



Health, Environment, and Education in a Post-Factual World: Can We Respond?

Conference Abstracts



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Content

Session 1: Health	2
<i>Moral panics with digital technologies and sexual health: The proof of the pudding is in the eating</i>	2
<i>Why Facts Fail: Crafting Effective Messages in a Post-Factual World</i>	3
<i>Heat-Not-Burn: An Emerging Nicotine Delivery System</i>	4
Session 2: Education	5
<i>Knowledge, Attitudes & Actions: Education for Change</i>	5
<i>The Impact of Garden-Based Learning on Children's Intake of Vegetables</i>	6
<i>Insects as food? Sustainability and educational potential of entomophagy</i>	7
Session 3: Environment	8
<i>Geospatial big data: New eyes for disease surveillance</i>	8
<i>Answering hydrology questions with remote sensing and modeling</i>	9
<i>SLAPP Down: The Coercive Curtailment of Environmental Information</i>	10
Session 4: Education	11
<i>The Youth Climate Council Bremerhaven</i>	11
<i>Which factors influence the intention of stem cell donation for leukemia patients? A comparative study with German and Spanish adolescents</i>	12
<i>Analysis of images of old age in primary and secondary I level school textbooks</i>	13
Session 5: Health	14
<i>Examining the evidence for accelerated aging in people living with HIV</i>	14
<i>Sexual Health in a Post-Factual World: Has Anything Changed?</i>	15
<i>Know your audience: Navigating data, collection, presentation of results, and data dissemination with non-researchers</i>	16
Session 6: Environment	17
<i>Mammoths in the park – Explorative learning and teaching in a zoologically impoverished world</i>	17
<i>Understanding the effects of air pollution on health</i>	18
<i>Fake versus real conclusions – An examination of how study methodology can limit conclusions from environmental health studies</i>	19
Poster Session	20
<i>The 21 August 2017 Solar Eclipse and Climate Change: The effects on public health and the environment</i>	20
<i>Individual and county-level determinants of high breast cancer incidence rates</i>	21
Author Index	22

Key Note

Moral panics with digital technologies and sexual health: The proof of the pudding is in the eating

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ABSTRACT

In 2000, a U.S. physician started noticing a pattern among gay men seeking treatment for syphilis at his San Francisco clinic--many of them met their sexual partners in an America Online (AOL) chat room. Eventually, he traced 7 cases of syphilis to men who met in an AOL chat room called San Francisco Men For Men. Since then, hundreds of websites (perhaps even thousands) have popped up, which cater to every niche of romantic or sexual desire. There are dating or sex websites for just about every type of person: Tinder, Happn, OkCupid, and Grindr, but there's also Christian dating, herpes & STD dating, Jewish dating, senior & mature dating, and single parent dating. Is this explosion of website and mobile phone applications (or apps) dangerous for users? Today, young people are digital natives, early adopters of new technologies and, concomitantly, exploring their sexuality through a dynamic process. Should they be fearful of using digital technologies--not only for meeting new people or romantic/sexual partners, but also for communicating and sharing with others (e.g., sexting)--or is this a moral panic to which we can respond? Based on my team's multiple research projects, this presentation will 1) identify how technology--including computers, mobile devices, Internet, and social networking and geo-spatial applications--has evolved, in relation to relationships, sex, and sexual health; and 2) examine the good, the perceived risks, and the real risks related to meeting people online or sharing via digital spaces.

Keywords: Internet; Digital health; Sexual health

Health, Environment & Education, 2017

Oral Presentation

Why Facts Fail: Crafting Effective Messages in a Post- Factual World

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ABSTRACT

As the public continues to have access to a growing number of media channels, scientists and scholars often find it difficult to present their findings in an actionable, effective way. In addition, academics are often up against political views that contradict their research. Rather than simply presenting data and hoping readers "get it," public health and environmental professionals must communicate in a manner that will resonate with a specific population segment and ultimately motivate behavior change. This presentation will share real-world examples and research-based messaging strategies to survive in the post-factual media noise.

Keywords: Messaging, Marketing, Behavior

Health, Environment & Education, 2017

Oral Presentation

Heat-Not-Burn: An Emerging Nicotine Delivery System

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ABSTRACT

Use of electronic devices that deliver nicotine increased significantly in the last 5 years, though in many countries use peaked and is decreasing. Nonetheless, as pressure increases to reduce use of cigarettes, new technologies continue to emerge. One of the latest is heat-not-burn (HNB) products, which involve heating a tobacco product – though not burning it – sufficiently to cause vapor that can be inhaled. These products are a hybrid between combustible cigarettes and e-cigarettes, and thus merit attention regarding their risk potential.

These products are already on the market in over 20 countries, such as Germany, Japan, England, Greece and elsewhere, and one major tobacco company has indicated that they intend to eventually move away from combustible tobacco products. In Japan, use of one HNB product has taken 10% of the cigarette market, and one tobacco company has indicated that it intends to build a large factory in Germany to produce such products.

Even though HNB products do not combust tobacco, there is no suggestion that they are safe, though there are some data to suggest that they are far less harmful than combustible cigarettes. For example, some research has found significantly less delivery of harmful substances, such as acetone, acetaldehyde, and benzo[a]pyrene in HNB one product (IQOS) than a combustible cigarette, but additional research is needed. Data from our own research on one of the HNB products, IQOS, will be presented.

While much more data are needed on the health effects of HNB products, their use has led to new discussions on harm reduction as a goal in tobacco control. The implications of expanded use of heat-not-burn products regarding tobacco use and health outcomes will be discussed.

Keywords: tobacco, heat-not-burn, electronic nicotine delivery systems

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Key Note

Knowledge, Attitudes & Actions: Education for Change

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ABSTRACT

What is the purpose of education for health, environment and education? We want our learners to change, to live more healthy lives, to impact the natural environment less. This session will look at what we know about how knowledge and attitudes work together to influence action and how we can design learning experiences focused on bringing these together to lead to change in our learners. We know that simply providing information does not lead to change. Education for change must also include much more. Knowledge is certainly important, but what kinds of knowledge? Attitudes and values are possibly more important, but how are they related to knowledge and action? The Competence Model for Environmental Education provides a theoretical framework for examining these relationships. There is a growing body of evidence to support the model. Building on that, our goal is to create purposeful educational experiences that help learners build deeper understandings, develop positive environmental attitudes and values, and change behaviors. We will examine models of how we can engage learners in firsthand experiences in nature that tie knowledge, attitudes and actions together in ways that captivate learners and lead to actual change.

Keywords: knowledge, attitude, behavior

Health, Environment & Education, 2017

The Impact of Garden-Based Learning on Children's Intake of Vegetables

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ABSTRACT

It is common knowledge that the consumption of fruit and vegetables plays an important role in a healthy diet. Nutritionists therefore recommend to eat five portions a day. Studies proved that the children's intake of vegetables per day is lower than this recommendation (Kersting et al. 2004, Mensink et al. 2007). A garden-based nutrition program can have a positive effect on the intake of vegetables: Students participating in the program increased their servings per day (McAleese et al. 2007). Same effects were shown in the study of Libman (2008): growing vegetables in a garden had a positive influence on children's nutrition behavior. Children working for one year in a schoolgarden knew significantly more vegetables than children without this experience (Benkowitz 2014).

To investigate primary school children's knowledge and intake of vegetables we asked children (N=119, age 8.43 years) in hands-on interviews about their eating behaviour and presented nine selected vegetables to identify. In addition the children were asked about their preferences and experiences in growing food plants in a (school-)garden.

First results showed that 44% of the children liked eating vegetables very much, an answer given nearly twice as often by girls than boys ($df = 2$, $\chi^2 = 7.49$, $p = 0.024$). Having experience in growing food plants in a garden showed a positive effect on the intake of vegetables ($df = 2$, $\chi^2 = 11.13$, $p = 0.004$). Those who liked eating vegetables did it more often than others ($r = 0.75$, $F_{1/117} = 9.52$, $p = 0.003$). Most of the children identified carrots and liked to eat them, 30% even declared them as their favorite vegetables. Up to 53% of the children had eaten spinach but only 9% recognized the plant. Children who regarded vegetables to be good for their health (17%) gave mainly two reasons for their supposition: there is no sugar in it (14%) and it has vitamins (21%).

Our study showed that children with experience in growing food plants in a garden more often ate vegetables than children without this experience. Schoolgardening fostered the acceptance and intake of vegetables and had an impact on children's nutrition behaviour. Further results will be presented in the talk.

Benkowitz, D. 2014. Wirkung von Schulgartenerfahrung auf die Wahrnehmung pflanzlicher Biodiversität durch Grundschul Kinder. Baltmannsweiler: Schneider Hohengehren

Libman, K. 2007. Growing Youth Growing Food: How Vegetable Gardening Influences Young People's Food Consciousness and Eating Habits. *Applied Environmental Education & Communication* 6 (1): 87-95.

Kersting, M.; Alexy, U.; Kroke, A. & Lentze, M. 2004. Nutrition of Children and Adolescents. Results of the DONALD Study. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz* 47 (3), S. 213–218.

McAleese, J.; Rankin, L. 2007. Garden-Based Nutrition Education Affects Fruit and Vegetable Consumption in Sixth-Grade Adolescents. *Journal of the American Dietetic Association* 107 (4), S. 662–665.

Mensink, G.; Kleiser, C.; Richter, A. 2007. Lebensmittelverzehr bei Kindern und Jugendlichen in Deutschland. Ergebnisse des Kinder und Jugend Gesundheitsveys (KIGGS). *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz* 50 (6), S. 609-623.

Keywords: garden-based learning, primary school children, healthy nutrition

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Oral Presentation

Insects as food? Sustainability and educational potential of entomophagy

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ABSTRACT

According to the United Nations (UN), the current world population of 7.6 billion is projected to reach 9.8 billion in 2050. To satisfy the hunger of people for meat, the demand for animal protein is expected to increase by 70 to 80%. However, the production of animal protein by conventional livestock farming already uses 70% of the world's total agricultural land. Intensive livestock farming is one of the main drivers of the most urgent environmental problems of our time such as the loss of biodiversity and climate change. Thus, an expansion and intensification of current meat production is unlikely to ensure a sustainable nutrition of mankind in the future. Instead, fundamental changes in our food system are strongly needed to not exceed the planetary boundaries even further. Compared to traditional livestock such as cattle, pigs and poultry, insects have a great potential in terms of sustainable production (e.g. feed conversion rate, energy consumption, and land use) and nutrient composition (e.g. protein and fat content). Worldwide there are more than 2086 edible insect species and daily more than 2 billion people already consume insects. However, legal requirements and psychological barriers hinder the introduction and acceptance of insects as common foodstuff in Germany. Although some psychological factors, such as food neophobia and disgust, have already been identified, the western aversion against the consumption of insects is not yet fully understood. As a consequence, more research in the fields of nutritional psychology and didactics of biology is needed. The potential of entomophagy (= the human use of insects as food) serving as a suitable context within the framework of Education for Sustainable Development (ESD) will be discussed.

Keywords: sustainable nutrition, insects, entomophagy, education for sustainable development (ESD)

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Session 3: Environment

Key Note

Geospatial big data: New eyes for disease surveillance

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ABSTRACT

Over the years, several approaches to mosquito borne diseases have been developed using surveillance data and satellite remote sensing. Medical practitioners do not however use these widely. With new geospatial data sources today available, it is possible to develop tools supported with interactive web interface to provide health practitioners with a platform that allows for real time monitoring and visualization of disease hotspots.

This paper presents a novel community remote sensing approach for prediction of mosquito borne disease such as malaria and dengue combining geospatial big data (satellite remote sensing with data from social networks such as Twitter and Google Trends), sentinel data from the National Vector Borne Disease Control Programme (NVDCP) and crowd sourced data through a public reporting platform 'Swasthya' allowing for real time visualization.

Fully open source python scripts have been used to automate the process of data extraction from Twitter and Google trends. Sentinel data from NVDCP is used to validate the social media and search-term data, which also addresses spurious spikes occurring in the data. An ASHA app for better reporting of sentinel data from the field has been developed. A public reporting platform "Swasthya" has been built for integrating crowdsourced data. An open source EastWeb package that automates MODIS data download, pre-processing and modeling of various remotely sensed datasets has been used for identifying potential mosquito breeding sites.

This innovative approach of combining conventional data sources with the newly emerging data sources and data mining techniques through an interactive web based interface that enhances geovisualisation has shown good results in real time monitoring of mosquito borne diseases.

Keywords: community remote sensing, social media, crowd sourced data, dengue, malaria, automation, Swasthya

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Oral Presentation

Answering hydrology questions with remote sensing and modeling

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ABSTRACT

The Mutale River in Limpopo, South Africa is a source of drinking water, irrigation water, and has environmental conservation and transboundary roles. Residents of the rural communities in the upper basin use the river for their modern water treatment facility. Unfortunately, their water is turned off for more than one-third of the year due to reduced flow and no alternative sources. When treated water is unavailable, residents obtain water from a natural sources, which have all shown fecal contamination. The operators of the water treatment facility have identified commercial farming withdrawals as an added and unaccounted stressor on the water resource. There are publicly available river gage data; however, the data demonstrate a clear calibration error. There are no groundwater monitoring wells in the valley despite widespread groundwater use. Presented here are hydrologic models and satellite tools that could hopefully supply missing data and inform water management decisions in the basin. River discharge was estimated from Landsat Thematic Mapper products and groundwater trends were estimated from the GRACE satellite.

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Oral Presentation

SLAPP Down: The Coercive Curtailment of Environmental Information

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ABSTRACT

Strategic Lawsuits against Public Participation or 'SLAPP's are lawsuits without legal merit, usually alleging defamation, filed against civil society or the press in order to intimidate and curb their freedom of expression, with the intent that they will give up their criticism or revelations for fear of the significant legal costs required to argue the defense in court. One of the foremost avenues where SLAPPs are filed is to suppress reporting and criticism relating to the environment. Environmental advocacy and litigation depends heavily on the maintenance of a social fabric wherein environmental violations, non-compliance and harmful practices are freely reported about and accessible by the public. Intimidating even a few select players in the market can cause a significant chilling effect, limiting the flow of environmental information. This lack of information trickles down into lesser degree of environmental compliance and greater impunity for violators, not to mention the setback for democratic environmental governance.

While errant industry players and the State employ several tactics to suppress environmental information, such as criminalization of environmental activists, or threats of physical violence, this paper particularly examines SLAPPs and their effect on curtailing environmental interests. The paper examines the prevalence of environmental SLAPPs in the US, UK, Canada, Australia and India, and the respective legislative and judicial responses to prevent them. It is crucial to balance the right of parties to access courts with the constitutional freedom of expression and consequently, the rights to seek environmental justice.

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Oral Presentation

The Youth Climate Council Bremerhaven

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ABSTRACT

In the ten years of "World Decade Education for Sustainable Development" (ESD), efforts have been made in a variety of ways in order to counter global challenges also on a regional level (DE HAAN, 2010). In this context, the city of Bremerhaven decided in 2014 the long-term establishment of a "Youth Climate Council" (YCC). The aim is to bring young people to climate and environment relevant aspects at an early stage, as well as to enable them to participate in social decision-making processes. In the past four years, the members of the YCC have successfully implemented many projects with the help of the climate-city office, such as the establishment of a Repair-Café, planting of trees, activities in public relations and the realization of a contest to find creative and simple climate protection measures.

The accompanying study on the nationwide first YCC not only examines the motivation and attitude of the participants for such a voluntary commitment, but also measures how the involvement affects the knowledge in terms of sustainability. The special focus of the study, however, is on the change in the "participation skills", as this is the key competence of the ESD (DE HAAN, 2010).

Within the framework of a pre-post test design, 15 members of the YCC were interviewed individually before their contribution and after one year. The participants not only show a stronger awareness of their own behavior but also a positive reaction of having the feeling to be able to achieve something. According to RYAN & DECI (2000) people are motivated when the upcoming actions meet their basic needs. These are: autonomy, competence and relatedness. Therefore, the more distinct awareness of the young people also has a positive effect on their "participation skills".

DE HAAN, G. (2010). The development of ESD-related competencies in supportive institutional frameworks. In UNESCO Institute for Lifelong Learning (Ed.) *International Review of Education*. Volume 56, Issue 2-3, Springer. 315-328.

RYAN, R. M. & DECI, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. In: *American Psychologist*. Volume 55, 68–78.

Keywords: Climate, Youth, Commitment

Health, Environment & Education, 2017

Oral Presentation

Which factors influence the intention of stem cell donation for leukemia patients? A comparative study with German and Spanish adolescents

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ABSTRACT

Stem cell transplantation is one of the promising therapy forms for leukemia patients but the probability to find an appropriate donator is not high. In addition, the number of adolescent donators is compared with the number of grown up donators very low. What are the reasons for these facts? This empirical study aims in the identification of hindering and fostering factors that influence the intention of adolescents from Germany and Spain in respect of a stem cell donation. Based on the Theory of Planned Behavior the internal correlation of the variables “attitudes”, “norms”, and “behavioral control” as well as the external variable “subject content knowledge”, “interest”, and “experiences” are investigated in respect to their influence on the intention for or against a stem cell donation. The findings of the questionnaire survey conducted with 229 participants from Valencia and Bremen (pupils of the upper secondary level) demonstrate that the constructs “attitudes” and “behavioral control” forecast the intention around 50%. “Norms” as well as country, age, and religion have a low influence.

Based on the questionnaire findings an educational module was developed and tested within the outreach lab Backstage Science. The structure of the module as well as first results of the evaluation we will discuss at the conference.

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Oral Presentation

Analysis of images of old age in primary and secondary I level school textbooks

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ABSTRACT

This paper introduces an analysis of teaching materials used in science classes in German primary schools (age of approx. 6-10 years) and in biology lessons and civic education in German secondary I schools (age of approx. 10- 16 years). As demographic change progresses, the older generation is coming to play an ever more important role in society. Examining images of old age is one possible step towards finding out how students are being prepared for these demographic changes. 66 German-language teaching materials from the province of North Rhine-Westphalia were included in the study. The texts and illustrations that featured old people were examined with respect to the appearance, mental condition and social behaviour to arrive at a more detailed description of how old age is communicated in school texts. The findings show little variation in how older people are presented and that ageing and old age are treated inadequately. Students are thus not prepared for social intercourse with older people to an adequate extent. Such social intercourse could be important for bridging the gap between generations.

Keywords: images of old age; relevance of ageing; schoolbook analysis

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Oral Presentation

Examining the evidence for accelerated aging in people living with HIV

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ABSTRACT

In response to this year's conference theme on science in a post-factual world, this talk will focus on the concept of "convergence of evidence" to highlight the idea that the practice of science does not involve a uniform march towards a singular end but rather a conversation that pulls evidence towards a convergence of agreement. In a post-factual world in which claims of "fake news" and "alternative truths" muddle hard facts and evidence, we can look at examples of how the scientific community combs through data noise and findings supporting all sides of a hypothesis to evaluate evidence on a meta-level for convergence. I will use examples from HIV and aging research to illustrate this point. In the United States and other developed countries, HIV has transformed from an acute, fatal, infection to a long-term, chronic illness due to advances in antiretroviral therapies. As a result of this transformation, many people infected with HIV can have a reasonable expectation for reaching older adulthood. Currently, 1.2 million people in the United States are living with HIV and approximately half of them are ages 50 and older. People living with HIV are at higher risk for developing age-related diseases such as osteoporosis, cognitive impairment, and renal disease compared to HIV uninfected persons. They are also more likely to develop these conditions earlier in their lives compared to their HIV uninfected persons. One proposed explanation for this increased risk is that people living with HIV experience accelerated biological aging due to the stressful effects of HIV infection on organ systems. However, absent of a large, controlled, longitudinal study to compare the aging processes across well-matched infected and uninfected persons, it is unclear whether HIV truly accelerates aging or is instead, an additive risk factor for age-related diseases. Findings and evidence in the field will be presented to demonstrate the scientific discussion around this question and ways in which the evidence converges towards an agreement.

Keywords: HIV/AIDS, accelerated aging, older adults

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Oral Presentation

Sexual Health in a Post-Factual World: Has Anything Changed?

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ABSTRACT

Much recent attention has been given to health education and promotion in the so-called “post-factual world” spurred by the immense daily onslaught of information available on the internet and social media. The vast amount of information available, much of it from self-described experts and “credible” sources, makes it difficult for many people to obtain reliable factual information. In this talk, I will make the case that sexual health education and promotion since scientific and medical documentation of HIV/AIDS in the late 1980s has operated in a “post-factual” world of misinformation and spurious claims. From the early misguided attempts of the US Surgeon General to promote “factual” sexual health to the explosion of sexual health websites, social media “news,” and the shared beliefs and norms of cultural and social groups, sex educators and scientists have constantly battled against misinformation and myth that is not supported empirically. I will provide historical examples of how science has been used to counter myth and misinformation or sometimes inadvertently or intentionally be used to justify people’s misinformation and myths. I also will discuss contemporary efforts to use popular internet and social media mechanisms to disperse factual sexual health information and education, counter non-factual myths and misinformation, and creatively promote sexual health behavior in today’s social-media driven world. The talk will include data driven examples to support my assertions. Implications for future sexual health education and promotion efforts will be presented.

Keywords: Sexual Health; Health Education and Communication

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Oral Presentation

Know your audience: Navigating data collection, presentation of results, and data dissemination with non-researchers

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ABSTRACT

Knowing one's audience is a cornerstone concept to ensuring information is shared at an appropriate level, with the right amount of context, and presented by the right messenger(s). When working in the field of health and human services in the United States there are often many competing audiences and agendas that require data to mean something to everyone. As such, this can often lead to diminished quality, and reduced complexity in how data is collected, analyzed, and ultimately, how data is presented back to different levels of stakeholders. The following skills-based presentation will provide guiding instruction on how-to determine one's audience, and how-to frame and explain data collection, management, and analysis to different types of audiences. Specifically, this presentation will focus on the use of data visualization techniques to assist in messaging complex data collection and analysis techniques in a simplified manner to diverse audiences; and how-to use a data management and presentation system to present data to a variety of different types of stakeholders within one platform (Qualtrics' Vocalize data visualization platform). Further, the questions of "how can I present data to audiences who do not understand research?", "how can knowing one's audience assist in framing data presentation in a post-factual world?" and "how can we respond to data skeptics?" will be explored throughout the presentation. Lessons learned from a health and human services non-profit agency and their experiences with providing data results to non-researchers, will be used to provide additional contextual examples of real-world application of these skills.

Keywords: Data presentation, sharing, and results framing

Health, Environment & Education, 2017

Oral Presentation

Mammoths in the park - Explorative learning and teaching in a zoologically impoverished world

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ABSTRACT

Exploration and observation as steps towards hypothesis formation and testing are at the core of learning in any science. In ecology often not all factors that contribute to a particular observable effect are clearly laid out in front of the learner, and frequently we currently see the evolutionary traces of elements that have long since disappeared from the system. Some plants still show structures that are likely to be morphological adaptations to the presence of animals that are now lost, in particular megaherbivores, such as mammoths. Unusual and striking features, such as defensive thorns and spines or large fruits for zoochory offer the opportunity to reconstruct in a thought experiment the ecological past, drawing on analogies to structures and behaviors that are still observed in our times.

Examples that lend themselves to such learning exercises are *Gleditsia triacanthos*, *Maclura pomifera*, *Asimina triloba* or *Diospyros virginiana*, which all show structures that are seemingly non-sensical in current environments, but can be used as models to exercise ecological systems-thinking and hypothesis formation, when considering paleo-ecosystems and their inhabitants. The mammoth may be gone, but its trails aren't quite cold yet.

Health, Environment & Education, 2017

Oral Presentation

Understanding the effects of air pollution on health

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ABSTRACT

In the last few decades, air pollution has been intensively investigated and has been shown to have a wide range of acute and chronic health impacts. High levels of particulate matter (PM) have consistently been shown to increase cardiovascular and pulmonary mortality and morbidity worldwide. Next to influences on the autonomic nervous system, the induction of oxidative stress, pulmonary and systemic inflammation are possible biological pathways of particle action. Many other chronic diseases share these pathomechanisms, prompting further studies investigating associations of PM with diabetes mellitus, cognitive function and adverse birth outcomes.

In this presentation, an overview of the current epidemiological evidence relating air pollution and adverse health effects is given, with a specific focus on cardiometabolic diseases. Further, a short introduction will be given to noise as another environmental risk factor for health, working synergistically with air pollution. A special look will be taken on studies from the “Heinz Nixdorf Recall Study”, an ongoing prospective cohort study with 4814 participants from Bochum, Essen, and Mülheim in North Rhine Westphalia, Germany. Possible biological pathways of particle action on disease-related mechanisms will be explored and further research needs and open questions will be identified.

Keywords: Air Pollution, Noise, Cardiometabolic Diseases

Health, Environment & Education, 2017

Oral Presentation

Fake versus real conclusions – An examination of how study methodology can limit conclusions from environmental health studies

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ABSTRACT

Background: Environmental exposures including water, air and other form of pollutions can cause a variety of illnesses, including both acute and chronic conditions. Chronic conditions such as cancer, diabetes, and heart disease may be influenced by multiple risk factors, complicating the etiology. In an era of “fake” versus “real” news, the general public may not have a clear understanding of environmental exposures and associated risk factors which cause more difficult to prevention diseases. Catchy news headlines may misrepresent the conclusions that can be drawn from research studies, thus increasing the distrust in scientific literature. Association does not equate with causation, but does the general public understand this maxim? The goal of this presentation is to review the various types and subtypes of studies, highlighting the strengths and weaknesses of each.

Methods: Systematic and in-depth review of observational (ecological, cross-sectional, and longitudinal) and analytical (quasi-experimental and experimental) study types will be examined along with the current health data from the United States sources (e.g., Behavioral Risk Factor Surveillance Survey System-BRSFF, Surveillance Epidemiological End Results-SEER, and Agency for Toxic Substance Disease Registry-ATSDR) will be accessed and tabulated for demonstrative purposes.

Results: Environmental study designs will be summarized and tabulated for this presentation.

Keywords: Environmental studies, Methodology, Study Design

Health, Environment & Education, 2017

Poster

„The 21 August 2017 Solar Eclipse and Climate Change: The effects on public health and the environment“

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ABSTRACT

The sun, moon, and Earth will line up perfectly in the cosmos on 21 August, turning day into night for a few wondrous minutes; its path crossing the US from sea to shining sea for the first time in nearly a century. Never was a total solar eclipse so heavily viewed and studied or celebrated. The path of the solar eclipse will go over 14 US states at full tilt from Oregon to South Carolina. Eclipse Encounters and Star Parties will be held along the long but narrow path of totality, where the moon completely blots out the sun. Vineyards, breweries, museums, parks, universities, stadiums and just about everybody will get into the act. Since the authors have or do currently live in what has been said by NASA the prime place in the USA for the longest view of the solar eclipse, Carbondale and Makanda IL, we will be reporting on public health issues to humans and any effects on the environment as a result of the solar eclipse.

Keywords: Solar Eclipse, Public Health, Environment

Health, Environment & Education, 2017

Poster

Individual- and county-level determinants of high breast cancer incidence rates

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ABSTRACT

Background: Age-adjusted breast cancer rates vary across and within states. However, most statistical models inherently identify either individual- or area-level determinants to explain geographic disparities in breast cancer rates and ignore the effects of the other level of determinants. We present a micro-macro modelling approach that incorporates both levels of determinants to better explain this variability and to discover opportunities to reduce breast cancer rates.

Methods: Individual-level data about breast cancer risk factors from eligible Arkansas Rural Community Health participants (n=13,554) was supplemented with publicly available county-level data using a novel micro-macro statistical approach. This model uses individual-level data to account for aggregation-induced biases, to predict county-level breast cancer incidence rates across Arkansas.

Results: County-level breast cancer incidence rates ranged from 80.9 to 161.6 per 100,000 population. The best-fit model, which included individual-level predicted risk based on the Gail/CARE models, county-level population density (log transformed), and lead exposure (log transformed), explained 14.1% of the county variance.

Conclusions: Our results support theoretical models that maintain that area-level determinants of breast cancer incidence are key risk factors in addition to established individual risks.

Impact: Failing to consider area-level determinants erroneously assumes that traditional individual-level determinants are the only factors that promote disparities in breast cancer incidence.

Keywords: breast neoplasms; geography; neighborhood

Health, Environment & Education, 2017

Index of Authors

Dorothee Benkowitz, 6
Prachi Dev, 8
Doris Elster, 12
Florian Fiebelkorn, 7
Carrie Gibson, 16
Franziska Ginschel, 13
Julia Holzer, 12
Bruce Johnson, 5
Susan Kadlubar, 21
David Kahler, 9
Shamita Kumar, 8
Scott J. Leischow, 4
Petra Lindemann-Matthies, 6
Travis Loux, 21
Tait J. Martin, 3
Clara Matthiessen, 18
Robert J. McDermott, 20
Allese McVay, 21
Susanne Menzel, 7
Wendi Middleton, 20
Cristina Moreno, 16
Erik Nelson, 21
Annie Lu Nguyen, 14
Luz D. Orozco, 16
Isabelle Plewka, 11
Dhitinut T. Ratnapradia, 19, 20
Kendra Ratnapradipa, 19, 21
Dale O. Ritzel, 20
Anthony Robins, 19
Marcel Robischon, 17
Kirsten Schlüter, 13
Mario Schootman, 21
Stephanie Schulz, 6
David W. Seal, 15
Anand Shinde, 8
Mrinalini Shinde, 10
Amber D. Sparks, 16
L. Joseph Su, 21
Eric R. Walsh-Buhi, 2
Margaret L. Walsh-Buhi, 16



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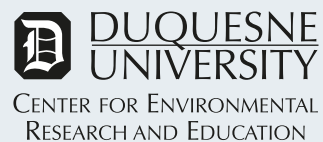
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