**Candidates for ESERA 2019 book – Strand 4**

Haim Edri (with Edit Yerushalmi and Elon Langbeheim), Interactive escape room, Workshop 14.

A very impressive optional course on computational modelling in Python for upper-secondary students, where they get to model and simulate ideal gas behavior and Brownian motion of a particle in the first year (the focus of the workshop), and more advanced phenomena in coming years, such as micelle formation. One of the take-home message was that students were encouraged to simplify their models, from ones that include force interactions to random walk algorithms without fore interactions. Fits well with the aesthetic theme of the conference. My favorite session (although it may belong to another strand, since I cannot find it among the workshops in the Excel sheet of all applications to Strand 4 from February).

Daniel Cebrián-Robles, Assessment of pre-service elementary teachers, OP34

An interesting programme where elementary science teachers produced videos of local problems. I was struck by the artistic ambition, where participants were encouraged to fond evocative ways of communicating the issues they worked with. An example was a group of students that showed a video of a person in a white T-shirt, with a white plastic bag over his head, symbolizing the amassing of plastic in our oceans, how we “suffocate” the Earth. Fits well with the aesthetic theme of the conference.

Seamus Delaney, Augmented reality, Symposium 34

An inspirational symposium, but it was of a more descriptive character than analyzing from a research point of view. The discussant, Eleni Kyza, asked for ways of operationalizing what AR is, because of different interpretations among the contributions.

I liked the presentation by Birgitte Lund Nielsen and Harald Brandt from VIA in Aarhus. They presented a two step process where participants got to know AR applications, and then created their own applications, which I found ambitious. They based the talk on two Nordina papers: <http://journals.uio.no/index.php/nordina/article/view/2399>, <http://www.journals.uio.no/index.php/nordina/article/view/6163>, but also presented recently collected data.

Additional presentations that I missed, but am curious about:

Symposium 51 – Mature evaluation of juvenile technologies

OP149 – Analysis of learning using novel digital technology, AUTOMATIC NETWORK ANALYSIS OF PHYSICS TEACHER TALK by Caballero, D, Pikkarainen, T.; Viiri, J.; Araya, R; Espinoza, C.

Having viewed the slides, I think this is very interesting. They use a speech recognition software to automatically transcribe what teacher’s say. Then, they manually define 450 content specific physics words. These words are now potential nodes in a network depicting what a teacher says during a class. If two words are mentioned in a window of 10 seconds, the corresponding nodes get +1 one to their weight. The calculate a number of network measures and make *robust linear regressions* (learning gain as dependent variable) to find that a high density of links is not beneficial to learning, whereas degree centrality is. I think it is a really good candidate, but I think that maybe the authors have other plans. Also, I there are some peculiarities in how they define the different network measures in their presentation.

OP102 – Assessing conceptual understanding of high school students with a digital educational genetics game. Eric Wiebe. The abstract looks interesting, promising data collection and analysis approach, high scores in evaluation.

## Possible posters (in no particular order)

Vargic, R., Rozinaj, G., Zhao, D., Muntean, G. (2019). Improving learner knowledge and experience by employing newton project serious game in programming course

*They develop and test serious games for programming. Seems thorough and well thought through. It is a pilot study for a EU Horizon 2020 project and involves tests in a variety of cultures. Some implementations of their games is associated with improvement and some are not, which allows them to speculate about why it sometimes seems to work and sometimes not. I like that they do not just present “success-stories”.*

Greitemann, L. (2019). Effects of Digital media in Heterogenious Chemistry Lessons.

*Investigates the differences between creating videos and editing tasks* *for internalization of knowledge. Finds that the two modes do not produce statistical significant differences. I think this is interesting because it is an example of a no-result that could actually be a result: It may not matter too much how you make students work, but just that you make them work in a meaningful way. And I also really like the presentation on the poster.*

Riopel, M., Ayotte-Beauder, J.-P., Ayotte, A. (2019). Conceptual and Pedagogical Framework for an Interactive Ecosystem Serious Game.

*They have made a serious game about ecology that seems to make use of both student observation and manipulation. The game looks aesthetically pleasing (there are obvious design decisions, at least). I like their framework (Accuracy, complexity, ecological pyramid), and would like them to elaborate on it so others can learn from it. A paper should include the validation by expert panel listed as next step.*

Wang, C.-Y. and Lee, K.-W. (2019) Do eye-movements related to strategy use? A new approach to [xxx] dynamic self-regulation during a complex science task

*In my picture, I cannot see the whole title. They investigate the differences in eye-movement patterns and meta-cognitive strategies for high-performers and low-performers on a “complex science task” (not clear what the task was). What I find interesting is that they find no significant differences between high-performers and low performers on eye-movement and meta-cognitive strategies separately, but they do find significant differences in eye-movement-strategy associations – so I guess the combination of the two. And that is interesting, because it can help link eye-movement data to strategies.*