**Dreaming of Constructivist Technology Integration Strategies in Future Teacher Students**

Robert A.P. REUTER & Gilbert BUSANA

University of Luxembourg

**General abstract** (max. 200 words)

Based on previous experiences in preparing future teachers for technology integration (Reuter & Busana, 2017), and based on the recommendations from Kolb’s (2017) Triple E framework about effective uses of ICT in education, we have adapted the Educational Technology course in our Initial Teacher Training. Over the years, we have indeed observed that, when given the choice of the type of technology integration strategies, many students designed ICT-based learning and teaching scenarios that implemented a rather teacher-centred teaching model (Roblyer & Doering, 2013). These scenarios were often far from innovative nor did they implement the disruptive potential of ICT in education (Christensen, Horn & Johnson, 2008). In the winter semester 2018-2019 we thus decided to ask our students to design and develop constructivist technology integration scenarios. We assessed the success of this adaptation with the help of our own observations, the semester reports produced by our students and their answers to an end-of-semester course evaluation. In general, we saw that students were able to design rather attractive constructivist learning activities. We also observed that our students were quite surprised that such activities do not require complicated and expensive tools, but that they can be implemented with standard productivity tools.

**Detailed abstract**

1. **Which theoretical background and/or earlier research results is the practice-based research based on? (max. 150 words)**

Based on previous experiences in preparing future teachers for technology integration (Reuter & Busana, 2017), and based on the recommendations from Kolb’s (2017) Triple E framework about effective uses of ICT in education, we have adapted the Educational Technology course in our Initial Teacher Training. Over the years, we have indeed observed that, when given the choice of the type of technology integration strategies, many students designed ICT-based learning and teaching scenarios that implemented a rather teacher-centred teaching model (Roblyer & Doering, 2013). These scenarios were often far from innovative nor did they implement the disruptive potential of ICT in education (Christensen, Johnson & Horn, 2010). In the winter semester 2018-2019 we thus decided to ask our students to design and develop constructivist technology integration scenarios.

1. **What are the research questions in this practice-based research? (max. 150 words)**

We wanted to find out what effects the added constraints would have on our students’ productions, their impressions about our course and our own satisfaction with the course. The objective was not to show effectiveness of our method compared to another method, but more to allow us to compare our current practice with previous practices, in a qualitative way.

1. **Which research design, instruments and methods for data analysis are used in the research as presented? (max. 150 words)**

In order to assess the success of this adaptation of our previously reflected pedagogical practice we used a mixed methods approach: we took into account our own observations as participants observers, the semester reports produced by our students, within which they described their technology integration projects and their answers to an end-of-semester anonymous course evaluation, which is organized by our faculty’s teaching quality evaluation team. The collected data were supposed to help us gain qualitative insights into the learning and teach processes and the products they led to.

1. **What are the research results? (max. 150 words)**

In general, we saw that students were able to design rather attractive constructivist learning activities. Only very few student groups had some minor issues with thinking, designing and implementing learner-centred, creative and productive learning scenarios with digital media and technologies. We, as teachers, were overall very satisfied with the quality of our students’ works. We also observed that our students were quite surprised that such activities do not require complicated and expensive tools, but that they can be implemented with standard productivity tools. However, the students’ responses in the course evaluation still showed some issues similar to those observed with previous iterations of the course. Students still complain about the fact that they need to attend the course on campus instead of being able to work from home and they still struggle, like their predecessors, with the structuration of the report they have to write.

1. **What are the main conclusions and/or interpretations drawn in this practice-based research? (max. 150 words)**

We conclude that our teaching scenario, aimed at developing the necessary competencies to design and implement meaningful and strategic educational technology integration scenarios, does lead to the desired results, also when we add the constraint that these scenarios need to be in line with the constructivist tradition. But we need to further work on improving our higher education practices by making the tasks and the processes even more meaningful and easy enough to understand, while keeping them challenging and demanding for students.

1. **How does the research support the current field of practice-based educational research and/or how does it improve (future) educational practice? (max. 150 words)**

This practice-based educational research helped us to reflect upon our own higher education practices by making us look closely at the available (qualitative and quantitative) data and understand the impact of our own actions. This does, of course, not constitute any kind of empirical evidence that would show the effectiveness of our teaching method, which would require a more experimental research approach. But that was not the aim of the present reflective practitioner research.

1. **How will you ensure interactivity in your presentation? Please consider any type of media and specify the method, tool, format,… chosen (max. 150 words)**

We will ensure interactivity in our presentation (1) by telling the audience to ask questions at any moment during the session and showing that we are open to their questions, (2) by asking the audience about their own experiences with training future teachers about technology in education, (3) by asking the audience for their opinions about our teaching approach, e.g. what they like about it, what they do not like, what they would change and how they would improve it, (4) by encouraging exchanges between members of the audience and (5) by showing concrete examples of projects produced by our students.

1. **Which question do you wish to present to the audience for discussion? (The exact formulation listed here will be published in the programme book so please write down the question as such. No clarification/justification needed)**

Which more systematic instruments would you advise us to use in order to more precisely and deeply grasp the learning and teaching processes and outcomes involved in our teaching practices?

What recommendations would you make based on your own experiences and on your readings of the scientific literature regarding our efforts to teach strategic integration of digital media and technology in educational settings?

1. **List of references**

Please include your list of references as an attachment.

* + Christensen, C. M., Horn, M. B., & Johnson, C. W. (2008). *Disrupting class: how disruptive innovation will change the way the world learns*. McGraw-Hill Professional.
  + Kolb, L. (2017). Learning First, Technology Second: The Educator's Guide to Designing Authentic Lessons. ISTE.
  + Reuter, R.A.P. &Busana, G. (2017). Preparing Future Teachers for Strategic Uses of Educational Technology: A Project-Based Approach. 12th Annual Conference of the European Association for Practitioner Research on Improving Learning, November 29 – December 1st, Hämeenlinna, Finland.
  + Roblyer, M. D., & Doering, A. H. (2013). *Integrating Educational Technology into Teaching*(6th ed.). Boston: Pearson.