

## **TECHNOLOGY ENHANCED LEARNING IN THE HIGHER EDUCATION CLASSROOM: EDUCATORS AS CHANGE AGENTS**

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### **ABSTRACT**

*This paper reports on research related to bringing about technology-related change in the higher education classroom. The central research question was how to promote and support evolving paradigms in teaching and learning through those who are key in this change, namely the educators themselves. Starting from a constructivist view on the use of technology in education the theoretical base was expanded to include literature on change. Action research was the methodology used. It was implemented through a series of interactive workshops on technology-related pedagogical innovation and the creation of a virtual community. Initial results suggest that breaking away from tradition and embracing change does indeed start at an individual level, however, structured discussion and exchange not only encourage and support but also instil the confidence necessary to incite one to experiment in their delivery. The paper closes with suggestions for developing educators as change agents.*

### **INTRODUCTION**

Educational paradigms are evolving as today's society becomes increasingly digital yet there is still a need to increase the digital fluency of educators. As noted in an OECD publication, the impact of technology remains sub-optimal [and contributions] to teaching and learning have yet to be fully realised and exploited



yet, “it is vital that teachers become active agents for change” (OECD, 2015, p. 4). Unfortunately this still rings very true today. This research focuses on both of these issues in the context of higher education.

### **LITERATURE REVIEW**

This research takes place at a crossroads where pedagogy and change intersect and draws on two bodies of literature for its theoretical grounding. The first is based on a constructivist vision of using technology to add value to student learning (Ertmer & Ottenbreit-Leftwich, 2013; Howland, Jonassen, & Marra, 2012; Jonassen, 1996). Despite what would initially appear to be the use of outdated literature with respect to 21<sup>st</sup> century technology, Jonassen (1996) was focussed on the use of technology to engage student in learning in a manner so as to develop competencies that are more than pertinent today (World\_Economic\_Forum, 2016). This is then coupled with the literature on change management as what we are faced with goes past just a change in the educational paradigm but calls for a change in the practices of educators. How best to accompany this change becomes central to the digitalization of education.

### **Technology Enhanced Learning (TEL)**

The shift from a focus on course content to one on competency development seen in higher education today means that the emphasis is moving away from the provision of knowledge and information and more towards its use (Oliver, 2002). This suggests that the use of technology can indeed add value to the learning experience as it not only provides access to more information than ever before, but also to the situation or problem to be examined, and, more importantly, the possibility of collaboration at a distance between both the educator and peers.

Despite considerable promise, there are numerous barriers to the successful implementation of technology in the classroom as more than just a *cool tool* (Johnson, Adams Becker, Estrada, & Freeman, 2014) but rather as something that indeed adds value (Kirkwood & Price, 2014). Prensky (2010) cautioned that educators often focus more on the nouns of learning than the verbs meaning that the emphasis is more on the tools than on the learning objectives. Yet the tools are undergoing constant change and it is what one does with the tools that counts. The added-value comes from the integration of technology into the cursus in such a manner that it's use becomes intrinsic to achieving the learning objectives (Gikas & Grant, 2013). Ertmer et al. (2012) provide a detailed discussion of technology integration focussing on barriers related to teachers' knowledge and skills as well as their attitudes and beliefs, suggesting that the latter are insufficiently taken into account. Although the literature is overwhelmingly positive about the possibilities



afforded by technology to add value to the learning experience there is also clearly a need to accompany such change at the level of both the educators and the students. Some of the elements that can be seen to contribute to educators taking on board such change include “a work culture that embraces and supports innovation; a robust technology infrastructure; technology tools that are appropriate for teaching and learning purposes; a senior champion who drives the process; a willingness to consult and share; and supportive managers, peers and support professionals.” (Jasinski, 2007, pp. 4-5). This brings us to the second body of literature that has been referred to in this project.

### **Change Management**

Surprisingly, the past twenty years have seen limited evolution in course delivery which has us turning to the literature on change management (Kotter, 1995; Lewin, 1958; Quinn, Amer, & Lonie, 2012) in search of a solution that will provide long-term impact in tomorrow’s higher education classrooms. Traditionally change management has its foundations in management literature with the exception of several authors who have looked at its application in the area of education. Based on the seminal work of Lewin (1958) and that of Kotter (1995), Quinn et al. (2012) have identified a framework consisting of three phases which is pertinent for use in the higher education arena. These three phases are:

Setting the stage: this call to action needs to be stimulated by a sense of urgency coupled with a “guiding coalition” in order to “break open the shell of complacency” (Lewin, 1958; Quinn et al., 2012);

Making change happen: requires commitment and clear strategic vision in order to provide sufficient incentive to empower those involved and encourage the taking of risks that inevitably accompany change;

Making it stick: and finally, in order to have a lasting impact on the institute or organisation, processes and structures need to be put into place to support the efforts that have been made.

At the macro level one could say that the stage has now been set and change is indeed underway with the digitalization of education now being an accepted phenomenon. At the micro level, however, one sees considerable discrepancy from one school to the other and, this at all levels, as well as between countries.



This project focuses on the higher education arena in Western Switzerland. The main objective of this research, was evaluate whether working closely with educators might impact their acceptance and future use of technology in their course delivery. In the longer term, the idea being to successfully empower educators to initiate technology-related, value-adding change in their own course delivery and subsequently to become agents for change across the institute. In order to reach this objective, the practice-based research questions addressed were:

- a. Can interactive workshops encourage the inclusion of technology to enhance learning in future course delivery?
- b. To what extent do educators currently see how technology enhanced learning (TEL) might contribute to the development of student competencies in the areas of:
  - i. autonomous learning,
  - ii. information-seeking,
  - iii. collaboration.
- c. How effective for TEL related professional development is a virtual space for exchange and discussion?
- d. What additional support measures are necessary for educators to embrace change and, in the future promote such change amongst their colleagues?

### **METHODOLOGY**

This project has been carried out by practitioners in their own classrooms and has therefore turned to the method of action research. Action research (Dick, 1993; du Preez, 2011), comprises three phases: intention, action & review all of which are detailed below.

#### **Action research**

##### *Intention*

Earlier exploratory research allowed for the trialling of workshops through two pilot courses. The feedback from participants on the course content and their needs related to the use of technology in the classroom allowed for the development of workshops that would be offered across the university's campuses in five different cantons.



### *Action*

Four thematic, half-day workshops, each held five times on different campuses for a total of twenty workshops were available to the faculty at the University of Applied Sciences & Arts in Western Switzerland over a five-month period.

### *Review*

Review began in the classroom through interaction with and observation of the participants. The researchers worked as a binome allowing time for this during the workshops themselves. The development of a virtual community for discussion and exchange accompanied the workshops.

### **The field**

The field was the University of Applied Sciences of Western Switzerland (HES-SO) with some 21'000 students spread across seven cantons. The afore-mentioned workshops were offered in five of the seven cantons for a total of twenty workshops. The sample was a convenience sample comprised by the workshop participants, all experienced faculty at the HES-SO, amounting to 252 participants and equal to 85 individuals as many followed more than one workshop. The participants, for the majority, were teaching at the Bachelor level and had classes of 25-50 students. Clearly there are drawbacks to this as the population cannot be considered representative of all the faculty at the university seeing as the workshops would have attracted especially those interested in the use of technology in the classroom. As highlighted by Quinn et al. (2012), however, it is important to have a group of champions to lead change and in order to nurture and develop such a group the feedback from this particular sample was deemed important.

### **Data collection**

The data collection consisted of workshop (see below for a detailed description) observation. In addition, a follow-up questionnaire was prepared in order to provide preliminary answers to our research questions. We were looking to a large extent for clear answers as to what the participants had done following the workshop attendance the choice was made to use a trichotomous scale: agree, neutral, disagree. With a response rate of 36% the numbers are only sufficient for the presentation of descriptive statistics.

Finally, a virtual community was created using the Google+ platform and which was joined by 79 of the 85 workshop participants. The idea behind this community was two-fold: firstly, to provide a space for exchange, discussion and support and,



secondly to allow for the development of a community of practitioners, across the various sites, interesting in the introduction of technology in their course delivery.

### **Workshops on Technology in Practice**

Technology for formative and summative evaluation

This workshop looked at the world of learning analytics and how the educators could use it to develop online assessments both of a formative and summative nature. The changing nature of assessment was also addressed.

Promoting student autonomy at the individual and/or group level

More and more higher education students are now expected to take responsibility in their own learning, be active in the construction of their own knowledge and even go as to manage the learning process (Charlesworth, Sarrasin, & Murphy, 2016; Conole & Alevizou, 2010; Goulao & Menedez, 2015). This workshop focussed on the use of technology for organization, curation and the use of visual content.

Creating and using Web 2.0 communities for collaborative learning

With the advent of digital technology, collaboration has taken on a whole new meaning as it can now easily occur both synchronously and asynchronously as well as with participants at different locations. This workshop looked at the options available for creating collaborative communities as well as at existing virtual communities that could be joined.

Cool tools for in-class use

This workshop dealt with in-class creativity and how simple tools could be used not just for fun but for educative purposes. A variety of resources from e-voting to videos to curation tools were discussed and tested live by the participants.

### **FINDINGS**

Initial results, based on the class observation combined with the self-report questionnaire, support what has been highlighted in both in the academic and professional literature (Johnson et al., 2014; OECD, 2015) with respect to the limited digital fluency of educators. The findings are presented in relation to the research questions posed.

No results are presented for the question related to the use of a virtual community. Although 79 out of 85 participants did in fact join the Google+ community, little real collaboration or even discussion ensued and this only for a short time following the workshops despite encouragement. There was a clear need on the part of the



participants for further discussion, however, a virtual space did not meet their requirements.

### **Observation**

Twenty half-day workshops having between ten and twenty participants over a five-month period allowed for discussion and observation. It was with some surprise, as the participants could all be considered as “early adopters”, that the most striking observations were:

- A relatively low degree of digital fluency and this by educators having an interest in technology integration;
- A desire for reassurance through contact and exchange with others in similar situations, suggesting a need for external validation and support would increase confidence levels;
- A request to have best-practice, fast-track, cool-tools type lists for quick implementation rather than a review of the pedagogical scenario and the “why” behind the tool.

These observations were in line with the responses to our questionnaire as shown below.

### **Questionnaire**

A questionnaire composed of seventeen items related to the workshops was sent to all the participants (n=85). A total of 39 completed questionnaires were returned. A certain number of questions related to the individual or to the course delivery, faculty, etc... are not presented here. The three tables below present results directly related to the research questions mentioned earlier.

The first question of interest was to see whether interactive workshops might encourage educators to include technology in their course delivery. We see that despite contributing to a better understanding, this was not sufficient to incite even half the respondents to make a change in their teaching in the short term.

Table 2 shows responses related to the participants perception about the contribution of technology to selected areas of student development. It is encouraging to note that a high percentage of participants have a positive view on this.

Finally, Table 3 shows responses to a series of questions related to additional support measures that the participants wanted to continue their journey in the direction of technology inclusion. It would seem that there is interest and that despite the



increased understanding mentioned in Table 1, it will require additional effort and support in order to encourage real change.

Table 1

*Interactive Workshops as a Mechanism for Change: Responses in percent (n=39)*

<b>Following the workshop, I:</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>
- now have a better understanding of how to include digital technology in my teaching	79.4%	10.3%	10.3%
- tested one or more of the tools presented	58.6%	13.8%	27.6%
- have used one or more of the tools presented in my teaching	44.8%	13.8%	41.4%

Table 2

*TEL contributes to the development of student competencies. Percentage responses (n=39)*

<b>In the areas of:</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>
- Autonomous learning	69.0%	31.0%	0.0%
- Information-seeking	79.3%	20.7%	0.0%
- Collaboration	79.3%	17.2%	3.4%

Table 3

*Additional support measures. Percentage responses (n=39)*

<b>I would like to have:</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>
- TEL-related online courses	79.4%	10.3%	10.3%
- Additional thematic workshops	75.9%	24.1%	0.0%
- Personal coaching	58.6%	24.1%	17.2%

## DISCUSSION

Johnson et al (2014) go as far as to say “ if they [teachers] are reluctant to embrace new technologies and the promotion of digital literacy, students will not see the importance of these competencies to succeed in the workforce” (p. 22). The competencies identified by the World Economic Forum (2016), seen as necessary to succeed in the workforce in the 21<sup>st</sup> century are linked to the digitisation that society





is currently undergoing and include: complex problem solving, critical thinking, creativity, communication & collaboration amongst others. All competencies that TEL can contribute to the development of.

Yet, until such time as educators themselves are empowered to act and to initiate change which in turn is supported and valorised they will not become real agents for change. This suggests that there is still a long way to go in supporting educators in their professional development.

Although limited in their generalizability due to the small sample size and the specific type of institution used for the research, the findings presented in this paper can contribute to the rethinking of the way in which next generation educators are supported in their pedagogical practice. There is clearly a need to go past the “available at your request” mode that pedagogical advisors, learning centres, instructional developers often default to. The use of interactive workshops and the development of a virtual community, both at an interdisciplinary level, are just some of the ideas that can be further developed to impact educational practice. Most importantly the message for allowing educational practice to evolve is to let those at the forefront push change through all the while providing clear support and valorising their efforts.

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