

How about a spare-time university?

by Michael H. Glantz*

The setting

The idea behind the creation of a spare-time university (STU) is to provide an accessible pathway to educate and empower the general public through the use of a range of new technologies and to share knowledge about today's problems and proposed solutions in various aspects of life, especially those related to weather, climate and water.

An expression often heard in the world of water resources is that "water flows uphill to money". That means that those with funds can acquire, when they choose to do so, water in the quality and quantity that they desire. The same sentiment applies to education: "education also flows uphill to money". Those with a disposable income can afford to put it toward education of self and family members, while those without that income are forced to treat education as a luxury and not as a human right.

Why STU?

Many people are too busy or do not have the opportunity to take formal courses in a classroom setting,

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To serve the basic learning needs of all requires more than re-commitment to basic education as it now exists. What is needed is an "expanded vision" that surpasses present resource levels, institutional structures, curricula and conventional delivery systems, while building on the best current practices.

(World Declaration on Education for All: Basic Learning Needs, Article 2, Jomtien, Thailand, 9 March 1990)

whether it is at the high-school or university level. People are usually too busy trying to put food on the table or they do not have the funds to go to traditional places of learning. I want to bring those places to them ... for free where possible ... to those who want to participate in a spare-time university. Radio, mobile phone and newspaper are media that can be used to get desired information to the people who toil all day attempting to make enough money to provide food and shelter for their families.

A spare-time "university" can help demystify global change science and make science accessible to, as well as usable by, the public. It does so through presentations and discussions of social and cultural issues that are affected by quick onset (abrupt and

extreme) and by slow onset (creeping) climate, weather and water events and their impacts. Most environmental changes in which people are involved are of the creeping kind.

The reason that the time has come for the notion of a spare-time university is because the traditional approaches to education and training appear to be painfully slow and overly selective, with some of the selection criteria for high schools and universities left over from old-style traditional educational methods and media.

STU is an idea that could benefit diverse societies, regardless of their level of economic development. To those involved in the establishment of an STU, there is the satisfaction of educating people during their free

time, whenever and wherever those educational moments of opportunity might arise. STU is not just a clever notion; it is a way to meet personal as well as national needs. It sounds like a new concept to bring knowledge and information to those unable to attend school in a traditional classroom setting. It is not. It is an idea that appeared more than 150 years ago in Europe and, in the 1930s, in China. It may even exist in some form in other countries.

What is STU?

STU is designed as an approach to education that can support demonstrable increases in the level

of scientific and general literacy of the public about current societal concerns related to weather, climate and water, regardless of age, location or prior level of education. It is available to all who have a desire for knowledge on topical, as well as general, issues that can impinge on their lives, jobs and families' well-being now and in the future.

Wireless features of STU education allow for using yet another medium to address a public thirst for information and knowledge. The wireless aspect of an STU makes information readily available to people in spite of the remoteness of their geographical locations or their busy daily schedules.

The reality is that most people have some spare time that can be used for informal educational activities. How to accomplish this is explained in the following paragraphs.

How does STU work?

Students in rural areas can be reached by mobile phone, radio and satellite radio, MP3 and MP4 player technology and with innovative emerging wireless technologies, in addition to traditional face-to-face meetings and printed products. Participants in cities can rely on computers in Internet cafes, radios, as well as all the means available to people in rural areas. Those in large metropolitan areas

At the rural level

During the UN Framework Convention on Climate Change (UNFCCC) COP-12 session in Nairobi, Kenya (December 2006), I participated in a couple of side events. During my stay, I had the opportunity to meet with elders in a settlement on the outskirts of Nairobi. The settlement had recently received water piped into individual homes as a result of a European Union project. When meeting with elders, I was asked several questions about global warming and told by them about what they believed to be changes in local climate, water and weather conditions.

The conversation reminded me of the value in meeting the information needs of people at local rural levels about weather, climate and water issues that affect them directly, as well as those that affect other parts of the planet. Several elders had their mobile phones in front of them on the table. Occasionally, there was a "pinging" sound, indicating that a text message had been received.

All the events at this meeting—the discussion, the content, the desire to "know what is going on" and the pinging mobile phones—reinforced my belief that there is an urgent need for globalizing the concept of a spare-time university (STU). This could make university-type knowledge available in user-friendly language to otherwise educationally disenfranchised people of all ages. It would also provide a pathway for usable, timely information to reach people in rural communities as well as to reach those in urban areas.



Community leaders and elders in Gitaru, 16 km from Nairobi, Kenya. They are also committee members of the Rugita Water and Development project. Francis Gataguta (far left) is chairman. Also in the photo are Ann Usher (Nairobi, advisor to the project) and Qian Ye (CCB/NCAR)

I shared ideas with the elders about a spare-time university and about the flow of information using a variety of media and they were very interested. Information could be received via a computer in an internet café if not at work or at home, by satellite radio (such as RANET), which could be used as a medium for delivering STU-related information wirelessly, and by mobile phones that would also be used for text messaging.

can connect to university courses with most electronic and paper means available. STU is a conduit for providing prospective students with usable scientific, as well as timely and user-friendly environmental and health related, news they can use. It also provides a relevant and engaging vehicle for geoscientists to learn about the socio-economic, political and cultural settings in which their research findings are to be embedded.

STU activities can easily be meshed with digital learning services that promote understanding of underlying scientific concepts. With understanding comes the ability to explain; hence starts the cascade of teaching and learning by future generations as well as present ones.

Spare-time university courses take advantage of “teachable moments”, i.e. the constant stream of ever-changing current events, by promoting “usable science”. STU also takes advantage of emerging mobile technologies, including podcasting and mobile-phone data access. Ultimately, a spare-time university, using the Web, satellite radio and mobile phones of the future, seeks to create an international forum centred on environmental change issues globally to locally.

There are at least three aspects to consider about a spare-time university: the medium for the information transfer; the content (relevance) of the information to be transferred; and the target audiences for whom the information is to be transferred. The medium could be wired (e.g. landlines) or wireless. New technologies (wireless especially) serve to lower the entrance bar for people who want to become knowledgeable, the same as if they were able to gain that knowledge in a formal classroom setting.

The content would be general knowledge on a wide range of issues related to weather, climate and water



STEPS nursery school established for the poorest children, including AIDS orphans, of Gitaru (see legend to photo on page ●●●), which was built with donations. The two teachers, each armed with a mobile phone and a pre-recorded MP3 player—and their pupils—can benefit from spare-time university activities.

of concern to local communities and to countries and regions. It would be usable science information that people at the receiving end could use in their daily lives, such as, for example, the development of early warning activities for weather-, climate- and water-related hazards that intermittently plague their communities.

STU is for whom?

American psychologist Abraham Maslow's *Hierarchy of Needs* is useful in identifying some of the goals behind establishing a spare-time university. His hierarchy was represented as a pyramid of human need in the following way: the broad base of the pyramid is physiological need, the next level up relates to security and safety, followed by social, self-esteem/ego, and the apex of the pyramid represents self-actualization. STU relates most directly to the top three layers of the pyramid (Kim, 2000; Maslow, 1954). A humanistic psychologist, Maslow wrote that, in an ideal situation, people would have to fulfil their most basic needs before focusing on developing the needs

higher in the pyramid. However, one can easily show that, today, people do not have to wait to fulfil their most basic needs before they focus on other needs such as social, self-esteem/ego and self actualization (or, as Maslow termed it, growth motivation).

The target audiences would include people in rural areas, urban areas and metropolitan centres (e.g. megacities) and would include (at least in theory) people already in the workplace, including on farms, students in schools and their teachers, and those working in the electronic and printed media. A spare-time university could also be of interest to university professors and professionals working in areas of education and training. They would learn about the social issues of which their activities form a part, making explicit the various ways their work benefits the societies that they serve.

This kind of information can be brought to villagers who want to listen to radio transmissions or receive text messages or to read about it and learn. Usable information is a top

Radio and Internet for the communication of hydrometeorological and climate-related information (RANET)

In developed countries and most major cities, a daily weather forecast, information about an upcoming season or even general educational material about the environment is relatively easy to access. There are various forms of broadcast media through radio and television and the Internet, of course, provides a wealth of opportunities. But, for the vast majority of the world, particularly in rural and developing country contexts, basic communication remains a significant challenge. Unfortunately, it is often these remote and rural populations that are most in need of climate, weather and other environmental information and services.

RANET, a consortium of international organizations and National Meteorological Services, was created to address such communication needs. Its primary mission is to make climate- and weather-related information accessible to remote and resource-poor populations. To accomplish this mission, the programme utilizes new and existing communication technologies that are sustainable and usable in these settings. By so doing, it builds telecommunication bridges between science-based service organizations and remote communities which can use and apply environmental information and services to facilitate day-to-day resource decisions and help people prepare for, mitigate against and respond to, natural hazards.

In Africa, for instance, new and existing FM radio stations have been integrated with digital radio-satellite technologies, which connect producers of information to rural communities. Similarly, RANET has worked with

partners to develop a backbone for the exchange and “broadcast” of SMS (mobile phone text) messages, thereby allowing warnings to be distributed and field data collected. While RANET continues to develop new communications and applications, it always strives to build upon existing capabilities and local knowledge. Because communications are not just a technological or system issue, the programme attempts to address challenges of sustainability by ensuring projects and infrastructure are community-owned and locally operated. Most importantly, by establishing communication bridges between the producers and users of environmental services, RANET helps facilitate a dialogue in which users can better articulate their needs to various producers, thereby generating better services and products.

<http://www.ranetproject.net/>



priority of a spare-time university; new or existing alternative agricultural methods, fishing techniques, ways to till the soil or to terrace hilly terrain and methods used elsewhere to harvest water in dry areas, etc.

What about STU course information?

The information required by an STU will be produced by people knowledgeable about the topics and issues of concern to the specific needs of individuals and groups. At first, the selection will

be driven by the developers of the STU concept and will be focused on weather, climate and water issues, explaining the science in user-friendly terms and discussing likely impacts and ways to mitigate those impacts. Information to mitigate, if not avoid, adverse impacts and to enhance positive impacts of climate change would be provided, application of information for farmers, discussion of early warning systems and what such systems can and should do as well as what they cannot do for a community. Providers of STU course information

can come from any quarter of society with selection focused on those who possess the information needed by the students.

The information for spare-time university courses can be relatively short and to the point. It can be highly user-friendly, with no unnecessary dependence on scientific jargon. There would be sufficient time for “students” to use a mobile phone or a pre-recorded MP3 or MP4 player or to listen on the radio (maybe satellite radio) to the courses, as there is

no rigid schedule for completing a course. How best to deliver course information to villages and to remote areas as well as to poorer neighborhoods in major urban areas can be decided on a region-by-region basis.

Where did the idea for STU come from?

A spare-time university is not an idea developed by industrialized countries for the Third World. *The Penny Magazine* was first printed in London in 1835. It catered to the “very great number of persons who can spare a half an hour reading a newspaper ...”. Given the various methods of land- and water-based pathways to its readers, *The Penny Magazine* would “ [be] put ... within every one’s reach in the farthest part of the kingdom, as certainly as if he lived in London, and without any additional cost”, the point being that *The Penny Magazine* would provide open access to the general public interested in acquiring knowledge.

STU was also successfully developed in China during the revolutionary years of the 1930s. In 1958, policies to establish an STU in China became law. For the most part, the initial stages of China’s STUs were designed to raise literacy levels in the country and to prepare students to enter the workforce in industry and in agriculture. It has been successful, although the form and function of spare-time universities in China have changed over the decades. Given their success and popularity, some Chinese universities have begun to bring spare-time universities into their programmes. STUs can be successfully developed in other countries as well.

When it began in 1958, STU was viewed as one of three classes of schools: full-time, half-time and spare-time (Abe, 1961). The notion of a spare-time university was developed

by Chinese leaders in order to close the gap between students going to university to earn advanced degrees and those people who were labourers in fields and factories with neither the time nor the level of education to succeed in a formal university setting. Factories as well as farms had schools. It was an attempt to level the proverbial playing field in society by raising the literacy level of workers by their participation in university courses and becoming a part of the country’s development process.

“Wireless wars”

“Wireless wars” seem to be shaping up in the world of Information Technology. There will be tremendous competition among wireless information delivery systems—the mobile phone, satellite radio, wireless computers, MP3 audio players and MP4 video players. The prices are already dropping for each of these forms of communication, as demands for them expand. China, for example, now has over 200 000 000 mobile phone users. In many countries, mobile phones now outnumber landline phones. Similar patterns are beginning to appear in other countries, such as South Africa and India.

In the industrialized world, there is considerable interest in what we call the “free university” and in “informal educational programmes” that are designed for “K to Grey”, i.e. from kindergarten to old age. Thailand has its “midnight university”. There are many virtual courses on the Internet. Some of STU’s courses could be undertaken to generate financial support for other activities that could then be offered without cost. STU is a serious effort to bring educational needs to people who can benefit from them. It is a glimpse of the future.

The globe is going wireless. Wireless technologies are quickly replacing technologies that tether people to desktop computers or to their need

to be in a classroom at a specific time in order to engage in a lesson. The mobile phone has freed people from a century-old dependence on landlines. Many laptop computers have wireless capabilities. Another factor of concern has been cost. Mobile phones, MP3 or MP4 players and laptops have been too costly and, therefore, out of reach of large segments of the Earth’s population. However, as these items become more popular and more widespread, their prices tend to drop. One recent example is that of the US\$ 100 laptop that has been made for use in developing countries. The low price makes it affordable and accessible to a new segment of society. The low-priced laptop is scheduled for distribution in July 2007. Some countries that have ordered these computers are Argentina, Brazil, Libya Arab Jamahariya, Pakistan and Thailand (Anon., 2007).

What is the initial STU course focus?

Everyone knows that weather, climate, and water influence a myriad of ecological and societal processes that can lead to good times or bad times, either to a good harvest at the end of a growing season or to no harvest at all. They affect the amount of moisture in the soil, the water needs at different times in the life cycle of a crop from seed-sowing to harvest. Climate affects the abundance of pests that can eat crops (such as the locust), the abundance of mosquitoes, and so forth. Prolonged droughts or heavy rains can be disruptive and destructive of human activities and settlements. And now there is talk about the likelihood of a change in the climate conditions that generations of people have come to know, expect and cope with. These are weather-, climate-, and water-related topics, among others, that will be fare for spare-time university courses.

STU is an educational vehicle that will complement various structures

for distance, virtual, Web-based and e-learning. It alerts the public and specific targeted audiences to the importance of knowing about and using weather-, climate- and water-related knowledge.

In sum, STU could be viewed as a back-door approach to improving science literacy and awareness, especially in its use to mitigate the negative impacts of weather, climate and water on human activities of local to global concern. It will be designed to be free for those who have neither the resources nor the time to spend in a classroom or to sit in front of a computer at home or in an Internet café. STU will exploit new wireless technologies as they become available.

The expression "Rome was not built in a day" also applies to the development of a spare-time university. The first step involves developing prototype activities, identifying appropriate audiences, matching the appropriate combination of technological services with the capabilities of the target audience, and preparing course modules relevant to the interests of the target audiences. Learning is truly a lifelong process and, therefore, it is never too late to enroll.

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