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"THE FUN THEY HAD" OR ABOUT THE QUALITY OF MOOC

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Dwelling on the issue of MOOC's quality the paper start presenting some reflection on preliminary questions: we have to evaluate MOOC differently from e-learning?; what about the difference between MOOC quality assurance and MOOC quality enhancement?; what are the parameters the universities shall use to certificate the acquired MOOC credits?
The paper then analyzes the published scientific literature that concerns the most significant studies about the quality of MOOC and particularly those dedicated to quality enhancement. The conclusion of this analysis is that the relevant literature about MOOC's evaluation is still uncertain between the need to adopt one of the few quality enhancement frameworks specifically created for MOOC or reuse the e-learning quality models available online. MOOC are in a transition phase in which - although it is difficult to say they are right now a disruptive innovation - the questions they rise (about pedagogy, assessment procedure, credits, technology, etc.) certainly will

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contribute to transform the quality of higher education for the generations to come.

Prologue

> «Margie even wrote about it that night in her diary. On the page headed May 17, 2157, she wrote, "Today, Tommy found a real book!" It was a very old book. Margie's grandfather once said that when he was a little boy his grandfather told him that there was a time when all stories were printed on paper».

This is the beginning of the science fiction "The fun they had", written by Isaac Azimov. It first appeared in a children's newspaper in 1951 (Azimov, 1951). Set in the year 2157, when children learn individually at home using a mechanical teacher, the story tells of eleven-year-old Margie Jones, whose brother Tommy finds a real book. The book tells about a time when children learned altogether in a group in a place called school.

Azimov end his tale with a cross section of a little girl day, that I bring you here unabridged.

> «The screen was lit up, and it said: "Today's arithmetic lesson is on the addition of proper fractions. Please insert yesterday's homework in the proper slot." Margie did so with a sigh. She was thinking about the old schools they had when her grandfather's grandfather was a little boy. All the kids from the whole neighborhood came, laughing and shouting in the schoolyard, sitting together in the schoolroom, going home together at the end of the day. They learned the same things, so they could help one another on the homework and talk about it. And the teachers were people...
> The mechanical teacher was flashing on the screen: "When we add the fractions 1/2 and 1/4..." Margie was thinking about how the kids must have loved it in the old days. She was thinking about the fun they had».

We leave Margie with this regret…we will be back to her in the conclusions, dear reader. And now we will devote ourselves to MOOC and quality

1 Introduction

I don't know if George Siemens, of Athabasca University, and Stephen Downes, of Ottawa National Research Council, were aware to start a phenomenon that would occupy the debates for long time, when in 2008 they launched "Connectivism and Connective Knowledge", a course for 25 tuition-paying students of Manitoba University, as well as over 2200 online students from the general public, who paid nothing. It is a fact that if we search

in google "MOOC"- Massive Open Online Courses, term coined by Dave Cormier, we obtain today more than 8 million results. A remarkable record, even if confronted with the term most searched in the web, i.e. Facebook, with nearly 240 million researches (Walker, 2014).

But these are also the years when evaluation has become all the range. Evaluation that ─ *ça va sans dire* - is sacrosanct, because it contributes, when at its best, to improve the world. Therefore, not long afterwards MOOC ended up in the press (commented in 2013 on "Internazionale", "Corriere della Sera", "Economist", "La Repubblica"), the projects for their quality evaluation ─a polysemic concept we analyzed already elsewhere (Ghislandi, 2015)─ started. The ground was fertile, because the question of e-learning quality had been on the table for years.

We can cite some projects about e-learning evaluation:

- Quality matters;
- Online Learning Consortium Quality scorecards handbook (OLC-Online Learning Consortium (ed), 2000);
- California State University- Chico rubrics for online instruction (COI-Committee for Online Instruction, 2003);
- iNACOL standards and rubrics to measure quality e-learning course design.
- E-xcellence in e-learning, a European quality benchmark provided by European Association of Distance Teaching Universities (EADTU), that focus on the improvement of: Accessibility, Flexibility, Interactiveness and Personalization.

We can also cite some studies:

- Creelman, Ehlers, & Ossiannilsson (2014);
- Wright (2003).

This is the context that welcomes MOOC and their quality evaluation.

Before we get to the heart of the matter, that is the MOOC's quality literature analysis, it is however useful to clarify some points that are in the background of my thoughts: whether we have to evaluate MOOCs differently from e-learning; the difference between quality assurance and quality enhancement; the need of quality assurance when we foresee accreditation.

2 Background

On the first topic I already floated some reflection in the past, based

on the Michael Crotty (1998, pp.2-9) studies. The answer to the question whether we have to evaluate MOOCs differently from e-learning is that it depends at which research level we are doing our analysis. If we are in the epistemological or theoretical sphere we can use the same kind of evaluation framework for e-learning, OER and MOOC. The same we can say if we are in the methodological sphere. Instead the research methods, techniques or tools can be very different for e-learning, OER and MOOC. In fact, the analysis parameters, typically those listed in rubrics, include elements to assess the single teaching strategy details, that are specific to different contexts.

The second reflection is about the difference between quality assurance and quality enhancement (Raban, 2007). For some time now we've dealt with growing universities' interest on quality. Interest that, reaching often conclusions not founded in rigorous studies and sure evidences, may end up in results' politicization and distortion. The universities' air of these days is filled with managerial ideology, and widespread rhetoric on auditing and accountability. And very often, in the evaluation of a product primarily aimed at learning, also we, the educationalists, too passively accepted the industry proposed language. Language that is strongly connoted with a positivistic vision that brings a byzantine hyper-bureaucratization of the whole process, that end up for dealing more with the organizational apparatus rather than with the teaching/learning process. The influential Alex Buckley (Buckley, 2014) say: «Since the early 1980s, the de facto arbiter of quality was a news magazine that ranked colleges and universities on such things as reputation, students' entrance examination scores, and faculty salaries. These rankings were designed to comport with the general public's belief that wealthy and highly selective institutions must be the best. But those truly concerned with quality in undergraduate education lamented the absence of teaching and learning from the quality discourse».

These are the reasons why we have to focus also, and primarily I would say, on quality enhancement other than on quality assurance, with the aim to make more effective and valid the object or process we're studying, through reiterated cycles of evaluation and modification.

To sum up the true quality is a long and complex process, that proceed step-by-step, and not always in the right direction. As I said in a recent paper «The higher education quality is […] a shared, mediated and transformative culture that defines (in a given time/place and for specific stakeholders) the characteristics education must have, how to evaluate them (criteria and methods) and the process that aims at ensure them» (Ghislandi, 2016). Nevertheless, a process of quality assurance ─founded on aware and wise

selection of epistemological, theoretical and methodological preconditions, as well as on the right methods' identification─ is the sine-qua-non condition for a University who want to give ECTS (European Credit Transfer System) certification to students that completed an online course.

Which parameters we have to use to carry out a certification of the MOOC acquired credits ─and we arrive at the third background topic─ is also necessary due to the diploma mills phenomenon, that is illegitimate academic diplomas offered for a fee by companies or organizations ─particularly active in the United states, but also in many other countries─ who claims to be a higher education institution (Lantero, 1996).

For valid accreditation the attention must be focused on the courses quality level and on knowledge, skills and abilities assessment. On this point a groundbreaking research was conducted, from May to November 2014, by the University of Leicester's Institute of Learning Innovation, in collaboration with the European Commission's Institute for Prospective Technological Studies (IPTS) (Witthaus *et al.*, 2015, pp.1-12).

The research said that three elements have a significant impact on recognition of open learning: robustness of assessment, affordability for the learner, and eligibility for assessment and recognition. To illustrate the relationships between these elements, in open, non-formalized education, two tools were developed:

1. a matrix that brings together the «recognition of learning and the type of assessment used. The vertical axis of the matrix comprises a five-level hierarchy of formality of recognition (from no recognition to full recognition in line with the European Credit Transfer and Accumulation System), while the horizontal axis represents a five-level hierarchy for robustness of assessment (from no assessment to formal examinations).
2. a series of diamond-shaped graphs representing the tensions between formality of recognition and the other three elements (robustness of assessment, affordability for the learner, and eligibility for assessment and recognition».

Robust assessment is central to recognition of open learning. «The need to pay for robust assessment leads institutions to either pass on the cost of assessment to learners, or require learners to enroll at the institution – in both cases reducing the openness of the assessment and recognition process"». (*Ibidem*)

Once clarified some of the preliminary questions, let us continue on the presentation of studies about the quality of MOOC.

3 The method: qualitative literature analysis

The methods used during the literature analysis were mainly three (Phelps, Fisher & Ellis, 2007). All of them recall, in the approach to literature analysis, the qualitative research paradigm.

1. Citation chaining: a technique where you follow the backward or forward chains of citations that lead to other relevant material. We can also call it the snowball literature review method, recalling the same term used in qualitative research when we decide to build a purposeful sampling of people participating in the research. «This is an approach for locating information-rich key informants or critical cases.[…] In most programs or systems, a few key names […] are mentioned repeatedly. Those people or events recommended as valuable by a number of different informants take on special importance. The chain of recommended informants will typically diverge initially as many possible sources are recommended, then converge as a few key names get mentioned over and over» (Patton, 1990, pp.169-186)
2. Limiting searches or saturation searches: a process of narrowing the search results in order to identify the most relevant and appropriate references. In this case too, we can recall a qualitative research concept. «If a researcher remains faithful to the principles of qualitative research, sample size in the majority of qualitative studies should generally follow the concept of saturation when the collection of new data does not shed any further light on the issue under investigation». (Glaser & Strauss, 1967)
3. Monitoring: maintaining awareness of developments, from sources particularly dedicated to the topic of interest. Here too is recalled a concept very often used in qualitative research: theoretical sensitivity. «Theoretical sensitivity refers to a personal quality of the researcher. […]One can come to the research situation with varying degrees of sensitivity depending upon previous reading and experience with or relevant to an area. It can also be developed further during the research process. Theoretical sensitivity refers to the attribute of having insight[…] the capacity to understand, and capability to separate the pertinent from that which isn't». (Glaser, 1978, pp. 41-42)

4 The quality of MOOC

The analysis of the literature that I present assumes a peculiar focus ─compared to other remarkable literature analysis about quality of MOOC already available (e.g.: Hayes, 2015)─ because I make a distinction

between papers concerning quality assurance and papers concerning quality enhancement. We already spoke about the deep difference between quality assurance and quality enhancement: the first aim at giving credits, equivalent to those achieved with Universities' courses, the latter aim at improving the teaching/learning process.

We will first analyze the numerous studies on quality assurance, and following we will see those dedicated to quality enhancement.

4.1 Quality assurance

Yuan e Powell in 2013 said that MOOC could be a disruptive innovation (Yuan & Powell, 2013), but to really get this situation we have first to solve the crediting problem. (Poyiadgi, 2014). Indeed, while mechanisms to ensure accreditation are well established in formal education institutions, such mechanisms are not in place for MOOC (Kocdar & Aydin, 2015). The main reason why is so complex to establish if MOOC is of adequate quality to attribute credits by a university is that ─according to the results of the MOOC Quality Project conducted by the European Foundation for Quality in e-learning─ it is difficult to define quality since the nature of MOOC «are constantly changing and new forms are appearing». (Ehlers, Ossiannilsson & Creelman, 2013).

In fact, the institutional education is mainly based on transmissive lessons and didactical materials provided by teachers, while the best MOOC are founded on Communities of Practice model, that is still today difficult to evaluate and even more to credit. Some authors argue that the «flexible and changeable learning process possessing a greater openness creates a challenge for recognition». (Eaton & Uvalić-Trumbić, 2014). So much, the co-founder of one of the biggest MOOC providers said that «The certification offered for massive open online courses will never be as valuable as the currency of a traditional degree from a prestigious university» (Parr, 2013). Kocdar and Aydin (*op. cit.*) arrive even to state «that MOOC are not really higher education because the vital component of rigorous student assessment is missing». Due to the difficulties in establishing the MOOC quality, and the weak assessment methods, many university department (Georgia State University, Colorado State University Global Campus, and Maryland University College) refused to validate the MOOC achieved credits (Yuan & Powell, *op. cit.*).

Anyway we can observe that, at present, only a small percentage (10-15 percent) of the students enrolled in MOOC classes complete the course (Kelly, 2014). Among these, few are concerned in obtaining the accreditation from

a university (Reich, 2014). To conclude, at present days the majority of the MOOC students are long-life learners.

Nevertheless, MOOC seems to have a great potential for what an increasing access to education is concerned. «Massive enrollments in MOOC are an indicator of demand for access to higher education both within the United States and abroad. The first study of HarvardX and MITx courses found that upwards of 27 percent of registrants in some MITx courses were from India alone...» (Kelly, 2014)

Despite the fact that MOOC-to-credit has not yet taken off, some windows are opening. The American Council on Education, higher education's largest membership group, received a grant from the Bill & Melinda Gates Foundation to evaluate a set of MOOC for its College Credit Recommendation Service (CREDIT). The CREDIT program translates learning done outside of a college campus—through the military, corporate training, or a MOOC—into college credit (*Ibidem*)

«Currently, there is no voluntary, independent and formal third-party review process to evaluate the quality of MOOC». (CHEA, 2014). The feasible solutions are suggested by Eaton & Uvalić-Trumbić (*op. cit.*) that mention on three possible alternatives for the MOOC accreditation :

1. the review of MOOC by the current quality assurance and accreditation agencies by extending their scope
2. the evaluation of MOOC's quality by colleges and universities
3. the development of a separate quality review process, focused explicitly on the non-institutional sector.

Waiting for the best solution, providers have partnered with proctoring firms to create verified assessments that students pay a small fee to take. Udacity and edX students' can take in-person proctored exams at one of 450 Pearson VUE-Virtual University Enterprises testing examinations centers around the world. Coursera has partnered with ProctorU, an online service that uses a mixture of webcams, microphones, and screen sharing to verify the identity of remotely exam takers (Kelly, 2014).

Another possibility is to offer open badges which allow learners to get recognition for their studies. An aggregation of a number of badges can be considered for a degree or a diploma (Eaton & Uvalić-Trumbić, *op. cit.*) (Cucchiara *et al.*, 2014)

4.2 Quality enhancement

In scientific literature we can find two kind of studies concerning quality

enhancement: those addressing quality enhancement at institutional level ─that is the apparatus fielded from universities or departments to enable the MOOC design/ development/ delivery/ fruition─ and studies concerning parameters that is necessary to consider in designing/ developing/ delivering the single MOOC course so that it is of good quality. How the didactic quality is connected with courses design is moreover analyzed in some papers (Ghislandi & Raffaghelli, 2014, pp. 117-126; Ghislandi, 2014, pp. 197-210; Ghislandi, 2014, pp. 197-210). Not many, actually. But even fewer are the studies offering rubrics or check lists including quality indicators, that may be helpful for the different stakeholders, namely designers and teachers, in the MOOC's design/ implementation/ delivery/ assessment.

For the scarcity of studies specifically tailored for MOOC quality enhancement we propose here also:

1. framework and projects that offer quality parameters and indicators targeted to online learning generally, but that were used also for MOOC;
2. studies that didn't offer rubrics for MOOC, but instead have generated reflections on the pedagogical quality, including, where appropriate, a list of the most important dimensions to consider in MOOC evaluation.

The European Foundation for Quality in e-learning (EFQUEL) operates the UNIQUe certification. This takes an approach with self-evaluation, external review and improvement plan; there are currently 71 criteria and compliance is scored numerically (EFQUEL, 2011). It should be noted that these criteria have not been created for MOOC, but for all the types of TEL- Technology Enhanced Learning. Moreover, they deal with the institutional level instead of the single course level.

The Quality Matters Program was originally created for online courses, but was used often also for MOOC (Lowenthal & Hodges, 2015). QM reviews HE-Higher Education courses by scoring them with a rubric centered on the following eight general standards (and 43 criteria): course overview and introduction; learning objectives; assessment and measurement; instructional materials; learner interaction and engagement; course technology; learner support; accessibility (Quality Matters, 2014).

The Online Learning Consortium, formerly Sloan Consortium, (OLC-Online Learning Consortium (ed), 2000) offer a scorecard of 70 criteria. Here too the criteria were created for online courses, but they are often used for MOOC.

There are some studies that compare different tools for MOOC or TEL implementation. Two are among the most cited. Peres, Lima, & Lima (2014)

recently compared six quality frameworks, including E-xcellence, UNIQUe and Quality Matters, and produced a description that combines elements from all of these, with additional elements derived from their own experience. Yuan and Recker (2015) present a «review of 14 existing quality rubrics developed for OER-Open Educational Resources evaluation. The widespread lack of rating scales, scoring guides, empirical testing, and iterative revisions for many of these rubrics raises reliability and validity concerns. Finally, rubrics implement varying amounts of user support, affecting their overall usability and educational utility».

There are, moreover, a number of projects that concern MOOC quality from general pedagogical perspective. One of the first and still most prominent is the Openuped initiative, founded by the European Association of Distance Teaching Universities (EADTU) in partnership with a growing number of European universities. It offers a quality framework for MOOC based on eight key principles: openness to learners; digital openness; learner-centered approach; independent learning; media-supported interaction; recognition options; quality focus; spectrum of diversity. «The OpenupEd Quality Label was derived from the E-xcellence label which provides a methodology for assessing the quality of e-learning in higher education», (Williams *et al.*, 2011) «and now provides a series of tools, including a manual» (Williams, Kear & Rosewell, 2012) and interactive 'quick scan' self-assessment. The 35 benchmark statements, at institutional level as well as individual courses level, are grouped into six areas: Strategic Management, Curriculum Design, Course Design, Course Delivery, Staff Support and Student Support. The manual provides supporting text and more detailed indicators of good practice (Rosewell & Jansen, 2014).

The MOOC Quality Project is an initiative of the European Foundation for Quality in E-Learning (EFQUEL), ended in 2013 (Creelman, Ehlers & Ossiannilsson, 2014, pp. 78-87) and financed by EU. The project is based on blogs involving twelve experts, that identified, by way of document analysis, the key quality areas. «One point that emerged in the project was that MOOC demand new thinking about quality […] Some criteria will be similar to those applied to traditional syllabus but will probably manifest themselves in new ways. Other criteria will apply more specifically to the online environment. However, quality can also be understood in a development-oriented way, which means enabling learners to develop themselves in their own learning processes and consequently produce better results as far as quality is concerned. In this view, methods of self-evaluation, reflection and peer-evaluation are seen as more important». (Creelman, Ehlers & Ossiannilsson, *op. cit.*).

I founded also many quotations in literature about the quality parameters defined by two providers: Coursera Resource Guide (McEwen & Bruff, 2016) and EdX MDC-MOOC Development (2014). «The edX MDC is broken into 2 parts: minimum requirements (regarding: Course Announcement and Introduction, Course Structure, Instructional Materials and Assessments, Course Administration and Learner Engagement) and optional best practices. Course teams are encouraged to use the MDC in conjunction with their own MOOC development tools. MOOC courses should meet the MDC's minimum requirements prior to being offered on the edx.org site».

Before concluding I want to mention 4 important studies recently published.

Grainne Conole identifies 12 parameters for MOOC quality (Creelman, Ehlers & Ossiannilsson, *op. cit.*): the degree of openness, the scale of participation (massification), the amount of use of multimedia, the amount of communication, the extent to which collaboration is included, the type of learner pathway (from learner centered to teacher-centered and highly structured), the level of quality assurance, the extent to which reflection is encouraged, the level of assessment, how informal or formal it is, autonomy, and diversity (Conole, 2013).

Paul Kawachi (2013) proposes a framework for OER quality «that consists of four dimensions (Teaching and learning processes, Information and material content, Presentation, product and format, System, technical and technology) involving 19 categories as sub-dimensions and overall 65 criteria».

Yousef, Chatti, Schroeder and Wosnitza (2014) propose a study that try to identifying specific criteria that need to be considered when designing and implementing MOOC. The results are based on a large survey targeting learners as well as professors. They identified and rated 74 indicators classified into the two main dimensions of pedagogical and technological criteria distributed over six categories. From these, «the learning analytics and assessment categories were found to be the key features for effective MOOC».

Margaryan, Bianco and Littlejohn (2015) «assessed the instructional design quality of MOOC using a set of key criteria based upon First Principles of Instruction and interrelated prescriptive criteria for effective instruction abstracted from the Merrill key instructional design theories and models» (Merrill, 2002; Merrill, 2009, pp. 3-26; Merrill, 2013).

And finally I want to mention the work of CRUI- Conferenza dei Rettori delle Università Italiane, that recently set up a workgroup that shall be responsible

for creating a check list to support quality MOOC design/ implementation/ assessment, as well as for examining the problems that MOOC present in certification of the acquired credits and in mutual recognition of the credits by the different Italian universities.

Conclusion

It seems that MOOC are in a transition phase in which ─although it is difficult to say they are right now a disruptive innovation (Bower & Christensen, 1995)─ the questions they rise about pedagogy, assessment procedure, credits, etc. certainly will contribute to transform the quality of higher education for the generations to come. But at the moment MOOC evaluation literature is still uncertain between the need to adopt one of the few quality enhancement frameworks specifically created for MOOC or reuse the available e-learning quality models.

At the same time, the historic provider (Coursera and edX), conscious of the need of many students to be supported by experts or colleagues to learn and to acquire credits that are expendable for the universities courses, started to introduce initiatives that shall facilitate the meeting among participants not only online, but also in person. An example of this is the Coursera Learning Hubs, a global initiative in community building and blended learning through establishing physical networks of space, facilitators and students worldwide. At the same time many universities, aware of the great availability of educational materials, often of high quality, released online by MOOC, started to offer blended learning paths. «Many of our partner institutions are using our online platform to provide their on-campus students with an improved learning experience. This blended model of learning has shown to increase student engagement, attendance and performance» (Bradt, 2015).

It is acknowledged, the further we are consolidating the new experiences, that technology availability had a key role in launching the phenomenon, although is the possibility to exchange ideas with other people, the social learning, that plays the most important role for what the learning quality is concerned.

Bearing in mind, in the quality assurance and quality enhancement processes, the human factor, we will prepare the ground so that the students of year 2157 should not say wistfully, like Margie in the Azimov novel, “I wonder the fun they had in the good old school!”

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LINKS

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- Inacol:http://www.inacol.org/resources/resource_search/?resource_topics=16
- UNIQUe: http://unique.efquel.org/
- E-xcellence: http://E-xcellencelabel.eadtu.eu/