



New directions in building a  
scientific social network  
Experiences in the Supercourse project  
and application to Central Asia

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## Abstract

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**Introduction:** Networking leaders in the field of public health and medicine is very important for improving health locally and globally, especially in times of disaster.

**Methods:** Fishing can best be defined as using an internet search engine to find the name and email address of the person or organization that is being sought.

**Results:** With over 500 hours of work, the group compiled a list of nearly 2,000 email addresses of Ministers of Health, deans of the 1,800 medical schools and schools of public health, and heads of medical and public health societies.

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**Keywords:** *social networking; public health; health societies*

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### New directions in building a scientific social network

Experiences in the Supercourse project and application to Central Asia

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experts to quickly distribute information in a time of need or emergency. Here we describe an approach to build networks in the area of global health.

The Supercourse is an online repository of public health resources designed to empower teachers, accessible by anyone with an Internet connection and a desire to know more about a certain topic (<http://www.pitt.edu/~super1>). The resources are PowerPoint lecture slides on topics ranging from basic methods of epidemiology to lectures on specific diseases, as well as lectures relating to disasters (e.g. earthquakes, tornadoes) that can be brought to global attention an instant after such an event occurs. Nearly 5,200 lectures are being shared by over 48,000 faculty members in 174 countries around the world with thirty one languages represented in the Supercourse (Supercourse 2010).

Utilizing the “Golden Lecture of Prevention” (Supercourse 2009), faculty can introduce basic knowledge of the importance of prevention and what it means for the betterment of global health. This PowerPoint lecture was initially developed in 2003 and has slides developed by many different collaborators. It has been translated into 18 different languages by volunteers associated with the Supercourse. The lecture has been viewed thousands of times and accessed from

## Research

Social networking is becoming more and more important in various areas of science (Tuire, 2001). Despite this fact, there is little known about the “science of social networking.” In this research project, we have begun to evaluate the science of social networking with approaches that heretofore have not been explored. The Social Networking evaluation has been established as part of the Supercourse. LaPorte (2004) detailed both the high-tech and low-tech methods of building the Supercourse faculty network from word of mouth (low-tech) to weekly updates alerting users of new additions (high-tech). The interconnectivity of users and knowledge in different arenas makes it possible for

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Central Asian Journal of Global Health

140 different countries. This is a good example of networking at the global level and how global competence in this area can increase as anyone with access to the internet or the Supercourse on CD can view this lecture.

As of June 2010, there are no complete listings of deans of medical schools and schools of public health worldwide, nor is there one for the Ministers of Health of each country readily available. The World Health Organization (WHO) is interested in working through the Supercourse team and the Library of Alexandria to compile these lists so as to be able to reach the deans and ministers for collaboration in the fields of public health education. It is with the potential for building networked collaboration and exchange of ideas and knowledge that this “fishing” expedition began.

One of the most difficult problems in global health is how best to disseminate global health knowledge, especially through global health leaders. We decided to create a network of deans and Ministers of Health to serve as a gateway for the sharing of information with the faculty in the schools and the staff in the ministries of health. In addition, we took it upon ourselves to network the national directors of medical and public health societies so that we can reach through them as gatekeepers to their members. In addition to developing a network of deans, ministers, and heads of medical and public health societies, this model for network building is especially applicable to the five countries of Central Asia. Collaboration, scientific social networks, and scientific connectivity are low between researchers at different universities within each country as well as between the five individual countries. Utilization of the networking building process described hereafter can open scientific and collaborative doors in the countries of Central Asia that have not been previously accessible.

## Background

The lack of relevant scientific literature on building social networks, scientific networks, or scientific collaborations indicates that novel ideas are needed to build a network of the most knowledgeable and influential people in the medical and public health world. We describe a novel approach used by our group to achieve an important public health goal of scientific networking and encouraging collaboration amongst deans of medical schools, ministers of health, and other influential people in the world of medicine and public health. Moreover, the ultimate goal of building the network is to be able to better share information with WHO, other agencies, and ultimately all public health and medical faculty and students worldwide.

Newman (2001) found that a social network is a collection of people, each of whom is acquainted with some subset of the others. In the medical and scientific communities, not every member knows every other member – the large number of network members makes it impossible. However, according to Newman, each member knows a subset of others within the group. Thus, a scientific social network could be built by bringing together small groups so that it could be possible to interact, at least casually, with every other member of the network. By reaching leaders in the field of medicine and public health, such as deans, the chances of reaching multiple members of medical social networks are greatly increased, as these leaders are well connected in their respective areas.

A search for literature indicates that manuscripts addressing the accessibility of email addresses and contact information for these “powerbrokers” in the fields of medicine and public health are not currently available, as it has not been a focus of previous research studies. Lawrence and Giles (1999) found in a now outdated article discussing accessibility of information on the web that only 9% of the information on the internet is related to science,

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education, or health. This indicates that fishing for contacts is more likely to be found on less than reputable (i.e. non-academic or organization) websites.

Today, most medical schools of the world have either websites or contact information for the school or its dean listed on the Internet. WHO has a complete list of world's medical schools at <http://www.who.int/hrh/wdms/en/>, however email information is missing from that list. Availability of this information suggests that the first step in creating a social network of medical and public health leaders would be finding or “fishing” for their emails, so that in the future they could be contacted and networked for various projects.

The process of fishing for e-mails is not complicated, but it is an important activity, as there are no lists of contacts for deans, ministers of health, or heads of medical societies. Although there are articles on searching for information, we could find no information about how best to find high level medical personnel worldwide. Without careful planning and teamwork, it can turn into quite a time-consuming task. With the appropriate planning and delegation of tasks, it yields great results – a further connected and more collaborative world. Fishing for contacts and any subsequent networks that are built and contacted from these efforts hold the potential to expand the Supercourse lectures exponentially. Moreover, what we are developing is a model for other disciplines such as agriculture, business, or any area of science. Recruitment of new members means more scientific and public health knowledge being shared which can lead to more and better information dissemination in emergencies (e.g. natural disasters or epidemics) as well as more specialized topics being shared amongst Supercourse users.

## Methods

### *Finding fishers*

The first step in fishing is deciding upon who or what one wishes to find. Over the course of a year, our group, consisting of students and faculty members identified through the Supercourse network, “fished” (searched) for email addresses of the deans of all the medical schools in the world, as well as the deans of schools of public health, all heads of medical and public health societies in the world, and Ministers of Health for all countries. These groups were selected for networking, as they have high relevance to the field of public health, and potentially have the power to make a difference in public health education. Students, staff, and faculty involved in this project were all motivated by an interest in global health and teamwork. The group was comprised of individuals from a variety of countries including the United States, United Arab Emirates, Egypt, and Japan.

### *Effective distribution of work*

Upon deciding who or what it is that one wishes to find by fishing, the work must be split evenly amongst those who are participating. A typical line of division is to split the world up by countries into ten groups. Each group has approximately 20 countries for which information needs to be located. This method varies in dividing the work evenly depending on what information is being sought. If one is searching for deans, groups containing China, India, or the United States will have hundreds more contacts or addresses to be located than a group containing Zambia, Uruguay, and Iceland which only have one medical school each. However, fishing for Ministers of Health or Medical and Public Health societies is a limited burden. There is usually only one per country, so fishing for these contacts should be relatively easy. In our study, the task

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of fishing was split among approximately 10 volunteers, each assigned approximately 10 countries.

### *Development of a search*

It is important to take no more than 10 to 15 minutes per search, mostly focusing on “.edu” or similar educational or governmental web domains. The idea is that if the information cannot be located within this timeframe, it likely does not exist or, at the very least, it is not worth finding when one is searching for a large quantity of deans or ministers. Also, as this is a large task, if one takes too much time searching for one name, the task will be impossible to complete. The time spent looking for upwards of 200 names or email addresses already guarantees, at the very least, a couple hours of work for each fisherman. It can also mean up to as much as 50 hours to search and find information for those 200 names. University pages that are not in the English language can be translated using the Google Translate feature. While this does not provide a flawless translation, the fisherman is able to get the general idea of what the page says.

### *Building the database*

The list of medical schools was obtained from the WHO website <http://www.who.int/hrh/wdms/en/>. Information related to medical and public health societies, as well as Ministries of Health, was located by searching for the type of organization (society, ministry, etc.) and the name of the country. Volunteers were instructed to locate the contact’s name and email address, as well as position, organization, and country, when available. Physical address and telephone number play a larger role when attempting to send a package containing a Supercourse CD/DVD to the contacts. For our initial purposes, that information was accepted, but not

absolutely necessary. Fishing methods utilized in this project are outlined in Figure 1.

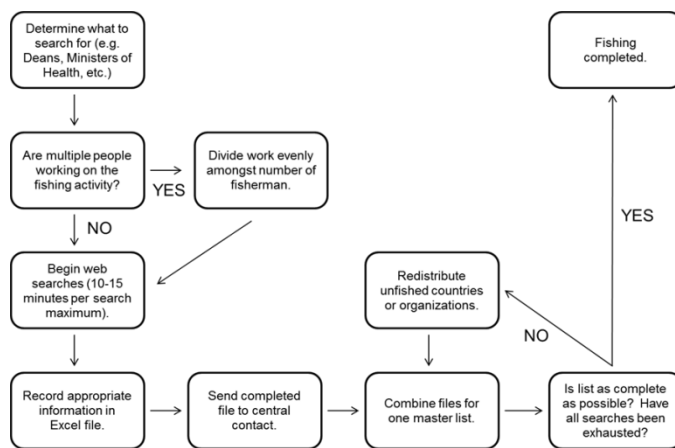


Figure 1. Flow chart depicting fishing methods.

### **Results**

Fishing for the deans or heads of all medical schools and schools of public health worldwide was the first collaborative fishing expedition. Splitting the countries into 10 even groups would yield approximately 180 schools for each fisher to search. However, as indicated previously, not all countries have an equal number of schools. There is a higher concentration of medical schools and schools of public health in countries with larger populations – where the demand for these types of institutions would be higher. Approximately 180 searches per individual can equate to upwards of 30-45 hours of work if the maximum “acceptable” time (10-15 minutes per single search) is spent searching for each school and head of school (dean or most senior faculty member). This is indicative of how large of an undertaking the identification of the head of each of these medical schools and schools of public health is – a potential 450 hours spent building a scientific social network of the most senior members of the worldwide scientific faculty. The 10 people working to locate this elite group of individuals found 1566

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email addresses for medical school and school of public health deans; about 87% of them were identified (Table 1).

Medical and Public Health societies are membership organizations that have been established with the goals of treatment and prevention of diseases. These societies have a variety of mission statements, priorities, and goals. They offer membership to individuals who meet their specific qualifications and wish to work towards achieving their goals and priorities. Reaching the heads of these organizations would be very beneficial in spreading the Supercourse message of prevention and preparedness. It is difficult to estimate the number of members in these 156 different societies worldwide. With the American Medical Association, its state affiliates, and the American Public Health Association having approximately 250,000-300,000 members, it's indicative that worldwide membership in these societies is well into the millions (APHA 2010, Peck, 2007). Approximately 113 email addresses for heads of the various societies were identified which was almost three quarters of the leaders (Table 1).

The last of our group fishing projects was identifying the Ministers of Health for all countries of the world. These government officials are usually the top officials responsible for protecting the health of the citizens of their respective countries as well as promoting public health practices. Through internet searches 137 Ministries of Health were identified (55 countries did not have Ministries of Health or information regarding them or were not found in the allotted amount of search time). A notable 125 email addresses for Ministers of Health were found (Table 1).

## Discussion

Now that nearly 2,000 email addresses of top ranking medical and public health officials from

	Total number Identified	Total number located through “fishing”	Percentage located
Medical school & School of Public Health deans (worldwide)	1804	1566	86.8%
Medical & Public Health Societies (worldwide)	156	113	72.4%
Ministers of Health (worldwide)	137	125	91.2%

Table 1: Results of Fishing

around the world have been compiled, what is the next step? With most public health and medical professionals having regular access to email and Internet, the first step of scientific network development would be to make sure that all these professionals are aware of the Supercourse and its mission and goals. The Supercourse is constantly seeking ways to initiate collaborative activities at the global level to promote the health of populations worldwide. The Supercourse has many things to offer including up-to-date educational resources to empower educators and clinicians. Evidence-based practice in prevention and health promotion means reaching out to stakeholders who can help in distributing these resources to key informants in their communities. Many medical schools do not have much, if any, public health coursework included in the curriculum, so a CD/DVD with Supercourse lectures

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presented at the time of matriculation – perhaps included with orientation materials – could be a student’s first introduction to public health and prevention.

Those who are in the high ranking medical and public health positions are likely to be passionate about treatment and prevention of different diseases and conditions. It is this passion for global health that indicates that building this scientific social network can be very successful even if there is only an initial response of 40-50% of deans, medical and public health society heads, and ministers of health. Worldwide, there are already many collaborative teams or groups working on various projects. If only one member of such a collaboration responds to an inquiry and recruits his or her colleagues, this scientific social network can grow exponentially. By reaching the deans, ministers, and heads and getting them interested in the project, they can act as gatekeepers to additional faculty, staff, students, and others. With WHO providing bulletin information for the Supercourse to feed to the schools, societies, and ministries of health, this will open the gatekeepers to being more receptive to the project.

These lists of deans, ministers, and public health leaders have been developed with the agenda of creating awareness and networking with other medical and public health professionals. To our knowledge, very little standardized global health information is shared among those in the medical field, those involved in public health, and ministers of health. This would be the first attempt for an international global network of information sharing. Privacy of these lists is very important for keeping the network intact, as global health leaders would not be happy about getting multiple poorly focused messages. No one is required to remain on the list and can request to be removed if they do not care to participate.

A foreseeable problem with fishing for Ministers of Health is a term limit. Many ministers, if

not all, are only in their position for a fixed number of years, with rapid turnaround in politically unstable countries. These limits may not be the same for every country and the ministers likely did not enter their position at the same time. This means there will forever be turnover. This problem can also extend to medical and public health society heads, as well as deans of medical schools and schools of public health. No one is guaranteed a position forever. In order to keep current on who is in charge, additional fishing will need to be done on a regular basis (preferably once per year) to determine who is no longer a dean, head, or minister, and then remove those no longer in their leadership positions from the list and add the contact details for their replacements. We will also want to find a person within the Ministries of Health with a more stable position. It has been suggested by the head of training in Afghanistan that the heads of training in the Ministries of Health may be ideal as they are in contact with all of the educators in countries, and they are in their position for years. Another group to potentially target is the heads of non-communicable diseases at the Universities as these people are being mobilized now through WHO; one of the major efforts of the Supercourse is the prevention of Non-communicable diseases.

This model of information retrieval can be used to build networks of professionals in areas where little networking is available. Fishermen at the Library of Alexandria had an intensive course on the ‘art’ of fishing in 2009 and have begun compiling a list of schools of agriculture, along with the listing of deans of these schools. This approach to building a network can be taken by anyone and can be built for any discipline of science (e.g. physics, engineering, psychology, nursing, etc.).

Fishing for deans and contact information is a relatively easy and straight forward first step of building a new, collaborative scientific social network made up of individuals from all over the world. A little

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planning, as well as facilitators to distribute countries, schools, or organizations evenly amongst fisherman, is needed to ensure that the end product is delivered in a timely manner and no one person is left with an unmanageable amount of work to do. Many academic individuals involved with medicine and public health are interested in building collaborative relationships. With the introduction of this scientific social network, they will be able to view lectures on a variety of topics and contact the authors with new ideas or submit lectures on topics that may or may not already be available through the Supercourse. There is likely much unshared knowledge in medicine and public health worldwide waiting to be introduced to an audience eager to learn more. The Supercourse has the materials to share this information with those who wish to learn.

While this article has only touched upon the first step of building a scientific social network – the creation of a database – it is important to note that there are further activities to follow this step. Development of a newsletter, meeting other members face to face, collaborations, and sharing content are all subsequent steps in the successful building of a social network and execution of relevant activities. Approaching the schools, societies, and ministries will be done through both the top down – contacting the deans and heads and asking them to act as gatekeepers to those that they represent – as well as bottom up from the Supercourse network of 48,000 individuals who are associated with an estimated 60% of the schools. This process is still in its infancy and we are willing to share our expertise with others who have ideas about building scientific social networks or wish to collaborate on such a project in the future.

#### *Application to Central Asia*

The use of the fishing techniques described in depth above can be directly applied to the creation of

a scientific social network specific to the five countries of Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan). The Central Asian countries currently have a low level of connectivity amongst scientists, public health professionals, doctors, dentists, nurses, and others in health related disciplines.

Creating this network of Central Asian individuals will be the first step in collaborations with others in Central Asia and around the world. The launch of the Central Asian Research and Educational Network (CAREN) three years ago put researchers in a unique position to interact with others which had not previously existed due to the digital divide, the inequalities between groups in access to, use of, and knowledge of information communication technologies. “CAREN will help [in] decreasing the digital divide and will directly contribute to the development of the education and research sector in the region by enabling access to modern ICT technologies and support distant collaboration through online applications such as telemedicine, distance education, applications in energy and water resources management, seismology and environmental studies” (European Commission, 2012).

Collaborations amongst scientists from Central Asia provide the potential for increased publications from authors in these countries. Currently, the five countries of Central Asia have low productivity with regards to publications. Uzbekistan is the only country in Central Asia to publish above the median (LaPorte, 2011). Increased publication can, in turn, create more of a demand for collaboration with scientists in Central Asia.

With the development of a Central Asian scientific social network, the need for country and region specific public health lectures increases. Developing these lectures and disseminating them to medical, nursing, dental, and public health graduate students each year will create an expansion of the

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network as these students go on to graduate and enter the professional workforce.

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