General Framework and Plenary Keynote Speakers of the Collocated Conferences
The 11th International Multi-Conference on Complexity, Informatics and Cybernetics: IMCIC 2020
The 11th International Conference on Society and Information Technologies: ICSIT 2020
The 10th Ibero-American Conference on Complexity, Informatics and Cybernetics
Décima Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2020

Workshops and Participatory Events – Tueday March 10th 2020, 10:00 AM – 6:30 PM

CONVERSATIONAL SESSION: 10:00 AM – 11:00 AM

"The Importance of Triviality in Intellectual Rigor"

Speaker(s) and Moderators: Professor T. Grandon Gill, Dr. Risa Blair, and Dr. Nagib Callaos

Professor T. Grandon Gill, USA, University of South Florida, College of Business, Director of the Doctorate in Business Administration, Editor-in-Chief of Informing Science, Editor of the Journal of IT Education

Dr. Grandon Gill holds an AB (cum laude) from *Harvard College* and an MBA (high distinction) and DBA from *Harvard Business School*. He is a professor and the Academic Director of the Doctor of Business Administration program at the *University of South Florida's Muma College of Business*. He was also recently elected president of the *Informing Science Institute*. Dr. Gill has published more than 60 peer reviewed articles, more than 60 case studies, and has authored or edited 11 books relating to his research in the informing science transdiscipline and in the use of case studies for education and research. Over the past decade, he has served as principal investigator on two grants from the National Science Foundation, completed a core faculty Fulbright in South Africa, and received the Gackowski award for his lifetime contributions to informing science research and the Ranulph Glanville award for his research activities.

Dr. Risa Blair, USA, Purdue University Global, USA, eLearning Instructional Designer, Education Management, Instructional Associates, Director of HR and Operations

Dr Risa Blair is Passionate leader and trainer with extensive experience in higher education and corporate settings, including project management, curriculum development and delivery for face-to-face and online settings. Exceptional skills in facilitating content delivery to meet the needs of the client. She is a Strong proponent of utilizing real world experience and technology to promote and reinforce learning, as well as to meet required outcomes. Easily able to deliver technical content to non-technical audiences. Quality Matters trained online course reviewer.

Dr. Nagib Callaos, International Institute of Informatics and Systemics, USA, Editor-in-Chief of the Journal of Systemics, Cybernetics and Informatics

Dr; Callaos Former Dean of Research of The University Simon Bolivar. He is the Founding President of a 32 years old Multi-Disciplinary Organization oriented 1) to solve real life problems which mostly require multi-disciplinary teams and inter-disciplinary research/communication and 2) to synergistically

relate all disciplinary and inter-disciplinary departments of the University Simon Bolivar with private and public corporations. He also was the founding president of several organizations for research, development, and technological innovation and, for many years, consultant in Information Systems and CEO of an Information Systems Development private organization.

Purpose of Conversational Session: The purpose of this initially very short article is to express in as few words as possible the *"The Importance of Triviality in Intellectual Rigor"*. This might seem an oxymoron to educators and intellectuals, including scientists, engineers, philosophers, theologians, etc. Let us try to show why "triviality" is important, in its two main senses, i.e. "trivial" 1) as related to the "trivium, or liberal arts", "meeting of three roads" and 2) "cross-road, hence common, commonplace" (The Century Co., 1889/1911, p. 6493). Elsewhere (Callaos, 2020), after an etymological and brief historical review on the different senses in the meaning of the term "intellect" and the different ways in which the respective concept has been defined, the conclusion we made can be briefly represent by the visual metaphor of the two-faced Roman "God of Gods" Janus, who was "special patron the beginnings and ending of all undertaking" (The Century Co., 1889/1911, p. 3218).
Figure 1 shows the intellect as1) "reading within", "self-lecturing" (etymological meaning) and 2) as intellectual ex-posing, reading to others, teaching others. Into-lecture and Exto-lecture are cybernetically related with each other via co-regulative negative feedback (and feedforward) and co-additive or co-amplificatory positive feedback that generate intellectual synergies and emergent properties (e.g., creativity, intuition, etc.)

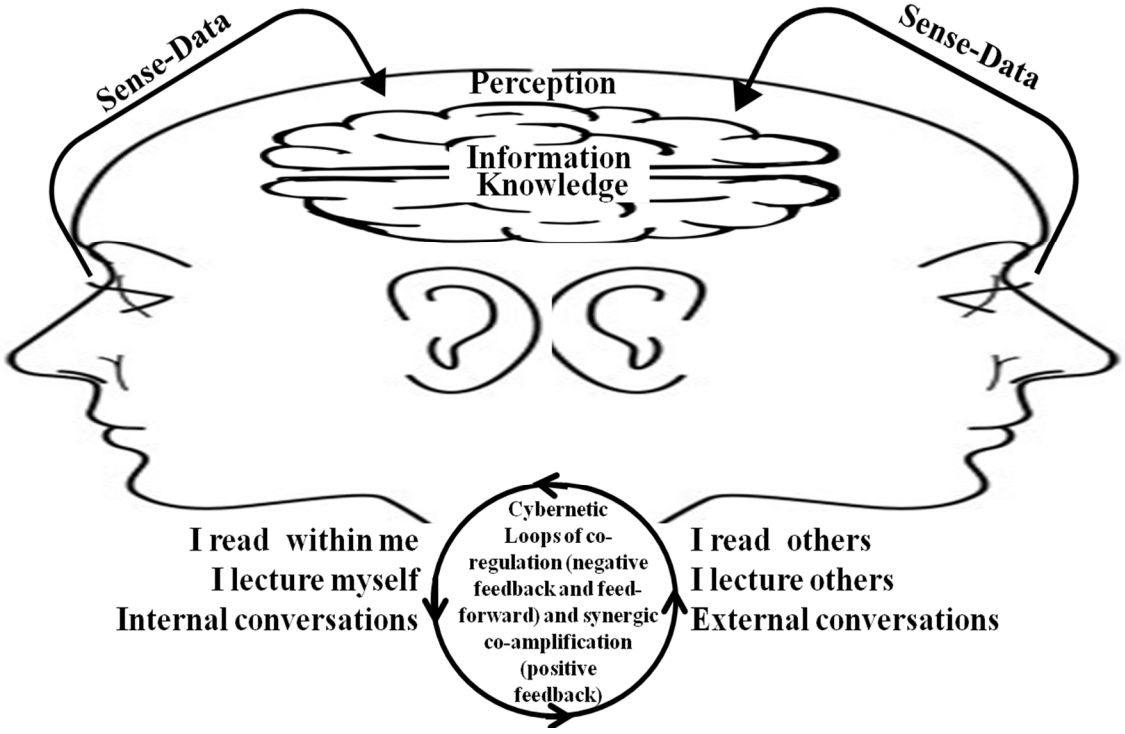


Figure 1: Intellect, metaphorically represented by the two-faced God Janus, the "special patron the beginnings and ending of all undertaking". Intellect is reading with myself and to other intellects. This generate a polar oppsosites, hence a cybernetic dialectic, generating co-regulative negative feedback (and feedforward) and co-additive or co-amplificatory positive feedback that generate intellectual synergies and emergent properties (e.g., creativity, intuition, etc.)

This dual characteristic of the intellect [1) "reading within", "self-lecturing" and 2) as intellectual ex-posing, reading others)] generates not just co-regulative and synergic cybernetic loops, as the individual level but also at the social level (Sociological Cogito), structured by a network of individual intellect. Figure 2, synthesize in a diagram this aspect of individual intellect as related to other intellects

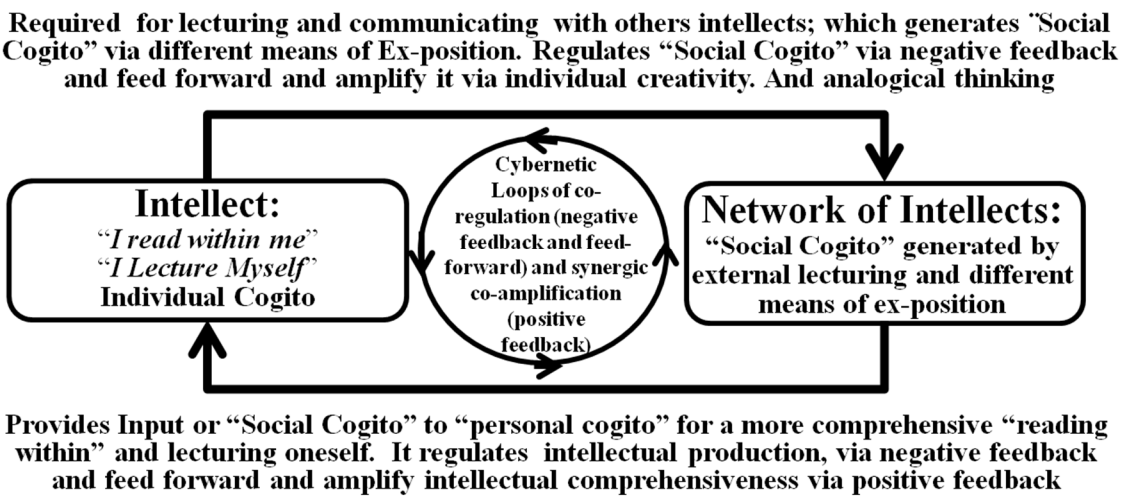


Figure 2: Individual inyellects relates with each other, via different ex-position means, in a network on intellects, generating a Social Cogito, which feedbacks to its constituitive individual intellects generating cybernetic loops via co-regulative and co-amplificative feedback, which generate, in turn, synergies.

Consequently, it is essential for both: the individual intellect and the (intra-, inter- and trans-disciplinary networks of intellects (sociological cogito) an effective expression in order to have an effective communication with other individual intellect, which, in turn is not just necessary for others but also to oneself. This is what the medieval Trivium is all about. The trivium (Grammar, Logic (or dialectic), and Rehtoric) is needed by the intellect oriented to the quadrivium (arithmetic, geometry, astronomy, and music) though not necessarily vice versa. This is why the Trivium was taught before the Quadrivum. We may suggest that the actual equivalent to the Quadrivium are the different intellectual disiplines. All of them require an adequate skills of expression in order to have an effective communication even inside the same discipline, let alone with other disiplines or with the users of any if these disiplines. Science users should necessarily be taken into account in communicating the results of Science. This is the importance of a contemporaneous Trivium, based on the equivalent of Grammar, Logic, and Rhetoric. The grammar may be generalized to the notion of Semiotic Systems and the skills to translate, at least between disciplinary semiotic systems and Natural Language based semiotic systems, being the Trivoum's Grammas the syntactic level of these natural semiotic systems. Logic should be the most adequate one for the objective of an effective communication, so it should be a shared logic like, for example, Predicate Logic.
Rhetoric (Ethos, Pathos, and Logos) is essential and completely necessary for any kind of communication, including disciplinary communication and, in general scientific communication and, more comprehensively, intellectual communication, which includes (but not limited to) Engineering, Technological, cultural, inter-cultural, inter-, trans-, and non-disciplinary communication. No matter what is the kind of intellectual production, rhetoric is needed and necessarily required for any kind of oral and written communication. Being this the case, how many scientists, engineers, etc., had been prepared in rhetoric? I am afraid that the number is not large one. Why this is not included in Higher Education?

WORKSHOP: 11:00 AM – 12:00 AM & 1:00 PM – 2:00 PM

"Structuring a Research Paper"

Speaker: Professor T. Grandon Gill (Short Bio is given above)

Abstract: An examination of the different elements of a well-structured research paper, with a particular focus on how they interrelate. Topics will include: a) the introduction, b) presenting theory, c) methodology, d) preparing results, e) what to discuss, and f) how to conclude. The workshop will emphasize the importance of understanding the needs of a paper's audiences and selecting an appropriate

outlet. It will also examine how the basic paper structure and content varies for different types of papers, including:

- Literature reviews
- Presenting empirical findings
- Theory building
- Exploratory and theory-testing case studies
- Design science research

PARTICIPATORY PANEL: 2:00 PM – 3:00 PM

"Co-learning and Co-researching for Quality Peer-Review and/or for Producing Integrated Articles"

Speakers and Co-Moderators: Professor Donald Ropes and Dr. Nagib Callaos (Short Bio is given above.

Professor Donald Ropes, Netherlands, Inholland, University of Applied Sciences, Business Research Centre, Research line: Learning and Development in Organisations

Donald Ropes is Professor of Learning and Development in Organisations at Inholland University of Applied Sciences. His research is on learning in complex environments, specifically how we can help people and organisations to become responsive: able to absorb shocks, adapt and thrive in new situations and look for challenges that can be turned into opportunities. For more than ten years, Professor Ropes has been working on advancing Design Science Research as a way to contribute to organisations' development while at the same time expanding organisational learning theory.

Abstract: The main objectives of this Participatory Panel are to 1) address the two seemingly unrelated issues of ***Meta -Education*** and ***Peer-reviewing,*** 2) suggest a methodology based on systemic/cybernetic relationships of ***Co-researching and Co-Learning*** that may increase the effectiveness of both Meta-Education and Peer-reviewing, 3) briefly describe a program oriented to validate this suggestion, 4) describe the first project in this program and 5) generate an *internally integrated publication.* The later would support ***knowledge integration*** processes for both: authors and readers of the respective publication

PARTICIPATORY WORKSHOP: 3:00 PM - 4:00 PM

"The methodology of 'The World Café' applied to InterDisciplinary Peer-Review."

Speaker: **Professor Donald Ropes (Shot Bio is given above)**

Abstract: This workshop presents a methodology called 'The World Café', which aims at facilitating knowledge integration processes within interdisciplinary communication. In our research we look at how wicked problems are approached and solved by interdisciplinary or transdisciplinary project teams. One of the biggest challenges of these teams is effectively communicated with individuals from other disciplines or even lifeworld, in order to collaboratively learn and develop new knowledge together. One

way we do this is through implementing a World Café, which is a type of large-scale organizational development intervention originally designed as a forum for open and creative discussion. The defining characteristic of it is the way communication is based on conversations structured as dialogue, which is a way of freely conversing in groups, where meaning flows between the participants, resulting in shared meanings and collective learning. World Cafés are designed to be social learning environments that foster collective understandings, produce innovative ideas and insights and stimulate collective energy to identify and embrace new possibilities. The design of the World Café is meant to stimulate interaction and structures processes that foster individuals to work together and construct new knowledge. After a brief introduction to the World Café method, participants will take part in a shortened version of it and experience for themselves what it is like to engage in dialogue and build knowledge collaboratively with members of other disciplines.

CONVERSATIONAL SESSION:

"Increasing Intellectual Rigor via Relating and Integrating Intra- with Inter-Disciplinary Communications"

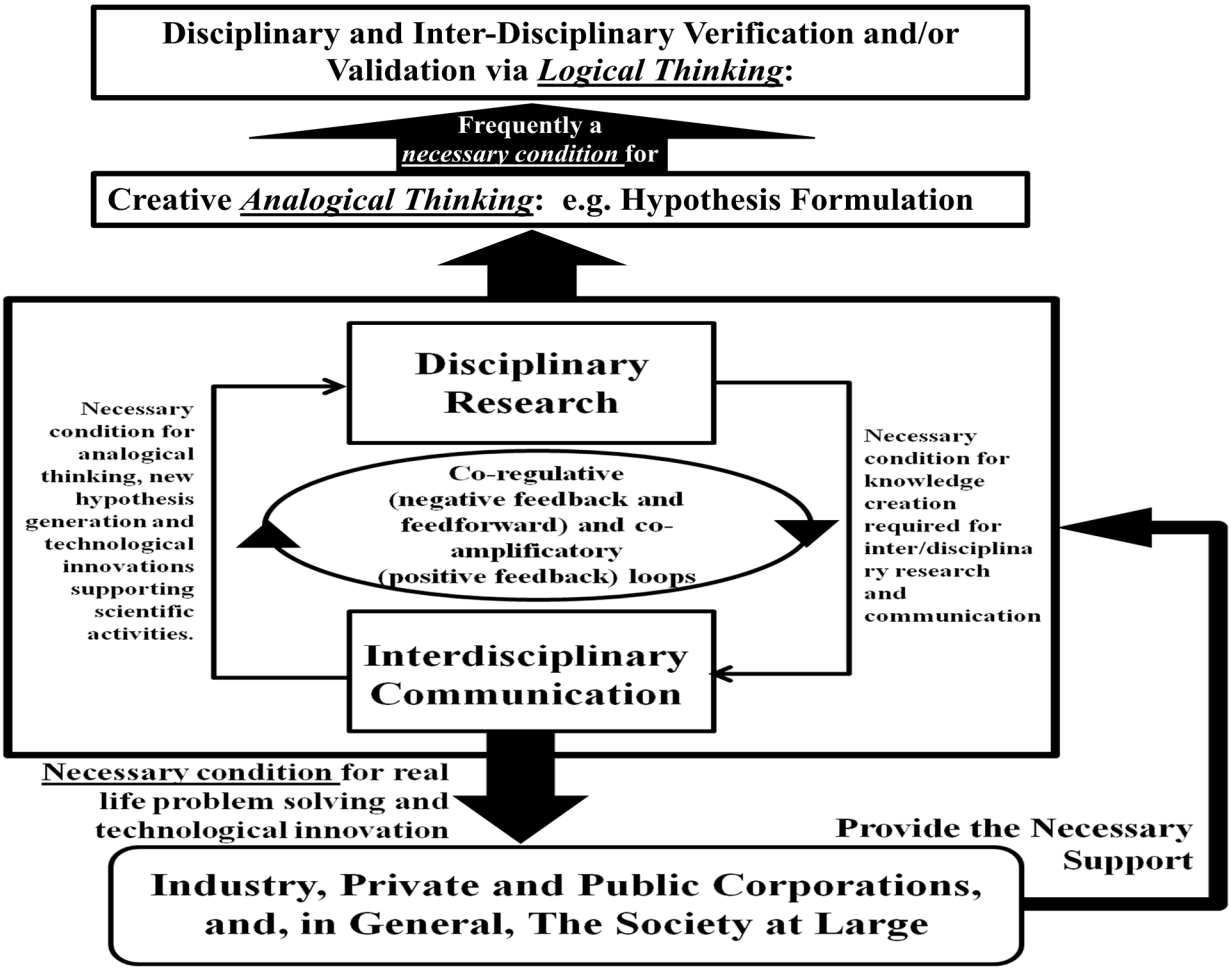
Speakers and Co-Moderators: **Dr. Michael Savoie, Professor Donald Ropes (Short Bio is given above) and Dr. Nagib Callaos (Short Bio is given above)**

Dr. Michael Savoie, USA, University of North Texas, G. Brint Ryan College of Business, Clinical Professor, Dept of Marketing, Logistics, & Operations Management, Former Dean of the College of Technology and Computing at Utah Valley University, USA, CEO of HyperGrowth Solutions

Professor Michael Savoie, Ph.D. has been involved in highly-complex computing systems for over 30 years. He studied fuzzy logic systems in the mid-1980's, created advanced complex simulations and neuro-linguistics programming solutions in the 1990's, and has continued to evolve the application of intelligent computing solutions to business and engineering problems. He currently resides in the MLOM department at UNT as a Clinical Professor of Operations Management where his research focuses on wrapping the business case around new and emerging technologies. Specific areas of research include information technology, electronic commerce, quality, operations management, and continuous improvement. His current writings explore the role of information technology in organizational transformation and the integration of IS with business processes. Dr. Savoie has experience in the following industries: Information Technology, Telecom, Energy (traditional and alternative) Government, Non-Profit, Training, Engineering, Quality, Education, Online Learning, E-Commerce. Infrastructure, Utilities, and Gaming.

Abstract: Nobel Laureate, Murray Gell-Mann affirmed that "The philosopher F. W. J. von Shelling introduced the distinction (made famous by Nietzsche) between ***'Apollonians,'*** who favor logic, the analytical approach, and a dispassionate weighing of evidence, and ***'Dionysians,'*** who lean more toward intuition, synthesis and passion. These traits are sometimes described as correlating very roughly with emphasis on the use of the left and right brain respectively. But some of us - asserts Gell-Mann - seem to belong to another category: the ***'Odysseans,'*** who combine the two predilections in their quest for connections among ideas. Such people often feel lonely in conventional institutions." (1994, The Quark and the Jaguar: Adventures in the Simple

and the Complex; New York: W. H. Freeman and Company; p. xiii) [italics and bold fonts added]. We will try to show that the integration between intra- and inter-disciplinary communication 1) relates them synergistically by means of different kinds of cybernetic loops, and, consequently, 2) relate both of them to industry, business and society at large. These relationships are summarized in the following figure:



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Plenary Session – Wednesday March 11th 2020, 7:45 AM – 10:10 AM

Dr. Michael Savoie, USA, University of North Texas, G. Brint Ryan College of Business, Clinical Professor, Dept of Marketing, Logistics, & Operations Management, Former Dean of the College of Technology and Computing at Utah Valley University, USA, CEO of HyperGrowth Solutions

Professor Michael Savoie, Ph.D. has been involved in highly-complex computing systems for over 30 years. He studied fuzzy logic systems in the mid-1980's, created advanced complex simulations and neuro-linguistics programming solutions in the 1990's, and has continued to evolve the application of intelligent computing solutions to business and engineering problems. He currently resides in the MLOM department at UNT as a Clinical Professor of Operations Management where his research focuses on wrapping the business case around new and emerging technologies. Specific areas of research include information technology, electronic commerce, quality, operations management, and continuous improvement. His current writings explore the role of information technology in organizational transformation and the integration of IS with business processes. Dr. Savoie has experience in the following industries: Information Technology, Telecom, Energy (traditional and alternative) Government, Non-Profit, Training, Engineering, Quality, Education, Online Learning, E-Commerce. Infrastructure, Utilities, and Gaming.

Plenary Keynote Address: ***Is the Internet Alive and Why Does it Matter?***

Abstract: Much progress is being made in machine learning and artificial intelligence (AI) these days. However, the largest and most advanced computer on the planet is the internet/world-wide-web system. As we continue to increase computing power and the ability of computers to "learn" what is happening to the internet? Is it possible that the internet is alive? If so, is it or could it become self-aware? Come participate in this highly-interactive discussion on the evolution of the field of artificial intelligence, its relationship to the evolution of the internet, and the impact of an intelligent internet on our world going forward.

Professor Donald Ropes, Netherlands, Inholland, University of Applied Sciences, Business Research Centre, Research line: Learning and Development in Organisations

Donald Ropes is Professor of Learning and Development in Organisations at Inholland University of Applied Sciences. His research is on learning in complex environments, specifically how we can help people and organisations to become responsive: able to absorb shocks, adapt and thrive in new situations and look for challenges that can be turned into opportunities. For more than ten years, Professor Ropes has been working on advancing Design Science Research as a way to contribute to organisations' development while at the

same time expanding organisational learning theory.

Plenary Keynote Address: ***Transdisciplinary Research and Collaborative Learning*****.**

Abstract: Two years ago at this conference I spoke about how a particular research approach – Design Science Research – could help bridge the rigor-relevance gap in management science and theoretically in other fields as well. I argued that by weaving design, testing and iterations of the two together in a logical and sound manner, new actionable knowledge can be created along with new scientific knowledge. Last year I explored the concept of rigor-relevance concept further, but from a slightly different approach, namely transdisciplinary research. I discussed that while Design Science Research is grounded in the field of Information Systems and to a certain extent management science, transdisciplinary research is grounded in the field of environmental science, specifically regarding issues concerned with promoting sustainable development. TR is considered to have evolved from complex, socially relevant problems that exist in the lifeworld. I define the terms transdisciplinary research more comprehensively in the presentation, but for now suffice it to say that it is a process of collaborative learning that occurs between academics from different disciplines working with experts from the field. Boundary objects are the outcomes of the learning process and are seen in new knowledge artefacts that may help solve societal issues and at the same time contribute to scientific theory. These artefacts are called boundary objects as they span the boundaries between the different stakeholder groups, serving as a way for understanding. In the presentation I discuss different stages of transdisciplinary research and how different types of boundary objects are produced in order to facilitate progression from one stage in the research process to the next.

Professor John Coffey, USA, University of West Florida, Computer Science Department, Former Research Scientist at Florida Institute for Human and Machine Cognition

Dr. John W. Coffey holds a B.S. in Psychology from the College of William and Mary (1971), a B.S. in Systems Science (1989), an M.S. in Computer Science/Software Engineering (1992), and an Ed.D. with an emphasis in Computer Science (2000) from the University of West Florida (UWF). He was one of the first members of the Institute for Human and Machine Cognition (IHMC) and he has worked with that organization for many years. He has been in the Department of Computer Science at the University of West Florida since 1992, starting as a Lecturer and working his way up to his current rank of Professor. He has published a total of more than 100 refereed journal articles, book chapters, technical reports, and conference proceedings. His research interests include knowledge elicitation and representation, web services, and Service Oriented Architecture, advanced technology for education, and computer science education.

Advancing Technology and Complexity: Historical Antecedents and Effects on Modern Life

Abstract: In this talk, I provide a reading of how technological advancement has changed society. I first discuss the evolution of society as characterized by simple, decoupled technologies to that of complex, highly coupled technological systems. I describe Alvin Toffler's 1970 scholarly work "Future Shock," which surprisingly became a best seller. I describe how ideas presented there are part of an intellectual lineage leading to Perrow's 1984 book "Normal Accidents," and how Perrow's seminal book gave rise to the concept of "complex socio-technical systems." I discuss research on technology impacts in the workplace and in everyday life. I describe how we attempt to manage complexity in the complex socio-technical systems we have created.

Professor Steinar Killi, Norway, Oslo School of Architecture and Design, Center of Design Research, Direct Digital Manufacturing

Dr. Steinar Killi is a full professor at the Oslo School of Architecture and Design, he has a MSc in materials and processes and a PhD in Industrial design and Additive Manufacturing. Dr. Killi has been working in the Additive Manufacturing industry, doing research and design for 20 years; he has published internationally and is a member of several scientific boards.

He also has, over the last 20 years, developed the largest 3D printing laboratory in Norway and have contributed to the 3D printing community through articles and presentations worldwide. He received the DINO award in 2008. Professor Killi serves in several scientific committees and as a reader for several journals. Parallel to his research, Dr. Killi has taught industrial design on bachelor, master and PhD levels for more than 20 years

Plenary Keynote Address: ***The methods, they are a-changing!***

Abstract: Technology, digitalization, social media and democratizing of knowledge are some of the factors that drive several trends today. Accordingly, this also leads to new methods and different approaches in the pedagogical portfolio. This presentation intends to share some thoughts around emerging trends and the possibilities and opportunities that appear.

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Plenary Session – Wednesday March 11th 2020,* 1:00 *PM – 3:15 PM

Dr. Yaping Gao, Quality Matters, USA, Senior Academic Director, 25 years experience in higher education both in China and in USA as faculty and online education manager and administrator

With a doctoral degree in curriculum and instruction and concentration on instructional design and educational technology, Dr. Yaping Gao has over 25 years' experience in higher education both in China and in USA as faculty, instructional designer, LMS manager, and online education administrator. In her current position as Senior Academic Director of Quality Matters, USA, Dr. Gao oversees and leads member services, external collaborations and international partnerships. Dr. Gao earned her doctoral degree from Baylor University, Texas, USA, and her Master and Bachelor degrees from Shanghai International Studies University, Shanghai, China.

Quality Matters (QM) is an international, US-based non-profit organization specializing in standards, processes and professional development for quality assurance in online and blended learning. QM tools and resources are regularly revised to reflect current research and best practices. When you see QM Certification Marks on courses or programs, it means they have met QM Course Design Standards or QM Program Review Criteria in a rigorous review process.

Plenary Keynote Address: ***Adopt, Adapt, and Apply US-based Quality Assurance Process and Accreditation Guidelines to Ensure Academic Integrity and Help Students Succeed.***

Abstract: With the increasing globalization of education and the continued momentum and wider adoption of digital teaching and learning all over the world, how could best practices and experience gained from the US-based higher education community over the past few decades be adopted and adapted to benefit the international community?

In this plenary session, the speaker will share three levels of quality assurance guidelines and practices to stimulate conversations among international colleagues on how to utilize available resources to help improve or establish a quality assurance process at their own institutions. The three levels of quality assurance are: 1) institutional level with US accreditation guidelines and criteria, 2) program level with data needed for quality review and certification, and 3) course level with specific standards and annotations that faculty and instructional support staff can use to design and deliver quality courses that facilitate student success.

Dr. Luay A. Wahsheh, Arkansas Tech University, USA, Department Head and Professor, Department of Computer and Information Science, Arkansas Tech University, USA

Dr. Luay A. Wahsheh received a B.S., M.S., and Ph.D. in computer science with an emphasis on cyber security. He teaches graduate and undergraduate courses in computer science and cyber security. His research interests in cyber security include access control security policy, software security, digital forensics, ethical hacking, mobile security, intrusion detection, and database security. His research work has resulted in more than 35 journal and conference publications. He supervised more than 73 research projects for graduate and undergraduate students. He received more than 15 internal and external research grants in cyber security in the amount of more than $28.7 million. He received several outstanding achievement awards in recognition and appreciation of his teaching and research contributions to the field of cyber security.

Plenary Keynote Address: ***Beware of Malware***

Abstract: Cyber crime is changing and increasingly threatening the United States national security and economy. Social engineering attacks are becoming more frequent and increasingly sophisticated. Social engineering attacks exploit humans who are still the weakest link in the cyber security chain. Malicious software (malware) continues to propagate through social engineering attacks. Secure system design has typically focused on technology more than humans. A shift in cyber security is needed to effectively combat cyber crime. In this keynote presentation, I will discuss malicious software and techniques used by cyber criminals to launch different types of social engineering attacks. In addition, I will discuss countermeasures for these types of attacks. The approaches discussed in this keynote presentation are important steps towards reducing cyber crime.

Professor Christin Lindholm, Sweden, Lund University, Faculty of Engineering, LTH, Dept. of Computer Science. Education Program Leader for the Bachelor programmes of Computer Science and Electrical Engineering with Automation and Excellent Teaching Practitioner (ETP)

Dr. Christin Lindholm's research interest lies in the field of Software Process Quality and her special interest is software risk management and usability. She is especially passionate about software risk management and usability within the medical device domain. In the medical device domain, her research group treated patients and users of the medical devices to consider the inevitable fact that human beings make mistakes and faults. Therefore her research focuses on including the users in the risk management process of medical device development. The aim is to lower the risks of human errors. The underlying assumption of her research is that the quality of the process impacts the quality of the final software product

Professor Christian Nyberg, Sweden, Lund University, Faculty of Engineering, LTH, Computer Science and Engineering, Network and Security, Assistant programme director of the (B.Sc.Eng.)

Dr. Christian Nyberg is an Associate Professor at the Department of Communication Systems at Lund Institute of Technology, Lund, Sweden. His main research interests are overload control in telecommunications, performance of distributed systems, performance analysis of packet switched networks,

software performance analysis, and performance analysis of software development processes. He is Director of Studies for the PhD education at the Department of Electrical and Information Technology, as well as Director of studies at the Department of Communication Systems.

Dr. Nyberg has been lecturer for courses on basic queuing theory, discrete event simulation, telecommunications, computer communications, advanced queuing theory and network modelling. He has also been lecturer in courses for PhD students on stochastic processes, queuing network theory and simulation. Presently he is Director of Studies at the Department of Communication Systems at Lund University.

Plenary Keynote Address: ***Students gain technical skills, what other skills do we need to fill a student's backpack with?***

Abstract: To have a successful career in engineering, the engineer needs both technical engineering skills and non-technical engineering skills. The ability to communicate, to work in teams, reason about ethical questions, have an understanding of entrepreneurship and economy are some of the non-technical engineering skills of interest. This has also been recognized by certification Bodies that have included such non-technical engineering skills in their demands of engineers. Non-technical engineering skills can be addressed systematically in engineering education.
Success factors in this work are for example, active learning, collaboration with industry and to address the professional role as an engineer. It is important to activate, motivate and engage students in order to stimulate students in their own learning process.

Non-technical engineering skills are also needed in other professions and ought to be addressed in other education areas, which makes these skills interesting in a broader perspective. Gathering different competences, interdisciplinary work and actively involving companies and the surrounding community in a competence center can be a path leading to new knowledge, new educations and research in non-technical engineering skills.

Dr. Marc Dupuis, USA, University of Washington, Division of Computing and Software Systems of the School of STEM

Dr. Marc Dupuis is an Assistant Professor within the Computing and Software Systems Division at the University of Washington Bothell. Dr. Dupuis earned a Ph.D. in Information Science at the University of Washington with an emphasis on cybersecurity. Prior to this, he earned an M.S. in Information Science and a Master of Public Administration (M.P.A.) from the University of Washington, as well as an M.A. in Political Science at Western Washington University.
His research area is cybersecurity with an emphasis on the human factors of cybersecurity. The primary focus of his research involves the examination of psychological traits and their relationship to the cybersecurity and privacy behavior of individuals. This has included an examination of antecedents and related behaviors, as well as usable security and privacy. His goal is to both understand behavior as it relates to cybersecurity and privacy, and discover what may be done to improve that behavior. Currently, Dr. Dupuis is exploring the use of fear appeals in cybersecurity, including issues related to their efficacy and the ethics of using such a technique to engender behavioral change.

Dr. Dupuis has a strong track record of multi-disciplinary research, including serving as the principal investigator for a team with an economist, lawyer, and computer scientists. He has published in a broad range of venues, reflecting his multi-disciplinary approach to cybersecurity and privacy.

Dr. Dupuis has been involved with the University of Washington's tri-campus *Center for Information Assurance and Cybersecurity* (CIAC). He has also been nominated for both the *Distinguished Research, Scholarship, and Creative Activities Award* and the *Distinguished Teaching Award* at UW Bothell; the highest honors in research and teaching, respectively.

Plenary Keynote Address: ***The Human Factors of Cybersecurity & Privacy: Examining Psychological Traits and the Role Psychology Plays in the Behavior of Individuals***

Abstract: In this talk, we examine how our understanding of psychology has been used to help explain the cybersecurity and privacy behavior of individuals. This is done by discussing the following topics:

- Cybersecurity: Art and Science
- Underestimation of Risk
- Risk Homeostasis
- Security is an Abstract Concept
- 'Doing' Security is Not Abstract
- Losses are Perceived as Greater than Gains
- Security is a Secondary Task
- Fear Appeals in Cybersecurity

Research by Dr. Dupuis is used to highlight these components. This includes the influence of trait affect, a lifelong and generally stable type of affect, has on the cybersecurity and privacy behavior of individuals. We examined this in the context of how one responds to the threat of one's personal information becoming compromised. Additionally, we look at social networking behavior given both the security and privacy implications for users of how and what they share online.

Other key findings from research conducted by Dupuis and his colleagues is discussed, including an examination of the use of fear appeals to try and help improve the behavior of end users. Overall, his research provides important insights into understanding the human factor—often touted as the weakest link—in cybersecurity and privacy.

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Plenary Session – Thursday March 12th 2020, 7:45 AM – 10:10 AM

Professor T. Grandon Gill, USA, University of South Florida, College of Business, Director of the Doctorate in Business Administration, Editor-in-Chief of Informing Science, Editor of the Journal of IT Education

Dr. Grandon Gill holds an AB (cum laude) from *Harvard College* and an MBA (high distinction) and DBA from *Harvard Business School*. He is a professor and the Academic Director of the Doctor of Business Administration program at the *University of South Florida's Muma College of Business*. He was also recently elected president of the *Informing Science Institute*.

Dr. Gill has published more than 60 peer reviewed articles, more than 60 case studies, and has authored or edited 11 books relating to his research in the informing science transdiscipline and in the use of case studies for education and research. Over the past decade, he has served as principal investigator on two grants from the National Science Foundation, completed a core faculty Fulbright in South Africa, and received the Gackowski award for his lifetime contributions to informing science research and the Ranulph Glanville award for his research activities.

Plenary Keynote Address: ***Research Rigor***

Abstract: One of the most insulting things you say to a group of academics is that their research isn't rigorous. This is hardly surprising, given the importance ascribed to rigor in our doctoral training and in the subsequent review and publication process. What is more surprising is that there is no clear consensus regarding what "rigor" means. Does the progress of our careers truly depend on a concept that is so fuzzy?

Understanding the precise nature of rigor is particularly challenging in interdisciplinary research. To the extent that any consensus on the definition of rigor exists, that consensus is most likely to exist within a discipline or subdiscipline. Given the large differences between how research is conducted in diverse fields—for example, design science research contrasted with finance research—we would not expect that a universal recipe for rigor is likely serve the needs of all research methods. Nevertheless, as a matter of definition, interdisciplinary research necessarily draws upon findings and approaches from multiple disciplines. How can the rigor of the resulting research product be assured? Especially if we aren't sure what rigor is?

Key questions considered in the presentation will include:

* What alternative definitions of rigor have been proposed?
* Where in the research process is rigor considered to be most critical?
* What research outcomes are high levels of rigor intended to produce?
* What is the nature of the relationship between rigor and relevance?
* What is a sensible approach to assessing rigor in an interdisciplinary environment?

Dr. Risa Blair, USA, Purdue University Global, USA, eLearning Instructional Designer, Education Management, Instructional Associates, Director of HR and Operations

Dr Risa Blair is Passionate leader and trainer with extensive experience in higher education and corporate settings, including project management, curriculum development and delivery for face-to-face and online settings. Exceptional skills in facilitating content delivery to meet the needs of the client. She is a Strong proponent of utilizing real world experience and technology to promote and reinforce learning, as well as to meet required outcomes. Easily able to deliver technical content to non-technical audiences. Quality Matters trained online course reviewer.

Plenary Keynote Address: Hidden Plagiarism

Abstract: Those teaching in online venues, especially, have had to become quite familiar with students' intentional and unintentional plagiarism. Some of the new or older returning students understand citation requirements to include only text that is copied verbatim from primary or secondary sources. Novice students even cite coursehero.com and student.com as resources for their precious papers. Although these are not at all proper sources for the students to be using, at least they are providing citations. To that end, it is a challenge to teach these students that plagiarism can happen in at least three circumstances when no citations or references are provided: 1) self-plagiarism (where students repurpose their own work), 2) copying authors' words, and 3) copying authors' ideas. However, this is the same old plagiarism model that has been in place for years. Students know that SafeAssign, Turnitin, and other plagiarism checkers or even a Google search will quickly identify plagiarism when exact words are copied from any Internet resource. Perhaps they bet on the fact that their professors will not use plagiarism checking technology.

Hidden plagiarism involves the use of Artificial Intelligence (AI) and paraphrasing technology. However, this newer Internet technology blurs the standard model for explaining and understanding plagiarism as depicted in the three cases described above. What if the student could take any text and pass it through an artificial intelligence paraphrasing tool? Keep in mind that the good old SafeAssign and Turnitin tools have no way to detect such verbiage. Is it plagiarism? Should the student be docked for plagiarism if he or she uses such a tool? What about the score report and plagiarism percentage generated by SafeAssign or Turnitin? Where is it? It's not there. So, how can a professor either prove or demonstrate that what the student has submitted is plagiarized? Is this student work plagiarized?

Do academics, the APA, the powers that be, or another entity need to be involved in changing the rules? Professors teach their students that as long as they provide citations to note the sources and a reference page at the end of the paper, that paraphrased text is acceptable. After all, they are giving the source author(s) credit. What if the student is not actually doing the paraphrasing, though? What if the AI paraphrasing tool is writing the paper? This circumstance is here, now. The APA Manual Style Guide 7th edition is already out. It does not seem to have addressed such an issue. What happens next?

The existing plagiarism detection tools are not equipped to identify the result of using AI automated paraphrasing tools. This session will demonstrate how the technology works and best practices for professors to adhere to and require before accepting student work.

Dr. Pawel Poszytek, Poland, Foundation for the Development of the Education System, General Director, Member of working groups of the European Commission and the Ministry of National Education of Poland.

Paweł Poszytek, PhD, Director General of the Polish National Agency of Erasmus+ Programme. Member of several working groups by the European Commission and the Ministry of National Education of the Republic of Poland, coordinator of the Country profile Project implemented by the Council of Europe. Reviewer of the national core curriculum in foreign language teaching in 2008 and co-author of 2016/2017 curriculum update. Former member of the executive board of the European Association of Language Teaching and Assessment. Former coordinator of Lingua, European Language Label and eTwinning programmes in Poland and member of the board of the Polish National Agency of Lifelong Learning Programme. Currently, general director of the Foundation for the Development of Education System – Polish National Agency for European Union;s educational programmes.

Plenary Keynote Address: ***Leadership competences for the future as a gateway for internationalization in education.***

Abstract: The aim of the presentation is to continue the discussion of competences for the future in the context of so called 4th industrial revolution or economy 4.0. This time the author of the presentation will elaborate on leadership. The main assumption is that leadership competences may address many challenges posed by digitalized economy. Although the discussions about economy 4.0 concentrate very often on its technological and digital character, it must be stressed that human factor plays here equally important role. Extremely fast changes in technology alongside high inertia of many higher education institutions worldwide require innovative leaders who will be able to transform and prepare their institutions and companies or even communities of different sort for inevitable changes and challenges that 4th industrial revolution is bringing us. The discussion will concentrate on leaders in different walks of life: teachers, innovators, entrepreneurs, etc. It will be also shown that international cooperation is the best ecosystem for the development of leadership competences. Accordingly, a dialectic character of this issue will be discussed as well, namely: are leadership competences a gateway for internationalization, or maybe it is internationalization of higher education institutions and companies that creates leaders?

Dr. Suzanne Lunsford, Wright State University, USA, Professor of Chemistry

Dr. Suzanne Lunsford is a professor at Wright State University and is an electrochemist and an internationally established chemical educator. She has been working with colleagues from *international* universities on how to integrate interdisciplinary science labs to meet the needs of the 21st century. Her research work for over two decades has been developing novel sensor electrodes (modified electrochemically) to detect common neurotransmitters to detecting common heavy metals Lead, Cadmium, Mercury and toxic metal Indium at low concentrations utilizing electrochemistry techniques such as cyclic voltammetry, square wave anodic stripping voltammetry, and differential pulse voltammetry. The electrochemical techniques and modified electrodes are examined further by such techniques as Scanning Electron Microscopy, Atomic Force Microscopy, Fourier Transform Infrared Spectroscopy and Raman Spectroscopy to confirm the electrode surface interactions and stability analysis of the sensor(s) developed to assist our students with a variety of analytical instrumentation techniques. She has received

over 1 million dollars in external funding for her international and local educational inquiry-based science research programs at Wright State University.

Dr. Suzanne Lunsford has a large experience in relating and integrating research, education and real life problem solving. She 1) has a systemic *perspective of academic activities* and 2) frequently has shown how the level of education may be increased when it is related to her research activities. This allowed her to increase the educational dimension in her teaching activities, which (in her case) are not reduced to a mere instructional process. The latter is ***necessary***, but not ***sufficient*** in Education, including Higher Education. Research may be taken as a means for inquiry-based learning, especially if it is oriented to solve real life problems. This is what Dr. Lunsford has been doing for many years. (Additional note added by the conference organizers, because it is highly related to her plenary keynote address)

Plenary Keynote Address: ***Integration of Inquiry-Based Learning with Real-World Problem Solving"***

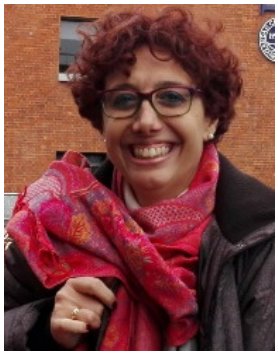
Abstract: Inquiry-based learning assists with developing curiosity in students' minds and gets them excited about learning and assists with evolving enthusiasm. The 6 main steps to successful IBL learning involves: 1) professor needs to start with a question, problem-based question 2) students need to design a plan for the project, 3) students need to create a scheduled plan, 4) professor needs to facilitate the students 5) professor needs to assess the outcomes and possibly continue to facilitate along the way, 6) professor and students need to evaluate the experience and how to improve the experience (reflection time). Examples of the IBL learning will be discussed and exhibited.

CICIC 2020 Plenary Session (In Spanish)

The 10th Ibero-American Conference on Complexity, Informatics and Cybernetics

Décima Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 20120

Sesión Plenaria* Participativa – *Jueves 12 de marzo, 2020, 10:10 AM – 12:10 PM



Profesora Gabriela E. Vilanova, Argentina, Universidad Nacional de la Patagonia Austral, Argentina. Directora de Proyectos en Ingeniería de Software. Instituto de educación y ciudadanía (IEC),

La Lic. Gabriela Vilanova es Profesora Asociada por concurso ordinario. Área Sistemas. Ingeniería de Software. (Antigüedad en docencia universitaria, 27 años). Universidad Nacional de la Patagonia Austral. Unidad Académica Caleta Olivia. Es Licenciada en Ciencias de la Computación (UNPSJB, 1997). Tesista Master en Educación en Entornos Virtuales Universidad Nacional de la Patagonia Austral.

Doctorado en ciencias de la computación (UNCPBA, 2009) Tesis a presentar. Es Postulante Doctorado en ciencias sociales y humanas (UNPA) y Directora del Grupo de Investigación: Innovación en procesos de enseñanza y aprendizaje en ambientes virtuales de aprendizaje (GIEAVA - http://www.unpa.edu.ar/cecyt/1876/grupo/gieava). Ha participado como organizadora, expositora y evaluadora e integrante de comité en eventos nacionales e internacionales, cuenta con publicaciones varias.

Profesor Jorge Varas. Argentina, Universidad Nacional de la Patagonia Austral, Argentina, Co-Director de Proyectos en Ergonomía Organizacional

El **Lic. Jorge Ruben Varas** es Profesor Adjunto Área Ergonomía y Psicosociología del Trabajo (Antigüedad en docencia universitaria, 20 años). Tesista de Maestría en Educación en Entornos Virtuales UNPA.

Co¬Director de Proyectos de Investigación de proyectos relacionados a Educación en Entornos Virtuales de Aprendizaje de la Universidad Nacional de la Patagonia Austral ¬ Unidad Académica Caleta Olivia, Patagonia ARGENTINA. Es asimismo, Co-Director del Grupo de innovación de enseñanza en ambientes virtuales de aprendizaje (GIEAVA - http://www.unpa.edu.ar/cecyt/1876/grupo/gieava). Áreas de interés: Diseño Instruccional aplicado a Organizaciones Laborales, Tic's aplicadas a la Educación, Modelos de Enseñanza en Entornos Virtuales de Aprendizaje. Cuenta con publicaciones en eventos nacionales e internacionales.

Ponencia Plenaria: Estrategias pedagógicas para el desarrollo de competencias digitales en ambientes virtuales en la educación superior

Resumen Corto: Las nuevas tecnologías han potenciado nuevas formas de ejercer ciudadanía, han generado nuevas formas de apropiación del conocimiento, han promovido nuevos hábitos y costumbres, han propiciado el surgimiento de la sociedad del conocimiento. Ejercer la ciudadanía significa ser protagonistas de lo que acontece en la vida en comunidad desde un rol activo como sujetos de derechos y obligaciones.

Una de las consecuencias más importantes de la sociedad del conocimiento es la transformación de los espacios y lugares para el aprendizaje. Las pedagogías que emergen deben posibilitar la eliminación de

los muros del conocimiento dotando a las personas de la capacidad suficiente para enfrentarse a un aprendizaje a lo largo de la vida.

Considerando que la ciudadanía digital es una de las dimensiones de las competencias digitales propuestas por Jordi Adell y que esta competencia es clave para afrontar los desafíos del siglo XXI se presenta la siguiente experiencia de estrategias de formación de la ciudadanía digital en entornos virtuales tomándose como caso de estudio la Universidad Nacional de la Patagonia Austral. La temática abordada en la presente ponencia es una de las líneas de los proyectos de investigación en el marco del grupo GIEAVA "Grupo de innovación de enseñanza en ambientes virtuales de aprendizaje" de la Universidad Nacional de la Patagonia Austral.

Contribución adicional de los mismos autores al panel participativo de la segunda parte de esta sesión plenaria

La agenda del cambio para el desarrollo de competencias docentes para los nuevos escenarios de aprendizaje

Resumen: Algunos de los actuales desafíos para la agenda de investigación en educación son: el estudio, la reflexión, el diseño, el desarrollo de entornos de aprendizaje, por una parte; y el cambio de modelos en la actualización de los profesores, que dan cabida a un nuevo perfil docente, por otra. Al mismo tiempo, se observa la necesidad de propuestas y conocimiento de las metodologías centradas en el alumno en estos escenarios de aprendizaje y la búsqueda de nuevos modelos pedagógicos que se ajusten a la concepción de las instituciones como instituciones de gestión de conocimiento. Por ello los docentes necesitarán la expertisie necesaria para adoptar las competencias pedagógicas y actuar así como gestores de los nuevos recursos de aprendizaje.

Dr. Nagib Callaos, Presidente del International Institute of Informatics and Systemics, USA, Ex-Decano de Investigación y Desarrollo de la Universidad Simón Bolivar, Venezuela, Editor-en-Jefe Fundador de las Revistas Journal of Systemics, Cybernetics and Informatics y Revista Ibero-Americana de Sistemas, Cibernética e Informática

El Dr. Callaos ha sido profesor por más de 40 años y durante 30 años ha fundador de organizaciones que relacionan la universidad con la industria, la investigación con la consultoría, la investigación con la innovación, todo lo cual ha requerido de investigación y comunicación interdisciplinarias. La mayoría de esas organizaciones (universitarias y empresariales) se han mantenido operativas por 15-30 años, y aún se mantienen activas. En los últimos 24 años se ha dedicado casi a tiempo completo a fomentar la comunicación Intra-, Inter-, y Trans-disciplinaria. La trans-disciplinaridad conceptual del Enfoque de Sistemas y de la Cibernética así como la trans-disciplinaridad conceptual e instrumental de la informática ha servido de soporte para el cumplimiento de esa misión. En los últimos años el tema de la educación, al ser también trans-disciplinario le ha dado también soporte para fomentar la comunicación inter- y trans-disciplinaria.

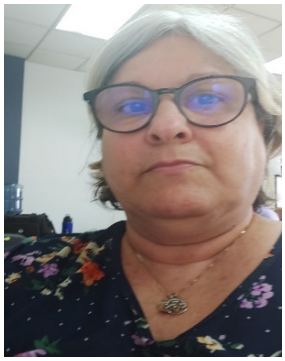
Presentación en Panel Plenario: ***Educación y Meta-Educación: Importancia de un Enfoque Sistémico-Cibernético.***

El uso inicial del e-learning ha sido utilizado, intencionalmente o no, para aumentar la eficiencia de los procesos educativos. El aumento de la eficiencia tiene, muchas veces, el costo de disminuir la efectividad. Esto es especialmente cierto cuando la efectividad depende de la capacidad de adecuación de los procesos. La eficiencia requiere sistematización, lo cual requiere de la disminución de la variedad, lo cual,

a su vez, de acuerdo a la Ley "Requisite Variety", de Ashby (conocida como la ***Primera Ley de la Cibernética***), disminuye la capacidad de adaptabilidad y, en consecuencia, disminuye la efectividad cuando ello requiere de adecuados niveles de adaptabilidad.

El incrementado nivel de sistematización (diferente a sistemización) del elearning ha agravado una situación ya existente en cuanto a *confusión de medios y fines* en el ámbito educativo. La instrucción es uno de los ***medios*** de la educación, pero no es, ni debe ser un ***fin en sí mismo***. Instrucción es, muchas veces ***condición necesaria*** de la Educación, pero no es ***condición suficiente.*** Razonamiento similar aplica al elearning, el cual es uno de los medios de la educación, pero no es ni deber ser fin en sí mismo.

El objetivo de esta ponencia es explorar algunos detalles de esa situación que de hecho se está dando, la cual está afectando tanto los procesos educativos como los ***meta-educativos***. La efectividad de estos últimos es la que mas hay cuidar porque de la misma depende la efectividad de la los procesos educativos. En este contexto, la auto-educación continua es la componente mtea-educativa que mas hay que cuidad, porque su efectividad pudiera ser la ***meta-causa*** de la efectividad de los procesos, tanto educativos como meta-educativos.



Dra. Aurora del Pilar Trujillo Cotera, Universidad Estatal a Distancia (UNED), Costa Rica, Coordinadora del Área de Autoevaluación del Instituto de Gestión de la Calidad Académica (IGESCA)

La profesora Aurora del Pilar Trujillo Cotera es Coordinadora del Área de Autoevaluación del Instituto de Gestión de la Calidad Académica (IGESCA), cuenta con un Doctorado en Educación con énfasis en Mediación Pedagógica y Máster en Currículo y Docencia Universitaria. Ha participado en la organización de Congresos y Simposios, así como expositora y evaluadora en eventos académicos nacionales e internacionales, contando con publicaciones en diferentes temas.

Sus áreas de interés académico y de investigación son: Educación Superior, en especial el modelo a distancia, gestión de la calidad y Tecnologías de Información y Communicationes aplicadas a la Educación, entre otras.

Profesora Ariana Acón Matamoros, Universidad Estatal a Distancia, (UNED), Costa Rica, Encargada del área de Tecnologías de Información y Comunicaciones.

La profesora Ariana Acón Matamoros, es encargada del área de Tecnologías de Información y Communicationes. Ella tiene un Máster en Gerencia de Negociaciones Internacionales. Ha participado en la organización de Congresos y otras actividades, así como expositora y evaluadora en diferentes eventos académicos nacionales e internacionales, contando con publicaciones en diferentes temas.

Sus áreas de interés académico y de investigación son: Sistemas de Información, Educación Superior, en especial el modelo a distancia, gestión de la calidad y Tecnologías de Información y Communicationes aplicadas a la Educación, entre otras.

Presentación en Panel Plenario: ***Transformación De Educación A Distancia A Ámbitos Digitales, Conservando La Calidad En La Educación Superior***

Breve Resumen: Se describe el proceso de transformación de la Cátedra TIC e Ingeniería de asignaturas a distancia a hibridas (combinación de componente a distancia y componente virtual) y también virtuales (totalmente en línea).

Ya lo dijo García citando a Ramón Martínez con respecto a la educación a distancia como una estrategia para operacionalizar los fines de educación en donde el sujeto se convierte en protagonista de su propio aprendizaje, utilizando materiales educativos y reforzado por medios y formas de comunicación. Agregando componentes tecnológicos en ámbitos digitales como un sistema de gestión de aprendizaje hace que surja una nueva forma de educación que requiere de la meta-educación como objetivo de esta investigación.

Dra. Isabel Cristina Rivera Lozada, Universidad del Cauca, Colombia, Directora del grupo de investigación GICEA

La profesora Isabel Cristina Rivera Lozada. Doctora en Educación con especialización en Mediación Pedagógica, Maestría en Ciencias Políticas, Especialización en Finanzas y pregrado en Economía. Profesora de Economía, investigadora y directora del grupo de investigación GICEA en la Universidad del Cauca, Colombia.

Dra. Oriana Rivera Lozada, Universidad Norbert Wiener, Perú, Directora de Desarrollo de la investigación

Isabel Cristina Rivera Lozada. Doctora en Educación con especialización en Mediación Pedagógica, Maestría en Ciencias Políticas, Especialización en Finanzas y pregrado en Economía. Profesora de Economía, investigadora y directora del grupo de investigación GICEA en la Universidad del Cauca, Colombia.

Presentación en Panel Plenario: ***Educación para la convivencia armónica***

Resumen: El documento propone repensar el sentido de la educación para lograr la convivencia armónica de los seres vivos en las dimensiones de incertidumbre, justicia social y *buen vivir*. El texto ofrece una ruta ajustable para construir una sociedad incluyente, pluralista, diversa y solidaria. Lograrlo implica romper con tres contextos sociales que enmarcan las sociedades contemporáneas como son el capitalismo, democracia y patriarcado. Usando el enfoque de la mediación pedagógica, logra entretejer el sentido de la educación sobre la base del bio-aprendizaje, la ética y la armonía que buscan recuperar la educación y el aprendizaje como motor de la transformación social.

General Framework and Plenary Keynote Speakers of the Collocated Conferences
The 11th International Multi-Conference on Complexity, Informatics and Cybernetics: IMCIC 2020
The 11th International Conference on Society and Information Technologies: ICSIT 2020
The 10th Ibero-American Conference on Complexity, Informatics and Cybernetics
Décima Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2020

Plenary Session – Thursday March 12th 2020, 1:00 PM – 3:15 PM

Dr. Bobbe Baggio, USA, La Salle University, Director, Graduate Program in Instructional Technology Management, Associate Dean Graduate Programs and Online Learning at American University, CEO of Advantage Learning Technologies

Dr. Baggio is an accomplished author, speaker and educator. Her specific expertise is in how people learn and how to use technologies to help them learn. Her company Advantage Learning Technologies, Inc. (ALT) has provided ID services and implemented projects for clients in finance, healthcare, gasses and chemicals, manufacturing, distribution, construction, government and higher education. A more detailed list of clients can be found on her web site at http://www.bobbebaggio.com/ Bobbe provides programs and products so that people who are trying to use technology for teaching and learning can do so effectively. She is currently CEO at Advantage Learning Technologies and speaks regularly to organizations and companies around the globe. Bobbe's prior experience includes being an Associate Provost, Dean, Director of the Graduate Program in ITM, Senior Scientist, Management Consultant, Director of IT, VP Software Development and educator. Her education includes a BA from Waynesburg College, MA from West Virginia University, MS from Lehigh University and PhD Capella University.

Plenary Keynote Address: ***AI and Big Work-Life Changes***

Abstract: AI (Artificial Intelligence) is here. AI has arrived and is rapidly transforming the workplace and our lives. It has been on the horizon for decades. Since the mid 1940's it has always held the promise and challenge of imagined possibilities, infinite promise and defining what it means to be human. Philosophers from Gottfried Wilhelm Leibniz to Blaise Pascal, Jules Verne, Isaac Asimov, Frank Baum (who wrote the Wizard of Oz) and many others imagined responsive devices capable of communication with human beings. The term AI is not easy to define. Generally, AI describes the process of machines doing work that would require human intelligence.

So far most of our efforts have focused on the workplace and making work more productive. The truth is we are surrounded by AI wherever we go. We wear it, we look at it, it prompts us, it talks to us, it stores our thoughts, our pictures, and accesses our favorite music. AI is changing what we do, how we do it, and even if we need to do it. Isn't it time to focus less on productivity and more on a global picture of quality of life?

Professor Bob Gilmour. United Kingdom, Glasgow Caledonian University. School of Computing, Engineering and Built Environment

Professor Bob Gilmour is Principal Investigator of the award winning € 300,000 Erasmus + Strategic Partnership (Promoting Excellence in Employability and Transversal Skills) PEETS. Partners include Glasgow Caledonian University, Lahti University of Applied Sciences, Finland, The Hague University of Applied Sciences, the Netherlands, and our Industrial Partner Constructionarium Scotland Ltd. They 1) use renewable energy projects to facilitate the development of a range of skills and competences in students to enhance their employability, 2) create a variety of learning environments within and outwith the University focusing on interdisciplinary and intercultural learning. An important element of this is the benefits that students and staff can gain through International Mobility. Judges have recognised this as a "ground-breaking" project which provides access for students to life-changing experiences and awarded PEETS a Collaborative Award for Teaching Excellence in August 2019. Professor Bob Gilmour has over 25 years experience in Higher Education and Consultancy in a range of positions from research assistant, senior lecturer, Director and Professor. He leads the Strategic Mobility Working Group and is the University Representative on the Universities UK International Panel for Mobility. He is Senior Fellow of the Higher Education Academy, a Fellow of the Chartered Institution of Water and Environmental Management and a CWEM.

Plenary Keynote Address: ***Multidisciplinary short term international study trips in Europe – what can we learn from these?***

Abstract: Not all students have the resources or the confidence to be able to study abroad for a semester. Evidence from Europe indicates that many students perceive similar levels of "educational benefit" from short term study trips (around 1 weeks duration) in comparison to 15 weeks. At Glasgow Caledonian University in Scotland, we have been offering short term interdisciplinary study trips for over 10 years. Groups of up to 60 students studying a variety of subjects (e.g.. civil engineering, environmental management, construction management, property valuation) are taken to University towns in either Spain, France, Italy, Finland or Germany. They mix with students from these cities and undertake a range of learning activities that help develop employability and intercultural skills. This presentation will summarise some of the main benefits and highlight the key learning opportunities for students and staff.

Bruce Leybourne, MSc., International Earthquake and Volcano prediction Center (IEVPC), USA – CEO, Institute for Advanced Studies on Climate Change (IASCC), Research Director & PI Former Navy tenure at the U.S. Naval Oceanographic Office, Stennis Space Centre (Geophysics Department).

Bruce Leybourne is an experienced geologist with extensive fieldwork worldwide with over 30-years of operational and managerial experience in the use of state-of-the-art data acquisition and analysis technology. He was invited to be CEO of International Earthquake and Volcano Prediction Center. He is the Principal Investigator, Research Director and Founder of Institute for Advanced Studies on Climate Change. And owner operator of Climate-Stat Inc. and Geostream Consulting. His specialty includes global gravity and marine magnetic data acquisition with offshore experience on-board seismic vessels acquiring gravity/magnetic data for oil and gas exploration. He has

performed field investigations all over the globe. Recent ongoing field investigations occurs within the Southwest United States, which reveal electric geologic events of the past.

During his Navy tenure, he worked at the U.S. Naval Oceanographic Office, Stennis Space Centre, in the Geophysics Department acquiring and analyzing gravity, magnetic, seismic, bathymetric, and oceanographic datasets. This has included multi-beam seafloor mapping, oceanography, side scan sonar, gravity cores, current meter and tide-gauge deployments. Unique characteristics of these datasets began to reveal global tectonic and regional structural interpretations that were unknown to academic research institutions. His follow on research began noting interesting links to climate change instigating a series of related publications considering a *Tectonic Forcing Function for Climate Modelling* in 1996.

Plenary Keynote Address: ***Solar Induction of Mid-Ocean Ridge Circuits: Lightning Tells The Story***

Abstract: For years, African Congo was known as the lightning Capital of the World, but in 2016 with the new lightning analysis Catatumbo became the new lightning Capital of the World. What made the global lightning distribution shift from Africa to South America? Review of sixteen years of NASA lightning climatology, by Albrecht, et.al. [1], revealed, "*Where are the Lightning hotspots on Earth?*" For years Tampa Bay, Florida was unofficially known as the "Lightning Capital of the United States," but in 2016 with the new lightning analysis the lightning hotspot location moved about 30 miles southeast of Fort Myers Florida. Why was there a corresponding shift in Florida from Tampa Bay to Ft. Meyers, with the global shift from Congo to Catatumbo? Closer inspection reveals a noon/midnight induction effect when magnetic moments of North-South aligned mid-ocean ridge structures (circuits) align with the solar axis. Especially along the East Pacific Rise (EPR) and the northern component of the Southeast Indian Ridge (SEIR), which sit 180 degrees antipodal to one another. The largest peaks of lightning activity in Catatumbo at Lake Maracaibo, on the coast of Venezuela activate when the EPR aligns at midnight. The largest peaks of lightning activity in Mitumba Mountains of Congo activate when the SEIR aligns at midnight, with lesser lightning peaks at noon alignments. Lake Maracaibo locally known as the "Lighthouse of Catatumbo" has most lightning from "nocturnal" thunderstorms "at night". Daytime lightning occurs near the coast and is driven by a sea-breeze circulation observed only over a small area of the lake during the late afternoon when the East Pacific Rise is aligned for maximum induction at noon. This strong diurnal cycle of lightning frequency reveals little lightning during the day and a nocturnal maximum from 0000 to 0500 LST (Local Standard Time) abruptly peaking at 0300 LST. This is the same time that the EPR is directly aligned with midnight! Lightning hotspots over the Mitumba Mountains exhibit higher mean diurnal cycle flash rates during the afternoon from 1500 to 1700 LST than in the central Congo at 1500 LST, with some activity during the night. The 1500 afternoon local time 3 hour offset from noon suggests induction from Northward component of the SEIR in the Indian Ocean along the Rodriguez Triple Junction just 3 time zones to the East of the African continental rift! This north-south trend of the SEIR also directly aligns with the Pakistan lightning area at the head of the Indus River. Data show Lake Victoria as well as other lakes along the East African Rift Valley, exhibit deep nocturnal convective activity from a direct induction effect from African Rift alignment at midnight. Thus we see a daily (diurnal) ridge induction effect drawing lightning into the South American and African rift lakes systems especially at midnight with a smaller effect at noon. Thus solar induction effects, along these global ridge systems or circuits, govern a large portion of daily lightning and convection [2],

Keywords: *Lightning Hotspot, Mid-Ocean Ridge, East Pacific Rise (EPR), Southeast Indian Ridge (SEIR), Catatumbo at Lake Maracaibo, Mitumba Mountain near Congo, Diurnal, Solar Induction*

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Professor Hai Wang, Saint Mary's University, Canada, Sobey School of Business, Finance Info Sys and Mgmt Science

Dr. Hai Wang Hai Wang is a Professor in the Department of Finance, Information Systems and Management Science at the Sobey School of Business at Saint Mary's University. He was an Assistant Professor and then Associate Professor in the same department from 2004 to 2016. He also holds an Adjunct Professor appointment in the Faculty of Computer Science at Dalhousie University. He received his B.Sc. in Computer Science from the University of New Brunswick in 1995, and his M.Sc. and Ph.D. in Computer Science from the University of Toronto in 1997 and 2004 respectively. His research is currently funded by the Natural Sciences and Engineering Research Council of Canada (NSERC).

Academic and Research Inerest: Big Data; Business Analytics; Business Intelligence; Database Management; Data Mining; Knowledge Management; Machine Learning; Shared Services

Plenary Keynote Address: ***Challenges of Open Educational Resource Adoption in Business Schools***

Abstract: Open educational resources (OER) represent an innovative movement in educational communities and have been growing over the past decades.

OER products include open-licensed textbooks, audio and visual artifacts, lecture series, as well as articles and essays widely available to all students and educators for free. Previous research has demonstrated that OER can significantly reduce the costs of education and can improve teaching and learning. Despite these advantages, OER are still underutilized by the majority of instructors in business schools, and have no significant impact on business education. This talk discusses the challenges of OER adoption in business schools across US and Canada.

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Décima Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2020

Plenary Session – Friday March 13th 2020, 7:45 AM – 10:10 AM

Dr. Lorayne Robertson, Canada, University of Ontario Institute of Technology (UOIT), Canada Former Assistant Dean in the Faculty of Education, Former Director of the Graduate Programs in Education

Dr. Lorayne Robertson, teaches graduate and undergraduate courses in digital pedagogies, equity, leadership, and policy in the Faculty of Education at the University of Ontario Institute of Technology, Canada. She specializes in online course design, program design, and quality assurance. Other research interests include investigations of the student experience and instructor role in polysynchronous online environments with a particular focus on digital technologies and assistive technologies *at the point of instruction* in applied settings such as schools, colleges, and higher education. Dr. Robertson is a former school principal, school district superintendent, and education officer for the Ministry of Education, Ontario

Dr. William Muirhead, Canada, University of Ontario Institute of Technology, Canada, founding researcher of the EILAB in the UOIT Faculty of Education. Former Associate Provost, founding academic administrator of the university.

Dr. Muirhead was the Associate Provost, Academic and Information Technology. As a founding academic administrator of the university, Bill has been responsible for developing Canada's largest Technology Enriched Learning Environment, the Teaching and Learning Center, the Academic Success Center, the Health Education Technology Research Unit and is currently a founding researcher of the EILAB in the UOIT Faculty of Education. Dr. Muirhead has overseen the development of university policies and governance structures pertaining to all aspects of undergraduate curriculum and quality assurance. Prior to the University of Ontario Institute of Technology, Bill was the founding Executive Director of the Alberta Online Consortium (AOC) and served as a senior advisor to Alberta Learning in areas of e-learning, professional development, and all aspects of policy involving online learning, virtual schooling and emerging information and communications technologies (ICT) in public and postsecondary education sectors. Dr. Muirhead's research interests included professional practices in online education; design of hybrid learning environments; policy support for developing and implementing learning object repositories; and the development and management of technological infrastructures in postsecondary institutions. An internationally recognized speaker, Bill has been the recipient of numerous awards for leadership and innovation in e-learning.

Plenary Keynote Address: "*Digital Privacy in the Mainstream of Education: Democracy and Surveillance*"

Abstract: Concerns about digital privacy are so ubiquitous that they have become part of the wallpaper of life, but the implications of large data and predictive analytics merit serious scholarly attention. Recently a colleague explained that he had purchased potato chips at a store with cash and the next day was surprised to receive an advertisement for that same brand of chips on his home computing device. This anecdote encapsulates nicely the developments with digital privacy and surveillance in a world where the consumer is not aware of the hidden workings of what Zuboff (2019) terms *surveillance capitalism*. In the present century, North America in particular has entered into an era where private human experience is being captured through digital devices, with or without permission, and then sold for profit. The reality is that neither policy nor education has kept pace with these digital developments, to the point that vast amounts of data are being collected, synthesized and sold without the consumer's express permission or cognisance. Data are being continuously collected from smart devices and CCTV footage, documenting people's locations and preferences. Many personal elements of life are being collected and shared online such as heart rate and sleep habits. The creep of data collected without permission is deeper and wider in scope than most people realize. The educational implications of this surveillance need to be explored. Parents, students, educational leaders and the general public have a right to know how digital surveillance works and the implications for predictive analytics on their future and their decision-making in a democratic society.

Professor Shigehiro Hashimoto, Japan. Kogakuin University, Councilor and Dean, Faculty of Engineering, Former Associate to the President, Doctor of Engineering and Doctor of Medicine, Research Area: Biomedical Engineering

Professor Shigehiro Hashimoto is now a professor of Biomedical Engineering, Councilor, and Dean, Faculty of Engineering of Kogakuin University, Tokyo, Japan. He got his Bachelor of Engineering in Mechanical Physics (1979), and Master of Engineering at Tokyo Institute of Technology (1981), Tokyo, Doctor of Medicine at Kitasato University (1987), Sagamihara, and Doctor of Engineering at Tokyo Institute of Technology (1990), Tokyo. He was Research Associate in School of Medicine (1981-1989), and Assistant Professor in School of Medicine (1989-1994), at Kitasato University, Associate Professor in the Department of Electronics (1994-2001), and Professor at Osaka Institute of Technology (2001-2011). He also was the Creator of the first Department of Biomedical Engineering in Japan at Osaka Institute of Technology (2005) and Director of its Medical Engineering Research Center (2005-2011). He was Associate to President and Dean of Admissions Center at Kogakuin University, Tokyo (2012-2018). He experienced internship in Research Center for Artificial Heart in Free University in Berlin (1977). He is the author of the books of "Introduction to Biosystems Engineering (1996)", "Introduction to Biomedical Measurement Engineering (2000)", and "Introduction to Biomechanical Engineering (2013)". His present researches focus on bio- cellular mechanics using micromachined flow channel. shashimoto@cc.kogakuin.ac.jp
http://www.mech.kogakuin.ac.jp/labs/bio/

Plenary Keynote Address: "*How Are Students Motivated for Learning Multidisciplinary Field: Biomedical Engineering?*"

Abstract: The academic field has been divided into each specialized field. The communication tools (internet, and database), on the other hand, are developing multidisciplinary academic fields. "Multidisciplinary field" is not just collection of fields, but a fusion between fields. Many problems in the global society cannot be solved by the single disciplinarian, but are waiting for the multidisciplinarian. For students, it is not easy to find the way how to learn multidisciplinary field: curriculum, textbook, learning team, and teacher (adviser). "Biomedical Engineering" is one of the multidisciplinary fields, which have many related fields: Biology, Medicine, Informatics, and Engineering. The topic includes case studies (education for freshman, undergraduate, master and doctor courses) based on author's experiences: from cross cultural to symbiosis.

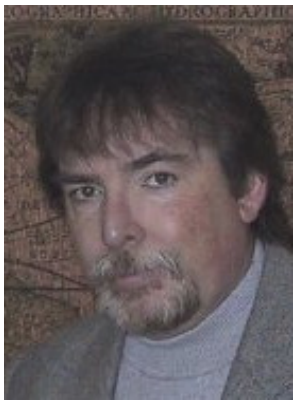
Keywords: Multidisciplinary Field, Learning, Biomedical Engineering, Motivation, Communication and Students.

Professor Paul Nugent, USA, Western Connecticut State University, Management Information Systems, International Association for Computer Information Systems, Member of the Editorial Review Board

Professor Paul Nugent has over 27 years of experience in the defense contracting world as a systems engineer working on Navy programs such as the Trident II Fire Control Systems and Guidance Systems. He is now a full Professor of Management Information Systems at Western Connecticut State University and his research interests include organization theory, trust, labor studies, philosophy of technology, and information security.

Plenary Keynote Address: "*Revisiting the "Imagined Other" in Symbolic Interactionism*"

Summary: Formative works in Symbolic Interactionism (SI) such as George Herbert Mead's *Mind, Self, and Society* stress the importance of imagined others, including non-human imagined others in pre-modern contexts. Subsequently, however, the main focus of SI has been on interactions between contemporary humans in modern contexts in which the imagined other is relatively taken-for-granted. This talk will explore pre-modern contexts in which non-human others (e.g., deities, gods, etc.) were foremost in the minds of the human beings and had qualitatively different implications for action and self-identity. Interestingly, drawing on works by Charles Taylor and Anthony Giddens, this provides a new vantage point from which to approach current issues such as narcissism, authenticity, and tradition.



Dr. Bruce E. Peoples, USA, Innovations LLC, USA, Founder and CEO, Formerly at Université Paris 8, France, Laboratoire Paragraphe , Chair Emeritus of an ISO/IEC Standards Committee, Generated over 50 Invention Disclosures, 15 Patent Applications and 11 Patent Awards

Dr. Bruce E. Peoples has over 27 years experience in researching and developing advanced complex training, performance, decision, and production support systems and has architected several advanced, "self

learning" systems. His research activities led to the filing of over 50 Invention Disclosures and 15 Patent Applications. His inventions include the development of a cutting edge BCI system that controls the flight of an unmanned aerial vehicle using only thoughts. Dr. Peoples also designed and led development of the first paperless learning media production system that mass-produced digital "modular" information objects, also known as Sharable Content Objects (SCOs) that could be used standalone, as aggregations, or in Performance Support Systems and Decision Support Systems, in any delivery environment, without changing "module" code. In recognition of his past research, Dr. Peoples was awarded a Raytheon 2006 Excellence in Technology award. Dr. Peoples has been active in several International Standards Committees, developing the standards necessary for implementing "next gen" Information Communication Technologies on a global scale. He is Chair Emeritus of an ISO/IEC Standard Committee, ISO/IEC JTC1 SC 36 *Information Technology for Learning, Education and Training*. Dr. Peoples was awarded BS and MS degrees from Clarion University of Pennsylvania, and a PhD degree from Université Paris 8 Saint-Denis, France.

Plenary Keynote Address: "*Contexts - Critical Pieces in Building Artificial Intelligence Solutions for Learning, Education, and Training*"

Abstract: Learning, Education, and Training (LET) is not just for humans anymore. With the advent of Artificial Intelligent (AI) based LET solutions such as Adaptive Learning Systems (ALS), AI components are also "entities" with LET needs. Taken together, Human LET (HLET) and AI LET (ALET) form a unique symbiotic relationship fostering advanced Augmented Cognition (AUG COG) paradigms for both the human, and AI components, where both learn from each other. Currently, the basis for AI LET solutions are predicated on the use of hand-crafted knowledge and/or statistical modeling created "a priori" by human engineers. Categorized as "Artificial Narrow Intelligence (ANI)" systems, they are built for narrowly defined tasks. ANI based LET solutions tend to breakdown and are not necessarily reliable when dealing with change. What is needed are AI based LET systems that can *dynamically adapt* to changes not envisioned by its human creators. These types of systems are categorized as "Artificial General Intelligence (AGI) or Artificial Superhuman Intelligence (ASI) AI" systems. These types of systems are envisioned to enable AI with a high level of perceiving, learning, abstracting, and reasoning, traits necessary for an AI based LET system to not only *dynamically adapt* to changes in its environment and interactions within its environment, but also learn from *adaptations*. One of the many basic components to make AGI or ASI a reality is the creation and use of context, a form of relationship data. Using a General AI LET architecture, this presentation will cover the basics of what context data is, how context data can be used in *dynamic adaptation*, and some of the existing and needed standards for defining and using context data.

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Plenary Session – Friday March 13th 2020, 1:00 PM – 3:15 PM

PLENARY PARTICIPATORY PANEL*: 1:00 PM – 2:00 PM

"Relationships among Digital Technologies/skills, Education, and Meta-Education."

Co-Panelists, co-moderators, and/or co-commentators:
Dr. Lorayne Robertson, University of Ontario, Canada, **Dr. Bruce E. Peoples,** Innovations LLC, USA, **Dr. Risa Blair**, Purdue University Global, USA, **Dr. Bobbe Baggio,** La Salle University, USA (All short bios are given above)

Abstract: The focus of this Participatory Panel will be about the potentially reciprocal relationships among Digital Technologies (including AI), education and Meta-Education. The latter is understood as *educating the educator*s, at any level of the educational process, in general and in the specific case of the digital technologies and skills, as well as in AI supported technologies. It is good to notice that Digital Technologies applications to education require meta-educational processes with regards to the notion of education in order to ***avoid transforming the means*** (digital environments) ***into ends in themselves***. This may decrease the educational effectiveness in order to increase its instructional efficiency. Meta-education, including continuing self-education, has always been ***important,*** but, it may be legitimate to think that with Digital Technologies (including AI), it may be ***necessary*** to get addressed.

PLENARY PARTICIPATORY PANEL**: 2:00 PM – 3:15 PM

"The Importance of Triviality in Education and Meta-Education"

Co-Panelists, co-moderators, and/or co-commentators:
Dr. Lorayne Robertson, University of Ontario, Canada, **Dr. Bruce E. Peoples,** Innovations LLC, USA, **Dr. Risa Blair**, Purdue University Global, USA, **Dr. Michael Savoie,** University of North Texas, USA, and **Dr. Nagib Callaos,** International Institute of Informatics and Systemics, USA. (All short bios are given above)

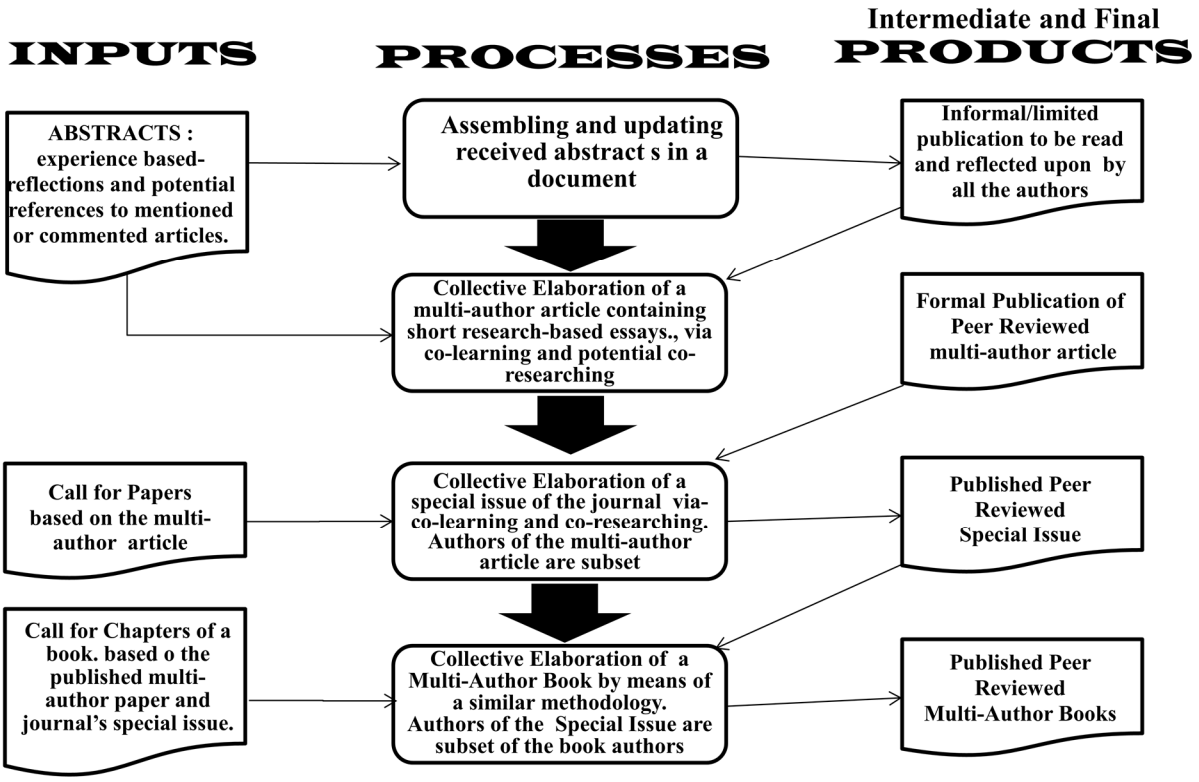
Abstract: This Participatory Panel will focus on the importance of both meanings of the triviality in education. The word *trivial* entered Middle English, as related to the three liberal arts (Trivium) and its pejorative sense ("of little importance or significance) entered later in the English language. Regarding its pejorative sense, it is to be noticed the ***"it is not trivial to communicate non-trivial issues with trivial (common) expressions".*** Any academic who provided consulting services, or any information systems analyst knows that by direct experience. To have an effective communication with clients, information systems users, students, etc., requires the skills to *translate from disciplinary or technical semiotic systems or the natural language* (common) language and this is not as easy or trivial as it may seem. It is more evident the importance of triviality as related to the Trivium, but regretfully, not all the ingredients of the Trivium are being addressed in Higher Education, let alone in meta-education, which include continuous self-education. This dual focus on the importance of triviality in Education and meta-education will be the orientation of this Plenary Participatory Panel.

** Atendees to the* **PLENARY PARTICIPATORY PANEL entitled** ***"Relationships among Digital Technologies/skills, Education, and Meta-Education." will have the opportunity to write position or reflection papers related to the topic of this panel. These papers might be published in the post-conference proceedings, with no additional charge, as invited papers, after going through an internal editorial review, oriented to the assurance that the content is related to the topic of the panel's title. The deadline for receiving these papers will be 21 days after the conference is over. One of the objectives of participative panels and conversational sessions is to provide a learning process through the sharing of ideas, experiences, opinions, and knowledge, via inter-disciplinary communication. This learning might generate, in turn, position or reflection papers that should be, in our opinion, included in the proceedings of the conference, because a) they are part of its consequences and the information and knowledge that was shared through it, and b) they might, in turn, generate more inter-disciplinary communication.***

*** Atendees to the* **PLENARY PARTICIPATORY PANEL entitled** ***"The Importance of Triviality in Education and Meta-Education" will have the same option described above for the participative panel on "Relationships among Digital Technologies/skills, Education, and Meta-Education", PLUS the option to participate, with no additional charge, in a publication oriented to the publication of a Special Issue of the Journal via co-learning and co-research, which will have the following steps***

1. ***Submission of abstracts***
2. ***Submission of short articles, for those whose abstracts are accepted. All accepted short articles will be published as a collective article.***
3. ***All authors of the accepted and published short articles will be invited for full papers to summit full papers for the respective special issue of the journal.***

More details regarding this publishing project and its supporting methodology are provided at the above announced participatory panel on "Co-learning and Co-researching for Quality Peer-Review and/or for Producing Integrated Articles", to be held on Tuesday, March 10th, 2020, 2:00 PM – 3:00 PM. More details regarding the three steps provided above shown in the following diagram. More details regarding this diagram are provided in Callaos, N. 2020, "Meta-Education and Peer-review via Co-researching and Co-Learning" (Unedited working paper posted at http://www.iiisci.org/Journal/SCI/Contents/Meta-Education-and-Peer-review-via-Co-researching-and-Co-Learning.pdf)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