interviews with Fulani herders, school-going youth, teachers, pastoral experts, and local actors, this section examines the historical, social, and institutional dynamics that have shaped the region and its inhabitants. The results are organized around four interconnected themes: the historical transformations of Sahelian society and its increasing openness to the world; the aspirations of young people, caught between local rootedness and a desire for modernization; the structural obstacles to schooling in pastoral areas; and, finally, the ongoing negotiations within pastoral families seeking to reconcile formal education with the transmission of pastoral knowledge and ways of life.

Theoretical framework of the research

This article is situated within a critical anthropology of education, linked to the analysis of Sahelian pastoralism, local knowledge, and public policies. It aims to understand how formal schooling, conceived as a universal institution, is experienced, appropriated, or circumvented by pastoral populations whose lifestyles are based on mobility, flexibility, and non-formal transmission of knowledge.

Rather than viewing school as a mere vector for the transmission of knowledge, anthropology of education invites us to analyse it as a situated social practice that produces variable meanings according to contexts (Anderson-Levitt, 2003). School is not reduced to a homogeneous model imposed “from above”: it becomes a space for negotiation, appropriation, and sometimes resistance, where power dynamics between institutional logics and community logics are played out.

The work of Lave and Wenger (1991) on situated learning provides a central theoretical grounding. These authors demonstrate that any educational process makes sense within specific communities of practice that cannot be reduced to a standardised school framework. Applied to Sahelian pastoral societies, this perspective highlights the structural gap between the forms of learning valued by schools, based on sedentary and regular practices, and those that structure the transmission of pastoral knowledge, which are based on mobility, observation, and learning through practice. School thus appears as a site of confrontation between different conceptions of knowledge, time, and socialisation.

The analysis also draws on work related to the plurality of knowledge and the critique of its hierarchisation. In many African contexts, formal schooling has historically contributed to delegitimising local knowledge in favour of knowledge elevated to the status of universal (Hountondji, 1994). This dynamic is

particularly pronounced in Sahelian pastoral societies, where knowledge related to mobility, pastoral ecology, and herd management remains largely absent from official curricula, as if mastery of the space and living beings specific to herders did not constitute a legitimate form of intelligence about the world. Scott (1998) has shown how states tend to favour 'legible', standardised, and measurable knowledge at the expense of locally anchored practical knowledge, what he refers to as the logic of high modernism. In the Sahelian context, education fits within this rationality by valuing skills that are not very compatible with the demands of mobile pastoralism. However, rather than a unilateral rejection of the school institution, pastoral actors develop forms of hybridisation and bricolage (De Certeau, 1990): partial schooling, seasonal adjustments, and pragmatic combinations of school and pastoral learning. It is precisely in these interstices that the daily relationship of Fulani families in the Senegalese Sahel to school and its promises is negotiated.

Materials and methods

In this study on schooling in the Senegalese Sahel, a qualitative approach was prioritised to better address the research questions. It is based on in-depth, repeated, and long-term individual interviews, as well as careful observation of the various spaces involved (camps, school structures, etc.). These two combined techniques seem best suited to capture the discourses and situations that provide access to the beliefs, representations, practices, and institutions that give meaning to a society (Bensa and Fassin, 2008). Fieldwork was conducted between October 2021 and June 2022, allowing for repeated contact with some respondents. Interviews lasted between 45 min and one and a half hours and were conducted in Pulaar (Fulani language). All interviews were audio-recorded with participants' oral consent, fully transcribed, and translated into French for analysis. Data collection continued until no new themes emerged across successive interviews within each socio-professional category, indicating thematic saturation.

This research was conducted in the communes of Mboula and Tèssékère, located in the sandy Ferlo (Kooya), characterised by extensive livestock farming of cattle, sheep, goats, and donkeys, as well as a strong presence of Great Green Wall activities. The research subsequently focused on the communes of Louguéré Thioly and Oudalaye, in the armoured Ferlo, an area characterised by dense vegetation, smaller herds, increased agricultural practices, and significant exploitation of non-timber forest products.

The snowball sampling technique (Combessie, 2007) was used to diversify and broaden the survey population in order to obtain a varied sample. This technique involves contacting new respondents through previously interviewed individuals. In total, 30 people were interviewed as part of this study, representing diverse socioeconomic profiles. The sample comprised 21 men and 9 women. In terms of main occupations, livestock farmers were the largest group with 9 people, followed by students ($n = 6$), housewives ($n = 5$), local council staff ($n = 3$), teachers ($n = 3$), livestock experts ($n = 2$), and one person each from the following professions: education inspector and local development officer. In terms of age distribution, the 17–30 age group comprised 10 respondents and the 31–50 age group comprised 7; the

51–70 age group was also well represented with 10 people, whilst respondents aged 71 and over totalled 3 participants.

Regarding the type of population studied, both the parents of educated and uneducated young people, as well as actors in education and pastoralism, were interviewed. For the youth, both educated and uneducated individuals were interviewed in order to analyse their aspirations, feelings, and vision for the future of pastoralism.

This field presence allowed the collection of numerous qualitative data, which were first processed through thematic analysis (Paillé and Mucchielli, 2021), by identifying themes and sub-themes such as taboos and dietary practices. Subsequently, this data was subjected to a conceptual analysis (Nicolson and Anderson, 2003). This type of analysis is considered more subjective than thematic analysis. It involves interpreting discourses, reading "between the lines," and is influenced by the subjectivity and backgrounds of the researchers themselves. These two combined approaches seem best suited to achieve the objectives of this research. Coding was conducted iteratively: an initial set of themes and sub-themes was developed during a first review of the transcripts, then refined and applied to the full corpus. Analytical memos were used to track emerging interpretations and to make explicit how the researchers' positionality and prior fieldwork experience in the region informed the conceptual reading of the data.

Results

The senegalese sahel through the lens of history: a society open to the world

The interviews conducted for this study show that older respondents narrate their own biographies through successive historical ruptures, colonisation, the drilling of boreholes, and, above all, the drought of the 1970s, which they spontaneously use as reference points to situate their personal trajectories and to explain present-day attitudes towards schooling and mobility. The following paragraphs therefore combine this historical background with the ways in which it is remembered and recounted by herders themselves.

In Foodscape (Crenn and Ka, 2019), testimonies from Fulani herders collected during field surveys depict the Ferlo of yesteryear as a land of milk and honey, where food abundance ensured the wellbeing of all. According to Coquery-Vidrovitch (2010), social and dietary changes in this territory began with colonisation. The logics of the French colonial administration, followed by the postcolonial Senegalese state and national and international development projects, had a particularly significant effect on the behaviours and aspirations of the inhabitants of the Senegalese Sahel (Touré and Arpaillange, 1986). In an effort to impose order, rationalise, and modernise livestock farming, French colonists undertook the drilling of several boreholes scattered throughout the area. Technical and veterinary support, the establishment of vaccination parks, and livestock markets to supply the urban meat market also radically changed the lifestyle of this pastoral society, leading to sedentarisation, reduced transhumance routes, and the introduction of money.

It was from the 1970s that the great drought, which affected five countries in the Sahel (Upper Volta, Mali, Niger, Senegal, and Chad), changed everything. Some inhabitants chose to leave everything behind, moving in large numbers to Saloum and Casamance in search of pastures. Others, having lost all their livestock, migrated to urban centres or neighbouring countries. Some decided to stay, becoming dependent on the political economy of aid. A Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) was established in 1973, followed by the Sahel Club in 1976, contributing to the establishment of a new institutional response mechanism to hunger and poverty issues in Sahelian Africa (Bonnecase, 2011).

The daily lives of these transhumant herders, already undergoing transformation due to colonisation, were profoundly altered by the drought of the 1970s. This led them to migrate outside the Senegalese Sahel and reinforced monetised consumption practices. Stays in urban areas contributed to changing their imaginaries and daily practices. This climate crisis resulted in a diversification of socioeconomic activities, with increased raising of small ruminants sold at weekly markets. It also strengthened the presence of the state and NGOs. The drought is regarded by the interviewed Fulani herders as a foundational moment in their biographies, marking the boundary between a time of abundance and a time of poverty, representing a shift from political autonomy to market dependence.

In the wake of this drought, numerous projects emerged in the area, primarily funded by donors within the framework of bilateral cooperation. These projects aimed to revive subsistence agriculture and livestock farming and combat desertification. However, many of these projects turned out to be failures, such as the Senegalese-German project that operated in the area from 1975 to the early 2000s (Ka, 2016). A lack of awareness among younger individuals regarding the origins of these aid efforts was also observed. Yet, international aid has had significant influences on social changes, which it was essential to discuss at the macrosociological level to confront it with the microsociological level, in order to grasp the new local ways of thinking and acting that emerged from the reorganisation of this pastoral society.

The aspirations of educated youth

The narratives collected from educated young people in the Senegalese Sahel reveal aspirations structured around a common tension between local roots and a desire for modernisation. A young man encountered in Tèssékère expresses his desire to become a doctor, not for upward social mobility, but to address the shortcomings of a healthcare system that forces patients to travel to Dahra or Dakar due to insufficient facilities. His associative commitment extends this logic; the student association he leads conducts awareness campaigns in the surrounding villages to encourage Fulani families to send their children to school, convinced that education is the essential lever for diversifying pastoral activities and developing the community. He sums up his dual ambition: 'That's why I want to be a doctor and serve in Tèssékère. Our goal is to invite all our Fulani relatives in the countryside to enrol their children in school, because it's the only way to develop our community.' (Man, student, 19 years old, Tèssékère).

This aspiration to transform local conditions from within is also found, in a different form, in the journey of a young woman undergoing vocational training in Ranérou-Ferlo. The eldest in her family and an economic supporter, she has turned to catering with the aim of creating her own business or joining the urban hospitality sector. Her testimony reveals a persistent gender constraint: families restrict young girls' mobility in the name of their protection against a public space perceived as masculine and potentially dangerous, thereby hindering migratory projects that the girls themselves consider realistic and desirable. She also points out the gap between local perceptions and an economic reality where modern food offerings are almost non-existent in the area: "Parents don't want to let girls go out because they are afraid and think they might be lured away by men. Here, people think it's a waste of time to train in catering, yet you can't find a sandwich, hamburger, or even a pizza in the area." (Woman, 18 years old, Student, Ranérou-Ferlo).

A third figure illustrates how some young women intend to articulate personal emancipation and the valorisation of the pastoral economy. A volunteer in an NGO specialising in local milk processing, she formulates a project for economic independence that does not break with livestock farming but seeks to reposition it within urban market circuits, particularly considering the establishment of processing units in Dakar. She explicitly assigns educated youth a role as the bearers of this sectoral renewal: "I want to bring livestock to the city through local milk processing units. It's us, the youth, who must carry these ideas since we are somewhat educated. In any case, I want to move towards modern livestock farming." (Woman, 22 years old, Volunteer, Mboula).

Taken together, these testimonies sketch a Sahelian youth that does not see itself as breaking away from its territory of origin but aspires to reconfigure its economic, health, and social structures through education, vocational training, and entrepreneurship. A gendered reading of these narratives nonetheless reveals a recurring asymmetry: while young men frame their aspirations primarily in terms of professional achievement and community leadership, with mobility largely taken for granted, young women more often articulate their projects in relation to the constraints on their mobility, positioning entrepreneurship and local value chains as ways of pursuing economic autonomy without transgressing norms governing women's movement. This pattern, while not exhaustive, recurred across several interviews with young women in different communes and points to gender as a structuring dimension in how educational aspirations are imagined and pursued.

Certainly, these few discourses do not reflect the entirety of the aspirations of educated youth in the Senegalese Sahel, but they highlight pressing issues in this area: access to healthcare, low enrolment rates, lack of training for local elites, the valorisation of animal products, and the empowerment of women. Since 2014, half of the municipal councillors are women following the enactment of the law of 19 May 2010 on gender parity in elective bodies. Previously, in the study area, no woman had ever sat on the municipal council. There is therefore a greater formal involvement of women in territorial management (Ka et al., 2019). The work of Michaud and Sall (2005) has demonstrated that in several Sahelian countries, projects have attempted to provide basic education

programmes to women and school dropouts, focusing on both fundamental knowledge and the acquisition of social, civic, and professional skills.

Obstacles to schooling in pastoral areas

Educated youth in the Senegalese Sahel face numerous challenges in achieving their aspirations. Among the most frequently mentioned issues are parental reluctance towards schooling, accessibility to educational and vocational training facilities, as well as constraints related to transhumance, among others. Among these, the seasonal mismatch between the school calendar and the transhumance cycle emerged as the most frequently and consistently cited obstacle across interviews, followed by the physical distance to schools offering a complete cycle. Parental reluctance and concerns about the uncertain returns to education were also widespread, but were generally expressed as a background rationale that reinforced rather than independently caused decisions to interrupt schooling during transhumance or to keep children close to camps located far from schools offering a complete cycle.

Parents express a myriad of concerns about school. It is sometimes perceived as a waste of time. The educated child must undergo very long studies, a minimum of a decade to obtain the Baccalaureate and five additional years to earn a Master's degree. As illustrated by this interview excerpt: "I have a friend who enrolled his daughter in school. She completed primary school here in Widou Thiengoly, then went to Mbeuleukhé for middle school before going to Dahra for high school. The girl even won an excellence award organised in Liguère. After obtaining her Baccalaureate, she went to the University of Dakar. She studied there for 4 or 5 years. But she did not find work and eventually returned to the village." (Man, 62 years old, Herdsman, Widou Thiengoly). According to Krätli and Dangbet (2018), many families face the dilemma of having to choose between protecting their children's livelihoods as herders or betting on formal education, hoping for uncertain gains in the distant future.

Since Senegal's independence, herders in the Senegalese Sahel have been practically excluded from educational and vocational training systems due to their lifestyle linked to transhumance. According to UNESCO (2020), in West and Central Africa, tens of millions of children remain outside the school system, particularly in pastoral and Sahelian areas. In Senegal, the completion rate for the first cycle of secondary education is only 43.2% for girls and 34.5% for boys, illustrating the deep fractures that persist in the educational trajectories of these populations (UNESCO-IICBA, 2024). Since the 1980s, the Senegalese state has gradually intensified its schooling policy in this sylvo-pastoral area. The presence of many primary schools throughout the area was noted. Those with a complete cycle are generally located in the administrative centres of communes and in large villages characterised by the presence of a drinking water borehole. However, in camps located 3–15 km from towns, schools often consist of multigrade classes (where several students of different levels are taught by a single teacher) and incomplete cycles, constructed with makeshift materials. As a student encountered in Mboula illustrates: "Many students drop out of school as early as primary because of the long distance they travel each day." (Student, 17 years old, Mboula).

The school calendar, which runs from October to July, largely coincides with the period of major transhumance (February to July). During this time, many parents do not hesitate to interrupt their children's education so that they can accompany them in search of pastures, water, and economic opportunities. This tension between pastoral mobility and formal schooling is one of the major structural causes of school dropout in the Sahelian Fulani context. It has been documented regionally by Dyer (2014), who shows that standardised school calendars, designed according to sedentary logics, systematically exclude the children of nomadic and semi-nomadic herders in sub-Saharan Africa and South Asia, by failing to take into account the seasonal mobility constraints that structure the pastoral family economy. The rigid school year proposed by the Ministry of National Education therefore does not correspond to the mobile reality of these herders. According to a teacher encountered in Téssékère-Forage, about 10% of his students go transhumant with their parents every year, despite his awareness-raising efforts.

Students continue to face other difficulties in middle school, high school, and university. Some young girls find themselves facing unwanted pregnancies. They no longer want to marry young Fulani herders, as confirmed by this interview excerpt: "If I marry a Fulani cousin, he will surely ask me to milk the cows, which I cannot do. They scare me because they use things I cannot even look at, like knives and machetes. That's why I'm afraid to get involved with these young Fulani." (Woman, 23 years old, Student, Dahra). Regarding boys, many drop out of school and become motorcycle taxi drivers, street vendors, and sometimes engage in smoking and drug use. Despite this bleak picture, some students manage to succeed academically and become teachers or public administration officials. However, these success models remain rare in the Senegalese Sahel to alleviate parents' concerns.

Reconciling schooling and pastoral livelihoods in families

One of the most significant tensions identified in the field concerns the future of pastoral knowledge in the face of the increasing prominence of schooling. This knowledge, which encompasses herd management, animal pharmacopoeia, transhumance practices, and inter-community relationships, is transmitted informally in the daily life of camps and has ensured the resilience of Sahelian Fulani societies for centuries. However, schooling, by removing children from these learning spaces, undermines this transmission while opening up new horizons. The paradox is that the Fulani families that place the greatest emphasis on education are often those that have the largest herds and thus have the most to lose if the family labour turns away from livestock farming (Mugelé et al., 2023). An animal husbandry engineer encountered in Mbeuleukhé, who has himself balanced advanced studies and a career in the pastoral sector, clearly articulates this structural paradox: "The opening of the school has certainly already impacted the labour force because students no longer accept taking care of and herding the livestock. Most often, these students prefer to become civil servants or work in other sectors. Today, it's those who are not in school who are doing livestock farming in the area." (Man, 62 years old, Animal Husbandry Engineer, Mbeuleukhé).

This observation is echoed by a pastoral expert met in Ranérou-Ferlo, who has dedicated his entire career to managing pastoral resources in the sylvo-pastoral zone. For him, the issue is not so much schooling itself, but the absence of technical training grounded in local realities: “There are no technical training schools for livestock farming in the area, and that is what could facilitate this transition. It would also be good to teach young people the new techniques of livestock farming in order to modernise it. But if they only learn literature or other disciplines that have no ties to livestock farming, they will be lost and directed towards other sectors. We need to start from the reality of the environment and try to modernise it.” (Man, pastoral expert, 71 years old, Ranérou-Ferlo). This analysis aligns with recent work on the governance of pastoral resources in the Ferlo, which highlights a persistent gap between institutional logics that favour a cadastral, sedentary, and administrative vision of territory and the actual practices of herders, based on mobility and collective resource management (Ka et al., 2021). This gap is reproduced in the educational sphere: official curricula largely ignore local ecological and pastoral knowledge, thereby reinforcing the perception that school and livestock farming are two irreconcilable worlds.

Yet, some field actors manage to build bridges between these two universes. The case of a municipal agent, who is also the spokesperson for a large Muslim religious family in the Ferlo, is particularly illustrative in this regard. His village, founded in 1922 by the marabout Thierno Koyli, has always articulated Quranic education, livestock farming, and agriculture. This tradition of hybridisation between religious knowledge and pastoral practices constitutes a unique form of “community of practice” (Lave and Wenger, 1991) that deserves attention. As he recalls: “When you meet one of us in the bush with the cattle, everything you ask him from the Quran, he will tell you without difficulty. When you also ask him about the Sharia, he will tell you. Even as a herder in the bush, dressed as a herder and with his cattle, the disciple of Thierno Koyli always has his Quran in hand, revising the surahs and the Sharia under the trees accompanied by his livestock.” (Man, 67 years old, municipal agent, Koyli Alpha). The figure of the marabout-herder illustrates the capacity of pastoral societies to integrate different forms of knowledge without hierarchising them. This capacity for “bricolage” (De Certeau, 1990) is precisely what the school institution tends to ignore, positing an incompatibility between academic training and local practices. The current generation of young Fulani herders, according to the observations made, seeks to navigate between these two worlds with remarkable agility.

The testimony of one herder reflects the intergenerational evolution of representations of school within Fulani families. He himself had little formal education, yet he is fully aware of the limitations this imposes on his commercial activities and his relationships with administrations. His narrative illustrates how the awareness of the value of education has gradually imposed itself on a first generation of settled herders: ‘We became aware that when we don’t study, we can’t accomplish much in this world. We face many problems today because we didn’t go to school. We deemed it necessary that when we enrol our children in school, it could help them. Even if they don’t succeed academically, they will at least be awakened and educated.’ (Man, 51 years old, Herdsman,

Wendou Mbarodi). The life story of another herder, aged 72 and met in Ganinayel, illustrates the considerable sacrifices that some pastoral families have made to educate their children in a context of deep geographical isolation. For several years, his family literally relocated their camp to be closer to the school in Widou Thiengoly, more than fifteen kilometres from their village. His account highlights the inventive strategies deployed to reconcile schooling and pastoralism. He also emphasises the precocity of these decisions: from the opening of the school in Widou around 1985–1986, some pioneers like him took the risky bet of schooling, in a context where the vast majority of Fulani families remained reluctant.

These unique family trajectories reveal how the decision to educate one’s children, in this context, is a genuine diversification strategy comparable to other forms of economic diversification observed among the Fulani herders of the Ferlo (Wane et al., 2010). The Mobile Training Units (MTU) initiative, developed as part of the FRAPS project in Mali, offers a promising approach to reconciling schooling and pastoral mobility in the Sahel. These itinerant educational schemes are based on a logic of adaptation: rather than requiring herders and agro-herders to conform to the spatial and temporal constraints of sedentary educational institutions, they integrate the transmission of knowledge into the rhythms and territories specific to extensive livestock farming practices. By moving into the very heart of the beneficiaries’ living and working spaces, the MTUs thus seek to overcome the structural mismatch between a training programme designed for settled populations and the realities of a mobility that is integral to pastoral identity and the pastoral economy. The content delivered (improved livestock farming techniques, sustainable management of natural resources, processing of animal products, and integration into market channels) reflects a commitment to grounding training in the practical knowledge and challenges of the field, whilst supporting the changes currently taking place in the sector (PRAPS, 2024).

Discussion

Throughout this discussion, a distinction is maintained between findings grounded directly in the interview data collected for this study and broader interpretations that draw on the comparative and policy literature to situate these findings within wider debates. National statistics, regional reports, and comparative studies are therefore used to provide context rather than to validate the patterns observed among the thirty respondents interviewed in Mboula, Téssekère, Louguéré Thioly, and Oudalaye. Accordingly, any broader claims should be understood as interpretive propositions informed by the wider literature, rather than as findings directly established by the present dataset.

The structural mismatch between formal schooling and pastoral realities

This section examines how the design of formal schooling systems systematically excludes pastoral populations by disregarding the spatial and temporal logic of their way of life. Drawing on fieldwork conducted in the communes of the Ferlo, as well as on a broader comparative literature, it argues that the gap

between school calendars and transhumance cycles is not a marginal issue, but a central mechanism of educational exclusion, with measurable yet largely underestimated consequences.

The findings of this study highlight a structural tension that is far from unique to the Senegalese Sahel: the mismatch between the spatial and temporal logic of formal schooling and the rhythms of pastoral life. This tension, documented in the Ferlo, resonates with a growing body of comparative literature on education among nomadic and semi-nomadic populations. Dyer (2014) has shown, across sub-Saharan Africa and South Asia, that standardized school calendars are built upon sedentary assumptions that systematically exclude mobile populations. Evidence gathered in the communes of Mboula, Téssékère, Louguere Thioly, and Oudalaye confirms that this exclusion is not a marginal phenomenon, but a central mechanism through which pastoral children are distanced from formal education. Each year, many students accompany their families on transhumance, often missing several months of schooling. The full extent of interrupted schooling and mobility induced absenteeism is likely underestimated, as it is rarely formally recorded.

The World Bank's feasibility study for an Open School for the Alliance Sahel (2022) confirms that across the Sahelian belt, approximately 97% of nomadic children remain outside formal schooling systems, and that only 2%–3% of pastoralist children attend school regularly. While Senegal's situation is less acute than that of its landlocked neighbors, UNESCO IICBA (2024) data indicate completion rates for the first cycle of secondary education of only 43.2% for girls and 34.5% for boys nationally, with pastoral areas performing significantly below the national average. These national and regional figures are drawn from World Bank and UNESCO sources rather than from the fieldwork conducted for this study. They are presented here to situate the findings from the Ferlo within a broader context, rather than as evidence generated by the present dataset. These figures call into question the effectiveness of education policies that have not been sufficiently adapted to the realities of mobile populations. Scott's (1998) analysis of high modernism, understood as the tendency of states to impose standardized and legible models onto complex local realities, provides a useful framework for understanding why education policy in Senegal has struggled to reach pastoral families. The school was designed for a sedentary subject, not for the Fulani herder whose mobility is both an economic strategy and a cultural practice.

Traditional ecological knowledge, climate vulnerability, and livelihood diversification strategies

This section explores the complex and sometimes contradictory relationship between formal schooling, the transmission of traditional pastoral knowledge, and the growing pressures of climate change on Sahelian livelihoods. It argues that pastoral families in the Ferlo do not passively respond to these dynamics, but instead develop adaptive strategies that combine educational investment, knowledge hybridization, and livelihood diversification, thereby revealing forms of resilience that dominant policy frameworks tend to overlook.

It is within this context that the future of pastoral traditional ecological knowledge, referred to as TEK, in the face of expanding schooling becomes particularly salient. Testimonies collected in the Ferlo reveal a striking paradox. The families that invest most heavily in education are often those with the largest herds, yet they are also those most at risk of losing both pastoral labor and the intergenerational transmission of herding knowledge. In a global review of 288 scientific studies, Sharifian et al. (2022) found that among the 63 papers explicitly documenting knowledge transition, 52 reported a decline in pastoral TEK. The main drivers identified were formal schooling, socio cultural change, and market integration. This global review is drawn from the wider comparative literature rather than from the present fieldwork and is used here as a point of comparison for interpreting the findings from the Ferlo, rather than as direct evidence about the thirty families interviewed in this study. This decline is not, however, irreversible. The same study documents cases of knowledge hybridization, understood as the integration of traditional knowledge into new systems, as a resilient response to social ecological change. The Ferlo data strongly echo this finding. From the marabout herder reading the Quran under a tree while tending cattle, to the young woman channeling local milk into urban value chains, actors in the Senegalese Sahel demonstrate a capacity for bricolage (De Certeau, 1990) that challenges binary narratives of tradition versus modernity. The absence of vocational and technical training grounded in pastoral realities constitutes a critical policy gap, as highlighted by the pastoral expert cited in this study. This gap has been acknowledged in the G5 Sahel (2021) and by the Sahel Alliance, but has not yet been translated into effective curricular reform.

Beyond knowledge systems, pastoral families' decisions to educate their children must be understood within the broader context of climate vulnerability and livelihood diversification. The Ferlo ecosystem, which supplies approximately 42% of the cattle reaching Dakar, is under increasing environmental pressure (UNDP GEF, 2021). Climate variability, manifested through more intense droughts, erratic rainfall, and the expansion of agricultural frontiers into transhumance corridors, has deepened the economic precarity of pastoral households (Mugelé et al., 2023; Yessoufou et al., 2024). In this context, schooling is increasingly incorporated into a portfolio of diversification strategies, alongside agro pastoralism and the valorization of small ruminants. Herders who invest in their children's education are, in effect, hedging against the uncertainties of an increasingly volatile pastoral economy, echoing Wane et al. (2010). This interpretation carries important policy implications. The Mobile Training Units approach piloted under the PRAPS regional program (2024) represents a promising attempt to reconcile schooling with pastoral mobility, yet its reach remains limited and it is not yet integrated into Senegal's formal education system. More broadly, while ecosystem based adaptation projects in the Ferlo Biosphere Reserve, such as the UNDP GEF initiative (2021) targeting 310,000 direct beneficiaries, have begun to link livelihood diversification with environmental resilience, education remains a largely separate policy domain. Bridging this divide constitutes one of the most pressing challenges facing decision makers in the Senegalese Sahel.

Gender inequalities and the case for a situated education policy

The third part of this discussion turns to the gendered dimensions of schooling in the Ferlo before broadening the analysis into a set of policy recommendations. It shows that young women in pastoral areas face a specific and compounded form of educational inequality, and argues that addressing it requires moving beyond single-sector interventions toward a genuinely situated education policy that takes seriously the communities of practice within which pastoral children grow up.

Closely intertwined with these structural and economic dimensions are the gendered dynamics of schooling in the Ferlo. The narratives of young women collected in this study reveal a specific form of educational inequality. While formal schooling opens new aspirations around professional training, entrepreneurship, and mobility, families often restrict girls' access to these opportunities in the name of protection and social norms. This tension aligns with findings from regional programs targeting girls' education in the Sahel. The SWEDD program has shown how scholarships, transport support, and safe spaces can significantly improve girls' retention in secondary school, achieving retention rates of up to 96% among beneficiaries (World Bank, 2024; UNFPA WCARO, 2022). However, these gains remain unevenly distributed, with pastoral areas often among the last to benefit. These programme-level retention statistics are drawn from national and regional evaluations rather than from the present study's own sample. They are distinguished here from the qualitative evidence discussed below, which is drawn directly from the interviews conducted for this research. The testimony of the young catering student in Ranerou Ferlo illustrates the specific barriers faced by educated women in the pastoral Sahel. These include fears surrounding unsupervised mobility, family resistance to migration, and the absence of a local economic fabric capable of absorbing their skills. This situation contrasts with broader national progress since the adoption of the 2010 parity law. As *Equal Measures 2030* (2024) notes, despite strong performance in parliamentary gender parity, girls' school expectancy remains limited due to insufficient investment in primary level education for girls. This issue is particularly acute in the pastoral north. Work by the Sahel Alliance further emphasizes that women's empowerment requires simultaneous action on legal frameworks, economic opportunities, and social norms. This is an agenda unlikely to be achieved through single sector education policies alone.

Taken together, these findings point to the need for a genuinely situated education policy in pastoral areas, one that takes seriously the communities of practice (Lave and Wenger, 1991) within which Fulani children grow up. Anderson Levitt (2003) has argued that schooling should be understood as a negotiated practice rather than a universal transmission mechanism, and the Ferlo data strongly support this view. Far from passively accepting or rejecting schooling, pastoral actors actively negotiate with it, circumvent it, and selectively appropriate it. The pioneer families who relocated their camps near Widou Thiengoly in the 1980s to access education, the students who combine university study with community advocacy, and the young women envisioning new pastoral value chains all demonstrate forms of agency and creativity that policy

frameworks rarely acknowledge. A more responsive education policy would need to act on several fronts simultaneously. These include adapting the school calendar to transhumance cycles, as recommended by comparative research (Dyer, 2014; Krätli and Dangbet, 2018), enriching curricula with pastoral and ecological content, including locally grounded knowledge of herd management, rangeland ecology, and veterinary practices, developing vocational training centers that integrate technical livestock production with modern agribusiness skills in the sylvo pastoral zone, and scaling targeted measures to improve girls' access to and retention in schooling in pastoral areas, building on initiatives such as SWEDD. Together, such reforms would not only improve educational outcomes for pastoral populations, but also strengthen the resilience of pastoral systems themselves in the face of accelerating climate change and demographic transitions.

Conclusion

Since their presumed arrival in the region, the Fulani herders of the Senegalese Sahel, initially nomadic and later transhumant, have continuously traversed this area in search of pastures and water points. The establishment of boreholes in the 1950s largely transformed them into sedentary or semi-transhumant people. However, the drought of the 1970s brought an end to these glorious years. This climate crisis accelerated migrations to other regions of Senegal and urban centres.

The advent of development projects and the schooling policy implemented by the State of Senegal have significantly contributed to the dynamics of the ongoing social change process in this area, a process already initiated well before French colonisation. This change is reflected in the aspirations of the younger generation, particularly those who have attended school. Despite their attachment to their territory and pastoral way of life, their desire for 'modernity' is increasingly fervent, despite the numerous obstacles they face. Regardless of the stereotypical representations assigned to them, the pastoral society of the Senegalese Sahel is feeling the full impact of globalisation.

This article has shown that school cannot be considered in isolation: it is embedded in a fabric of social relationships, territorial ties, and generational aspirations that profoundly transform its significance. From a theoretical perspective, this study contributes to the anthropology of education by showing that situated learning and communities of practice (Lave and Wenger, 1991) are not only analytical tools for understanding pastoral knowledge transmission, but also help explain how Fulani families construct hybrid educational trajectories that combine formal schooling, Quranic education, and herding apprenticeship. It also refines Scott's (1998) account of high modernism by showing that, rather than being simply excluded by 'illegible' state institutions, pastoral actors actively reshape these institutions through everyday practices of bricolage (De Certeau, 1990).

The question remains open: how will the children of Fulani herders in the Senegalese Sahel combine schooling, aspirations for modernity, and the preservation of a pastoral way of life? The answer is likely to be multifaceted, differentiated across individuals and local contexts, and it is precisely this plurality of trajectories that deserves to be documented in future research.

This study has several limitations that should be acknowledged. The sample of thirty interviews, while appropriate for an exploratory qualitative approach, was drawn from four communes within the Ferlo and cannot be considered representative of Fulani pastoral society as a whole. The use of snowball sampling (Combessie, 2007), while effective in reaching a dispersed and mobile population, also carries an inherent risk of bias. Because respondents were recruited through pre-existing social networks, the sample may over-represent households already connected to schooling, development projects, or community associations, while under-representing more isolated or itinerant families whose relationship with formal education may differ substantially. The findings should therefore be read as illustrative of recurring dynamics rather than as generalisable patterns across the Senegalese Sahel or other pastoral regions. This limits the transferability of the findings beyond the specific communes studied. The Ferlo's particular history of borehole development, its location along the Great Green Wall corridor, and its comparatively advanced integration into national livestock markets mean that pastoral communities elsewhere in the Senegalese Sahel, in neighbouring Sahelian countries, or among non-Fulani pastoral groups may negotiate the relationship between schooling and mobility differently. Extending the analysis to these contexts would therefore require dedicated comparative fieldwork rather than extrapolation from the present dataset. Similarly, while the discussion draws on a wider comparative and policy literature to interpret the findings, several of the broader claims made, for instance regarding the loss of pastoral ecological knowledge or the role of education in household risk management strategies, are not directly substantiated by the interview material itself and should be understood as hypotheses for future research rather than findings established by this study. Future work combining longitudinal and more systematically comparative approaches across communes and pastoral groups would help assess the extent to which the trajectories described here are widespread.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethics approval and consent to participate Ethics approval was not required for this qualitative study. The research consisted solely

of interviews exploring participants' perceptions and experiences of social transformations in the Senegalese Sahel, with particular attention to changes in pastoral practices and livelihoods associated with education and schooling policies. No physical measurements, medical procedures, clinical examinations, or biological samples were collected. The study involved no physical intervention or biological data collection. All participants were informed about the purpose of the study and the nature of their participation, and oral informed consent was obtained from all participants prior to the interviews.

Author contributions

I, the undersigned, the sole author of the manuscript submitted to the Pastoralism platform, declare that I have carried out all the work presented in this article. This includes the study design, data collection and analysis, interpretation of the results, as well as the drafting and revision of the manuscript. I also confirm that this work is original, has not been previously published, and is not currently under consideration by any other journal. All sources used have been properly cited and referenced. As the sole author, I take full responsibility for the content of this article.

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