The Emerging ICT Sphere in Morocco: Investigating the Feasibility and Usability of Massive Open Online Courses (MOOCs) -- Surveying the Case of Ibn Tofail University EFLers

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Abstract

In 2009, Morocco launched the "*Maroc Numérique* 2013" (Digital Morocco 2013) Strategy to generalize the ICT usage all over the country, increase the national digital capacity, and realize the digital switchover (Zaid & Ibahrime, 2011). Amid this nationwide digitalization process, which is not yet completed especially in rural areas for several reasons, an ICT sphere seems to be taking some shape all in the academic, professional, and daily life spaces. In academia, the abbreviation ICT buzzes everywhere to sneak itself into syllabi, conferences, workshops, seminars, and research projects with and without enough mastery of digital literacies. MOOCs seem to have surged along with this buzzing yet fledgling ICTs landscape, inviting academically rigorous research to investigate their feasibility and usability in the context of Moroccan higher education, which is the main mission of the present paper. Like other Moroccan universities, ITU is reinventing itself digitally by offering most of its professional and administrative services online. This online reinforcement can be extended to cover web-based projects like MOOCs that can host considerable numbers of learners who wish to pursue their studies, especially already employed students from different ages are recently increasingly enrolling in formal study programs. MOOCs may be feasible and usable education toolsets if properly designed, distributed, managed, and performed. This paper investigates the possibility of operationalizing this MOOC business in ITU.

Keywords: MOOCs, ICTs, web 2.0, higher education, online/ lifelong learning

1. Literary Review

For a brief and handy definition, "Massive Open Online Courses" (MOOCs) are one of the newest distance education tools that allow participants to study/learn by means of audio-video lectures, discussion platforms, computer-mediated tests, inter alia. They can be categorized as ubiquitous since subscription, membership, and attendance can be fulfilled from any place in the world as long as it is equipped with electricity and Internet connection. As a term, MOOC surged from within the e-learning sphere in 2008 and was coined to describe the first open online course, labeled "Connectivism and Connectivist Knowledge," then facilitated by Siemens and Downes at the University of Manitoba in Canada (Fini, 2009; Stewart, 2010; Liyanagunawardena, et al., 2012). Before 2008, there were earlier trials and forms of open online courses (McAuley et al., 2010). For a more detailed and specific definition of the term MOOC, Bonnie Stewart (2010) contends that:

> A MOOC is an online course with free and open registration, publicly-shared curriculum, and open-ended outcomes. MOOCs integrate social networking, accessible online resources, and the facilitation of leading practitioners in the given field of study. Most significantly, MOOCs build on the engagement of learners who self-organize their participation according to learning goals, prior knowledge and skills, and common interests. MOOCs share in some of the conventions of an ordinary course, such as a predefined timeline and weekly topics for consideration, but have no fees, no predefined expectations for participation, and no formal accreditation.

Being of this nature and like with any nascent technology, MOOCs, too, have stirred considerably hot debates within and without academia regarding their feasibility, usability, functionality and profitability in the field of education technologies, both online and offline (Adams, et al. 2013; Billsberry, 2013). A vector of integrationists and a vector of skeptics, if one may name them so, have formed and traded their pros and cons. The debates seem to have eventually agreed that MOOCs can be viewed as a new useful and beneficial learning/teaching technology.

It is accordingly noteworthy here to highlight the conceptual and somewhat philosophical grounds upon which rests the modern notion of the so-called "open and distributed education" where MOOCs belong. By the beginning of the 2000s, certain figures like Mary Kalantzis (2006), George Siemens and Stephen Downes (2006, 2008) raised questions of subjectivity and agency and their significance in the operationalization of the teaching/learning process. On one hand, Kalantzis (2006), being versed in the area of digital literacies, argued for the inadequacy of constructivism in dealing with agency in the classroom and instead highlighted "reflexivity and fragmentation as the governance structures operating within digital networks" … and enabling "learners to be agents of knowing" (Kalantzis in Bonnie Stewart, 2010, P. 11). On the other hand, Siemens and Downes (2006) suggested the notion of connectivism or connectivist learning as "a learning theory for the digital era" that calls for "network creation and the capacity to distinguish between important and unimportant information

in a constantly fluid environment" (Stewart, 2010, 11). And because MOOCs use and rely on social media outlets like Facebook, Twitter, Linkedin, MySpace, etc., they enable their users to "build real-life networks that extend and persist beyond course boundaries on connectivist principles" (Stewart, 2010, P. 11).

This meaning subsumed in MOOCs finds further support in Stephen Downes's rationale behind his 2006 " Learning Networks and Connective Knowledge" which approaches the issue of e-learning and

> … asserts that knowledge … is distributive, that is, not located in any given place … but rather consists of the network of connections formed from experience and interactions with a knowing community. And another part of this thinking is centered around the new, and the newly empowered, learner, the member of the net generation, who is thinking and interacting in new ways. These trends combine to form what is sometimes called 'e-learning 2.0' - an approach to learning that is based on conversation and interaction, on sharing, creation and participation...

Likewise significantly, MOOCs have been visualized through Deleuze and Guattari's (1981) resort to the notion of "rhizome" to extend/apply principles of connectivity, multiplicity, and heterogeneity subsumed in this botanical creation in making sense of the interwoven patterns of culture, thought, knowledge, and human communication at large. Dave Cormier (2008) deployed this rhizomatic visualization in his notion of "community as curriculum," which incorporates social media literacies, to suggest a "model for distribution of knowledge in community contexts and other environments where traditional gatekeeping structures of organization and validation may not be required, replicable, or desirable" (Stewart, 2010, P. 12). By extension, this model of open and distributed knowledge is what MOOCs are about.

Thus far two major types of MOOCs have recurrently been debated: "cMOOC" and "xMOOC". cMOOC stands for the connectivist MOOC model, which being rooted in such learning theories as social constructivism(Kop, 2011), "incorporates a social, distributed, networked approach and significant learner autonomy that is geared towards adult lifelong learners interested in personal or professional development" (Kennedy, 2014, p.1) . By contrast, xMOOC, emanating from cognitive behaviorism (Rodriguez, 2012), represents the Stanford Artificial Intelligence (AI) model that "uses conventional directed instruction in the context of formal postsecondary educational institutions" (ibid.).

In whichever model, Hew & Cheung (2014) highlighted four main motivations to enroll in MOOCs: a- learning new things; b- extending current knowledge; c- curiosity for more personal challenge; d- earning more completion certificates. They also pointed out that teachers usually offer MOOCs out of a sense of intrigue, altruism, or egoistic rewards. By contrast, lack of sustainable incentives, content comprehension failure, and surrender to more incumbent priorities are the three main reasons why MOOCs suffer high drop rates (Stewart, 2010; Fini, 2009; Liyanagunawardena, et al., 2012; Billsberry, 2013). These figures, among others, found out that for MOOCs to survive and thrive they have to overcome four major challenges: a- neat students' work evaluation, b- absence of feedback immediacy, c- time and money encumbrances, and d- lack of students' participation in online forums.

The present study attempts to suggest some tentative solutions for these problematic issues from within the Moroccan context, as based on the research design outlined hereafter.

2. Outlining Research Content:
Under this heading, the objectives, hypotheses, research questions, and research methodology used in this research paper are delimited as follows.

2.1. Objectives:
1- Define and introduce MOOCs.
2- Succinctly review the major developments of MOOCs since their inception.
3- Trace the advantages and disadvantages of MOOCs in the Moroccan context.
4- Survey the reactions and perceptions of the Moroccan students towards MOOCs.
5- Study and analyze the feasibility and usability of MOOCs in the Moroccan context from a user-centered perspective.

2.2. Hypotheses:
1- Moroccan students may positively perceive and react to MOOCs.
2- MOOCs may not be feasible and usable at a large scale in Morocco now.
3- MOOCs as web-based tools can motivate and facilitate the achievement of a more internationally performant higher education in Morocco.

2.3. Research Questions:
1- Will Moroccan students positively perceive and react to MOOCs?
2- Will MOOCs be feasible and usable at a large scale in today's Morocco?

3- Will web-based toolsets like MOOCs motivate and facilitate the achievement of a more internationally performant higher education in Morocco?

3. Research Methodology:

First, a definitional and conceptual perspective is deployed to introduce and contextualize MOOCs in their e-learning environment in the form of a succinct explanatory and expository review of their developments since their inception. Second, a content analysis of an online field survey of about 200 informants is carried out in order to respond to the research questions and hypotheses outlined above. Third, a qualitative critical analysis of the findings is done to assess the feasibility and usability of MOOCs thereof.

Based on this research design, the findings elicited from the field survey carried out to respond to the hypotheses and research questions delineated above will be presented, commented, and analyzed hereinafter.

4. Presentation and Analysis of Survey Findings
4.1. Survey Demographics:

The field survey of this study was distributed/carried out by means of "Murvey," an online survey creator and executor, and posted on the author's Facebook wall to be filled out during three days by ITU EFLers. This e-questionnaire contained 13 questions 9 of which were answered by 288 respondents and the four remaining questions were loaded as a *second* survey filled out by 136 participants. The inability to upload more than 9 questions in one go on Murvey culminated in this unexpected and involuntary technical limitation that was recognized only after the survey had been posted and responses had exceeded 200. Nevertheless, both populations remain representative as two randomly targeted samples. Data obtained from the survey will be charted as showcased in tables 1 through 12.

Table 1: Proportions of undergraduate and graduate participants in the survey

Undergraduates		Graduates		No Answer		Total	
183	63.54%	103	35.76%	2	0.69%	288	100%

As clearly shown in table 1, the majority of the survey informants were undergraduate students who actually outnumber their graduate counterparts in ITU and, most probably, in all Moroccan universities. So, 63.54% of the surveyed sample were undergraduates, and 35.76% were graduates, indicating a consolidated participative synergy in reacting to and conceiving of MOOCs in particular and ICTs in general. In other words, the survey managed to get a grip of the reactions and attitudes of both undergraduate and graduate students and therefore reflect a synergetically integrated approach to the feasibility and usability of MOOCs in the context of Moroccan higher education.

5. Investigating the Proportions of Recognition and Prevalence of MOOCs among Moroccan University Students

Taking the relative newness of MOOCs in the Moroccan educational context into account, the respondents were asked if they have heard of these recent teaching technologies before this survey, and their responses came as charted in table 2.

Table 2: Proportions of MOOCs Recognition among Moroccan Students.

Those who heard		Those who did not		No Answer		Total	
156	54.17%	131	45.49%	3	1.04%	288	100%

This table shows that 54.17% of the survey participants know of MOOCs, while 45.49%, which is not a small proportion, do not. This indicates that the rate of MOOCs recognition and prevalence among Moroccan university undergraduates and graduates, as a new pedagogical teaching technology and as a conception, is not high maybe because the absence of MOOCs in Moroccan state universities. Hence the need to include such new learning technologies in the national higher education policies at least as study subjects so that they become known and easier for implementation and use once possible. This need is clearly demonstrated in table 3. At this level of survey, respondents were asked if they knew that MOOCs are part of e-learning technologies, a question that is connected to the previous one showcased in table 2 and brought quite similar numerical values.

Table 3: Proportions of Recognizing MOOCs as part of e-learning technologies

Those who knew		Those who did not		No Answer		Total	
154	53.47%	132	45.83%	2	0.69%	288	100%

The close quantitative similarity between proportions of respondents' awareness and recognition of MOOCs either as a naming or as an e-learning pedagogy reflects the high degree of the survey credibility stemming from the commitment and honesty of the participants. In other words, these two closely similar questions, respectively represented in tables 2 and 3, elicited closely similar reactions/attitudes from the survey informants. So, while 54.14% and 53.47 of the sampled population heard and knew of MOOCs, 45.49% and 45.83% did not. This re-echoes the same conclusions drawn from table 5 calling for spreading ICT knowledge in

general and MOOC-related knowhow among Moroccan college students. These have therefore honestly and faithfully expressed their attitudes towards the new e-learning and e-teaching methodologies. Yet, this attitudinal credibility on the part of the survey respondents should not signify their complete embracement of the new teaching/learning technologies and outright rejection of the traditional methodologies. Rather, their greatest majority opts for a symbiotic combination of the online and offline ways for more academic excellence, as it will be demonstrated in the next section.

6.   Assessing the Students' Preferences and Attitudes to Old and New Pedagogies

On a first level, respondents were asked to express their preferences vis-à-vis face-to-face teaching/learning strategies and computer/web-mediated methods. Results came as follows in table 4.

Table 4: Proportions of Preferences of online & offline pedagogies.

In-class learning		Online learning		Both		Total	
48	16.67%	31	10.76%	214	74.31 %	288	100%

Crystal clear is the survey respondents' majority preference of combining in-class and online learning methods. 74.31% of them opted for this combination, thus acknowledging the usability of online means but in tandem with the offline ones. These in-class face-to-face methods of knowledge acquisition remain contextually relevant despite the alluringness of computer/web-assisted ways, which quite clear in the proportional difference existing between those who opted for in-class learning (16.67%) and those who favoured online learning (10.76%). As a conclusion here, it can be said that the tendency towards the new ways of teaching and learning is increasing among college graduates and undergraduates but when and if blended with face-to-face pedagogical means. This tendency is further demonstrated in table 5.

Table 5:   Proportions of Attitudes towards combining online & offline pedagogies

Motivating & Productive		Money/Time-consuming		Confusing		No answer	
227	78.82%	49	17.01%	46	15.97 %	2	0.69%

The biggest majority of the participants, 78.82%, believe that students will be more motivated and productive if they have the chance to study both offline and online, while only a minority think this combination can be money and time-consuming (17.01%), or confusing (15.97%). Consequently, the favouring of the online/offline combination, demonstrated in table 4, seem to be affiliated to two sine qua non elements in the teaching/learning process: motivation and productivity, quantified in table 5. In other words, the surveyed respondents' preference of the online/offline connection can be interpreted in terms of their belief in a subsequent fostering of their intrinsic/extrinsic motivation and potential productivity. Now after having evaluated Moroccan university students' preferences and attitudes towards the online/offline connection, the study moves on to further investigate these attitudes but as towards the feasibility and usability of MOOCs in the context of Moroccan Higher Education.

7.   Assessing the Feasibility and Usability of MOOCs in Moroccan Universities: ITU as a Case Study.

Under this heading, which is the focal point of the whole study, the survey respondents were asked several questions he first one of which targeted the possibility of establishing and using MOOCs at ITU. Proportions of responses were as charted in table 6.

Table 6:   Proportions of students' attitudes towards the feasibility of MOOCs in Morocco

Very Possible		Possible		Quite Possible		Not Possible		No answer		Total	
36	12.5%	142	49.31%	78	27.08 %	26	9.03%	6	2.08%	288	100%

To the exception of a 9.03% of the surveyed population who negated the MOOCs feasibility in Morocco and a 2.08% who did not express their opinions, the entire remaining majority subscribed itself to the possibility of installing and using MOOCs in the country. In that, 12.5% thought it is very feasible to launch these new teaching/learning technologies at ITU, 49.31% saw it as possible, and 27.08% considered it as quite possible. In other words, 88.89% of the whole target sample can be said to have believed in the MOOC feasibility but to varying degrees exactly as demonstrated in the three first boxes in table 6. Based on this, it can safely be deduced that the feasibility and liability of integrating MOOCs in the higher education system in Morocco cannot be nullified especially if the "felicity conditions" are ensured, if one can borrow J. L. Austin's terms, with all the proper consideration for the difference between the linguistic dimensions of his version of Speech Act Theory and the educational dimensions of the MOOCs integration feasibility.

In a firm connection with the issue of feasibility, the survey targeted the respondents' thoughts on the practicality and usability of MOOCs in Moroccan universities. Table 7 details and showcases the proportions obtained thereof.

Table 7: Proportions of students' responses to the practicality of MOOCs in Morocco

Category	Respondents	Percentage
Practical & beneficial	219	76.04%
Less practical & less beneficial	57	19.79%
Not practical & not beneficial	9	3.13
No answer	3	1.04%
Total	288	100%

Like with feasibility, the majority of the survey population, 76.04%, think that MOOCs are practical and beneficial, while only a very small minority, 3.13%, see otherwise. In-between these two oppositional camps emerges a limited group of informants, 19.79%, who chose to think of MOOCs as less practical and less beneficial most probably because of their low belief in the feasibility of integrating MOOCs in Moroccan higher education than in these toolsets as such, as demonstrated in table 6. In sum, the largest proportion of the sampled participants asserted the practicality and usability of MOOCs once introduced in ITU.

This assertion should not however be interpreted as an over-zealous whim sparked by a fanciful technologist haze that youth are usually taken by due to a subsequent enticing vogue. Rather, when the very same sample was asked to choose between face-to-face teaching (FFT) and online/computer-mediated teaching (O/CMT), 88.54% of them opted for the first option, while 29.86% leant towards the second, as shown in table 8.

Table 8: Proportions of recurrences of responses to FFT & O/CMT among Moroccan university students

Category	Recurrences of responses	Percentage based on recurrence
Face-to-face teaching/learning	255	88.54%
Online/Computer-mediated teaching/learning	86	29.86%
No answer	2	0.69%

This sweeping majority therefore expressed its unwavering conviction that the full physical presence of teacher-student in a face-to-face communication (FFC) context remains supreme when juxtaposed with a computed-mediated communication (CMC) context. Again, the FFC conviction should not be seen as a contradiction to the majority belief in the MOOCs practicality/usability demonstrated in table 4, but rather as a consolidation of FFC and CMC in one synergetically and symbiotically re-established teaching/learning system. Such a reading is clearly supported in table 4 which shows 74.31 % of the target population in favour of a teaching/learning process that integrates both inclass and online learning methods. In other words, the largest majority of the survey respondents showed clear consciousness of the FFT supremacy acknowledging the feasibility, practicality, and usability of such CMC tools as MOOCs. The four following tables testify to this conclusion.

These four tables, as explained above, showcase results obtained from the responses of 136 informants to four key questions about the usability and/or utility of MOOCs in Moroccan universities. The first question addressed the survey participants' opinions on whether successful higher education systems and significant scholarship can be achieved via the use of new technologies like MOOCs, or traditional pedagogies, or both. While 31.62% of the respondents chose the first option, and only 4.41% opted for the second, 63.97% stood for the combination of both options. Re-echoing the online/offline and FFC/CMC connections, demonstrated in tables 5 and 8 respectively, the majority again related the attainability of appropriate higher education and seminal scholarship to the integration of traditional and new pedagogies in one effective hybrid teaching/learning system. This blended concomitancy of the traditional tools and MOOC-like modern means subsumes a low inclusion of the former, 4.41%, and a high assimilation of the latter, 31.62%, as presented in table 9.

Table 9: Proportions of responses to new & old pedagogies among university students

Category	Respondents	Percentage
New technologies like MOOCs	43	31.62%
Traditional pedagogies	6	4.41%
Both	87	63.97%
Total	136	100%

Accordingly, the survey participants were addressed to confirm if MOOCs can help them achieve their learning autonomy, efficiency, competence, and critical thinking skills, as illustrated in table 10.

Table 10: Proportions of achievability of autonomy, efficiency, competence, & critical thinking skills among university students

Category	Respondents	Percentage
Achievable	117	86.03%
Not achievable	18	13.24%
No answer	1	0.73%
Total	136	100%

While the largest majority, 86.03%, think MOOCs can help them become autonomous, efficient, competent, and critical thinking university students, a limited minority, 13.24%, do not believe so. This large affirmation of MOOCs' role in fostering such pivotal studentship elements as autonomy and competency fortifies the belief in their (MOOCs') instrumentality and usability in the teaching/learning process.

In the same line of analysis, the sampled population see in MOOCs' usability solutions to several serious higher education problems. The respondents were asked to affirm or disaffirm if MOOCs, once well established and well utilized, can help in solving such fundamental problems as mass education, infrastructure insufficiency, low studentship profiles, and low productivity and creativity. Table 11 demonstrates these responses as follows.

Table 11: proportions of major problems of Moroccan higher education as viewed & weighed by Moroccan university students.

Category	Recurrences	Percentage
Mass education	109	80.15%
Low productivity & creativity	54	39.71%
Low studentship profile	26	19.12%
Infrastructure insufficiency	39	28.68%
No answer	3	2.21%

Mass education in Moroccan universities especially in the department of English Language and Literature at ITU has become a reality. Semester One, for example, is divided in four main groups each of which hosts over 500 students, making it arguably too difficult to manage and fulfil the pedagogical requirements. Maybe this is why 80.15% of the surveyed sample affirms this difficulty and thinks of MOOCs as a possible way out. Low productivity and creativity is seen by 39.71% of the informants as another serious problem that may be partially resolved by a soundly rationalized and contextualized usability of MOOCs. The problem of infrastructure insufficiency is not thought by many as solvable through open online reaching/learning, be it massive or limited, long or short. Only 28.68% of the survey participants think MOOCs might help account for the infrastructure requirements Moroccan universities are full aware of and strongly hoping to fulfil sometime in the near future. A smaller proportion of the surveyed respondents, 19.12%, see the no less serious problem of low studentship profile as possibly solvable through the help of such ICT-related toolsets as MOOCs.

These proportions, as listed in table 14 and analysed thereafter, reflect a rational understanding of the concrete usability of MOOCs on behalf of Moroccan university students since most of them see in MOOCs a possible solution for offline massive classes but only minorities see in them possible helpers in matters of infrastructure insufficiency, studentship profiles, productivity and creativity. In other words, when it comes to the forming/training of high profile, productive and creative students, or the improvement of existing infrastructure, MOOCs can be useful but to a limited extent. In sum, MOOCs remain tools whose usability, in the absence of basic prerequisites like motivation, will, interest, commitment, integrity, responsibility, and creativity, can help but not fully supersede these personal study qualities, as reflected in the findings charted in table 12.

At this level of survey and analysis, the respondents were asked to say if they would be responsible and committed enough not to badly manage their study time, drop assignments or hire others to do them, plagiarise, or procrastinate tasks when taking MOOCs. Proportions of recurrent responses to the categories determined in table 12 are not significantly different from each other, especially the four first ones.

Table 12: Proportions of commitment to avoidance of MOOCs' hindrances among Moroccan university students

Category	Recurrences	Percentage
Time mismanagement	67	49.26%
Dropping assignments	60	44.12%
"Buying" assignments	59	43.38%
Plagiarism	57	41.91%
Procrastination	44	32.35%
No answer	2	1.47%

While 49.26% of the surveyed population expressed their commitment to efficiently manage their study time, the rest, 50.74%, admitted not to maintain this efficiency, implicitly highlighting a major hindrance in MOOCs usability. Quite similarly, only 44.12%, 43.38%, and 41.91% of the respondents who opinionated that taking MOOCs would not mean for them dropping or "buying" assignments, or plagiarizing others' works, respectively. The remaining informants whose percentages exceed 50% in each of these three cases seem either unwilling to stick to their MOOC assignments and avoid plagiarism or less self-confident not to keep away from non-academic practices. A lesser proportion of the surveyed sample, 32.35% in exact, showed an understanding of the importance not to procrastinate MOOC tasks, which signifies that the majority of students surveyed may not abide by MOOCs' deadlines and requirements. In sum, it can be understood that the unpreparedness to avoid such hindrances as time mismanagement, dropping or "buying" assignments, procrastination, and plagiarism presents an incumbent challenge that MOOCs users, both teachers and students, ought to take up seriously should all of them wish to ensure the effective and appropriate feasibility, usability, and productivity of these new teaching/learning tools.

As for the "no answer" category in all the findings tabled thus far, it did not amount to significant proportions that need big analytical attention. Yet they will not go unnoticed since they represent explicit or implicit, intentional or unintentional volitions on the part of the survey informants.

8.   Conclusions

Based on all the data analysis carried out thus far, the three hypotheses, worked out of the research questions delimited above, have been tested and proven supported as follows. The first hypothesis, which suggests that Moroccan students may positively perceive and react to MOOCs, has been supported but with reservation since the respondents preferred appropriate and effective combination of FFT and O/CMT in the teaching/learning process, as demonstrated in tables 8 and 9. The surveyed students displayed a clear penchant for MOOCs and similar new teaching/learning tools, but they remained unequivocally convinced of the utility of face-to-face teaching methods.

As for the second hypothesis, which contends that MOOCs can be feasible and usable but not at a large scale in today's Morocco, it was relatively supported, depending on the availability of the technical, professional, financial, experiential, and regulatory requirements of this feasibility and usability, as testified in tables 5, 6, 7, 10, and 11 and the analyses that accompanied them.

Concerning the third hypothesis, which suggests that MOOCs can motivate and facilitate the achievement of a more internationally performant higher education in Morocco, was supported but again depending on the students' degree of commitment to academic discipline and high studentship profile. MOOCs are here believed to be practical and beneficial (table 7) in enhancing students' motivation and productivity (table 5), achieving autonomy and competency (table 10), and easing mass education (table 11). Having said this, MOOCs as well as other ICT-related teaching/learning technologies can be turned into efficient ways and means of fostering the performativity of higher education in Morocco, but once effectively and appropriately conceptualized, operationalized, and contextualized.

It remains incumbent to insist that this study, being but a scientific contribution with its methodological, empirical, analytical, and experiential limitations, calls for more work in the under-researched field of ICTs in Morocco.

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