

A Clear and Present Trust: Distance Learning Assessment and the Academia Perspective

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Abstract

Higher Education systems are currently experiencing a new challenge as distance learning through the internet seems to attract the interest of worldwide prospective students. The Massive Open Online Courses (MOOCs) are the frontrunners of this online massive approach to formal education but a concern that is present, endangering their success, is the reliability of assessment and grading of such courses. This affects the interest and motivation of the students on such educational systems when they have education as the leitmotif for a profession. As society widely accepts orthodox Academia as the paradigm of sound assessment, especially regarding professional areas such as Medicine or Engineering, the perspective of the Academia should influence the societal trust on the online grading methodologies. A recent study explored the general perception of orthodox Academia regarding the most common online grading methodologies used in MOOCs and the 'comfort zone' of including such methodologies on orthodox courses. Departing from those results, this work explores how trustworthy those online methodologies are to Medical and Biomedical Professors from orthodox Academia, in which circumstances would they be willing to use such methods and the constraints they consider mandatory in order to assure the soundness of evaluation of their students, the recognition of the institution as valid evaluator, and the social acceptance of future medical and biomedical professionals.

Keywords: *Distance learning; Online grading; Academic assessment; Medicine; Biomedicine;*

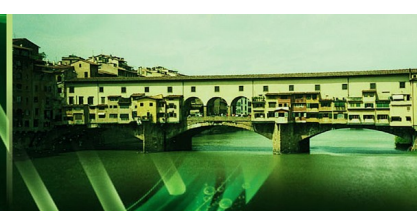
1. Introduction

Massive distance educational approaches meet several factors of resistance but unequivocally one of them is the suspicion that society, namely employers, and students themselves have regarding their reliability and prestige. Employers want to be reassured that the professionals resulting from Higher Education Institutions are indeed an asset and the students want guarantees that the diploma is worth the money and time spent on social and professional terms. There are extremely interesting and recent studies regarding the evolution and integration of online and/or distance learning methodologies within orthodox academia on near future [1]. However, the future risks never to go further than the present if all parts are not pledged to recognize excellence on the provided educational path.

At the core of this distrust, one finds the online grading methodologies. Distance learning, within an online context, has specific grading and assessment methodologies, namely when considering the fields of Sciences and Engineering, such as peer-review essays (*i.e.* a themed essay evaluated by the peer students, through grading parameters given by the professor), peer-review tasks (*i.e.*, presenting solution to given problems, such as the elaboration of a medical protocol for a new therapeutics), or multiple-choice quizzes with limited duration time, similar to the analogous assessment tool but online [2].

As orthodox Academia has the respect and trust of both students and employers, it is a reasonable premise to consider that if orthodox academic courses incorporated one, or more, online grading methodologies that would demonstrate that classic Academia finds such methodologies as reliable. Thus, the answer to understanding if an online grading methodology is trustworthy at the eyes of society lies on the perspective that academic professors have regarding it and, in fact, there is already published work on the subject [3].

Following the above mentioned preliminary study regarding the perspective of orthodox Academia on online grading methodologies, this work aims at understanding how professors from the Medical and Biomedical fields perceive the matter, what is their opinion regarding the clash of these methodologies with soft skills assessment and practical hard skills, and their openness to the inclusion of such methodologies on orthodox courses. The choice of beginning with Medical and Biomedical professors, after the preliminary general inquiry, to analyze the perception of Academia on this matter is not



fortuitous. These are two fields that affect deeply and intimately everyone and upon which the trust of society and employers is more bestowed.

2. Material and methods

Departing from the survey entitled *MOOCs and Evaluation: the POV of Professors*, a new survey entitled *Medical/Biomedical Education and Distance Learning* was developed and conducted using Google Surveys (2018) [3]. This survey was delivered directly to the institutional emails of Medical and Biomedical professors of several Higher Education institutions, through the indication of academic intermediates (*vide* acknowledgments). The survey had three main sections. The first regarded the personal and professional details of the professor, the second explored the perspective of the academic regarding the online assessment of soft and hard skills, using after each term a definition to avoid ambiguity (for example, the soft skill *communication* was defined as 'efficient capacity to communicate with patients and colleagues, within medical ethics and with sensitivity'), and a third and final section concerning the 'comfort zone' of Academia respecting the inclusion of effective online grading percentage, *i.e.*, the maximum percentage accepted from an online methodology on orthodox courses final grade.

However, it was noticed a high reluctance of the academics to respond to the inquiry and, as such, attempts were made to understand this apathetic attitude. As it was indicated that some felt the need to expand and explain their opinion beyond the parameters of the inquiry, thus manifesting an uneasiness in doing the survey, a second research stage of personal interviews was added to the methodologies. These interviews were made through email, and all interviewed professors had the same questionnaire. The specifics of the sample details, as well as the main results of the inquiry, are depicted in Figure 1. Table 1 presents a summary of the interviews conducted to three academics on three different stages of the professional path. Both will be discussed in the following section.

3. Results and discussion

This section is divided into two subsections, one pertaining the survey results and the other the data collected from the interviews.

3.1 Inquiry results: biomedicine *versus* medicine points of view

As depicted in Figure 1, the sample of thirteen individuals included academics from both Medical and Biomedical areas of expertise (30,8%, though belonging to the Medical/Biomedical context, did not choose one of the specifics areas of expertise indicated on the inquiry), with almost two thirds between 30 to 49 years, and the majority is Portuguese born. Almost half of the questionees has between 11 to 20 years as a teacher on Higher Education institutions, and most are from public Universities (76, 9%). Multiple choice quizzes with limited time duration are the single most chosen online grading methodology (38,5%), but it comes second to the preferred solution of the majority, a combination of peer-review essays, peer-review tasks and multiple choice quizzes with limited time (53,8%). The major reason indicated for these choices was that the methodologies were reasonably adequate, either online or on classical evaluation.

Five soft skills were proposed to indication of how adequate online assessment fitted their evaluation: Communication, already defined above; Commitment, *i.e.*, emotional disponibility for a project or mission; Stress management, *i.e.*, capacity to manage time and optimism during heavy demands; Problem-solving, *i.e.*, ability to apply analytical and emotional thinking in approaching new situations; and Autonomy, *i.e.*, ability to monitor own pace of work and assume responsibility for decisions. Problem solving and Communication were considered adequate to these online grading methodologies by the majority. Communication also was the soft skill considered more important while Stress management was considered the least important of the five proposed soft skills.

Also five hard skills were proposed to find how the academics regarded the adequacy of online grading methodologies to their evaluation: Pharmacology, *i.e.*, the scientific knowledge of drugs including their origin, composition, pharmacokinetics, therapeutic use, and toxicology; Anatomy, *i.e.*, the scientific knowledge of the human bodily structure of humans; Psychology, *i.e.*, the scientific knowledge of the human mind and its functions in several contexts; History of Medicine, *i.e.*, the scientific knowledge of the evolution of social perception and attitudes regarding illness and disease; and Surgery, *i.e.*, the scientific knowledge of treating bodily injuries or disorders by incision or manipulation. Only Psychology and Surgery were considered unfitted to online grading, being Surgery the most important and History of Medicine the least important hard skill, according to the point of view of the surveyed professors.

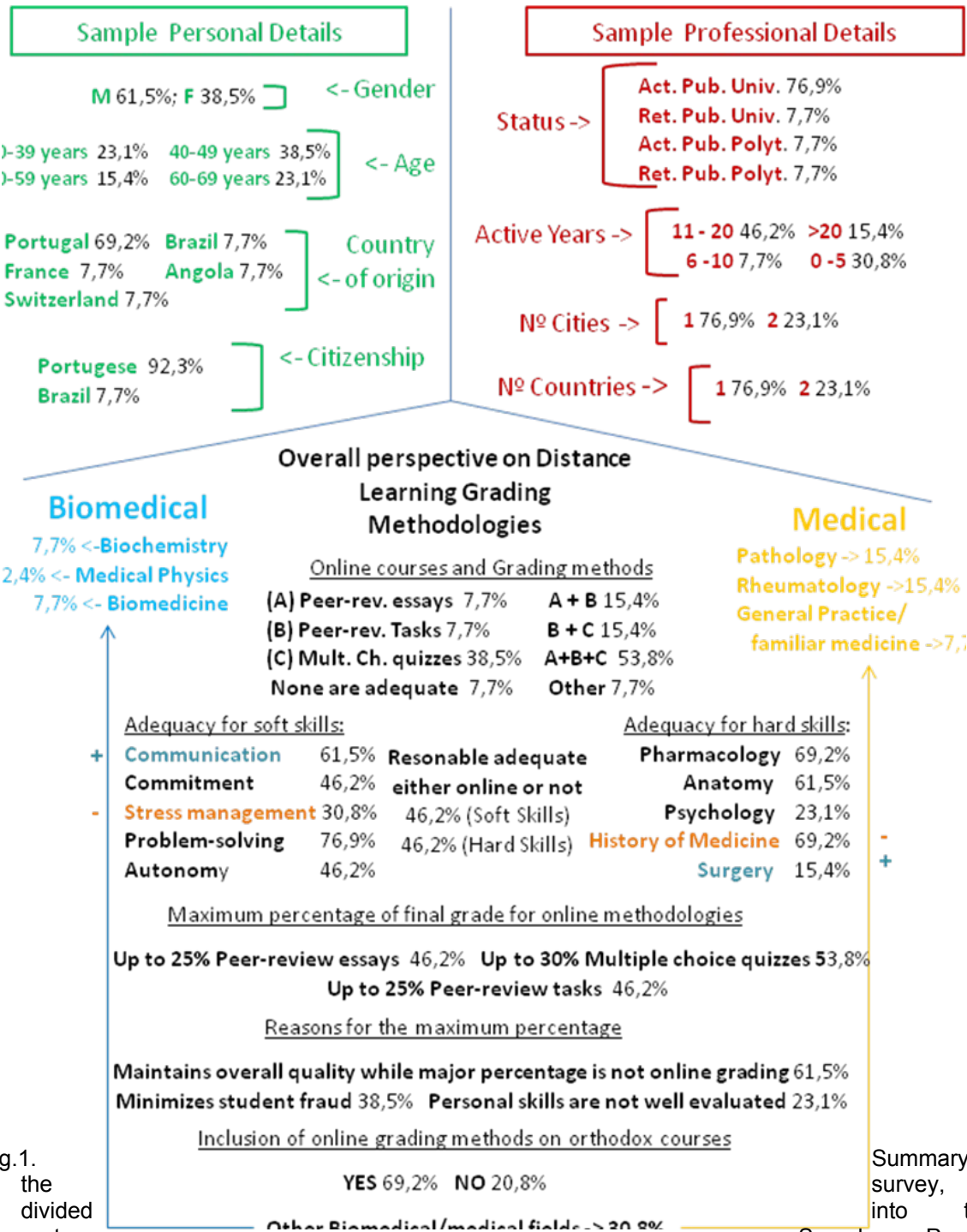


Fig.1. the divided parts, Details, Sample Professional Details and Overall Perspectives on Distance Learning Grading methodologies.

Summary of survey, into three

Status/Expertise	Guest junior lecturer/ Biochemistry and Environmental Health	Professor with aggregation/ Medicinal Chemistry	Retired Professor/ Rheumatology
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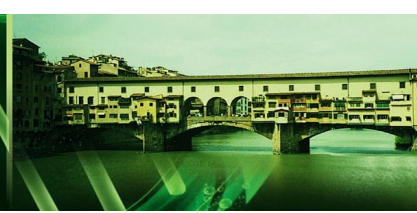
General opinion regarding online assessment	Programs and grading methods should be more versatile; Inclusion of online and other new grading methods	The inclusion should depend on the course unit, number of enrolled students and scholarly success	It is inevitable, at the present moment
Reliability: online <i>versus</i> non-online multiple choice quizzes	It is not measurable; if the evaluated skills and methodologies become more versatile, the question will be redundant	n/a	Personal interaction is different. Possibility: through remote video camera
Courses for which online assessment is unacceptable	In small classes, laboratory assessment does not need online methodologies	n/a	Units which require the presence of the patient, such as surgery
Online grading of soft skills	Some, as online research or forum debates, can only be evaluated online. Online and face to face soft skill grading should be complementary	Forum debate; Accountability and enthusiasm on tasks; More active role on the learning process	Soft skills cannot be evaluated in such a "remote" manner
Mandatory aspects to be studied before including online methodologies	Assess countermeasures against exam fraud; Assure internet access so that socioeconomic conditions are not a discriminator factor; Student circadian rhythms (could be personalized)	Assess the danger of poorer student-teacher and student/student relationship; Estrangement of the student regarding the Institution; If the students rhythm are respected; student overload;	n/a
Inclusion of online grading on courses	Theoretical units would not need much adjustment, only experimental (hands-on) units	n/a	Rheumatology (and other units) is not feasible for online grading

Table 1. Summary of the interviews to **Higher Education professors in medical and biomedical fields.**
Note: n/a signifies 'no answer'.

Finally, two thirds would include online methodologies on their courses, though on average, near half of the questionees would establish up to 25% as the maximum percentage of the final grade for online methodologies, whether they were peer-review essays, peer-review tasks or multiple quizzes. The main reason to do so is the concern regarding the overall quality of the course, and, as such, the major percentage would still come from non-online grading.

3.2 Interviews: analysis *per* professional experience

The interviews explore not only three types of professional but the scope of biomedical fields of expertise, as the professional status of the academics ranged from a guest junior lecturer to professor



with aggregation and a retired professor, while the fields of expertise were respectively biochemistry and Environmental Health, Medicinal Chemistry and Rheumatology.

In accordance with the survey results, there is a concern with the evaluation of the soft skills with online grading methodologies, but while the retired professor considers that it is not possible to evaluate such skills in a 'remote manner', the guest junior lecturer defends that inclusion of more versatile grading methodologies, online and/or otherwise, would not only make it possible but would make worries about student fraud redundant. Nevertheless, two of the academics recognize that some soft skills are only able to be evaluated through online methodologies, such as the communication capacity on online forum debates.

Concern was manifested that the inclusion of online grading methodologies would not take in consideration the circadian rhythms of the students, would diminish the human component on the pedagogical process (between student/student and/or student/professor) and even could cause socio-economic discrimination between students if equality conditions were not assured.

4. Conclusions and future perspectives

There is reasonable disposition to include online grading methodologies on orthodox Medical and Biomedical courses as long as two cumulative aspects are taken into consideration: (1) the maximum percentage of online grading does not exceed 25% of final evaluation; and (2) the course presents a more 'hard skill' nature, *i.e.*, a more quantifiable essence. The human interaction of the pedagogical process also needs to be studied further, not only to allow fairness on the student development but also to diminish the concerns of the academics regarding grading online methodologies. Finally, more versatile methods, that prove to maintain assessment quality while minimizing student examination fraud, are unquestionably one of the research avenues to be constructed during the process.

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