

Title

THE EFFECTIVENESS OF WALKING SCHOOL BUS AND CYCLE TRAIN IN DAR ES SALAAM CITY

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PRESENTATION**

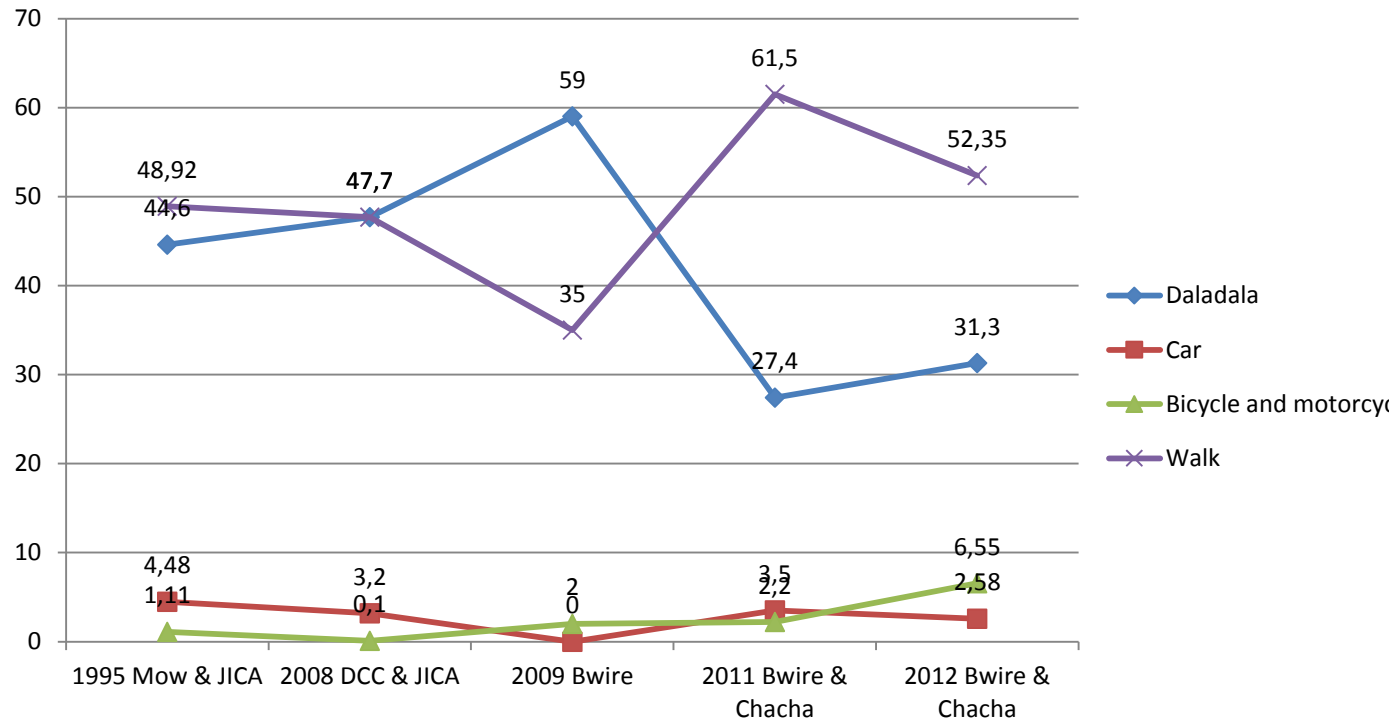
Presentation outline

- Past travel survey
- Problems associated with modes used
- Methodology and Data Used
- Study findings
 - School Children Travel behaviour
 - WSB and CT
 - Evaluation of WSB and CT
- Conclusions and Recommendation

Past travel survey

Past travel survey (Education trips, Main Mode Share)

- Schools attracting more trips, use motorized vehicles, causing congestion and children having less physical activities



- Very few children (2%) use bicycle for school travel.
- Accidents and safety data indicate that children are the most vulnerable to road crashes.
- Cycling and walking are an unattractive travel option for school children
- local outdoor environments (transport infrastructures) are not conducive for NMT use.
- Children mostly use two major modes of transport, walking and public transport (daladala) to/from school

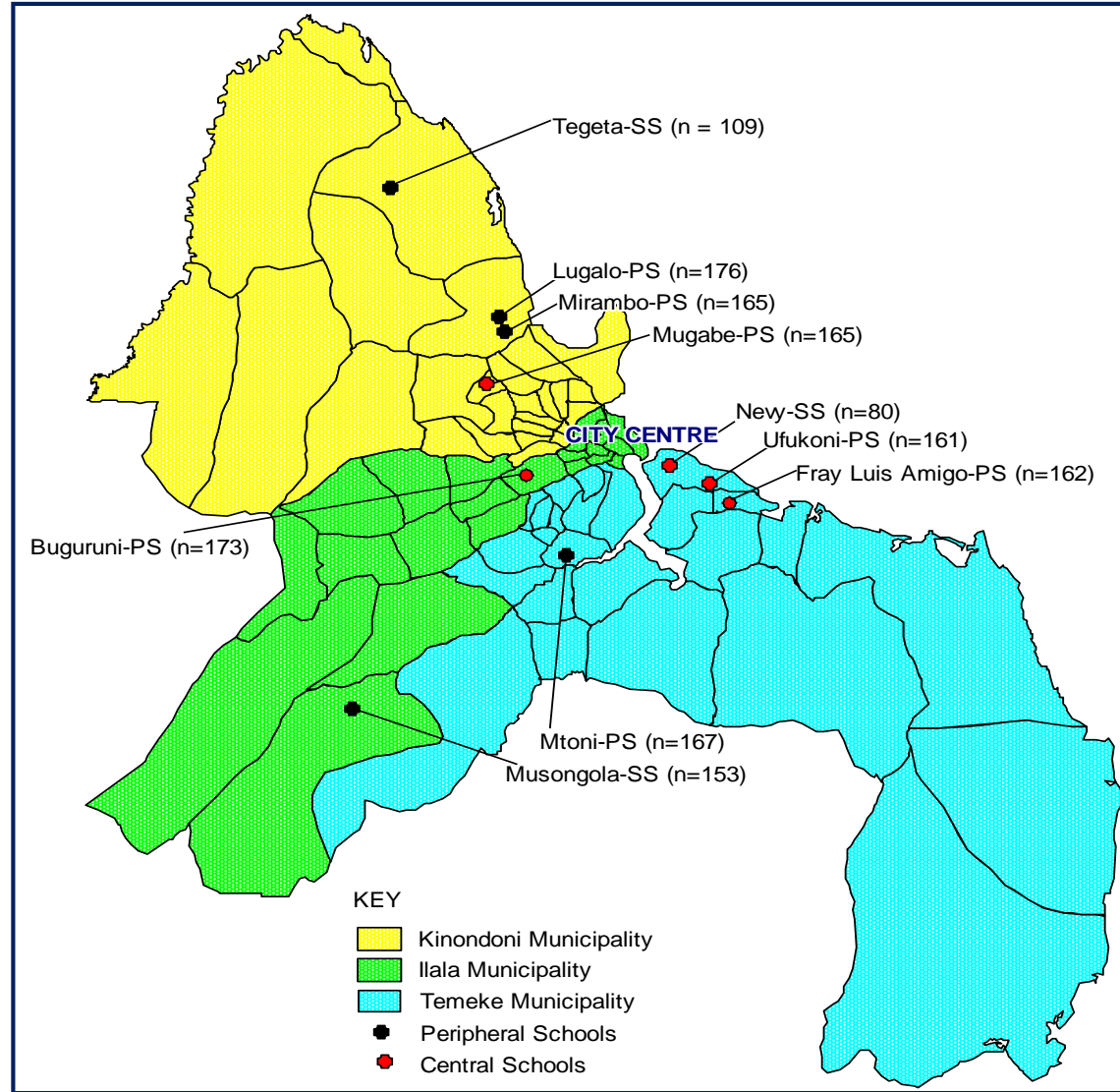
Method of travel survey used

- The travel survey was completed by children either at home with the help of parents/guardians or in class.
- The age of children respondents ranged 6 - 24 years and 50.2% were girls and 45.7% boys
- 1% of the children were 6-9 years old,
- 68.4% were 10 -13 years and 14-17 years old 23.2%,
- 3% were 18-21 years old and 0.1% were 22-24 years old;
- 4.4% did not indicate their age.

Case Study Area

School

- Peripheral located schools (primary and secondary)
- Central located school (Primary and secondary)

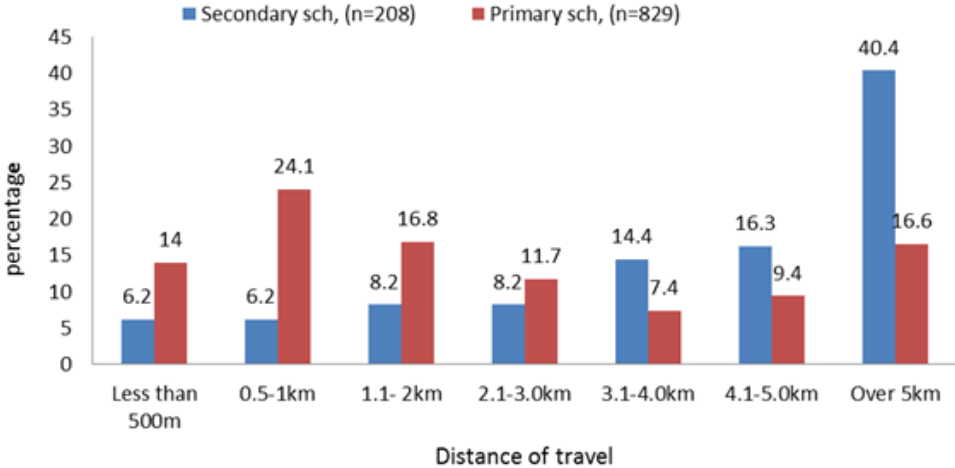


Findings

Children Travel behaviours

59.1% and 60.8% of primary children walking to and from school respectively

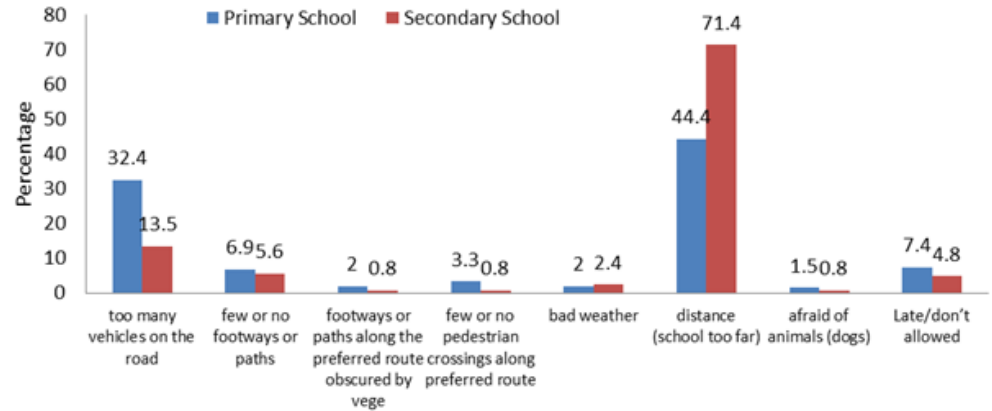
Secondary schools children use public transport (daladala) mode of travel to/from school, 50.3% and 49.4%



		Walked most of/all the way	Cycled	Daladala	School Bus	Parent driver on way to work	Parent driver specifically for	Other	Motorcycle	Non response	Total
Primary (n=1,169)	to school	59.1	7.2	25.7	1.2	2.7	0.5	0.6	0.6	2.4	100
	from school	60.8	7.1	26.1	1.1	1.1	0.6	0.5	0.3	2.4	100
Secondary (n=342)	to school	29.2	4.4	50.3	0.3	0.6	0	0	0.9	14.3	100
	from school	31.6	4.1	49.4	0.3	0.3	0	0.3	0.6	13.4	100

Reasons for not walking

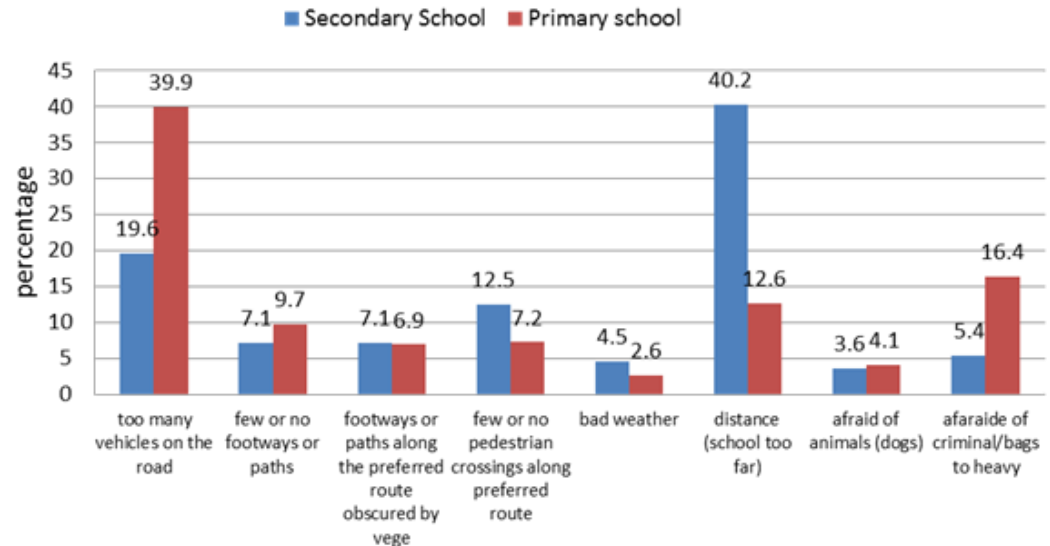
The commonly cited barrier to walking was distance, children especial from secondary schools live a distance more than 5 km



Problems encountered by children pedestrians

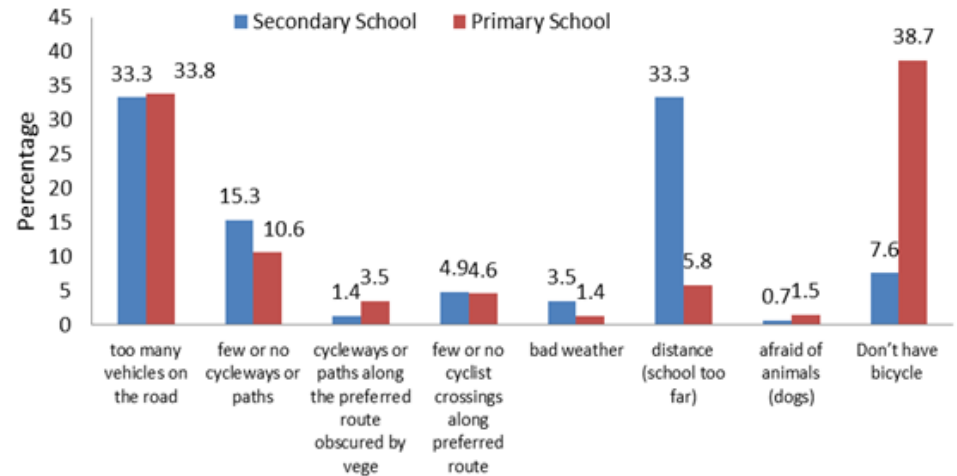
Primary school, the main problems identified include road safety concerns due to high traffic volumes

In secondary schools, children experience a long distance while walking to/from school and road safety concerns associated with high traffic volumes



Reasons for not Cycling

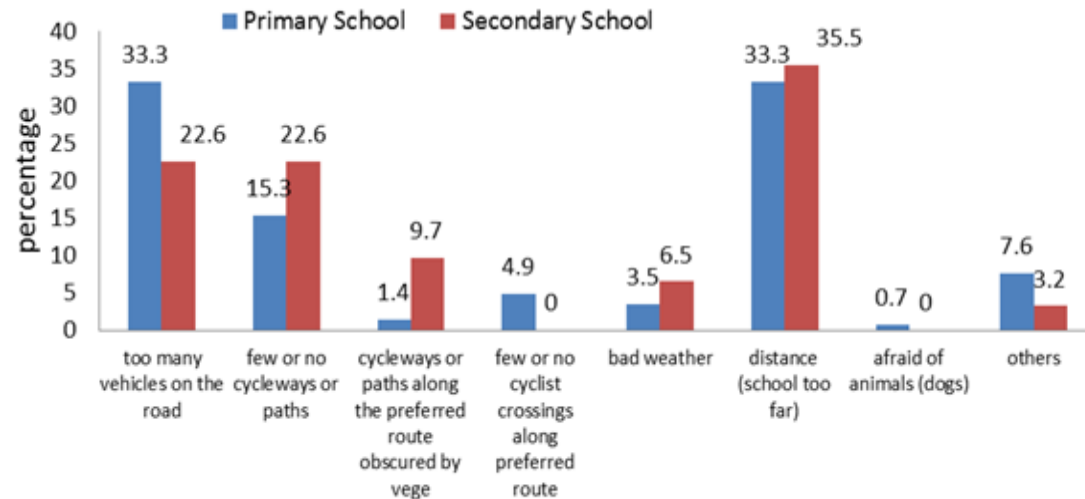
Primary school (7.2%) cycle to school than 4.4% of secondary schools, too many vehicles on the road, distance from school was too far, many children (40.4%) from secondary school live a distance more than 5 Km



Problems encountered by children cyclist

Primary children road safety concerns due to high traffic volumes and cycling a long distance from home to school.

In secondary schools, long distance while cycling to/from school and road safety concerns associated with high traffic volumes

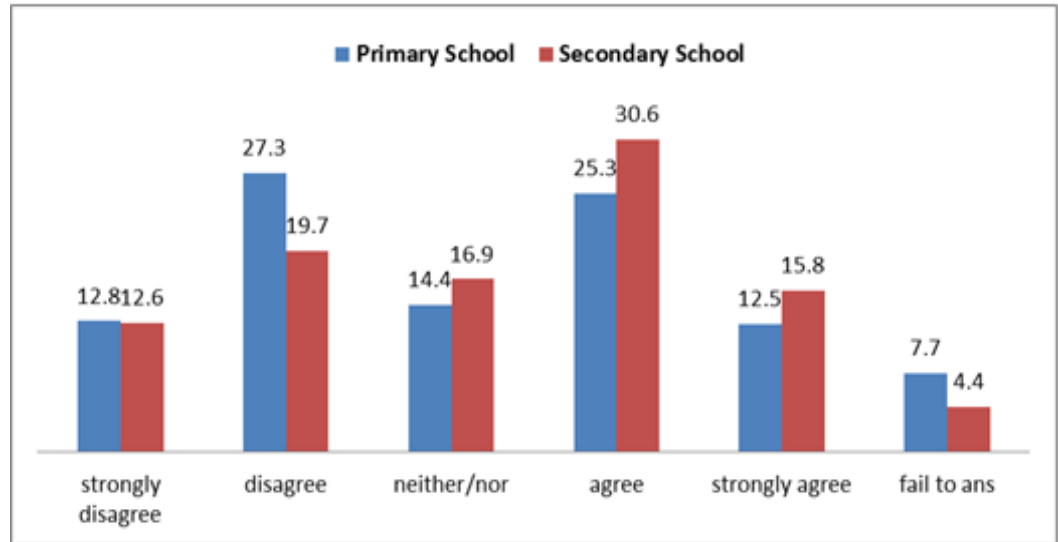


Weather condition to/from school (too hot to walk/cycle, rainfall)

Majority (46.4%) children from secondary schools believe that there are bad weather (too hot to walk/cycle to/from school) to/from school

71% of secondary children live a distance of 3 kilometers and above from schools

Primary children's view, 30% disagree and strongly disagree there are bad weather to/from schools



WSB and CT DEMONSTRATION

Walking School Bus

- Walking School Bus** is a bus powered not by an engine but by legs. Children do not sit inside this 'bus' but they walk in a group to/from school, with an adult 'driver' in the front and an adult 'conductor' at the rear

Dar es Salaam City (n=1169)		Yes	No	Item non-response	Total
Primary School	Permit child to join walking bus	52.44	20.27	27.30	100
	volunteer to supervise walking bus	33.88	22.07	44.10%	100
Dar es Salaam City (n=342)					
Secondary School	Permit child to join walking bus	39.18	27.19	33.60%	100
	volunteer to supervise walking bus	29.82	15.20	55.00%	100

Walking Bus Demonstration

- Few (33.2%) parents/adults are willing to supervise the walking bus.
- 50% of parents agree to let their children use WSB if started from nearby street.
- Short study found that, older children who were involved in walking bus can be used as conductors for the walking buses.

WSB...

Parent permission for children participation in, and parent willingness to supervise, 'walking buses', by school group (percentage) in Dar es Salaam City

	Yes	No	Item non-response	Total
permit child to join a walking bus	49.8	22.2	27.9	100
volunteer to supervise a walking bus	33.2	20,64	46.1	100

Figure c. A walking bus in Dar es Salaam



Figure d. A walking bus in Dar es Salaam



Route used



Lugalo road to Bagamoyo Rd/Bogomoyo Rd - Google Maps

	Lugalo Primary School		
	1- Head southwest toward Bagamoyo Rd/Bogomoyo Rd	go 600 m	total 600 m
	About 7 mins		
		Total: 600 m – about 7 mins	total 0.0 km
	Junction to Lugalo road		
	2. Head northwest on Bagamoyo Rd/Bogomoyo Rd	go 300 m	total 300 m
	About 4 mins		
		Total: 300 m – about 4 mins	total 0.0 km
	Bagamoyo Rd/Makongo bus stop		
	3. Head northwest on Bagamoyo Rd/Bogomoyo Rd	go 400 m	total 400 m
	About 5 mins		
		Total: 400 m – about 5 mins	total 0.0 km
	Bagamoyo Rd/Lugalo Hospital		
	4. Head northwest on Bagamoyo Rd/Bogomoyo Rd	go 400 m	total 400 m
	About 5 mins		
		Total: 400 m – about 5 mins	total 0.0 km
	Bagamoyo Rd/Kawe Junction		

Meeting point, time and name of children used WSB per meeting point



	Stop E		Stop D		Stop C		Stop B		School
Monday	Bagamoyo Rd		Bagamoyo Rd		Bagamoyo Rd		Lugalo pr Jnc Rds)		
	begin wait	depart	begin wait	depart	begin wait	depart	begin wait	depart	Arrive
distance (m)		0		400		400		300	600
Com distance (m)		0		400		800		1100	1700
Used time in minutes	0	5	2	5	3	5	4	2	7
cumulative time(min)	0	5	7	12	15	20	24	26	33
Time	6:15	6:20	6:22	6:27	6:30	6:35	6:39	6:41	6:48
Parent volunteers	adult 1	Solomon							
	adult 2	Mushi							
Child participants	child 1	Magreth Alfred	child 9	Regina Maganga	child 2	Faith Benjamin	child 19	Samwel Julius	
	child 3	Abdala Shomali	child 10	Michael Esrael	child 12	Mersiana	child 20	Emmanuel Saidi	
	child 4	Kennedy	child 11	Adam Michael	child 13	Anastazia Ruben			
	child 5	Beatrice Baizack			child 14	Agnes Madaha			
	child 6	Richar Moses			child 15	Jackline Peter			
	child 7	Irene			child 16	Agnes Madaha			
	child 8	Anastazia Ruben			child 17	Jackline Peter			
					child 18	Mariam Hamisi			

Draft walking bus planning tool: scheduling (Lugalo primary School)

Cycle train demonstration

- Majority (52%%) of parents/careers agree from primary children agree to permit their children to join cycle train
- below average (40.94%) from secondary children agree

Dar es Salaam City (n=1169)		Yes	No	May Be	Item non-response	Total
Primary School	Permit child to join Cycle Train	51.7	18.1	4.6	25.60	100
	Volunteer to supervise Cycle Train	15.9	31.4	8.6	44	100
Dar es Salaam City (n=342)						
Secondary School	Permit child to join Cycle Train	40.94	18.71	5.26	35.10%	100
	Volunteer to supervise Cycle Train	14.91	8.19	25.15	51.8	100

Cont.

- 15.9% and 14.9% from primary and sec of parents/adults were willing to volunteer to conduct cycle train (*indicate low level of involvement*).
- 8.5% were undecided how often wills he/she available to conduct cycle train.
- Children owning bicycles was a *challenging issue*.
- 85.64% of children surveyed *did not own bicycles*.
- 79.34% of 85.64% would like their child to have a bicycle.

Cycle Train Demonstration

Figure e. A cycle train in Dar es Salaam



Figure f. A Dar es Salaam cycle train entering a school compound



- Cycle trains help to;
 - raise the profile of children cycling on the roads.
 - Increased awareness and acceptance of cycling
 - health.

Evaluation of WSB and CT

Mode change after implementing Cycle Train

POSITIVE IMPACT OF CT

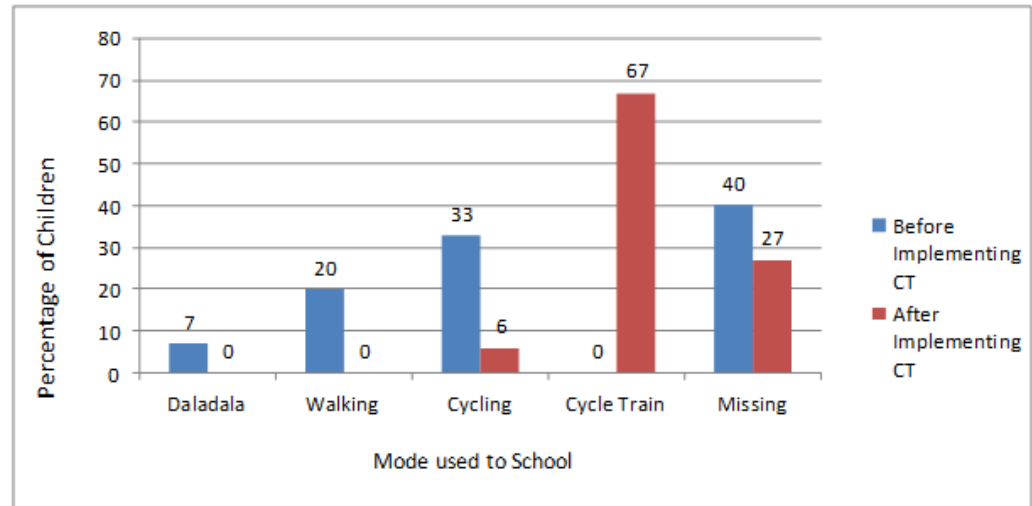
good security while using cycle train, children cannot be stolen their bicycles”

cycle train helps his children to be more careful when on the road

NEGATIVE IMPACT OF CT

when supervisor (conductor and driver) given a work by teacher and takes him/her a time to finish it causes the cycle train users to delay (late) to go home

	Mode used before cycle train	Mode used after Cycle train	Shifted to Cycle train
Daladala	7 %	0%	7%
Walking	20 %	0%	20%
Cycling	33%	6%	27%
Missing	40%	27%	13%
Total mode shift			67%



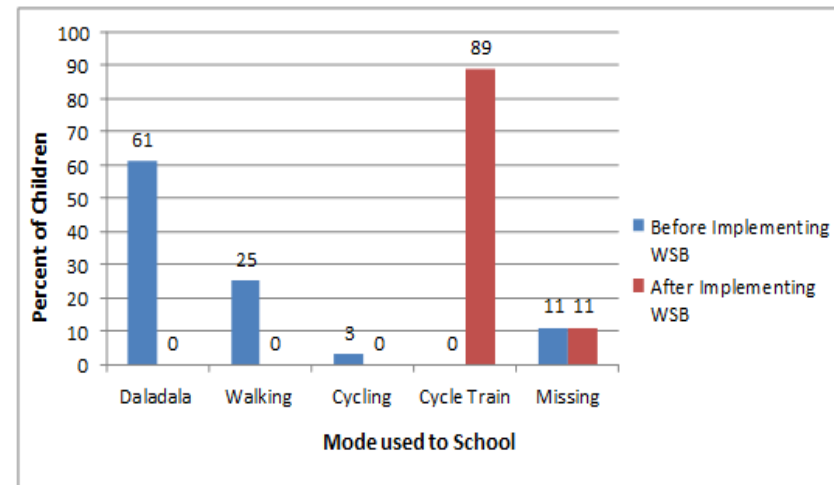
Parent's respondent if they have any contribution to improve cycle train

- cycle train to use two line when cycling
- bicycles to be with reflector for easy visible and identified by other road users
- construct or chose special road for cycling
- cycle train should start at school and ends at home but not at designated stop
- cycle path are not continues and there is no good roads from home to/from school for cycling

WSB Evaluation

- Majority of children using walking school bus (89%) were agree to continue using WSB and request to have signs for traffic control during crossing road like STOP sign, CHILD CROSSING sign for safe crossing.

	Mode used before Walking bus	Mode used after walking bus	Shifted to Walking buses
Daladala	61 %	0%	61%
Walking	25 %	0%	25%
Cycling	3%	0%	3%
Missing	11%	11%	0%
Total mode shift			89%



Parent perception on improvement of WSB

- WSB educating children at schools on road safety and rules to follow when using WSB, and advices that,
- routes for walking buses to be used should be for pedestrians only to avoid mixed traffic
- improvement to make by adding safety instrument (crossing signs like stop sign) (ii) to put roads signs on the road and (iii) all driver should be educated.

Policy implication

- Planners and policymakers wishing to increase walking and cycling among children need to consider options that address distance constraints.
- land use planners and transport professionals use better understanding of the various factors that affect children's choices of school travel mode, results suggest that all school travel attributes should be considered during school location,
- however, the distance and travel safety attributes should be considered a priority.

Conclusion

- Volunteers requested to be paid in order for them to continue supervising WSB & CT
- The use of older children as supervisors, the Dar es Salaam case study is arguably the only example where older children rather than adults have acted as supervisors of walking buses
- Parents and children saying they enjoyed the friendships, sense of community, exercise and knowing that the children were getting safely to and from school

- *To increase WSB and CT*, improvements strategies like Better facilities for walking and cycling which are not mixed with other traffics, Traffic education to both children and drivers (daladala drivers) of other traffics, to put roads signs on the road and to make cycle path and walkway to be continuous from home to school
- Cycle trains provide a sense of security to the children. *For instance before launching there was habit of theft of bicycle when children travelled to/from school alone* but the implementation of cycle trains has increased the security of their bicycle since they cycle in group under supervision.

Recommendations

- Future study should focus on direct involvement of Local Municipalities in promoting NMT initiatives , volunteers to train users and act as main coordinators and supporter
- It is found that secondary children travel a long distance, the study recommend WSB and CT to be used in primary schools only

THANK YOU