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BICYCLES: AN ANSWER TO MOBILITY NEEDS OF RURAL CHILDREN?

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Abstract

Many Sub Saharan African countries still have dire transport needs. Children in particular are faced with mobility constraints in their quest to access, education, health and recreation. This study investigated the ownership and use of bicycles among children in Rural Ghana. The study was conducted in six rural communities within two ecological zones (forest and coastal). Both qualitative and quantitative data collections were employed within the context of a cross-sectional study design. A sample size of 454 was chosen among children aged between 8 and 18. Individual and households were used as unit of analysis where appropriate. Results from this study revealed that 36.4% of the households owned bicycles whilst usage was significantly higher at 63.9%.

1. Introduction

Severe mobility constraints still persist in many Sub Saharan African countries, especially in remote rural areas. Continuous neglect of rural transportation by successive governments and local authorities has led to serious transportation deficiencies in rural communities. Mobility of the rural dweller is constrained by poor roads, inadequate transport services and poverty. The situation is even worse for women and children who are often obliged by culture and society to perform duties that are transport related.

Access to education and educational resources is imperative for all children regardless of location. However children living in rural areas where schools and educational resources are few and sparsely distributed are faced with the challenge of access to education. Studies in some Sub Saharan African countries have shown that children walk long distances to attend school (Amoako-Sakyi and Owusu, 2011, Porter et al, 2010 and Starkey 2007). For instance 98% of children in some rural Ghanaian villages walk between 0.2 to 8 km to attend school as similarly reported by Starkey (2007), children in Boucle du Mohan, a rural settlement in Burkina Faso walk to primary schools and even though they preferred the use of bicycles they were generally not affordable for use by children. In spite of its potential, bicycles have not been exploited to address the problem of access to education and educational resources in rural communities.

Bulterys (2007) suggests that African nations have failed to accept bicycles as an effective mode of transport, a stance he believes could be blamed on development planners and

policy makers' narrow-minded development approach. In Ghana, most children use bicycles mainly for recreational activities and sometimes for running errands for parents (Amoako-Sakyi and Owusu, 2011). This notion reiterates Work and Malone (1983) assertion of a bicycle prejudice in Africa which has inadvertently led to the notion that bicycles are mere toys or recreational device

Several factors may influence the utilitarian use of bicycles in rural communities. However, the issue of access to education in these communities is better understood in the context of child mobility, bicycle usage and cycling behaviour. This study therefore sort to investigate bicycle use and cycling behaviour among children in six rural communities in Ghana.

The paper draws data from a larger project on child mobility designed and led by Durham University in collaboration with the University of Cape Coast, Malawi and the CSIR, South Africa (Amoako-Sakyi and Owusu, 2011). It used both quantitative and qualitative data collection and analysis within the context of a mixed-method study design.

This study involved the administration of questionnaires to 458 children aged between 8 and 18 with 51.1% of them females and 48.9% males from six rural communities. These communities were Ebukrom, Antem, Baamu, Teinso, Kudjo Krobo and Kweku Mensah. Additionally 64 In-Dept Interviews (IDIs) and 4 Focus Group Discussions (FGDs) were conducted in each of the communities except Kudjo Krobo and Kweku Mensah which were considered only for the quantitative surveys. Table 1 shows the breakdown of the IDIs in the various study communities. The FGD's were conducted among children and the groupings were based on the sex and school enrolment status of the children.

Table 1: In-Dept Interview in various communities

Community	Children		Parents	Drivers	Teachers	Health personnel	Opinion leaders	Total
	In-school	Out of school						
Ebukrom	16	16	16	4	4	4	4	64
Antem	16	16	16	4	4	4	4	64
Baamu	16	16	16	4	4	4	4	64
Teinso	16	16	16	4	4	4	4	64
Total	64	64	64	16	16	16	16	256

Source: Child mobility data (2007)

Quantitative data was analysed with Statistical Package for Social Sciences (SPSS) and is presented in tables, graphs and charts while narratives from participants in FGDs and IDIs are directly quoted to supplement the quantitative analysis.

2.0 Results

The paper will present and discuss some of the results of this study. The authors will then share some perspectives on the possibility of harnessing the potential of bicycles in addressing the problem of accessibility to education and educational resources.

2.1 General characteristics of study participants

Of the 458 children who participated in the quantitative survey, 51.1% were females whilst 48.9% were males. 88.4% were in school and 11.6 % out of school. Distribution of the survey population across the 6 rural settlements was as follows: Ebukrom (28.6%), Antem (19.4%), Kujo Krobo (1.5%), Kweku Mensah (5.2%), Tainso (27.3%) and Baamu (17.9%). The distribution of the qualitative interview schedules is presented in Table 1.

2.2 Bicycle ownership and usage.

Results from the study showed that 27.6 % of households owned bicycles in good order, 9% owned bicycles which were not in working order and 63.4 % of households did not own any bicycles. Although consistent with studies that have shown low bicycle ownership in Africa, our finding that functional bicycle ownership is less than 30% in communities with severe transport deficiencies is worrying. This study neither captures the number of bicycles per household nor ownership at the individual level. Thus, we consider the bicycle ownership statistic presented in this paper as very conservative estimate. Ownership among various study communities is presented in figure 1.

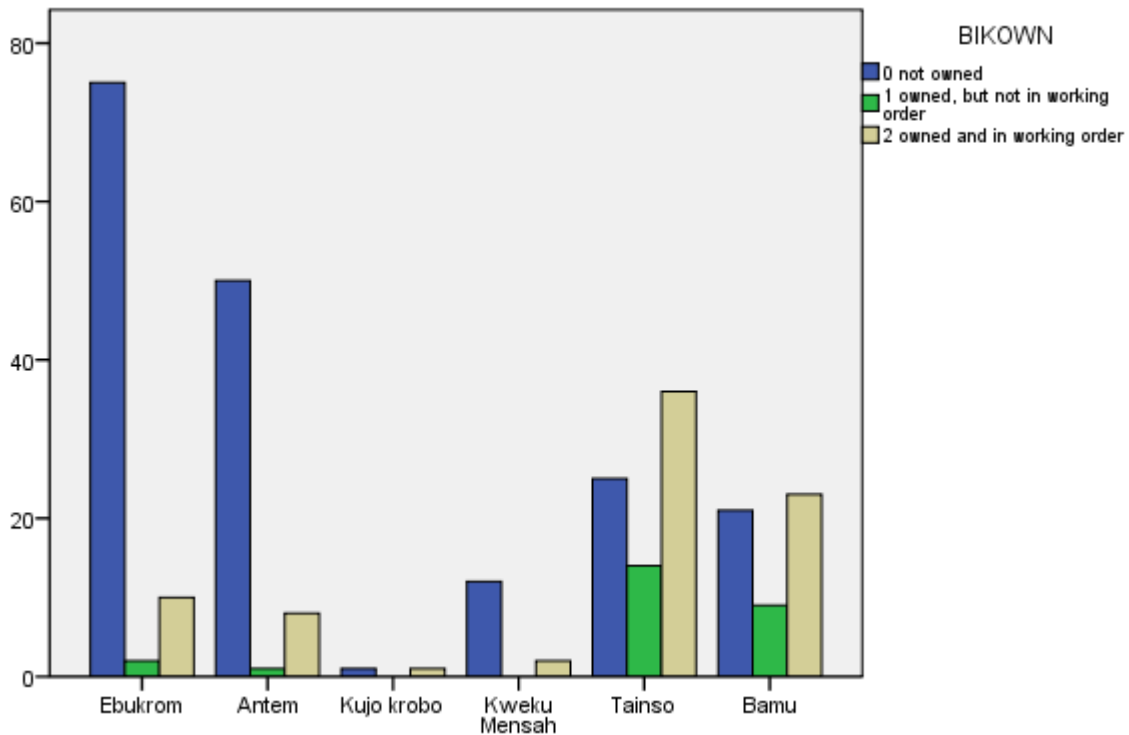


Figure 1: Bicycle ownership among households in study communities

Source: Child mobility data (2007)

Interpreting bicycle ownership data alongside bicycle usage gives a truer picture than looking at them individually. Thus, we compare bicycle usage data with bicycle ownership and found usage to be higher than ownership. Generally 63.9% of all children use bicycles periodically. Periodic use ranged from everyday- use to less than once a week. The usage – ownership deficit is partly explained by the presence of bicycle hiring services. Another explanation to this is the culture of bicycle sharing among family and friends.

We do not have one but we are one and united here so if anybody needs a bicycle to travel on long distances, you can easily get one by requesting from a neighbour who has one.- (Nantilla, FGD- out of school, Tainso)

This study evidently shows that children actually did not own bicycle themselves. Thus, they often used oversized bicycles belonging to older people. This obviously affected the user experience and also limited the utilitarian use of bicycles by children. Imperatively, some children had not learned to ride because available bicycles oversized them.

2.2.1 Age, sex and bicycle use

The study revealed that age was associated with bicycle use. Older children were more likely to have used a bicycle at least once a week than their younger counterparts. Only 10.5% of daily users of bicycles were between 8 and 11 years. The low usage of bicycle within this age bracket can be attributed to the non availability of bicycles suitable for use by younger children. The study also revealed that children learned to ride under various conditions and circumstances including threats, coercion and often under the tutelage of abusive instructors.

Table 2: Sex of selected child on ownership of bicycles in household

Ownership of bicycle by household	Sex of selected child		Total
	Male	Female	
Not owned	115	69	184
Owned but not in good working order	19	6	25
Owned in good working order	42	38	80
Total	176	113	289

Source: Child mobility data (2007)

Tables 2 and 3 shows that sex of children was not a significant determinant of bicycle ownership among households. On the other hand gender was important in shaping bicycle use among children: while 81% of boys used bicycles (7.2% on a daily basis), only 48.3 % of girls used bicycles (1.3% on a daily basis).

Table 3: Distribution of sex of children among households with bicycles in working order

Number of children in the household (excluding sampled child)	0		1		2		3		4		5	
	M	F	M	F	M	F	M	F	M	F	M	F
Number of households who own bicycles	17	15	28	38	22	16	8	8	5	2	0	1

Source: Child mobility data (2007)

Although parents generally approved of their children's use of bicycles, most were sceptical of the effects of bicycle use on their female wards. The perceived physical vulnerability of

girls, particularly in relation to reproductive health, often underpinned disapproval of girls riding bicycles. Gender and bicycle use is very complex and intricate. Although authors of this paper are cognisant of its importance it is not the focus of this paper.

3.0 Present but not available?

Daily use of bicycles was low in all communities studied. The highest daily use (4.8%) was recorded in Baamu. No child used a bicycle on a daily basis in Kujo Krobo and Kweku Mensah. Averagely, only 4.2% of children get to ride bicycles on daily basis in the whole study area. Even among households that owned bicycles, the bicycles were not always available for use by children. This is because most parents use it to transport themselves to farms while their children are left to trek long distances to school. This perhaps explains the low utilitarian use of bicycles in the study community. As reiterated by 17 year old Yaa, children in Tainso usually have access to free bicycles on Wednesdays and Sundays. Yaa tells the story of how she gets access to free bicycles especially on Wednesdays:

"....usually I get to ride bicycles on Wednesdays and Sundays. On Sundays people do not take their bikes to the farm so it is easy to get some to ride usually on Wednesdays which are market days people come to park their bikes in my house and go to sell their things at Sunyani. So when they come to park their bikes I ride some" - Yaa, 17 year old Tainso.

To contextualise Yaa's narrative, Sunyani, which is the regional capital, has Wednesday as its market days and Tainso which is a relatively large community becomes the conduit for farmers to transport their wares to Sunyani. Usually these farmers from neighbouring villages come on their bicycles but park them in order to board vehicles travelling from Tainso to Sunyani. This becomes an opportunity for young people such as Yaa whose family do not own a bicycle to use bicycles whilst their owners are away to sell off their farm produce.

Available data from the study also suggests that majority of the bicycles are big and only suited for adults use. Adults within the communities typically purchase bicycles to address the mobility need of commuting to their farms and back. Another respondent in an FGD organised for out of school girls Linda, reiterates this point

My brother has one but it is not always available for use because my brother uses it when he is going to the farm. However, my uncle also has one and I use it. – FGD participant, Tainso.

This invariable determines the age at which a child can begin to learn to ride bicycles. Thus, the 11.1% of children who could not ride attributed their inability to ride on the unavailability of suitably bicycles. Plate 1 shows a picture of a child and bicycle available in her household.



Plate 1: Adult sized bicycle in an African country (Courtesy Daniel Amoako-Sakyi)

4.0 Parental concerns

Parental approval or disapproval goes a long way in influencing bicycle behaviour as the study revealed that most parents supported their children's quest to learn to and subsequently ride. The motivation for parents who encouraged their children to ride comes partly from the fact the ability of the child to ride helps the child to overcome obvious mobility challenges faced in rural areas. Children who know how to ride are able run errands for their parents faster and cheaper, as illustrated by Ernest a 32 year old father of two:

None of my children know how to ride the bicycle. I have however decided that since I have a bicycle I will start teaching them to learn to ride whenever I get the time. Because this is a village and the transport here is not regular. On market days one can get a car more easily as compared to the other days because more cars come here to load foodstuffs as compared to days that are not market days when the cars are few here. If they know how to ride and they need to move they will not need to go and look for transport before they can move. Also since the communities here are not very far from each other, if they know how to ride I can send them with the bike to go and run errands for me and it is faster than when they walk and also cheaper than when they pick cars- Ernest, Ebukrom.

Though supportive of their children's quest to ride, most parents expressed major concerns over their safety mainly because they share roads with motorised vehicles. Drivers of motorised vehicles in Ghana sometimes consider child bicyclist as intruders in their private space. The study asked child respondent to do a self assessment of their own risk of being hit by a car while riding on the road. This assessment revealed that 1.8% of children thought that they were very likely to be hit by a motorised vehicle while riding. Similarly, 22.1%, 52.3% and 23.7% respectively affirmed that they were fairly likely, unlikely and very unlikely to be hit by car whilst riding. However out of 130 children who said they had been involved in Road Traffic Crashes (RTCs) in the recent past in these communities, 90.8 % were hit whilst riding bicycles along roads 6.2% were hit whilst walking along the road. The remaining were knocked down whilst road peddling, crossing the road or riding as passengers on motorbikes. Rates of RTCs involving bicyclist is generally high in Ghana, especially in communities that lie along major roads and those linking farming communities. Percentages of study participants who had been involved in RTC at the various sites are shown in figure 2. These figures seems very high compared to national average of bicyclist injured through RTCs in 2009 (1.6 %) and 2010 (1.4%) (National Road Safety Commission, 2011) This interpretation is however done with care since our study looked at a

restricted age bracket. It is also important to note that the national average maybe an underestimate since not all RTCs are reported to the police. Simply put, our figures are generated from an active case search whilst the national average is from a passive case detection.

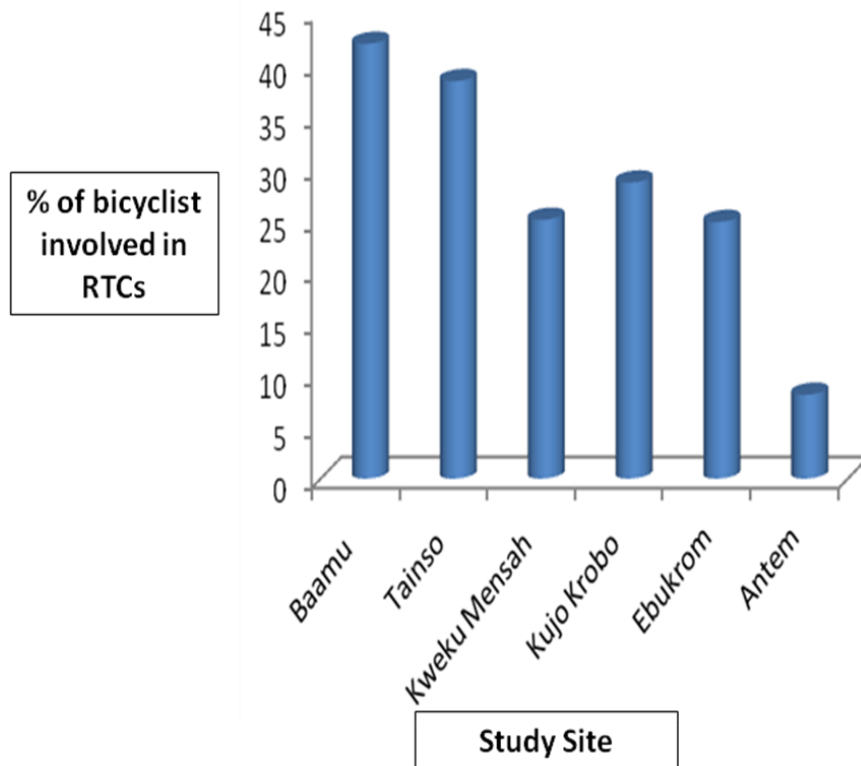


Figure 2: Distribution of RTCs involving child cyclist in various study sites

Source: Child mobility data (2007)

Children between the ages of 12-15 years are most at risk of being hit by a motorised vehicle whilst riding a bicycle. This age category accounted for 57.6 % of all bicycle related accidents and was followed by children aged between 16-18 years (22%) whilst 20.3% were between the ages of 8 and 12.

It is therefore not surprising that 17% of rural children who did not know how to ride attributed their inability to learn to ride to parental/guardian disapproval whilst 3.9% mentioned they were frightened to ride because of injuries that could be sustained as a result. Even among parents whose children were allowed to learn to ride, they were in fear of the inevitable happening to the children and always cautioned them to be careful especially when riding along the roads.

4.0 Overcoming distance to school

Children from the various study areas travelled to school over distances which ranged from 200 metres to over 8 km. Of these, 98.5% of children walked while only 0.2% used bicycles. Another 0.2 % used motor taxis to commute to school. Figure 3 shows the average time taken by children in rural areas to get to school each day.

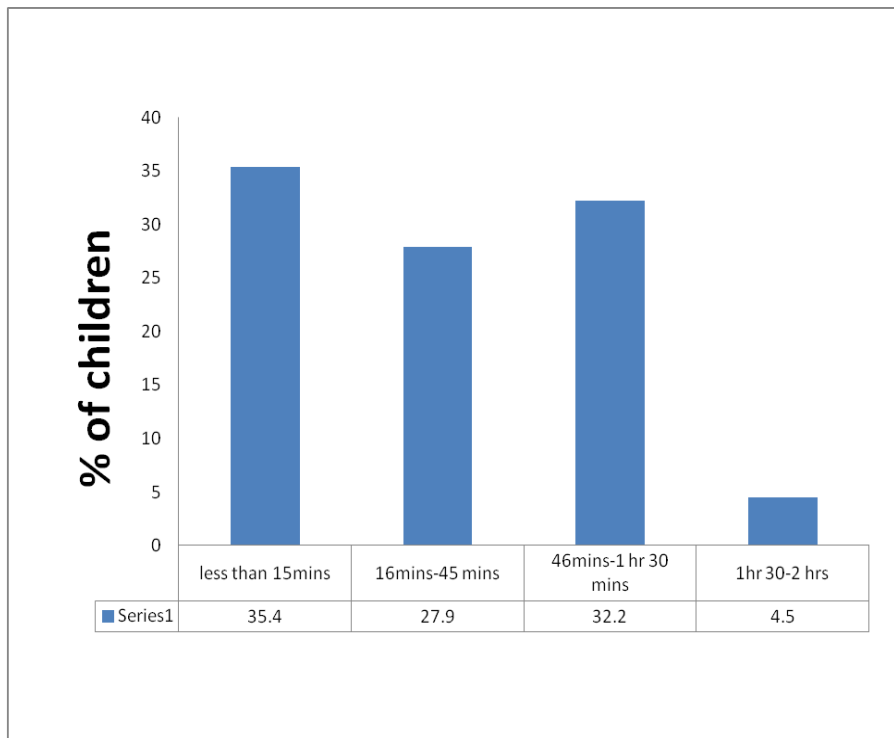


Figure 3: Average time taken to commute from home to school

Source: Field work (2006)

Figure 3 shows that only 35.4% of Children spend less than 15 minutes commuting from the house to school daily with another 27.9% of school children using an average of 16-45 minutes. The graph further shows that 32.2% spend between 46 minutes and 1½ hours whilst 4.5% spend between 1½ and 2 hours. Distance to school is a worry not only for the children involved but parents as well, especially with younger children. The following edits from the IDIs with both parents and Children help explain this:

“Usually I walk to school because there are no vehicles and even when we get some plying this route we cannot bear the cost of transport to school every day. I had a problem with walking to school. This is because I experienced some pains in my chest and my parents took me to the hospital. I was told to reduce my level of walking but if I do that it means I will have to quit school because there is no other school close by I can attend. I don’t enjoy the journey to school at all. This is because mostly I walk alone to school. Even though my siblings also attend this school my mother makes them stay at home and brings them personally to school on her way to the farm and this makes me very unhappy because I have no one to walk with. If I decide to wait for my mother and siblings, I will report late for school and will be caned for that”.- Vida, 11 year old primary 4 pupil (Antem)

“There are so many developmental challenges that confront us in this village. Let me start with our children. Some of the children walk for about 8 km in and out every day to Besease to attend school because we do not have a school here. Those who are below 6 years are denied kindergarten education because they cannot walk that long distance. The associated problems, I guess, you can count. Those who walk to the school have to endure all manner of hazards including meeting dangerous animals like snakes on the road. They sometimes meet

strange people who make them afraid of using the road. Some of them especially the weaker ones become tired of walking and so had to absent themselves from school during some of the days. Besides, the scorching sun they walk through is another source of concern for us. They arrive in school late and come back home tired". –Joe, 50 year old opinion leader, Antem

"The only thing I feel is a problem is the distance. Because of that she (10 year old daughter) sometimes breaks school for a day in order to rest. She leaves the house at 6:30am and gets to school at about 7:45am. When she started schooling, we had to work hard to keep her going to school because of the distance. However, now she is more used to the distance and attends school more regularly. However, on some days, she absents herself when she feels she is too tired to go to school. Because of the distance, she is not punished at school when she reports late but when she fails to report for school she is either caned or left off the hook. She could board a vehicle to school but the cost of transportation is too high. It cost as much as 30 or 40 pesewas and I cannot afford to allow her board a vehicle to school always. I will prefer she stays at home rather than pay such high transport fares. Elizabeth (6 year old daughter) will start schooling next year in the same school. She would also have to walk like her sister. I believe she will become used to it with time. If she gets tired she will also rest for about 2-3 days and then go back".- Egya Kobina 48 year old father.

The above narrations raise a myriad of issues that distance to school brings upon the community. As reported by Porter et al (2010) and Amoako-Sakyi and Owusu (2011), distance to school greatly influences school going age, absenteeism and early drop out. Among out-of-school children sampled for this study, 14.5% named long distances they had to travel to school as the main reason for dropping out.

Even though walking may represent an inexpensive means to getting to school, the aforementioned repercussions make it unattractive. The ability of bicycles to mitigate such challenges children face in their quest to acquire an education cannot be underestimated considering the fact that they are generally socially accepted right from the North where there is high ridership down to the South where its usage is gradually picking up (KPMG, 2008 World Bank, n.d). Bicycles are said to be highly cost effective means of transporting both people and goods in a flexible independent way (Gauthier and Hook, 2005) and maintenance is relatively easy. Results from the qualitative study indicated that at least 1 out of every 6 children who used bicycles had some basic repair skills. This runs from simple fixing of the chain when it comes off through repair of a punctured tyre to more complex activities such as the repair of the spokes, hub, fixing of the gears and the steering when it loosens or breaks. Even in situations where bicycles are taken to repairers, Yaw, an 18 year old part-time bicycle repairer who learnt the trade from his brother, said he had many customers who flock to him for services and charges only 30 pesewas if the repair works involve the fixing of a punctured tyre and 1cedi (100 pesewas) when he has to grease the bike emphasizing its relatively low cost maintenance advantage.

5.0 Conclusion

One of the greatest and most controversial debates in transport and development is on the potential role of non-motorised transport (NMT) in addressing the transportation deficiencies in rural and urban Africa (Bulterys and Hunt, 2007). Although bicycling has proven to be a cost effective means of transport in rural areas it is yet to be exploited to meet the mobility constraints in those areas.

Children in particular can benefit from using bicycles in accessing educational resource but up till now Ghanaian children mostly ride for fun and running errands for parents. We still do not know why bicycles have not been used to address the mobility constraints of children in Africa.

Perhaps the first step towards answering this question is to understand bicycle behaviour among children in these areas and that is what this study sort to do. This study revealed that although some households own bicycles, they are purposely suited for use by adults and not children.

The study also revealed that parents are less enthusiastic in encouraging bicycle use by children because of the risk of RTCs in those communities. Other socio-cultural factors and believes such as labelling child bicyclist as truants and the fear that female bicyclist may become barren have militated against the utilitarian use of bicycles.

A government led initiative to incorporate bicycle infrastructure into current and future development will be crucial in promoting bicycling. For instance the construction of dedicated bicycle lanes to protect child cyclist who hitherto shared road space with motorised vehicles from RTCs would be a good point to start from. Advocacy and civic education on the benefits of bicycling to school must also be considered. Community and opinion leaders may also have to come up with novel and ingenious ways of glamorising bicycle use such as making frantic efforts in educating local folks in a bid to dispel misconceptions about the use of bicycles especially among girls.

References

Amoako-Sakyi, R.O and Owusu, A. 2011. Moving on two wheels: A comprehensive study on bicycle use among Ghanaian Children. SHBA 76(1): 107-125

Bulterys P. and Hunt, J. 2007. Bicycles in Africa: disputes over transportation development in the third world and the Imperative for Poor Mobility. Available at <http://www.stanford.edu/group/pwruab/cgi-bin/pwrofthepen/wpcontent/uploads/2008/04/philip-bulterys.pdf> Accessed online 28 May 2012.

Gauthier, A. and Hook, W. 2005. Tapping the market for quality bicycles in Africa. Sustainable transport 19:8-11

KPMG 2008. Bamboo bicycles in Kumasi, Ghana. Available online at <http://www.ewb-international.org/pdf/kpmg-bamboobikes-final.pdf>> Accessed on 20 March 2012

National Road Safety Commission 2011. Road Traffic Crashes in Ghana: statistics 2010. Accra: Ministry of Transport.

Pallant, Eric: Transportation. Available at

<http://sitesmedia.s3.amazonaws.com/ericpallant/files/2010/07/Transportation.pdf>. Accessed on 30/04/12.

Porter, G., Hampshire, K., Abane, A., Munthali, A., Robson, E., Mashiri, M., and Mponya, G. (2010). Where dogs, ghosts and lions roam: learning from mobile ethnographies on the journey from school. *Children's Geographies* 8(2):91-105

Starkey, P. 2007. Rural transport services in Africa, Lessons from rapid appraisal surveys in Burkina Faso, Cameroon, Tanzania and Zambia. SSATP Working Paper Number 87-B

World bank (n.d).Ghana: Country Report.(nd) Available at:

<http://www4.worldbank.org/afr/ssatp/Resources/HTML/GenderRG/Source%20%20documents/Technical%20Reports/GRTI%20Rep>. Accessed on 30/04/12

Work, G., and Malone, L. 1983. Bicycles, Development, and the Third World. *Environment* 25: 41-43.