Astro-Science Ambassadors Outreach for Science Education in Tanzania

Final Project Report

January, 2016

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ASAO Project Final Report

Project Brief

Project Name	Astro-Science Ambassadors Outreach for Science Education in Tanzania
Project Description	Astro-Science Ambassadors are science teachers trained to teach science subjects using astronomy as an inquiry based tool in Tanzania. All ambassadors participated in a training workshop designed to develop astro-science curriculum activities in line with science syllabuses of the United Republic of Tanzania. Ambassadors were working together through a local organization known as Organization for Science Education and Observatory (Science Center) situated in Arusha, Tanzania. Each ambassador was responsible for one of two science subjects (Physics, Chemistry, Biology, Geography or Mathematics) to develop astro-science activities and disseminate to other teachers and schools. Astro-Science Ambassador Outreach project was unique and innovative because it involved inquiry based science education currently preferred by the Ministry of Education in Tanzania. The project intended to show how astronomy could help transform Tanzania education from content based to context based education curriculum, by giving teachers appropriate hands on teaching skills. The project also aimed at taking astro-science knowledge and skills to more teachers, students, schools and government officers in Arumeru district of northern Tanzania as a starting point. The project offered an outreach experience to astro-science ambassadors and allowed them to overcome challenges of transiting into context education system currently promoted in the United Republic of Tanzania. Astro science activities implemented were developed by the ambassadors through a workshop organized by Telescopes to Tanzania and UNAWE-Tanzania in close association with Science center in Arusha. The activities developed were taught in 24 schools, reached over 30 teachers, engaged a government district education officers and experienced by around 1200 students in Arumeru district.
Project Sponsor	Astronomers Without Boarders and Office for Astronomy Development
Author(s)	Mponda Malozo, Chuck Ruehle and Susan Ruehle
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Project Successes

Name	Description
16 trained astro-science ambassadors	At the beginning of the project there were only six trained astro-science ambassadors, in the course of implementation ten more teachers were trained and increased total number of ambassadors to 16.
24 secondary schools reached	The project was able to successfully visit all 24 schools twice which was the target of the project.
30 host teachers were involved in astro- science outreach activities	At each school visited, astro science ambassadors were able to work with host teachers and introduce astro-science teaching skills and activities which could be adopted by host teachers.
About 1200 students were reached by the project	At each school, astro-science ambassadors had an average of 50 students participating in astro science activities, which allowed the project to surpass its target of 1000 students reached.
1 government district education officer involved	The project was conducted in close collaboration with the district education government office, which appointed one representative. The office was impressed with the impact the project created on teachers through training, outreach activities, education resources provided and inquiry based training methods introduced.
4 laptops were offered to science center for teachers	The project was able to deliver four laptops to science center, to be used by all astro-science ambassadors and registered members of Science Center for learning and teaching purposes at any time.
4 internet modems	The project was able to deliver four modems to science center to be used for internet communication by astro-science ambassadors and registered members of the organization at any time.
HP all in one printer, scanner, scanner and photocopier	The project was able to purchase HP all in one printer, scanner and photocopier to be used by astro-science ambassador for dissemination of teaching resources to their schools.
Partnership	Through the course of project implementation, science center was able to partner with AIMS-Tanzania, Mandela International University and Arusha University on science and education related activities.
Books, Telescopes, Solar projector and other education resources.	The project was also able to give two science activity books recommended by Tanzania Institute of Education, Telescopes and one solar projector to 24 schools participated in the project and science center as teaching resources.

Unexpected Events

Description	Impact	Actions Taken
Insufficient computer literacy on the use of computer as learning, teaching and communication tool.	Slow adoption of the new teaching skills, and inaccessibility of appropriate information.	Computer literacy, use of internet and communication tools was introduced in training workshops.
Bureaucratic processes among involved organization.	Interfere smooth flow of communication, timely delivery of reports and carry out of activities.	Introduced regional project coordinator as focal person to assist quick flow of information.
Slow adoption to new way of learning and teaching	Slow realization of the impact of astronomy on teaching and learning of science.	Twisted project focus to astro-science areas directly linked to Tanzania education system, curriculum, syllabuses and teaching guidelines.
Conflicting schedules between ambassadors, school visits and host teachers.	Delayed carry out of activities.	Emphasized on better planning and better communication among stakeholders assisted by project coordinators.
Inability to conduct night sky viewing	Failure to comprehend night sky observation experience.	Encouraged the use of online resources like Stellarium and projector to display night sky.
Limited time provided by some host schools	Stressed astro-science ambassadors on delivering their lesson plans.	Encouraged early communication with host schools and proper lesson planning based on agreed time.
Weather challenge and bad roads made some schools inaccessible during rainy season.	Failure to deliver lesson plans in time.	Advice was given to avoid school visits to schools with poor roads, during rainy season.

Lessons Learned

Description	Recommendation
Through the project we learned the importance of proper planning and identification of the key roles of each stakeholder, in order to increase project performance and efficiency.	It is important to identify all stakeholders to be involved in a project and understand their influence on carrying out of the project activities.
The project taught us the need to have identified appropriate communication channels and methods preferred by each project partner for smooth take off of the project.	For proper project implementation there needs to be well known and understood communication structures and protocol.
The project helped us realize and appreciate that learning is a process and should never be rushed. There are different factors contributing to one's understanding and adoption of new practices, and those need to be considered with caution.	It is important to understand your target audience and what they are accustomed to, in order to successfully introduce new practices and finally have them adopted.

Project Performance

Time Management					
Planned Finish Date	**Actual Finish Date**	**Variance (in days)**	**On Schedule**	**Ahead of Schedule**	**Behind Schedule**
15-07-2015	[15-10-2015]	120	☐	☒	☐

Financial Management					
Approved Budget	**Spent Budget**	**Variance (in $)**	**On Budget**	**Under Budget**	**Over Budget**
10,780 Euro	11,049 Euro	269	☐	☐	☒

Meeting Proposal Call Criteria

Success Criteria	Criteria Met	Comments
Teacher Training and development	☒	Teachers were trained to be astro-science ambassadors
Resource development and vetting	☒	Teachers were trained on how they can develop teaching resources and how to choose existing resources to fit their teaching needs.
Explore distance learning options applicable to school level education	☒	Teachers were trained, used and explored distance learning resources using provided computers and modems.
Establish reference group for curriculum evaluation	☒	The trained astro-science ambassadors were also trained on curriculum evaluation.
Support existing networks for education	☒	Organization for Science Education and Observatory network was supported with various education resources.

Astro-Science ambassadors

No.	Name	E-mail
1	Eliona Miley	elimiley@yahoo.com
2	Hababi A. Shime	hababishime@yahoo.com
3	Wilson Daniel	wildan4423@yahoo.com
4	Straton Theobalt	theobaltstratos@yahoo.com
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12	Editor Tesha	editorbon2000@gmail.com
13	Elineema Nassary	enassary@yahoo.com
14	Joseph Nicodemus	ariyojoseph2013@gmail.com
16	Sifa Daudi	Sifawadaudi88@gmail.com

Names of the visited schools visited

No.	Name of the School	Host Teachers
1	Nshupu Secondary School	Shoma Celestine
		Samwel Daudi
2	Muungano Secondary School	Raphael Geay
		Mr. Nnko
3	Ngeku Secondary School	Mr. Peter
		Mambosho
4	Nkoaranga Secondary School	Mr. Mathias
5	Akeri Secondary School	Elisifa
6	Makumira Secondary School	Mmari
7	Laki tatu Secondary School	Mshana
8	Sing'isi Secondary School	Jeremia
9	Ngongongare Secondary School	Ashura Daudi
10	Mariado Secondary School	
11	Uraki Secondary School	Juma Hasani
12	Kikatiti Secondary School	Kimario
13	Songoro Secondary School	Evaline Daniel
		Rabia Mngoya
		Nelson Nko
14	Nkoarisambu Secondary School	S. Mshiu
		J. Mfungo
15	Maji ya chai Secondary School	Mwl. Mushi
16	Kitefu Secondary School	Nkoe Nicolaus
		Peter John
17	Ailanga Seminary Secondary School	Nalailla
		Kizito
18	Tass Secondary School	Nalaila
		Tesha
19	Poli Secondary School	Moses Urio
20	Nasholi Secondary School	
21	Nkoanekoli Secondary School	Zawadi Ramadhani
22	St. Jude Secondary School	Mr. Mbwambwo
23	Unambwe Secondary School	Sixbert
		Johnson Kirigiti
24	Molela Secondary School	Mr. Josephat

Project photo link: https://www.flickr.com/gp/44695403@N08/Wm2r07

OAD Project Article link:
https://www.dropbox.com/s/0j4xvvy6y8xkuyu/ProjectarticleforOADwebsite.pdf?dl=0