

## Chapter 1 : Credit Recovery

*The rise of non-traditional meeting spaces has been supercharged in recent years, as meeting planners look to cut costs and attendees continue to seek unique, memorable experiences. In fact, demand for nontraditional meeting and event facilities was expected to increase by percent in , while demand for other spaces remained flat.*

Successful Beginnings for Taxonomies Data Harmony My blog is TaxoDiary. We establish the rules of the game by drawing on taxonomy standards for the key components of a thesaurus, and explore how those elements support information needs of users from multiple perspectives. Then we turn to developing a taxonomy that suits your needs and serves users, respecting their angles on specialized vocabularies. Join the learning and fun! But what type of problems are they good at solving? Using case studies from government and enterprise deployments, Jeremy Bentley shares practical lessons learned on how semantic systems are applied to information that is both behind the corporate firewall as well as on the web. This candid look at three different professional lives builds on a tradition of taking an in-depth first-person dive into the responsibilities, challenges, and opportunities for people who work as full-time taxonomists within large organizations. What are the different challenges they face selling the value of taxonomy? What issues surround software and vendor selection, and how much input do vendors have? They engage the audience in the discussion and face the perceptions and misconceptions we have about practicing taxonomists. These fears can be conquered with a little preparation and a lot of patience. Embracing the Unexpected in Taxonomy Development 2: Besides, surprise is far more useful than general agreement among stakeholders, which often suffers from siloed thinking and political motivations. Seth Maislin shares several real-life, on-the-job surprises and a few laughs , along with suggestions on how to find surprises of your own. Any organization which needs to make significant volumes of information available in an efficient and consistent way to its customers, partners, or employees needs to understand the value of a serious approach to taxonomy design and management. This session focuses on the process and techniques to develop an enterprisewide taxonomy strategy, organize your data, and improve your search relevancy. Successfully Advocating for Taxonomy in the Corporate World 3: There is very often resistance from senior management, who hesitate to spend precious budget on cost-saving measures, as well as pushback from established teams who have not yet bought into the methodology. Fleur Levitz shares practical advice with taxonomists looking to break into the corporate world, including strategies on communicating ROI to senior management, getting buy-in and establishing credibility with cross-disciplinary teams, as well as developing business-specific skills to broaden your impact beyond traditional taxonomy work. Semantic Ontologies in Your Enterprise 4: Hundreds of major corporations such as Boeing, NASA, and TVA already employ semantic-based technologies to directly improve the effectiveness of their information systems. Almost all of our newest promising technologies such as web services, XML, business rules, and business intelligence depend on semantics for the success of their implementation. Dave McComb covers three case studies that show how ontologies have been used as the basis for SOA modeling, cross domain searches and semantic wiki and the use of ontologies to support large scale entity extraction. Everyone Regroups for a Standards Update 5: Beyond the Basics Track Taxonomy Alignment: EU Publications Office This talk explains why and how the EU relies on taxonomy alignment to achieve its objectives and covers: Rebuilding Taxonomy Warehouse as an Ontology This year the site is being completely rebuilt as an online ontology. This case study reviews the data modeling and design process required to convert a directory database into an ontology. It examines facet analysis and the definition of attributes and semantic relationships. While discussing the challenges and rewards of the conversion exercise, the session compares the before and after versions of the website, explores the boundary between taxonomy management systems and content management systems, and discusses the idea that as taxonomies evolve into ontologies, they become not merely a means to access information, but information in their own right. These digital assets are used by the school for web story illustrations, media requests, publications, announcements, and presentations. This session reports on the design and implementation of the metadata scheme for the open source digital assets repository. The scheme needed to include asset metadata about the objects, as well as

controlled vocabularies and keywords to describe and categorize them. The digital assets taxonomy has served the repository very well, meeting the goals to enhance searching for assets and making them easier to manage. Busch, Founder and Principal, Taxonomy Strategies The Bank for International Settlements BIS is an organization of central banks that seeks to make monetary policy more predictable and transparent among its members. As part of the process of reviewing its document management processes, the BIS worked with functional area stakeholders to consider how documents might better be categorized so that categorizing, finding, and archiving documents would be easy and efficient. It developed a practical document categorization strategy to implement in the document management application environment and to maintain it over time. This session discusses the BIS taxonomy strategy and key features, such as making ad hoc categorizations in document titles to group related documents an explicit part of the taxonomy, making large complex taxonomies of activities and content discrete and concise, and mapping existing categories to the new scheme to facilitate content migration. Knowledge Systems Institute These two presentations focus on the design, implementation and deployment of taxonomies and ontologies for content management and search. Anthony Rhem begins by looking at how several organizations use taxonomies and ontologies to improve unstructured content search and retrieval and meet the business expectations of the KM solution. Dean Allemang examines common barriers to getting taxonomies out of the desktop tools and into enterprise use. He draws on experiences with several enterprises in applying taxonomies to content management. When implementing a taxonomy management solution, the disadvantages of both custom systems and full-featured vendor solutions can be mitigated by using standards-based software. Software libraries and services with web-based interfaces that support open standards can provide building blocks that enable quicker assembly, implementation, and rollout of a custom solution. Sherry Chang examines how Intel used taxonomy software to manage multiple hierarchical pathways with a common base of terminology.

**Chapter 2 : Heads Up “ XBRL ” Past, present, and future**

*Recruitment over the 3-day newspaper advertisement campaign averaged 10 participants per day (30 total participants or 3-day campaign=10), and cost of recruitment by newspaper advertisement was \$ per completed survey (\$/30=\$).*

What is your definition of Information Architecture? It also draws on the information retrieval roots of library science, emphasizing the importance of being able to find that which one seeks, whether known or unknown. Finally, information architecture is a user-centered discipline, understanding that usability is at the heart of a successful information based interaction. In terms of the fields that I think most profoundly influence IA and are the best fodder for ongoing learning: Library and information science my bias, obviously , HCI, cognitive psychology, ethnography and linguistics are among those I consider most critical. The ambiguity was appealing to me, as I was attracted to being part of something that was in the process of being formed. And of course there is working on actual information architectures: I recommend throwing yourself in the way of whatever learning opportunities strike you as even remotely relevant. There are both similarities and differences. As a consultant, I was never fond of the part of my job that involved business development e. But I knew it was a critical part of my role as a consultant and, more particularly, as a consultant in a small start-up. So, when I joined a very specific department in a large company, I thought my bus dev days were behind me. And, indeed, I no longer have direct sales responsibilities. There is also, of course, the innie vs. As a consultant, you see the pros and cons of being an outtie depending on the nature of the project- e. It was fascinating to be able to see, and sometimes even be part of, radically different organizations, as a consultant, knowing that in the end I was associated with my own, comparatively comfortable and particularly well-loved company. As a consultant, I frequently left a project after the design phase and before implementation. Security and issues of trust exist on virtually all sites, especially e-commerce sites, but with an online banking environment issues of security are paramount, and security needs that impinge upon the technological back-end supercede other drivers. In addition, Wachovia Securities is our brokerage arm, so from both wholesale and retail perspectives there are brokerage-related issues beyond traditional banking services. This size and complexity issue leads to a number of impacts. The two most pressing are 1 it is quite hard to accurately define our users and narrow them into discrete personas and 2 it is very challenging to navigate the internal features of the bank e. One thing it depends on is how you define knowledge management. Linneaus was a botanist, and taxonomy is generally associated with biology and systematics. When it comes to codifying knowledge into a system, of course, IA will play a critical role in creating an information system that functions as well as it can. Metadata, at its broadest, is descriptive information about information. In the traditional library world, metadata is most commonly thought of as the big 3 from the traditional card now online catalog: But there are other fields as well-year published, publisher, shelf list number administrative info for the library. There are roughly 3 kinds of ways to think about, or classify, metadata: Intrinsic “ information that can be extracted directly from an object e. That leaves us with keywords-what are they? Keywords may be extracted directly from the text or they may be extrapolated-selected because they describe the text subject, topic. The context in which keywords are selected and used is important for this reason. Keywords are by their nature fairly granular-a specific word applied to a specific item, often a narrow subset of a document like a page or a paragraph , but even this granularity can vary in specificity e. Keywords are typically used for retrieval, as opposed to for administration. When keywords are applied to html pages-which is generally done for descriptive and retrieval purposes-they are typically applied via a metatag. This may be what has led to some confusion around the difference between metadata and keywords. The metatag fields in HTML were meant to capture all sorts of metadata; and some are used to capture quite a wide array of information. Taxonomies have been around for a long time “ they are hierarchical schemes for classifying things. Aristotle developed a system of classification in BC. Doing more exploration, I concluded that when people were talking about taxonomy on the web they were often talking about the traditional LIS definitions for classification schemes, controlled vocabularies, or thesauri. I went on a brief mission to convince the Argonauts that we should educate our clients about the LIS terms, but it was more or less a failure, so around I

caved and began using the term taxonomy myself. Now, the terms has become so used, I think it has genuine validity of its own on the web. A strict interpretation of the definition of taxonomy would demand that the scheme be a pure hierarchy with one to one relationships. Here are a couple definitions: Today the major categories are kingdom, phylum, class, order, family, genus, and species. Access and Connectedness in a Wired World. Categories are groupings of like elements often by subject, but also by other criteria, like form. The groupings that make up taxonomies and classification schemes are categories. Information retrieval thesauri are almost the opposite of the way we think of the thesauruses we were introduced to in elementary school. Subsequently the document that mentions the brown crayon and the separate document that discusses the sienna Crayola are both pulled together in the information system that has a thesaurus applied to it. There are 3 primary relationships that thesauri clarify: There are a variety of different ways some of this may be semantic, of course, depending on how strictly you want to interpret the terminology. If the taxonomy is polyhierarchical, thesaural relationships could be employed as part of the taxonomy e. The thesaurus might also be used to show associated relationships for individual records e. No, definitely not all this stuff. These are concepts that can be leveraged as tools to support classification and retrieval. But every site needs some of this stuff, perhaps. A topic worthy of a book, undoubtedly. Labeling is a huge issue in the functionality of software products, especially because we tend to be dealing with extremely narrow and deep structures with software. Well first it begins with assembling a great team. The best teams are a mix of skills, experience and personality. I tend to be drawn to the bottom-up elements of IA e. I like projects that are daunting but not impossible. I took the position that in a world of ever increasing specialization, coupled with corporate environments that ask people to take on ever more responsibilities, with restricted schedules and budgets, we desperately need an individual in the IA role, both to look out for the IA particular issues and to evangelize. I think that there is a human tendency to both intrigue and scare ourselves with the idea that our creations will make us obsolete. And it is true that automation results in dramatic change. So, in the big picture, I have no doubt that automation and technical developments will change the nature of our work as information architects over time. But people have been bending their minds to the nature and need for organizing information for a long, long time, whether as librarians or records managers or database administrators. Christina Wodtke is the founder of Boxes and Arrows. Her day job is Partner at Carbon IQ, a small user-experience agency in San Francisco, where she designs information architectures and conducts user research in the quest to create more usable, effective and profitable products.

**Chapter 3 : AHF Live Summit - Agenda | Online Registration by Cvent**

*FM provides Army doctrine for electronic warfare (EW) planning, preparation, execution, and assessment in support of full spectrum operations. Users of FM must be familiar with full spectrum operations.*

Click on Systematics for a printable version of this article. Continuity of Life Charles Darwin saw a continuity to life through his theory of evolution by natural selection. This same continuity was echoed in the work of the German physician Rudolf Virchow. In Virchow hypothesized that cell division could account for cell reproduction. The Cell Doctrine is a cornerstone of modern Biology and in the light of evolution indicates common ancestry through cell division. In adult humans each of the more than ten trillion cells can be traced back to the original unicellular zygote. The zygote itself was the product of a sperm fertilizing an egg cell. The sperm and egg cell can be traced back to the zygotes from which they arose. This simple thought experiment takes us back from one generation to the next. There exists an unbroken continuity to life; we can trace all of our cells back to the very first cells that existed on Earth. Thus, we can infer from the Cell Doctrine that all organisms can trace their cells back to the very first cell from which all life arose some 3. Binomial Nomenclature In science, taxonomy is the formal classification of organisms. Today, taxonomic systems strive to cluster organisms into natural hierarchical groupings based upon morphology and phylogeny. Organisms are classified using a system developed by the Swedish scientist Carolus Linnaeus. Prior to Linnaeus the names of organisms consisted of descriptive phrases. These phrases were called polynomials. Linnaeus was attempting to classify life on Earth in his book *Systema Naturae*, first published in 1753. Linnaeus used polynomials, but also provided a condensed two-word Latin name for each organism. This two-word system is called binomial nomenclature and is still used today. Binomial nomenclature is used to give each organism a scientific name. The first word is the Genus plural genera, which is always capitalized. The second word is the species and is always written in lower case. The generic and specific names are either italicized or underlined. The name for humans is *Homo sapiens*. Once the scientific name of an organism is introduced in a document it can be abbreviated thereon. The abbreviation for *Homo sapiens* is H. The domestic dog is *Canis familiaris* abbreviated C. In the famous evolutionary biologist, Ernst Mayr, proposed the biological species concept. A biological species is a group of actually or potentially interbreeding natural populations that are reproductively isolated from other such groups. Identifying a species can be problematic. Many living species are described using morphology. Fossil species are defined using morphology and phylogeny. Linnaeus grouped taxa singular taxon into hierarchical groups. From most specific to most general we have: It was clear to Darwin that the pattern of hierarchical groups in the Linnaean system mirrored the splitting pattern of evolution. After Darwin taxonomists were trying to form natural groups reflecting evolutionary history. Classification is always changing as new fossil and molecular data are gathered. The desire to form groups based upon evolutionary relationships has led to the development of several contrasting taxonomic schools over the years. Evolutionary taxonomy, numerical taxonomy, and cladism were all developed in an attempt to uncover evolutionary relationships. All of these systems go beyond traditional taxonomy in that they strive to understand the diversity of organisms and the relationships among them. The science that studies biodiversity is called systematics. Systematics combines traditional taxonomy, phylogeny, and biogeography to understand the evolutionary history of life on Earth. Of the three competing systems mentioned above we will focus on cladism as it has become the standard for working scientists. A single branching tree of life or phylogeny connects all living and extinct forms of life. Evolutionary relationships between organisms are established through cladistic analysis of morphological data and molecular phylogeny reconstruction. Cladistics is a school of taxonomy that establishes evolutionary relationships based upon shared derived characteristics or evolutionary novelties. Using cladistic analysis, paleontologists will construct a cladogram, which is a branching diagram that shows evolutionary relationships between organisms. Three definitions are important for understanding how a cladogram is constructed. Shared primitive characters or traits symplesiomorphies are characteristics shared by all members of the group being compared. Shared derived characters or traits synapomorphies are characters shared by only some members of the group. Shared derived traits represent

evolutionary novelties that are unique to the immediate lineage being considered. Primitive and derived characters are defined by the problem being solved. For example, hair and mammary glands would be derived characters at the class level for mammals, but a primitive character at the level of mammalian orders or families Prothero, , p. An outgroup is an organism which is only distantly related to the others and is placed on the cladogram as a comparison. In this table, the traits for the out-group are marked with a zero. Traits not found in the outgroup are considered derived traits and are marked with a 1. Starting with a diagonal line, the out-group is placed on the first branch. Just past the first branch, the most common derived trait is listed; in this case vascular tissue is composed of tube-like cells. The branching point or node on a cladogram marks the point where shared derived characters arose. Next, the second most common derived trait is determined, which in this case is seeds. Ferns lack seeds and are thus placed on the second branch. The third most common derived trait is flowers. Conifers do not have flowers and are thus placed on the third branch. Flowering plants are placed at the end. Monophyletic Groups Cladograms show the closeness of relationships or how recently two groups shared a common ancestor. The distances between nodes are relative not absolute, so a cladogram is not an evolutionary tree. The cladogram, supported by unique shared derived characters, shows only that two taxa, branching from a common node, are closely related sister groups. A sister group consists of two lineages sharing a common ancestor from which no other lineages have sprung. Three kinds of cladistic groupings are recognized. A monophyletic group or clade arise from a single ancestor and include all the living and fossil descendants of that ancestor Benton, , p. Many familiar groups are monophyletic such as the phylum Chordata or subphylum Vertebrata. The members of a clade or monophyletic group share at least one derived character. A goal of cladistic analysis is to identify monophyletic groups because they are natural groups, true to phylogeny. Many traditional classifications include non-monophyletic groupings, although they are avoided whenever possible. A paraphyletic group is a taxon that includes some but not all of the descendants of a common ancestor Prothero, , p. In a paraphyletic group some of the descendents have lost the derived trait. The class Reptilia is a well-known paraphyletic group. Reptiles most likely arose from a common ancestor, but the group excludes birds class Aves , which are descended from reptiles. The term evolutionary grade is sometimes used to denote a paraphyletic group. The class Reptilia has been replaced by the class Sauropsida, which is monophyletic because it includes birds. A polyphyletic group is a taxon that includes groups from two unrelated lineages Prothero, , p. In a polyphyletic group the apparent derived character is actually the result of convergent evolution and the common shared ancestor does not possess the feature. Grouping elephants, hippos, and rhinos into pachyderms is an example of a polyphyletic grouping Benton, , pp Combining mammals and birds based upon the characteristic of being warm-blooded represents a polyphyletic grouping. Cladograms are Testable Cladistics has become the major tool for scientists studying evolutionary relationships and has had a profound affect on traditional classification systems. Cladistics changed the focus from finding ancestors to analyzing patterns of shared specializations. The power of a cladogram and the reason for its success is that it is a scientific hypothesis that can be tested by looking at additional character states or additional taxa especially outgroups Prothero, , p. Molecular Phylogenetics Extinct and extant organisms in The Tree of Life are connected to one another by their genomes. Thus, molecules record evolution and can be used to establish the degree of relationship between different organisms. Molecular phylogeny consists of constructing patterns of evolutionary relationships by comparing the proteins and nucleic acids of different organisms. A molecular tree of relationships is produced from the aligned gene or protein sequences. The idea that molecules may mutate at a predictable rate has led to the concept of the molecular clock. Thus differences in molecular structure can be turned into time of divergence Benton, , pp Molecular phylogeny reconstructions represent an independent approach to discovering phylogeny because they use genetic comparisons instead of morphological differences as in cladistic analyses. In many cases, molecular phylogenetics has confirmed evolutionary histories inferred by traditional phylogenetic methods Lewin, , p. In other instances it has been at odds with morphological techniques. Molecular phylogenetics has even solved problems for which morphological techniques had no answer. Molecular phylogenetics has influenced the classification and evolutionary histories of many organisms. Molecular data broke up the Kingdom Monera, provided evidence in support of the endosymbiotic theory for

the origin of eukaryotic organelles, unraveled the origin of Australian song birds, and helped to uncover the evolutionary history of humans and other apes as well as change their family taxa Lewin, , pp.

### Chapter 4 : Thinking Beyond the Traditional Meeting Space: Associations Now

*Taxonomy and Jargon in SETI as an Interdisciplinary Field of Study. spectrum or even beyond it in neutrinos or gravitational [3,16,17,21,27], or cities [*

For years, events have been held at tried-and-true locations like convention centers and hotel ballrooms. But as attendee demands and desires increase, creativity must also increase. And that means rethinking the location of your next conference. The rise of non-traditional meeting spaces has been supercharged in recent years, as meeting planners look to cut costs and attendees continue to seek unique, memorable experiences. In fact, demand for nontraditional meeting and event facilities was expected to increase by 3. While numerous cities are prioritizing this trend for meeting planners, Indianapolis has long been home to non-traditional spaces utilized for meetings and events. Several unique locations sit within the borders of Indy, including the following: Georgia Street, a three-block outdoor street and walkway that connects the Indiana Convention Center, Bankers Life Fieldhouse, Circle Centre and several restaurants and hotels. Monument Circle, the geographic and iconic heart of downtown Indy, surrounded by cafes and attractions. Bankers Life Fieldhouse, an award-winning retro-style arena that is home to the Indiana Pacers and Indiana Fever basketball teams. White River State Park, acres downtown of green space, trails, trees and waterways. Forbes was looking to build on its AgTech Summits held in Salinas, Californiaâ€™ outdoor events held under large white tents. After meeting planners visited White River State Park, it immediately became their first choice. Hosting the event in a beautiful, green, outdoor space fits in with the agriculture industry. What we do is we try to go out and get the best and the brightest in the industry to discuss issues that are topical and timely, but we also very much include the participants. After registration, a connecting tent featured the innovation showcase, where approximately 50 startups had exhibits. Connecting that tent were steps leading up to the main tent, where the presentations and panels were held. While Bankers Life Fieldhouse is known for basketball, it also hosted nearly meetings and events in For example, the Indianapolis Artsgarden hosts over performing artists a year. As such, it has an exceptional sound system that can be a strength for any event. Create something that you would want to go to yourself. You May Also Like.

**Chapter 5 : Unraveling the Mysteries of metadata and taxonomies - Boxes and Arrows**

*Assessing Affective Factors to Improve Retention and Completion. November , Volume 17, Number By Ross Markle and Terry O'Banion. Bloom's Taxonomy may be the most recognized framework in all of education.*

Originally published in the Journal of Medical Internet Research [http: This is an open-access article distributed under the terms of the Creative Commons Attribution License \[http: The complete bibliographic information, a link to the original publication on \\[http: This article has been cited by other articles in PMC.\\]\\(http://www.jmir.org/2014/12/e12/\\)\]\(http://creativecommons.org/licenses/by/2.0/\)](http://www.jmir.org/2014/12/e12/)

**Abstract** Background Smokers are a stigmatized population, but an important population to reach for the purpose of research. Therefore, innovative recruitment methods are needed that are both cost-effective and efficacious in recruiting this population. **Objective** The aim of the present article was to evaluate the feasibility of Facebook-targeted advertisement to recruit long-term smokers eligible for lung cancer screening for a descriptive, cross-sectional survey. **Methods** A social media recruitment campaign was launched using Facebook-targeted advertisement to target age and keywords related to tobacco smoking in the Facebook users profile, interests, and likes. A 3-day newspaper advertisement recruitment campaign was used as a comparison. The study that used both recruitment methods aimed to test the psychometric properties of 4 newly developed lung cancer screening health belief scales. Data were collected via cross-sectional survey methodology using an Web-based survey platform. **Results** The Facebook-targeted advertisements were viewed 56, times over an day campaign in in the United States. Of those who clicked through to the study survey platform, **Conclusions** Recruitment by Facebook was more efficacious and cost-effective compared with newspaper advertisement. Facebook offers a new venue for recruitment into research studies that offer the potential for wider reach at a lower cost while providing privacy and flexibility for potential study participants. Furthermore, Facebook is a cost-effective alternative to traditional newspaper advertisement offering a new, affordable venue to recruit large numbers of older smokers efficiently. For the first time, there is a screening test for high-risk individuals defined as current or former smokers who have quit within the past 15 years who have a 30 pack-year tobacco smoking history [ 2 , 3 ]. An LDCT is a newer form of a computed tomography scan that uses lower doses of radiation to take a series of 3D radiographs of the lungs. These images are detailed and can show early-stage lung cancers that may be too small for conventional chest radiographs to detect [ 2 ]. As lung cancer screening becomes more widely implemented, participation is likely to be influenced by many factors, including individual-, provider-, and health care system-related variables. To determine factors that influence lung cancer screening participation, understanding perspectives of individuals eligible for screening is essential. Current lung cancer screening guidelines target long-term current and former smokers [ 3 ]. However, recruitment of smokers can be a challenge, and such research can be limited by the ability to access this target population. Smoking-related stigma has been implicated in timing of medical help-seeking behavior in symptomatic individuals later diagnosed with lung cancer [ 5 ] and quality of life in current and former smokers diagnosed with lung cancer [ 6 ]. Smoking-related stigma may serve as a barrier to recruitment of this important population. Current and former smokers may worry about being blamed for their smoking history as well as feel like social outcasts for smoking, increasing a sense of internalized stigma [ 7 , 8 ]. They may also fear having to endure a lecture from their health care provider about their current smoking status. For researchers wishing to recruit smokers, traditional methods such as face-to-face recruitment and fliers placed in high-traffic areas may not be as successful as recruitment targeting other demographics for research studies [ 9 ]. In addition, newspaper advertisement may be costly. Facebook is a relatively new venue for recruitment into research studies and offers the potential for wider reach at a lower cost while providing privacy and flexibility for potential study participants. Innovative methods are needed that are both cost-effective and efficient in recruiting this potentially hard-to-recruit population. Facebook has previously been established as a viable option to recruit young adults into health-related research [ 10 - 17 ] and may be a successful recruitment tool for older adults. Facebook has been a successful recruitment tool to reach adolescents and young adults for a range of study purposes including exploring mental health issues [ 13 , 18 ], examining pubescent hormonal effects in early adolescence [ 19 ],

and recruiting for a variety of Web-based intervention studies [ 18 , 20 , 21 ]. Facebook may also be a beneficial resource for retention in longitudinal studies as previous studies have demonstrated its utility in retaining adolescents via social media [ 14 - 15 ]. Finally, studies targeting young adult smokers have demonstrated Facebook advertisements as a successful recruitment tool [ 9 , 17 , 23 , 24 ]. Therefore, our study sought to determine whether Facebook would be a successful recruitment tool in a new domain: As of March , Facebook reported million active daily users worldwide [ 25 ]. Facebook offers the ability for the researcher to market a recruitment campaign of advertisements targeted by age, location, and keywords identified in the profile or interest list of potential participants. This strategy of targeted advertisement has the potential to engage current and former smokers as research participants while maintaining a sense of privacy for the individual potentially decreasing the perception of associated stigma. The purpose of this article was to describe the method by which a national sample of older long-term current and former smokers was successfully recruited into a descriptive survey study using Facebook-targeted advertisement. Methods Sample This Facebook sample was recruited as part of a larger overall study to psychometrically test 4 newly developed scales to measure health beliefs about lung cancer screening. The findings of the psychometric study are published [ 27 ]. For the larger study, we aimed to recruit men and women who were eligible for lung cancer screening and included individuals between the ages of 55 and 77 years who were current or former smokers who had quit within the past 15 years and had a 30 pack-year tobacco smoking history. Pack-year is defined as the number of packs of cigarettes smoked per day multiplied by the number of years smoked. Individuals diagnosed with lung cancer were excluded from the study. It should be noted that the age range for the inclusion criteria of the psychometric study was 55 to 77 years. However, Facebook-targeted advertisement does not currently offer the ability to narrow age range in the years-and-older category. Therefore, the age targeted for the purposes of the Facebook advertisement was 55 years and older with the ability to analyze Facebook advertisement metrics by 55 to 64 years and 65 years and older as discrete ranges. Two recruitment strategies were used: The required sample size, based on the planned statistical analyses to evaluate the psychometric properties of the lung cancer screening health belief scales, was completed surveys. Institutional review board approval was obtained from Indiana University before recruitment of study participants. Procedures Facebook Advertisement Campaign A social media recruitment campaign was launched using Facebook-targeted advertisement over an day period. Facebook uses 2 types of advertisements that can appear in different locations on the screen depending on platform used to access Facebook ie, desktop or mobile app. To best understand these advertisement locations, key terminology specific to Facebook advertisement must be explained to include: The newsfeed can include status updates, photos, videos, links, application activity, and likes from people, pages, and groups followed by the Facebook user. The 2 types of advertisements specific to the desktop platform include: For mobile app users, the newsfeed advertisement appears only in the middle of the constantly updating newsfeed. An impression refers to the number of times the advertisement entered the screen for the first time ie, is served to someone either in their desktop newsfeed, mobile newsfeed, or as a right hand column advertisement. Reach refers to the number of people to whom the advertisement was shown. A click to website refers to a unique Facebook user clicking the weblink embedded in the Facebook advertisement that is redirected to the advertised website. Another method to reach potential study participants in Facebook is to target the Facebook advertisement to the audience network of a Facebook group page. An audience network refers to individuals who have liked a Facebook group page. In the case of this study, the researchers set up a Facebook group page called Healthy Lungs Initiative with the purpose of providing general lung health information to recruit individuals interested in lung health issues. The Healthy Lungs Initiative Facebook group page was set up at the start of the study and remains active. A recruitment advertisement targeting Facebook users whose age were 55 years and older and lived in the United States was used. When we defined our audience during creation of the advertisement using these keywords, age, and location, we had a potential reach of , people. Please see Figure 1 for metrics related to potential reach specific to each stage of the keyword targeting process. As previously mentioned, the advertisement was connected to a Facebook group page set up specifically for this study by the researchers called Healthy Lungs Initiative. The advertisement was reviewed and approved by Facebook staff before being released per

Facebook policy. In addition, we followed procedures to reduce participant misrepresentation as described by Kramer et al [ 28 ]. These include 1 prohibiting open access to the survey platform by embedding a weblink that redirects to a screening survey; 2 requiring screening questions to screen out individuals who do not meet the inclusion criteria; 3 incorporating a survey time stamp to examine initiation of survey versus survey completion time span; and 4 identifying item pairs that should be consistent.

**Chapter 6 : Taxonomy Boot Camp Program**

*Such a reality has limited the impact of this traditional taxonomy on the core government agencies covering science and foreign affairs. that expand beyond.*

Grasping or understanding meaning of informational materials 3. Application Make use of the knowledge 4. Synthesis Putting things together in creative manner 6. In general introductory college courses emphasize teaching and learning by focusing on knowledge, comprehension and application. This most often places students in a passive role regarding their learning. Upper division courses hopefully strive to build on the analysis, synthesis and evaluation levels of learning. These are the characteristics of teaching and learning that most engage the students and faculty because they are "ACTIVE". These are the categories that deal with the issues that inspire us to learn and reveal the creative potential within each faculty member and student. During this process students assume responsibility for acquiring the knowledge necessary to respond creatively and evaluate outcomes. This is the basis for non-traditional teaching and learning strategies regardless of the academic course level. Less emphasis is placed on information transmission and greater emphasis placed on developing skills, attitudes and values. This will lead students to engage in higher order of thinking such as analysis, synthesis, and evaluation. Educators need to decide if their courses are intended to require the regurgitation of facts and figures or assist students into developing critical thinking skills with regard to the subject at hand. A lecture format may be entertaining and efficient delivery of information, but does it facilitate the best way to learn! Do you want to be "The sage on the stage or the guide by the side" Bosworth and Hamilton, ? You must decide now if education is about your teaching or student learning! If you are ready to challenge students with the issues and concepts that inspire you and you are willing to share the stage with students then you are ready to pursue non-traditional teaching and learning strategies. They are presented in alphabetical, non-hierarchical order and serve as an introduction. We strongly suggest you utilize the websites and references we have identified to assist you with the specific procedural steps of implementation and assessment. Remember what works for one educator may not work for you but through discipline, dedication, preparation, analysis, perfection and self-evaluation you can develop the non-traditional teaching and learning strategies that work for you. Case-Based Learning or Case Method Teaching The case-based approach to teaching and learning utilizes real or imagined scenarios to teach students about their field of study. Barnes describes the case as "an account of events that seem to include enough intriguing decision points and provocative undercurrents to make a discussion group want to think and argue about them. In this manner students are challenged to learn by doing, develop analytical and decision making skills, internalize learning, learn how to grapple with real life problems, develop skills in oral communication and team work. The significance of case-based learning is that it links theory and application to real or possible circumstances. Students must acquire knowledge and understanding from required readings before attending class in order to apply the information in small discussion groups. Cases prepared by the instructor from textbooks, professional experience, websites, current issues, etc. These questions are designed to reveal a required answer or may be open to a creative response for which there is no right or wrong. In all cases the intention is to create questions that guide the students through appropriate analysis, synthesis and evaluation. In this manner the students are aided in exploring possible solutions and recognizing the consequences of their answers by the instructor. Concept Mapping A concept map is a graphic representation for organizing and representing the pieces and parts of knowledge. They include concepts, usually enclosed in circles or boxes of some type, and relationships between concepts or propositions, indicated by a connecting line between two concepts Novak. The principle goal of concept mapping is to have your students discover, define and develop an understanding of the interrelated parts of a complex set of ideas. Discussion Questions Discussion questions engage students by challenging them to think by analyzing, synthesizing and evaluating the subject matter. These are critical questions conceived to utilize group discussions in a manner that will move the student from knowledge of facts to the evaluation of outcomes. One of the great benefits of this method is that students must come to class prepared because class time is devoted to upper level learning. You can develop your own discussion

questions or save time by utilizing previous exam questions or questions at the end of the textbook chapters. Encourage your students to review the questions at the end of the textbook chapters in preparation for class. Remember this assignment is about learning! According to Harris and Johnson the time designated to discussion questions ranges from 10 to 30 minutes in a 50 minute class and up to 75 minutes in a two hour class. Generally the class begins with the distribution of clearly worded questions, relevant to the topic, to a small group students of their choosing or yours. Each group discusses their critical questions, using their required readings and notes. It is imperative that at the conclusion of the group process that the faculty member solicits responses and offers accurate analysis, commentary, and insight. It is possible that a group will agree on an inappropriate response and this closing discussion allows the faculty member to further assist in their learning and supplement the discussion questions with a brief 10 minute lecture. An additional annotated bibliography of resources on effective questioning for teachers is available at Edvantia. Debate Classroom debate is a form of empowered learning in which students become involved in researching, teaching, and recognizing alternative points of view. The benefits of a formal classroom debate include: Debate revolves around the debate proposition, which should be a carefully worded one-sentence statement, calling for some new position or change in the present. Although the proposition should be worded to avoid excessive ambiguity, they are often normative in style and offer the opportunity to argue both issues of fact and belief. This allows debaters, considerable flexibility in building arguments. The affirmative team argues in favor of the proposition while the negative team tries to refute the arguments of the affirmative team and in essence argues to maintain the status quo Payne. Debates should focus on topics for which there is no "right answer" or too which a marginal view is valuable. Recreating historic debates is also an excellent learning model. Websites that could assist you in organizing, executing and assessing a debate as one of your active learning strategies are as follows: Harris and Johnson have found that collaborative learning can occur through preparation, execution, discussion and review of examination questions. The authors have utilized a variety of testing strategies that emphasize teaching and learning such as: Group Quizzes and Exams Tanenbaum et. Harris and Johnson have utilized this process and extended it to include examinations. It is a efficient way to get students to read the textbook before class and to learn basic course content according to Herreid First, tests are taken individually. After the students have finished the test and marked their individual answers they are put into small groups to take the test again. In the small groups the students must interact collaboratively to justify their answers and complete the exam a second time. Who would expect that the noise level during an examination would far exceed any other sounds in the classroom? The individual and group scores for the test are then averaged either as equal scores or with individual score carrying two-thirds of the weight Tanenbaum and Tilson, The quiz process becomes less a means of assessment and more of an integrated part of the learning process. Multiple Test Opportunities When it is essential that students master a subject matter one of the most effective tools in achieving a high degree of mastery is multiple tests. This testing method allows the educator to cover a great deal of breadth with minimum lecture time. If your class demands the mastery of facts, figures, formulas, dates, names, etc. The process by which multiple exams are given is to establish a period of time such as a week and specific proctored hours for testing. No class time is used for testing. Johnson allows his students to take the exam a maximum of three times, however a minimum score is required on the first exam. This prevents students from merely using the first exam as a study guide. The exams are not returned to students, but their scores are posted on a daily basis. The exam should be inclusive and if so your students will demonstrate the commitment to acquiring all of the knowledge necessary to be successful on the examination. If it is not mastery of the subject matter, but a bell curve you are seeking, then your aspirations are for testing not learning and this method is not for you. First Day Final Examinations Johnson has utilized the first day final examination in honors courses, and an architectural history course. This is intended for classes in which the faculty seeks comprehensive, synthesis and evaluation the highest level of cognitive domain. Numerous final essay examination questions and sources for answering the questions are given to the student on the first day of class. Throughout the semester these questions serve as the benchmarks and reference points for guiding student learning. Prior to the final examination date Johnson reiterates that the final examination is, in fact, selected questions from those given on the first day of class. He recommends that

the students get together in study groups to do further research and preparation for the exam. Students are encouraged to write their answers and assist each other in synthesizing and evaluation the course content. On the final examination day, students are given blank blue books and each student is required to address a different set of questions. Jig Saw The jigsaw learning technique is drawn directly from a jigsaw puzzle. As in a jigsaw that picture consists of numerous interrelated parts. First students are asked to become masters of specific parts of the big picture. After developing this mastery they are required to work as a team to integrate and link their specific knowledge and understanding in a manner that promotes an analysis and synthesis of the big picture. Students learn a subject best when they have to explain it and the jigsaw structure creates a setting in which students will become teachers who explain concepts and procedures to one another Colosi and Zales, For additional information and steps in creating and utilizing jigsaw methods see the following website by Aronson at [www. Peer Instruction](http://www.Peer Instruction) Harris and Johnson, according to their review of literature and experiences have identified three principle types of peer instruction. These include concept testing, peer teaching and student critiques all of which place the student in the position of engaging higher levels of cognitive domain by taking on the role of teaching. In this 90 minute model Mazur assigns students pre-class readings for each lecture and begins each lecture with a short multiple choice quiz over the required readings. Then the remaining class time is divided into fifteen minute time periods, each devoted to one of the main points of the reading. These questions are multiple-choice and are taken individually. Each student is given one minute to select an answer. This is followed by group discussions in which students are peer pressured to think through their responses and defend their answers. Then the students are asked to respond to the question a second time individually. Mazur has found the proportion of students who chose the correct answer always increases after the discussion, suggesting that students are successfully explaining their reasoning, and in the process are teaching each other. The following websites will provide additional material on peer instruction: Peer Teaching This collaborative learning and peer teaching model is student-centered by encouraging student involvement, discovery, manipulation, and personalization of research based information Rubin and Hebert,

**Chapter 7 : Science Diplomacy: A Pragmatic Perspective from the Inside | Science & Diplomacy**

*traditional information literacy to the current information society by full utilisation of the capabilities of information and communication technologies [19].*

Turekian , Peter D. Gluckman , Teruo Kishi , and Robin W. It is the latter perspective, advancing both direct and indirect national interests, that the evolving concept of science diplomacy primarily encompasses. While there is no sharp distinction between the two spheres, they are often administered through different agencies and different funding streams, which can cause potential conflicts between—and confusion within—agencies. Indeed, better coordination could resolve such issues, while enhancing the value generated by such endeavors. Science providing advice to inform and support foreign policy objectives Diplomacy for science: Diplomacy facilitating international scientific cooperation Science for diplomacy: Scientific cooperation improving international relations While this taxonomy has been useful for academic and theoretical discussions, any particular international science effort often serves multiple purposes, such as supporting better international relations as well as the goals of the scientific field itself. Such a reality has limited the impact of this traditional taxonomy on the core government agencies covering science and foreign affairs. Consider the issue of international action on climate change: Getting to the current juncture has required a massive joint scientific and diplomatic effort, and the science diplomacy taxonomy does not easily categorize such activities. While this discussion may seem to be one of semantics, it has a major impact on how relevant agencies view international science and science diplomacy. Other important elements of science diplomacy simply do not fit within the traditional tripartite framing, such as the governance of nonjurisdictional spaces like Antarctica or the role of science in development assistance or in resolving trade disputes. Indeed, some of these gaps have been explored previously. Yet as the significance of science diplomacy grows, ministries and international agencies will have to consider their respective functions and the scope of needed interactions between two very different domains: Toward a Pragmatic Reframing of Science Diplomacy In our experience, a focus on why a country might invest efforts and resources in science diplomacy and international science could be the basis for a more utilitarian framing of science diplomacy, and one that better resonates with government agencies. This alternative framing envisions three new categories for science diplomacy: The new distinctions are useful because they are guided by a spectrum of policy reasoning and political imperatives, and because they recognize that functions will be coordinated by different government agencies. This is the case even though each of the new categories stands on its own. Hence, clarity of expectation and role of agency ownership, as illustrated in this more practical framing of science diplomacy, can help produce effective initiatives and coordination. The development of this new taxonomy for science diplomacy also highlights the need for ministries to ensure they are equipped with and have access to appropriate expertise. Relatively few ministries of foreign affairs have dedicated in-house scientific advisory mechanisms, although many diplomats have scientific backgrounds and larger ministries may have technical units. Recently, a growing effort has been made both within governments and by external groups of stakeholders and experts to suggest to foreign ministries that they consider the need for formal scientific advisory mechanisms. The role, description, and titles of those involved with their foreign ministries vary, but this paper will, for the sake of convenience, term them chief science advisors CSAs. All such figures are involved in promoting the diplomatic function but are, to a greater or lesser extent, engaged in the more specific technical areas carried out by foreign ministries. In part, this reflects the different positioning of trade and foreign aid within specific foreign ministries. Based on our collective experience, we will now share those we consider most important. In total, they represent an ideal that any country would find it difficult to achieve. While a lack of adherence to one or some will not necessarily lead to failure, we believe all are valuable. See Box 2, below. Foreign policy—related issues that demand scientific advice often involve actions by more than one government department. Yet certain departments may not fully understand the diplomatic dimension to a particular international engagement. Cooperative action by officials from relevant ministries can therefore be as important as the actions by foreign ministry officials in achieving foreign policy goals. Communication

and support within the foreign ministry: The CSA should be expected to engage regularly with key foreign ministry figures, providing counsel on diplomatic issues for which science can inform the dialogue. Personal interactions at both the political and civil service levels are always most helpful in enabling useful exchanges of information. Within the civil service, CSA activity covers a broad range of science-related foreign policy issues. Separately, the CSA might help identify and establish science relationships with partner countries. Whatever priorities a particular country might identify for its CSA, the position must have adequate resources to carry out its agenda. Relationship to the science community: The CSA should be an established figure in the science community, sufficiently experienced to inspire confidence within the civil service. Ideally, qualifications should include connections with industry. Altogether, such attributes will allow the CSA to bring together scientific expertise from across the civil service, academia, and the private sector. Indeed, the success of the CSA depends on an ability to build a diverse network of teams from the science community. Further, the CSA should seek to maintain his or her personal credibility within the science establishment, either by assuming a particular leadership position outside the CSA role, leading on a policy issue, or remaining active as a research scientist. The CSA will, in turn, continue receiving requests to speak as a scientist when visiting foreign countries or at international meetings. The CSA will be bolstered further through promotion by the network to which he or she belongs. Depending on the scope of his or her role, the CSA may need assistance from dedicated teams<sup>13</sup>. Actions Designed to Advance Domestic Needs Science diplomacy can be enlisted to meet a range of national domestic needs, from exercising soft power to serving economic interests to promoting innovation. New Zealand also has used science diplomacy to project its voice and interests successfully in many arenas. Here, just as countries use science and innovation to project their national interests, they now increasingly acknowledge the scientific dimensions to development assistance. Central to the development of low- and middle-income countries LMICs is the enhancement of science literacy and capacity through the promotion of science, technology, engineering, and mathematics STEM education. Indeed, the development of scientific expertise to inform policy, address crises, and advance economic human and environmental development applies even in the lowest-income countries. A great deal of aid has a technological dimension, whether to address water and other environmental and resource issues, public health, food and energy security, or to grow and diversify the economy. However, well-intended efforts can be counterproductive if they are not evidence based. Scientific input, therefore, needs to be incorporated into the evaluation and design of proposed programs. Moreover, science partnerships between donor and recipient countries must extend to include joint design, production, and evaluation of efforts. Entities such as the UK-based Newton Fund have engaged in such endeavors, as described elsewhere in this journal. After a natural or human-created disaster, for example, rescue often comes in the form of transnational scientific assistance. Thus, in , following volcanic events in Iceland and the resulting ash cloud, international parties collaborated intensively in enacting a response. On occasion, New Zealand has also sought help from the United States or United Kingdom to address other potential animal or human infectious-disease episodes. The critical role of science cooperation between the UK and Japan was central in addressing the security and health risks associated with the Japanese earthquake and corresponding Fukushima nuclear power plant accident. In turn, national security decisions rest on the ability to verify claims scientifically. Equally, while cybersecurity at one level is a global concern, the growth of state and nonstate cyber espionage is driving states to pursue bilateral as well as international cybersecurity protocols. The rapid development of technologies such as gene editing, artificial intelligence, and machine learning are likewise presenting rapidly evolving challenges to foreign policy and national security systems on a national and global scale. Economic Dimensions In the twenty-first century, trade and diplomacy are intimately linked and, in many countries, organizationally linked within the same ministries. The World Trade Organization WTO system<sup>14</sup> particularly in areas related to food and agriculture<sup>15</sup> is heavily dependent on science. Further, the international trade system is underpinned by an array of agreements on phytosanitary<sup>16</sup> and other such issues. Many disputes handled through the WTO system have been based on scientific argument, frequently centering on whether the science is being applied properly or else being misused to create a non-tariff barrier. Correspondingly, trade in advanced technologies and technology-based services is on the rise. Given the global value chain encompassing intellectual property,

data, and manufacturing, multiple countries are often involved in developing a single product. In turn, innovative countries seek out one another to achieve synergy toward optimizing such products. At the same time, countries look for advantages regarding the sale and protection of products with a high intellectual component. Thus, recent trade negotiations have been heavily invested in debate and negotiation about intellectual property, copyright, software, and advanced biologics. Scientific input into such negotiations is critical to protect national positions. As technologies develop in parallel across the world, successful export, as well as import, depends on common technical standards and definitions. In some cases, market dominance makes such standards easy to pinpoint; in others, state actors may need to play a more active role. In particular, varying definitions may create non-tariff barriers. For example, if genetic modification excludes gene editing in some jurisdictions but includes it in others, a significant potential exists for disruption as these techniques become more widely used in agriculture and medicine. This example helps explain why scientific discourse must be part of trade-related discussions on such matters.

**STI on the National Level** In seeking to build their science, technology, and innovation STI infrastructure, many countries use diplomacy, whether to open doors to expertise in other countries, to foster relationships through partnership agreements at the national, university, or company level, or to reach out to scientists in their national diaspora. All such activities engage foreign ministries, often in partnership with their science and innovation agencies. Countries such as Ireland and New Zealand and an increasing number of African nations are investing heavily in outreach to their respective diasporas through agencies designed specifically for this task. To facilitate such connections, the U. Department of State, the U. For many countries, partnership in mega science projects that cross national borders has the primary goal of assisting in national development. For example, some of the countries investing in the Square Kilometre Array project are doing so primarily because of its potential impact on national development.

**e. Science Diplomacy and National Boundaries** In addition to engaging in the actions described above, a country can serve its national interests by using science to address specific bilateral or cross-boundary issues. One obvious case involves the management of ecosystems and resources that span jurisdictional borders. Today, in addition, efforts continue bilaterally and multilaterally to address the contraction of the Dead Sea. Elsewhere, science-based management plans among Rwanda, Uganda, and the Democratic Republic of the Congo have been critical in protecting the mountain gorilla, a vulnerable species that attracts invaluable tourist dollars. Clearly, matters relating to transborder shared resources such as gas fields, fish stocks, rivers, and watersheds all have large scientific components, meaning that diplomatic efforts without adequate science can be ill-directed. In other cases, science itself may bring diplomatic attention to a boundary-spanning issue, as often happens with riverine systems. On the Danube River, between the former Czechoslovakia and Hungary, tensions over many years regarding the environmental impact of the Gabčíkovo-Nagymaros Dams could well have been mitigated by bilateral scientific input: This is demonstrated well in the European Commission, wherein the Joint Research Centre and many other agencies, such as the European Food Safety Authority, demonstrate how bilateral or regional scientific services can be shared within a formal diplomatic envelope. Regional groupings can also play a role in promoting trade, facilitating agreement on standards and definitions, and engaging in emergency planning and crisis management, with the last of these issues being a major focus of the Asia-Pacific Economic Cooperation science advisors and equivalents group.

**Advancing Global Interests** In expanding the scope beyond national interests, one encounters truly global problems such as climate change, ozone depletion, global biodiversity, and marine pollution. On these topics, there is often greater focus on the perceived immediate interest versus longer-term implications that expand beyond traditional political timescales.

**Shared Challenges across Borders** Many of the issues described above are the focus of the Sustainable Development Goals (SDGs), 16 and the UN agenda, a set of benchmarks to achieve the aspirational outcomes associated with broad sustainability.