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**Thematic Working Group #9: Scalability and Sustainability in Research Approaches**

*Group Leaders*

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*Group Members*

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### Brief Introductions of Participants:

**Dale Niederhauser** is Associate Dean for Academic Affairs at West Virginia University. He has served as president of ISTE SIGTE and chaired the TACTL SIG at AERA. His research interests center on technology-using teacher development, learning from hypertext, and learning in online environments. Dale has used a variety of research methods to explore these topics throughout his career. He has attended three EDUsummITs and served as a working group leader for the last two.

**Punya Mishra** is currently Associate Dean of Scholarship and Innovation at the Mary Lou Fulton Teachers College at Arizona State University. His research has focused on educational technology, teacher creativity and design. Punya has been to a few of the EduSummIT meetings in the past and looks forward to working with all of you in the days and months to come. You can find out more about me by going to [http://punyamishra.com/](http://punyamishra.com/" \t "_blank)

**Douglas D. Agyei** is currently working at the University of Cape Coast, Ghana where he facilitates several postgraduate programs. His research has focused on Educational/Instructional technology focusing on developing pre-service and in-service teachers mainly at the secondary level; but in recent times he has been interested in professional development for higher education teachers.

Douglas also serves as the director for the Centre for Teaching Support (CTS) which is situated in the College of Education Studies. The Centre is an initiative to help teaching staff or (faculty) of the University, and other institutions of higher education especially, engage in critical reflection and development of practices that improve teaching and learning especially with ICT.

**Sarah Howard** is a faculty member in the School of Education at the University of Wollongong in Australia. Her current area of research is using data mining and systems approaches to start trying to better understand the complexities and dynamics of technology integration, risk taking and teacher change. To do this Sarah has been exploring new technologies and low-disturbance methods of data collection, to try to uncover new kinds of classroom data and improve longitudinal data collection to get a better view at teacher, student and technology interaction.

**Thérèse Laferrière** has been interested in sustainability and scalability of innovation for some years. She is on sabbatical this year, working with Nancy Law and Chris Dede on these issues.  Soon after she returns from Borovets, Thérèse will be at Harvard with Chris Dede for the remaining of the year. As it pertains to innovation and research, it is design research that she has been practicing for a good number of years. In 2002, with colleagues Thérèse translated to French Ann Brown’s “design experiment” (expérimentation de devis in French). Just before EDusummIT, Laval University, will host at Quebec City convention center the ISCAR congress (International Society for Cultura-historical Activity Research), an event happening every three years and last held in San Diego, USA (2008), Rome, Italy (2011), and Sydney, Australia (2014). Here is the website of this event: www.isc [ar17.ulaval.ca](http://ar17.ulaval.ca/" \t "_blank)

This coming week, the network that Thérèse leads, Periscope ( [http://www.periscope-r.quebec](http://www.periscope-r.quebec/" \t "_blank) ), is having two colloquia, one on Boundary crossing in research-practice partnerships and one on Learning communities and communities of practice for student and school success, including the use of digital technologies for teaching, learning and knowledge building.

**Bhupindar Singh‎** is attached as Deputy Director to Chairman, Oversight Council and International Faculty Coordinator at EUCLID (An Intergovernmental Institution under UN Treaty). Bhupindar’s research is inclined towards understanding the implication of data analytics in Education, research aspects attached to educational innovation and developing sustainable education curriculum.‎

**Jo Tondeur** is currently working as an Assistant Professor at Vrije Universiteit Brussel (Teacher Education Department). Most of his work focuses on ICT integration in teaching and learning processes and how this can be associated with teacher and school characteristics. This encompasses the idea that innovations should be situated within the wider field of school improvement. Indeed, technology research is/should be personal, contextual and situated!  
  
In more recent work, Jo has been especially interested in exploring the interplay between (ICT) innovations and professional development. Also in this area he investigates themes at the individual level, (e.g. pedagogical beliefs), and at school level, (e.g. leadership). Important factors in this field are -of course- “scalability" and “sustainability" of the interventions/innovations! Feel free to have a look at [https://www.researchgate.net/profile/Jo\_Tondeur](https://www.researchgate.net/profile/Jo_Tondeur" \t "_blank)

**Joke Voogt** is currently working as a professor in two institutions: The University  
of Amsterdam and Windesheim University of Applied Sciences in the  
Netherlands. In both universities she is responsible for research in ICT  
related to curriculum and educational innovation. Joke’s areas of expertise  
are curriculum innovation, teacher learning and development and 21st  
century skills, in particular related to the integration of technology in  
the curriculum.   
  
The reason that she is interested in this group is that she has always been  
interested in the two-way interaction between research and  
practice. In her own research she often uses research approaches that aim  
to strengthen this interaction.

**TWG9 focus, rational, and scope**

This strand of the EduSummIT 2017 will focus on developing a better understanding of how educational technology research approaches can be *sustained* and *scaled*. Key tasks for TWG9 are identifying:

1. Reasons why research approaches need to be scaled and sustained;
2. Challenges to scalability and sustainability (funding; fragmented, a-theoretical research; multiple incommensurate research paradigms; the challenge of replicability etc.);
3. Strategies for addressing these challenges.

**Some key definitions:**

*Scalability* relates to how well the research approach can be expanded to encompass greater numbers of people and organizations.

*Sustainability* relates to the degree to which a research approach can be maintained over time.

Assessing scale and sustainability, as per Dr. Cynthia Coburn, depends on three key questions (and the answers may vary with projects and change over time):

1. What is being scaled? (A program, a framework, a research approach, use of insights gained for research?)
2. Who is your target audience, and what is the context for implementation and scale?
3. What are you trying to make happen? (Do you seek adaptation, adoption, replication or reinvention?)[[1]](#footnote-1)
4. [How are you trying to make it happen (addition to three key questions from Joke)]

**Working within an extended socio-technical system[[2]](#footnote-2)**

A key issue is that educational technology research is personal, contextual and situated, and because of that the overall picture is noisy, making it difficult to identify shared definitions, approaches and strategies. The nature of scientific research in the field is also a challenge, since the work is embedded within a broader socio-technical system and null results or “failures” are rarely reported.

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These factors complicate the situation even further. So one of the challenges face by TWG9 is to being some level so shared understanding of the issue. Towards this end we provide the following objectives, with the expectation that some of these will evolve and change once the group starts working together.

Additional Questions/Thoughts/Ruminations:

While scalability of research approaches seems pretty straightforward, what does it mean to have a sustainable approach to research? Ongoing formative and summative data collection? Longitudinal research? Culture of reflective practice? What are the drivers of sustainable research?

What research approaches are commonly used in educational research settings?

* What types of educational settings will the Working Group address?
* How does purpose for the research influence sustainability and scalability?
* What are the primary characteristics of these research approaches?
  + What factors influence scalability and sustainability of various research approaches?
  + Does it make sense to organize these factors into continua on which research approaches could be meaningfully situated?
* What are (are there) meaningful connections between factors/continua relative scalability and sustainability? Might this be addressed through a model?

Although there is research on sustaining and scaling implementations of innovative practices using technology in educational settings, little/no research was identified that addresses sustaining and scaling research approaches relative to ICT.

Issues and Comments from the Googledocs discussion:

Develop a conceptual framework which makes it possible to position research (approaches?) with respect to scalability and sustainability [Joke]

I wonder if we think of scale as adaptability - so that the creativity of individuals and groups (who understand their context and their cultural content) can take the good ideas and build something sustainable in that context. I often have seen good projects tying to be replicated when that is not what is needed. [Lynne]

Might this be a continuum (or series of continua)? For example, low to high scalability--with longitudinal ethnographic research as the low anchor and international achievement testing as the high anchor. We could fill in other approaches along the continuum and, in the text, discuss the relative scalability advantages and disadvantages of each approach. Perhaps we could think about whether there is a relationship between scalability and sustainability and, if there is, how we might represent that in a framework. [Dale]

Is it desirable and/or necessary that the two [sustainability and scalability] go together? Might be useful to think about in relation to how we define and illustrate these for the field. [Sarah]

See for instance the article of Borko: Borko, H. (2004) Professional development and teacher learning: Mapping the terrain. Educational Researcher, 33(8), 3-15. This is not about technology but about teacher professional development; It shows three stage of research needed to develop profound knowledge of PD scenarios that work in large settings [Joke]

Stakeholders roles, interests and motivation as relates to sustainability [Joke and Sarah]

Scaling application of theory across content/research domains [Djordje]

As in the case of theory development, object scalability should deal with the following three views: what object (e.g., framework, theory) to scale, how its scaled entities are then related, and why these entities and the relationships used are relevant to a new context (Whetten, 1989). [Djordje]

1. Adapted from <https://nonprofitquarterly.org/2015/12/16/scale-and-sustainability-whats-a-funder-to-do/> [↑](#footnote-ref-1)
2. Diagram and definitions from

   <https://www.diva-portal.org/smash/get/diva2:281124/FULLTEXT01.pdf> [↑](#footnote-ref-2)