

# Exploring the barriers and enablers of Online Education programmes

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*The specific case of Gender and Geographic Mobility in MBA programmes*

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## Abstract

Education is one of the corner-stones of modern society, representing a propelling motor of our most needed knowledge accumulation. Yet, interestingly enough, the education industry has demonstrated to be one of the least capable to answer to our increasingly innovative and competitive times. As so, the current education business model has been showing growing offer and demand side pressures, thus creating market gaps to be potentially filled by disruptive innovations, more capable to respond to such market dynamics. This thesis focuses in how the online capabilities are enabling the educational business model to break from some of its strains, as well as allowing it to tackle highly valuable market segments like women and international students, considering the significantly representative USA's MBA reality. The results found that online education is successfully addressing female learners, vis-à-vis the male-built traditional educational system, due to the flexibility it brings and the use of increasingly user-friendly platforms. By contrast, online MBA's have not been effectively addressing international students thus tuning down the time-and-space asynchrony benefits of such programmes. Consequently, Massive Open Online Courses, as an emerging and disruptive technology, are grasping this market gap and tackling this growing international demand. Higher Education providers need now to fully rationalize the market dynamics in which they are in and understand the role they want to have in the global arena in order to keep being relevant.

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## II. INTRODUCTION

In the recent decades the world has witnessed outstanding changes in many economic sectors and industries. After all, who would imagine that today one would be listening to music from a personalized radio station in a (smart)phone? And movies are a click a way to be streamed right into PC's? But in such an innovative and competitive landscape how are old-doyen industries like education adapting to this reality? All the while, global online approaches to education and work are rapidly emerging, often parallel to the formal (traditional) system (Reyes and Villarroel, 2014; Villarroel, 2014).

Currently, the education system has no physical capacity to attend the growing global demand for education, with the increasingly diverse set of student segments that see education as a primary need for a better future. For instance, the twentieth-century trend of education's mass universalization rapidly started to yield astonishing numbers, even in more narrowed segments of higher levels of education: from 1900 to 2000, the number of students enrolled in higher education (HE) two hundred folded from 500.000 to 100.000.000 students (Schofer & Meyer, 2005); in 2011, this number was expected to have reached 165.000.000, and more than 263.000.000 are expected to be enrolled in HE by 2025 (Uvalić-Trumbić & Daniel, 2011).

At the same time, the growing tuitions' trend is creating severe financial strains on learners and their families, thus leading to a greater scrutiny and pressure on education delivers' programmes and outcomes. Finally, the widely globalized, increasingly innovative and highly competitive world and our current context (coming out from a major international crisis) are leveraging these pressures even more.

As such, this thesis is an attempt to unveil new understandings of how online education (OE) programmes might have the capacity to break the current education business model from its offer-side and demand-side pressures, being in its more "*traditional*" forms or in its more innovative and disruptive forms, such as *Massive Open Online Courses* (MOOC's).

OE introduced a new paradigm in the education system of growing importance (Kramarae, 2001). Evidence points out that, in the USA alone, the number of online courses by accredited colleges increased from over 2.100 (2000) (Arbaugh, 2000), to more than 3.300 (2014), with the number of students enrolled in at least one online course going from 1.602.970 (2002) to 7.126.549 (2012) (Allen & Seaman, 2014).

As found in this thesis, OE programmes, in the highly representative USA MBA segment, have actually been interestingly successful in addressing what is probably the most important student cohort of our times: women.

Historically speaking, women were among the segregated groups of society deprived of equal access to education for hundreds of years (Schofer & Meyer, 2005; Atkinson, 2014). However, this trend has now been fully reversed with education's universalization trend (Schofer & Meyer, 2005), turning now women as the most significant gender cohort (Jacobs, 1996; Schofer & Meyer, 2005). A trend also significantly relevant at the HE level and adult continuous education, as well as being a considerable reality in the USA, which registers a significant level of tertiary-level enrolments, and thus has one of the most considerable HE markets globally (Jacobs, 1996). These considerations catapult women to a leading role for education's Business Model commercial and social sustainability (Kelan & Jones, 2010) as, it not only represents a key market segment but also a differentiating factor among schools (for example, the *Financial Time's Business School* rankings account gender diversity as a methodological component in the majority of their published rankings<sup>1</sup>).

As so, the research in this thesis has found evidence that USA's MBA OE programmes have a statistically significant higher number of women enrolled than their traditional counterparts mainly leveraged by the response those latter programmes bring to their needs, vis-à-vis the still male-based educational system. Thus, current OE programmes are able to address some of women's concerns such as the need for more flexibility and the importance of user-friendly online platforms.

Even though, the education system has not yet found a consistent path enabling it to break from some of its chains, and potentially allowing market gaps to be filled by new market disruptions. This is actuality a harsh reality known by other industries. For example, if 15 years ago the music industry found a solution that answered to the market's pressures and the demand's needs, instead of battling them, currently they were probably not strapped to third-party services like *Spotify* and *Pandora* (Lakhani & Iansiti, 2014).

In the fore-front of such potential disruptive educational innovations have been MOOC's, as "*nothing has more potential to unlock a billion more brains to solve the world's biggest problems*" (Friedman, 2013). Many Universities, from around the globe are gradually coming abroad to this new technology. For example, in the USA, the number of HE institutions

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<sup>1</sup> As seen in (Financial Times, 2014): women participation in the student body, faculty members and/or Board is taken into account for FT's Global MBA, Online MBA, Executive MBA, Masters in Management and Masters in Finance rankings.

offering MOOC's grew from 2,6% (2012) to 5,0% (2013) (Allen & Seaman, 2014). Traditional education providers are now providing MOOC's through their own-created platforms, like *M.I.T.* and *Harvard* which have come together to form *edX* (edX, 2014); or through third-party platforms, like *Coursera*, with more than 110 HE institutions like *Stanford University* and *IE Business School*, and 10 million students enrolled (Coursera, 2014).

Although MOOC's current state-of-the-art does not necessarily represent the exact pivoting the educational business model will experience, they might be an answer to some of the global market's current needs. For instance international HE is a major growing trend in the world (Knight, 2006), as well as a natural one considering the *universal* etymological origins of the term *University* (Oxford Dictionaries, 2014). The number of HE students reaching for an international placement is expected to reach almost 6.000.000 by 2020, growing at a compound annual growth rate of 6,2% since 2003 (Böhm, et al., 2004).

Also, knowledge capital accumulation is a significant basis for economic development, and further economic development requires and pushes for even more knowledge capital (Hayek, 1945), so as global interconnectedness and economic development expands through the world (Schofer & Meyer, 2005), and into highly populated developing countries such as China and India (Altbach & Knight, 2007; Schofer & Meyer, 2005), so this trend will be greatly leveraged. And, the truth is that the current HE's led strategy and capacity is insufficient to answer to these dynamics.

This thesis provides evidence that, by contrast of what would be theoretically and naturally expected, OE programmes have not been able to grasp the highly procured international market, mainly because institutions are creating unnecessary barriers which are tuning down the benefits brought by the online arena. As such, MOOC's have been capturing this market gap, as many HE institutions still do not seem to know their role in the new market dynamic. The aim of this thesis is to start bringing a light in how OE programmes may impact the current educational business model in a way that providers need to understand once and for all the role they want to have.

The 3<sup>rd</sup> Chapter revises the most relevant literature findings on education's business model current constraints and the specificities of women and international students' cohorts. The 4<sup>th</sup> Chapter lays out the Methodology used in analysing the Results of the 5<sup>th</sup> Chapter. Finally, the 6<sup>th</sup> Chapter explains the main results in the light of the literature findings, as the 7<sup>th</sup> Chapter concludes with the strategic path educational providers need to consider.

### III. LITERATURE REVIEW

#### i. Education: a Business Model pressured to change

##### a. Pressures on the Education System

Education, as a delivery mode of intergenerational knowledge transfer, has been a primary asset for mankind, for hundreds of years. Though not so many years ago, traditional education delivery was a restricted reality: confined to the “*white boys from wealthy families*” (Atkinson, 2014), from the more developed countries, as particularly HE was expected to benefit only a limited number of people (Schofer & Meyer, 2005).

Yet, in the previous century, and with the preceding developments of industrialization, Institutional Theories realize a shift of perspective by supporting education as a key source of economic progress (Schofer & Meyer, 2005; Psacharopoulos, 1994).

However the registered positive growth from the demand side, has been causing, simultaneously, a growing pressure in the offer side, as this latter has been having increasing difficulties, and clear physical constraints, in accommodating the former’s trend (Waldrop, 2013): to “*accommodate the additional 98 million students [from 2010 to 2025] would require more than four major universities (30.000 students) to open every week for the next fifteen years*” (Uvalić-Trumbić & Daniel, 2011). Moreover, in reviewing the literature there are two additional straining pressures merited of identification.

First of all, some of these capacity constraints may being shifted, by education providers, towards the demand side, at the financial level, due to the increase of tuitions. (Atkinson, 2014). This latter is bringing growing pressure on families’ financial situation, particularly relevant in these times of greater financial constraints, for e.g., student debt in the USA now “*exceeds credit card debt in over 1 trillion US dollars*” (Butler & Agarwal, 2014). As personal investment to get education increases, so does the social pressure for an individual’s choice of courses<sup>2</sup> and therefore, also does the overall scrutiny for the efficiency and effectiveness of HE courses. (Hunt & Song, 2013; Atkinson, 2014)

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<sup>2</sup> According to Hunt and Song (2013) and the Theory of Reasoned Action an educational choice is both product of attitudinal factors (one’s own beliefs) and social factors (importance of others’ opinions). Thus, in times of economic pressure the social factors may gain an important prevalence.



Secondly, it is important to notice our current socio-economic context. Context creates time-and-space relative specificities, enabling its own opportunities and barriers (Atkinson, 2014). The previous referred trends of universalization of HE, during the twentieth century, were only possible due to time-and-space specificities such as global democratization movements, which gradually eliminated inequalities, and fostered global economic developments (Schofer & Meyer, 2005). As so, our current context also matters greatly: still a time of great uncertainty after a significant financial, economic and social international crisis. Moreover, in times of economic difficulties, longer-term investments may be seen as less pressing political priorities leading, for example, to funding cuts (Atkinson, 2014; Psacharopoulos, 1994).

Thus, adding to the increasing tuition prices, and more difficulty in getting funds, education providers may be faced with the economic reality of being required to offer much more but with much less resources.

#### **b. Online Education: an opportunity to change**

With the pressing constraints on the education system, its competitive landscape and the evolving disruptive changes occurring in many marketplaces (e.g. news, music, etc.), innovation cannot have stayed at the steps of colleges, and may be crucial for breaking some of the existing strains (Volery & Lord, 2000; Arbaugh, 2000).

OE can be seen as a step in this needed direction. It has its roots in distance learning when, in the nineteenth century, the first correspondence courses started to be delivered (Waldrop, 2013), thus breaking the traditional characteristics of education: time, space and face-to-face synchronous delivery (Volery & Lord, 2000; Arbaugh, 2000). Enabling OE, in the last century, was the increasing usage of information and communication technology (ICT) in education, due to the exponentially increased computing capacity, its respective mass accessibility, the advent of the Internet (Venkatesh, et al., 2014; Arbaugh, 2000) and, more recently, the mobile capability of these technologies (Wang, et al., 2009).

Therefore, the continuous technological developments have been enabling OE to gradually leverage the potential of breaking the *anytime/anywhere* barriers', as well as to shift to a new paradigm of *anyway*, due to the flexible multitude of platforms available for one to use (Wang, et al., 2009; Atkinson, 2014).

Ultimately, by breaking some of the traditional physical barriers of the education system and embodying the richness of the new mediums, OE encases some important

opportunities for the business model (Wang, et al., 2009). Particularly, it opens education to an even more diverse set of people (Volery & Lord, 2000; Kramarae, 2001), for example, adult workers, with an active family life, who do not have much time available for being physically present at brick-and-mortar institutions (Arbaugh, 2000; Atkinson, 2014). OE also creates new environments which promote proven engaging ways of learning, particularly in deeper learning environments, i.e., when communication facilitation and instant feedback may be more relevant (Venkatesh, et al., 2014). Still, OE may have its own specific limitations, such as the obvious lack of face-to-face interaction (Arbaugh, 2000) although these are being gradually broken, with the increasing socialness of online environments in a *Web 2.0* landscape, allowing for more meaningful and richer social experiences online (Benson, et al., 2009).

These new adding value changes to the education system (Wang, et al., 2009), as well as its perceived importance (Venkatesh, et al., 2014) and proven usefulness by users and providers (Allen & Seaman, 2014), are themselves experiencing major changes as the competitive pressures on the Business Models continue (Arbaugh, 2000) and consequently new potential disruptive technologies emerge.

### **c. MOOC's disruptive characteristics**

The appearance of MOOC's has been leveraged by a confluence of factors (Educause, 2013): the previous referred characteristics of ICT's development leading to increasingly better, more powerful and greatly user-friendly online platforms (Wang, et al., 2009; Venkatesh, et al., 2014); the new social connectivity introduced by *Web 2.0* (Arbaugh, 2000; Benson, et al., 2009; Waldrop, 2013; Venkatesh, et al., 2014); and the respective changes to the corporate landscape brought by the digital revolution, which has been leading to new paradigms (Villarroel, 2011) like, in this case, with the existence of *Distributed Networks* (Howe, 2006), and the idea of empowering users' choice and control on their learning progress.

The *a priori* notion views MOOC's as merely an "*incremental step*" (Hollands & Tirthali, 2014), particularly for providers already offering online learning solutions, i.e., offering asynchronous content through the web [ONLINE] (Educause, 2013); this is because they are built upon traditional HE courses structures (Educause, 2013), i.e., structured learning from a learning subject [COURSES] (Educause, 2013; Terwiesch & Ulrich, 2014); However, these aspects only refer to the *Online* and *Courses* aspects of MOOC's, and much of

the potential disruption and differences vis-à-vis online courses come from its *Massive* and *Open* characteristics (Atkinson, 2014; Clinnin, 2014). MOOC's are MASSIVE because they usually do not have enrolment capacity limitations; and OPEN due to their low or inexistent tuitions and lack of admission requirements (Educause, 2013; Terwiesch & Ulrich, 2014; Allen & Seaman, 2014).

Considering the MOOC's characteristics and its appearance in the education system's environment, portrayed earlier, one may conclude that it encloses a clear potential to open up education to much more diverse audiences (Clark, 2013; Nagashima, 2014), than previous developments in this field. That is, MOOC's may be the further carriers of increasing universal delivery and diversity reach of education, which had been enabled previously by the universalization of HE, and then leveraged by the rise of OE.

Despite presenting a myriad of opportunities for HE, MOOC's are still considered a new phenomenon (Atkinson, 2014) and there are not many comprehensive disclosed data on results and usage of MOOC's (Christensen, et al., 2013), nor much empirical studies on their effectiveness and value (Clinin, 2014; Hollands & Tirthali, 2014). Therefore this gap is not allowing for a clear and non-reactionary picture of its exact role for education (Clinin, 2014).

Further exploring this subject reveals an extreme importance, as if taking into account the Technology Acceptance Model<sup>3</sup> (TAM), understanding one's audience beliefs and attitudes (Arbaugh, 2000) towards the acceptance of MOOC's is critical (Clark, 2013). This is particularly relevant in such early stage in which institutions do not yet have a clear path for this medium, are still figuring out their strategies (Waldrop, 2013; Warmoth, 2013), but due to MOOC's high potential they consider too big of a risk not to participate in it (Hollands & Tirthali, 2014).

For now, the limited existing studies and data suggest that, if for one side, MOOC's are reaching to some extent to non-OECD developed countries, and thus allowing to reach less privileged students (Christensen, et al., 2013; Clark, 2013); on the other hand, a big majority of its users are, mostly, already highly-educated people with specific skill needs and/or simple curiosity for a particular subject (Christensen, et al., 2013), thus not allowing to completely bridge the educational divide (Hollands & Tirthali, 2014).

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<sup>3</sup> Specifies that one's own beliefs and attitudes towards a specific technology are detrimental in our subsequent acceptance and adoption of such technology (Arbaugh, 2000), leveraging on the idea of the importance of one's perceived usefulness of a technology and perceived proficiency in using it (Venkatesh, et al., 2014).

In addition, MOOC's have also been facing some criticisms regarding their low completion rates which usually average 5%-15% (Waldrop, 2013; Terwiesch & Ulrich, 2014), though these represents thousands of students, as usually a MOOC course has, on average, more than 100.000 students enrolled (Christensen, et al., 2013; Terwiesch & Ulrich, 2014). Another issue regarding MOOC's has been accreditation, and the still reduced formal recognition of a student who has taken and completed a course, other than outside the online MOOC community (Waldrop, 2013).

Yet, MOOC's are enabling a vivid debate on this industry's Business Model, and even if the former's current structure will not present the exact pivoting of the education system, it may help by answering to some of the constraints and barriers the current model still needs to break through, such as more efficient and effective structures (Clark, 2013; Educause, 2013), and greater accountability (Clark, 2013).

## **ii. The role of Gender in the Online Education Business Model**

### **a. The importance of Gender in the Education System**

The significance of women in the education system is leveraged by the reports that, overall, women's education has yielded higher returns than male education (Psacharopoulos, 1994). At first sight one might consider this may be due to the initial gap between male and female education, and thus considering the law of diminishing returns, male education would have less marginal potential returns (Psacharopoulos, 1994). However, according to Schofer and Meyer (2005), not only the universalization trend of education, and its intrinsic motivators, affected positively both men and women in the same way, but also, at first, it led to a greater increase in men's enrolments than female ones, therefore reinforcing the gender gap. Moreover, there is still a prevailing gender gap, in terms of post-academic earnings, transversal to all levels of education, and in which men tend to earn more than women (Jacobs, 1996). Thus, generally, women's education, despite having also produced important private returns<sup>4</sup> for women, tends to be capable of yielding higher social returns<sup>4</sup> for a country's development (Psacharopoulos, 1994; Jacobs, 1996).

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<sup>4</sup> Considering *Private Returns* to education as those more captured by an individual and/or household, e.g. wages, etc.; and *Social Returns* as those more captured by society at large, e.g. improvements in welfare, social developments, etc. (Jacobs, 1996)

Still, evidence suggests that, in general, the education system and its agents pose barriers to women (Kirkup & von Prummer, 1990; Kramarae, 2001) and might be precluding from exploring all potential benefits from this segment, as this will be explored further on.

As a male-dominated system until a few decades ago, and the consequent late enrolment of women, the education model founding structures are based on a male-cultural and still gender unbalanced system (Gunn, et al., 2003), thus reflecting the strong influences of *institutionalized discrimination*, which tends to affect women more (Schofer & Meyer, 2005). Additionally, women yet tend to show the same successful enrolment tendency in top-tier universities (Jacobs, 1996; Kelan & Jones, 2010), as well as in MBA programmes, particularly considered to have a strong male environment (Kelan & Jones, 2010).

Thus, and leveraging from the constraints and barriers still prevailing in the education system, generally and gender-wise, OE seems as a delivery mode capable of breaking through some of these, particularly in the adult management universe (Volery & Lord, 2000). Thus leading to our first grounding hypothesis:

*H1 = Online educational programmes have more women enrolled than corresponding Traditional educational programmes*

Though, it is important to notice that, taking into account OE's characteristics and recent developments, its main benefit is not necessarily in terms of breaking the still existent social stigmas, as in fact, the *online* world tends to carry on the *offline* social and cultural differences (Kramarae, 2001; Wilson, et al., 2007; Venkatesh, et al., 2014).

Particularly it is crucial to understand how OE's specificities may be relevant to effectively reach the significant women segment, by creating important mechanisms, specifically adequate for this gender, as well as by preventing possible alienations. In other words: how OE's *flexibility* and newly developed *social* capabilities may enable women's enrolment, especially if the right *technical support* is given.

#### **b. Online Education's flexibility traits**

Previously, it was discussed the importance of context and how the social and cultural environment affected, and still affects, the education system gender-wise. In fact, gender differences, although product of the intrinsic characteristics of each group, are also prescriptive in nature, i.e., result of the social conventions existent in a society (Shinnar, et

al., 2014). Still, it is true that, independently of the gender these individual and socio-cultural differences lead to expectations regarding what is best for each gender's actions (Hunt & Song, 2013; Shinnar, et al., 2014). Women's own socio-cognitive development is also impacted by such external considerations, particularly when taking into account the fact that women tend to have less immediate confidence in the face of a situation and need more instant validation (Belenky, et al., 1986). This is specifically true in areas of knowledge considered non-traditional to women, such as mathematics and finance (Wilson, et al., 2007). Also, women's self-efficacy<sup>5</sup> and expectations generally tends to be lower than those from men, in face of a same situation (Wilson, et al., 2007; Hunt & Song, 2013; Shinnar, et al., 2014), thus leveraging the social gender gap, and reinforcing the pre-existent exogenous conditions.

A manifestation of the previous discussed indigenous and exogenous factors affecting women comes with the different gender perceptions of family and work. Historically, women, being denied further educational and professional opportunities, constituted their strongholds at home, taking care of their families (Kirkup & von Prummer, 1990; Jacobs, 1996; Kramarae, 2001). With the advent of universal education and new opportunities for society at large, as well as women, family could have been seen as taking a step back. And although it is true that there are some evidences on that sense, for example in terms of lower fertility ratios (The Economist, 2009), the fact is that women are still viewed as not only desiring the prospects of creating a family (DeMartino & Barbato, 2002), but also still carrying the weight of family development and support (Kirkup & von Prummer, 1990; Kramarae, 2001). Building up on the previously discussed, this is, in part, the result of the historical constructs embedded in society which form still implicitly prevailing expectations which are rationalized and adopted by women (DeMartino & Barbato, 2002; Wilson, et al., 2007).

An example of such gender reflexions is DeMartino and Barbato (2003) study on the reasons why men and women decide to pursue an entrepreneurial career. From the 497 responses of a survey given to entrepreneurial *alumnus* of USA's Top10 MBA programmes, they found women tend to create their own business ventures because they prefer the flexibility it brings, and the subsequent work-family balance. This latter desire, vis-à-vis one of economic wealth more pronounced in men, is built-upon *social feminism* (DeMartino & Barbato, 2002), a social phenomenon, which also contributes to explain the still

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<sup>5</sup> Self-efficacy as one's self-confidence in its capabilities and skills to overcome a situation and reach a certain result (Wilson, et al., 2007; Shinnar, et al., 2014)

contemporary family importance for women. It is important to notice that, *social feminism* was leveraged by women's high expectations regarding the benefits they could extract from getting unprecedented access to more education and the actual yielded private returns, which have been chronically lower than those by men (Jacobs, 1996).

Although flexibility may be considered an important satisfaction variable for all students with such needs of work and family balance, independently of their gender (Arbaugh, 2000), particularly in adult learning (Volery & Lord, 2000), it reveals itself of particular relevance for women, whose family burdens tend to be greater. There is clear evidence that, due to the previously referred social and individual specificities of women, greater barriers are imposed to women when it comes to juggle all of the above in addition to a studying life. What Kramarae (2001) considers the "*third shift*": working during the day; taking care of the family when arriving home; and studying in the free available time (Kramarae, 2001; Gunn, et al., 2003). In addition, considering that the educational programmes are still grounded on a socio-cultural male influence, it is thus natural they tend not to equate the specific barriers imposed to women (Kramarae, 2001) and do not create ways to break such immovable constraints for this gender.

As such, OE's flexibility capacity, which is build-upon previous models of distance learning (Kramarae, 2001) may be allowing the breakage of some of these inflexible constraints of time and space (Gunn, et al., 2003), affecting women the most. It is important to notice that, the referred constantly evolving technological mobility developments, positively considered by women, may be leveraging this capacity even more (Wang, et al., 2009).

As such the first sub-hypothesis regarding the importance of flexibility for educational programmes, so to attract the women segment, is:

*H1a = Online educational programmes offering a more flexible structure and tools have more women enrolled*

Still, although OE may be a game changer in addressing such a pressing issue, it may also account to its own specific barriers, which if not handled carefully may tune down such positive effects.

### c. Technological access, usage and support

OE, as an online delivery method, and MOOC's as a new emerging technology, make important to refer the significance of the right technical support, as it is considered a relevant satisfaction factor, allowing to potentially ruling out any technical issue emerging during the experience (Arbaugh, 2000). Yet female users may face a greater *a priori* disadvantage, in this case, since a commonly addressed issue, regarding women and technology usage, is there historically troubled relationship with it, vis-à-vis men (Kirkup & Prummer, 1990).

Historically, women have long ago faced disadvantages in access to technology (Gunn, et al., 2003; Kramarae, 2001; Volery & Lord, 2000) and, thus, revealed a poorer proficiency and capabilities in its usage (Gunn, et al., 2003; Wang, et al., 2009). As so, this has resulted into lower levels of self-confidence in women, in their usage of technology (Gunn, et al., 2003), a reality also proven in educational environments (Venkatesh, et al., 2014), thus leveraging the already present stigmatization regarding ICT's. This latter is made clearer if considering the implications of the TAM model, previously discussed (Arbaugh, 2000), and more particularly what it considers to be the importance of one's perceived capabilities in using a certain ICT (Venkatesh, et al., 2014). Such pre-existent perceived skills are, in the case of the new mobile technologies, of even more particular importance for women's assessment in using such technologies (Wang, et al., 2009). This is greatly reinforced if bearing in mind women's characteristically lower self-confidence levels (Belenky, et al., 1986; Wilson, et al., 2007).

This reality has even translated into a natural global process of gender segregation into areas and sub-fields of study (Jacobs, 1996; Hunt & Song, 2013; Shinnar, et al., 2014). This resulted in women gaining a greater preference for more social science oriented careers (Jacobs, 1996), and to a lower participation of women in more technical college degrees, such as engineering or mathematics (Jacobs, 1996; Wilson, et al., 2007), or, even in the social sciences realm, in less analytical sub-fields, such as finance (Hunt & Song, 2013).

Yet, it is true that disparities in technological access, literacy and skills between men and women have been narrowing significantly (Gunn, et al., 2003), due to its importance and increasing presence in our daily lives. Still, differences in the approaches to ICT persist (Gunn, et al., 2003) because, for example, even with this greater gender balance, women decided not to pursue careers in these "non-traditional" areas for women (Gunn, et al., 2003; Wilson, et al., 2007). Thus, this comes back to the, already discussed, significant weight of



social context and the collective and individual historical incorporation into our self-conscience, of such socio-cultural manifestations (Jacobs, 1996; Wilson, et al., 2007; Venkatesh, et al., 2014).

Therefore, although nowadays the problem is not necessarily one of lack of *a priori* skills by women, the issue is conveying the right level of perceived easiness in using such technology and, at least, having the right mechanisms to give a necessary confident level of support, so:

*H1b = Online educational programmes offering more technical support have more women enrolled*

#### **d. Social Learning environment**

Women and men manifest differences in their socio-cognitive development (Carol, 1982) which has obvious implications in their personalities (Wilson, et al., 2007), as well as in their learning environment preferences, which needs to be balanced and taken more into account by education providers. This gains particular relevance in an online environment which has considerable differences if compared to the offline world.

Psychologically speaking, women tend to be more communicative individuals, preferring social interaction and enjoying human and community connectedness (Carol, 1982; Belenky, et al., 1986); as men tend to be more autonomous and independent (Wang, et al., 2009; Carol, 1982). Thus, women prefer face-to-face communication as well as all the verbal and non-verbal cues associated with it (Kramarae, 2001).

As so, women have an intrinsic intellectual development characteristic of *social learning* (Venkatesh, et al., 2014; Gunn, et al., 2003; Kirkup & von Prummer, 1990). Therefore it is understandable why women have a tendency to prefer the traditionally structured face-to-face learning environment (Venkatesh, et al., 2014; Kramarae, 2001) and to perceive distance learning and early OE attempts as an “*isolating experience*” (Kramarae, 2001; Kirkup & von Prummer, 1990).

However, it is now known that the online world does not necessarily preclude offline gender related stigmas not to be reproduced. For example, even without physical presence, there are gender-specific communication patterns which are also easily perceived in the web, such as men having a more authoritarian discourse than women, which tend to be more

collaborative and supportive (Kramarae, 2001). Yet, the fact is that the new online reality may allow to break some traditional lower self-confidence issues on women, and increase their participation in asynchronous online courses (Arbaugh, 2000).

These social-psychological differences also lead to different perspectives regarding the online world brought by ICT developments. On one hand men see it as an important inexpensive and mass medium to transfer knowledge globally (Arbaugh, 2000). On the other hand women consider more its social network capabilities (Arbaugh, 2000; Venkatesh, et al., 2014), which are now being leveraged by Web 2.0's cumulative capacity of social capital (Benson, et al., 2009).

As such, the new technological developments may preclude the initial concerns of social isolation of distance learning mechanisms and early OE attempts, by connecting people even more, besides giving them their desired flexibility. Also, OE may now use ICT's evolving developments to leverage on the different perceptions and needs of both genders. And, when considering MOOC's characteristics, these latter seems on the right way to achieve so (Nagashima, 2014), but only if MOOC's are able to build-upon Web 2.0's social capabilities and not on the potential difficult to establish connections in a mass environment (Clinnin, 2014).

Thus, OE programmes offers and is built-upon a more collaborative structure and relying more on social networking tools could be more appealing to women:

*H1c = Online educational programmes offering a more social learning structure and tools have more women enrolled*

### **iii. The importance of Geographic mobility in the Online Education Business Model**

#### **a. Internationalization dynamics of Higher Education**

Despite the initial claims that education's universalization trend would not affect HE as much as other levels of education (Jacobs, 1996), mostly due to the global economic disparities among countries (Schofer & Meyer, 2005; Knight, 2006), the truth is that it has been behind the increasingly high demand registered globally (Schofer & Meyer, 2005; Altbach & Knight, 2007). The impacts of globalization, particularly the economic market and social forces of the second half of the twentieth century, have led to increasingly see HE as both a social right and an economic need (Schofer & Meyer, 2005; Knight, 2006), as well

as a globalized private good freely tradable (Altbach & Knight, 2007). In addition, the longstanding communication and transportations barriers have been exponentially falling, in the last decades, by the new technological developments, therefore increasing the global interconnectedness (Altbach & Knight, 2007)

These contextual forces of globalization are producing significant impacts in the education business model, and particularly in this expanding HE universe (Altbach & Knight, 2007). As so, HE institutions from developed countries, with already well-established HE systems, have been engaging in internationalization strategies in order to get their own share of benefits from the global market of HE students, besides potentiating their brands' value (Knight, 2006; Altbach & Knight, 2007). Simultaneously, this has been allowing students to get access to high quality tertiary education without the need of greater mobility constraints (Knight, 2006). As Knight (2006) points out "*is no longer just the students who are moving across borders*", as a new focus has being made on the cross-border movements of HE providers. As an example, Phoenix University (USA) is the "*largest private University in the United States and is now delivering courses in Puerto Rico, The Netherlands, Mexico and Canada*". Yet, despite the increasing student's mobility capacity (Knight, 2006) and the growth in HE provision worldwide (Knight, 2006; Altbach & Knight, 2007), these are considered insufficient to satisfy all the existing and potential demand of the market (Knight, 2006).

As such, one of the impacts this global fast-paced reality has had is the entrance of new educational players and providers (Arbaugh, 2000; Knight, 2006; Altbach & Knight, 2007), enlarging the competitiveness landscape of an already pressured system. OE is one of such new market forces emerging (Knight, 2006; Altbach & Knight, 2007)<sup>6</sup>, in this HE internationalization trend and globalized reality. This is clearly due to its intrinsic characteristic of breaking physical and spatial frontiers (Arbaugh, 2000), thus standing out its importance for HE providers in their most desired internationalization strategies.

*H2 = Online educational programmes have more international students enrolled than corresponding Traditional educational programmes*

## **b. Global disparities and unsupportive barriers in a globalized arena**

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<sup>6</sup> Considered a new mode of "*cross-border supply*" of education which "*does not require the physical movement of the consumer or the provider*" (Altbach & Knight, 2007)

Still, although many of the global frontiers are being broken and global distances are decreasing, HE institutions face specific constraints when internationalizing. Primarily, one needs to take into account the diverse range of socio-cultural norms and values in the world, and the specific language and communication differences (Clinnin, 2014; Hollands & Tirthali, 2014). Also, although HE is now more universalized than ever before, the fact is that there are still important financial disparities worldwide preventing some students to achieve it (Knight, 2006).

Another significant constraint, particularly relevant for OE's case, is the technological disparities around the world, like the lack of access to the Internet or lower bandwidths (Hollands & Tirthali, 2014; Nagashima, 2014). Still, efforts are being actively made in order to achieve lower global disparities. This is exemplified by the *internet.org* initiative, founded by companies like *Facebook* and whose mission is to: “*make internet access available to the two-thirds of the world who are not yet connected, and to bring the same opportunities to everyone that the connected third of the world has today*” (internet.org, 2013).

As so, when considering all of these forces one may conclude that are established the necessary conditions for an education delivery method such as MOOC's to successfully appear (Hollands & Tirthali, 2014). In fact, and so far, the limited studies and data on MOOC's seem to suggest that even if they did not managed to reach to the less privileged, in terms of access to tertiary education (Christensen, et al., 2013; Hollands & Tirthali, 2014), they seem to have at least reached a global audience (Christensen, et al., 2013; Clark, 2013; Hollands & Tirthali, 2014). Moreover, platforms, like *Coursera*, are actively engaging in breaking some of the just discussed barriers at a global stage, like language, by pro-actively enlarging the number of their courses' languages availability (Educause, 2013; Clinnin, 2014; Nagashima, 2014).

Yet, in our contemporary reality, OE solutions, like MOOC's, need to face the requirement for offering the necessary supportive structures and tools to their students in order to break through some of the possible constraints they might face:

*H2a = Online educational programmes offering a better support structure to international students have more international students enrolled*

## IV. METHODOLOGY

This research is intended to contribute in understanding how the education Business Model, through OE and new innovations like MOOC's, can (or cannot) breakthrough some of the prevailing barriers the current system is less able to, by also taking into account the specificities of the *online* arena. The analysis was focused on Gender and Geographical Mobility as they present significant managerial relevance due to their growth and market importance. Besides, the revised literature points out these as two factors which could largely benefit from such new developments in the educational model (cf. sections 3ii and 3iii).

In order to further narrow the range of the analysis, a focus was made on Business education, particularly MBA programmes. First of all, management education has had historical market significance as it yields one of the highest private returns by faculty, vis-à-vis other areas of knowledge (Psacharopoulos, 1994). Secondly, considering the objective of the thesis as to reason on the impacts of the new online models in the education system, the fact "*business schools are a particularly useful microcosm for studying how online learning will impact universities*" (Terwiesch & Ulrich, 2014), turn it a sound analysis standpoint. Finally, the focus in this specific field of study was also due to their very close contact to high-level human capital and to business innovation (Arbaugh, 2000; Kelan & Jones, 2010). As such, MBA courses have been in the forefront of education's market pressures and innovations (Arbaugh, 2000). For instance, it is interesting to notice that Business education represents alone 13% of all courses offered in *Coursera* (Clark, 2013).

Moreover, despite the global aspect of MBA programmes and this research, due to the still prevalent structural differences in education systems across countries (Altbach & Knight, 2007), it was important to focus on a geographic region, so to control these disparities. Hence a focus was made in the USA, as it constitutes the leading global provider of MBA's (Quacquarelli Symonds Ltd - TopMBA, 2014), thus being strongly permeable to possible changes in the marketplace.

Thus, in conclusion, studying USA's Online MBA programmes versus Traditional Education ones may yield important managerial conclusions. This could be crucial in better understanding how new disruptive innovations such as MOOC's can help, or not, the necessary pivoting of the educational Business Model.

Although, when developing this study, no integrated database with the necessary data on online and traditional educational programmes was found, in order to reinsure the reliability of the data collected, a third-party source was deemed important as the primary source. Thus, the work is based on data collected from educational rankings. These are particularly relevant to business schools (Kelan & Jones, 2010), as, for example, they are used by students when choosing their university. Therefore, Business Schools tend to provide comprehensive amount of data, regarding their programmes, to these third-party independent institutions.

As such two sources were used. Firstly, *Financial Times'* (*FT*) *Global MBA* and *Online MBA* (2014) rankings were used as one of the starting sources, and provided an initial understanding of the structural differences between these two types of educational delivery. This constituted the starting point of testing H1 and H2.

Since *FT* does not have an extensive information library on the different programmes, the *U.S. News & World Report's* (*U.S. News*) rankings and individual profiles were used as a source since it compiles some of the most important educational publications in the USA. *U.S. News* elaborates a variety of educational rankings, in various fields of study, from traditional to online programmes. Although still not having an integrated database with all the information, it has individual profiles for each programme offered by a University, thus having a myriad of different profiles. An important notice to be considered is that, although *U.S. News* might have for a same ranking hundreds of entries, it only effectively ranks the programmes they consider to have a reasonable amount of reliable information. As such, in the subsequent analysis only ranked programmes were considered.

Overall, information was compiled from 104 ranked programmes of the *Best Business Schools Ranking* (2014), and from 172 ranked programmes of the *Best Online Graduate Business Programmes Ranking* (2014), both of *U.S. News*.

In order to have a first global perspective, statistical information on the percentage of women and international students enrolled in Traditional and Online MBA programmes was collected from both *FT* and *U.S. News*. This Descriptive Statistical Analysis constitutes a first overview in the next Results Section. However, to achieve, a more comprehensive and rigorous testing, and to start to control for the potential structural differences between countries, all hypothesis were tested using the data from *U.S. News*.

So, H1 and H2 were tested by seeing if there was significant difference between women and international students' enrolments in Online and Traditional courses. Moreover, in order to have an even more rigorous analysis, and using as a basis Allen and Seamen (2014) definitions of different education delivery methods, a categorical breakage was made between:

- Pure Traditional programmes (only offering synchronous, face-to-face, time and place bounded MBA courses);
- Pure Online programmes (only offering asynchronous MBA courses);
- Hybrid programmes (offering both Traditional and Online MBA courses).

Regarding the other hypothesis, information gathered, from the Online MBA courses profiles in *U.S. News*, was used:

- *H1a was tested by seeing if programmes offering more flexible structures and tools had more women enrolled.* As flexible tools were considered those leveraging the online flexibility characteristics: Live Streaming of Video and/or Audio of lectures, Recorded Video and/or Audio of lectures, Mobile applications for Smartphones and/or Tablets. As courses considered having more flexible structures are those allowing online students to have the same benefits as those on-campus students have (access to same Faculty, Curricula and Career Centre) and having less on-campus requirements, i.e., student are not required to go on-campus for orientations, group works, exams, and mandatory student collaboration;
- *H1b was tested by seeing if programmes offering more supportive tools and structures in terms of technical assistance have more women enrolled.* As a supportive tool was considered the existence and availability of a support contact centre. As more supportive structures are those programmes with a higher number of tech-staff (full-time and part-time);
- *H1c was tested by seeing if programmes with more collaborative tools and structures have more women enrolled.* As collaborative tools were considered those which allowed a potential higher interaction between students: bulletin boards, simulations, online labs, chats and video-chats (webinars were dismissed as they are usually a one-sided type of communication). As more collaborative structures are considered those programmes pro-actively promoting student collaboration and with higher number of evaluations and feedback per month, from faculty to students;

- *H2a was tested by seeing if programmes offering more support to international students have more international students enrolled.* As such, it was considered that a supportive programme offers international students financial aid and has less on-campus requirements (same as H1a). In order to further strengthen this analysis, programmes not admitting students living abroad were controlled from the analysis.

In order to test the hypothesis two types of analysis were made:

- Analysis of Means – it tests if a mean of a sample specific category is statistically different from the overall mean. Thus, when in face of a categorical breakdown, this was the analysis approach;
- Multivariate nonparametric Spearman’s correlation coefficient – it tests the statistical dependency relation of two variables. Spearman is the most appropriate coefficient in this case, as it does not require a specific distribution, describes the relation of the two variables as a monotonic function, thus preserving the given order, and may be used for both continuous and discrete variables.

The results of analysis of means and multivariate nonparametric correlation estimations were both performed using the statistical package JMP v.11 from SAS.

Throughout the next section  $n$  is considered as the total number of observations. Also, the significance is tested for the following levels: \* = 10%; \*\* = 5%; \*\*\* = 1%.

Moreover, it is important to realize that all further analysis of means graphically presented, displays a significance level of 5%, with the shaded area representing the confidence interval for this level.

Regarding the analysis of means presented in a table, the green shade represents that the group mean is above the total sample’s average, with the red shade signifying the opposite. A darker shade is used if the mean of the group, compared with the total sample’s average, is statistically different.



## V. RESULTS

### A. Descriptive Statistical Analysis

As a first overview of the problem in question, and mostly of hypothesis H1 and H2, an initial descriptive statistical analysis was made using the 100 and 104 entries of the Traditional rankings of *FT* and *U.S. News*, respectively; and the 15 and 172 observations of the Online rankings of *FT* and *U.S. News*, respectively. By combining both, it was possible to obtain 204 and 187 observations for Traditional and Online programmes, respectively. Still, duplicated entries were eliminated leading us to 154 and 180 observations for Traditional and Online programmes, respectively. It is important to notice that all the 100 observations from the *FT Global MBA* ranking correspond to Full-Time programmes, as in the case of *U.S. News* the observations include information in all three types of MBA's: Full-Time, Part-Time and Executive MBA's.

So, within each of these unique observations it was collected the information, if available, of the percentage of women and international students enrolled in each type of programmes, thus attaining the following graphics:

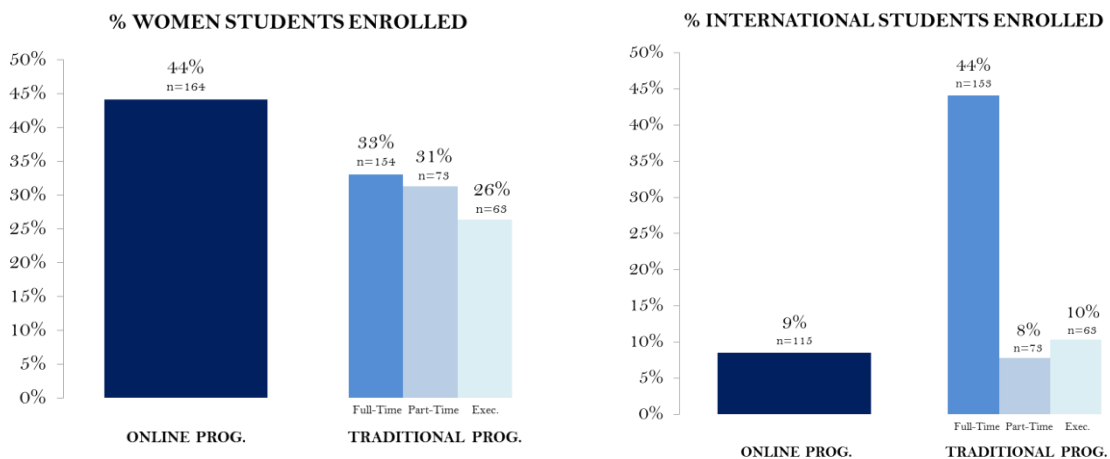


Figure 1 - Descriptive Analysis (% Women and International Students Enrolled in Online and Traditional Programmes)

At a first glance, the percentage of women students enrolled in Online MBA's is superior than those from all other Traditional MBA programmes, consistent with the literature findings and leading to a possible validation of H1. By contrast, the percentage of international students enrolled in Online MBA's may be slightly higher than those from Part-Time MBA's but is staggering lower than the one from Traditional Full-Time MBA's (and marginally lower than the Executive MBA's enrolments). This latter finding is, in part,

inconsistent with the revised literature as it may suggest the existence of immovable and strong barriers for international students to enrol in Online MBA's, despite the strong interest for these programmes (as suggested by the high enrolments in Full-Time MBA's).

**B. Hypothesis Testing**

**a. H1 and H2**

As already discussed, in order to control for possible structural differences in the education system, and still leveraging the importance of a third-party provider as the source of information, a particular focus is being made in USA's reality, and the data gathered through *U.S. News*.

Hence, information was gathered on the number of students enrolled in each programme and the respective percentage of women and international students enrolled, from the 104 Traditional MBA's and 172 Online MBA's individual profiles in *U.S. News* in order to statistically test the difference's significance. Further on, in order to control for a more rigorous analysis, the division was made between:

- Pure Traditional ( $n=79$ );
- Pure Online ( $n=17$ );
- Hybrid ( $n=167$ ).

As concluded by analysing the graphics above, Pure Online programmes have a statistically significant higher number of women enrolled than the overall mean; Hybrid Universities have statistically significant lower number of international students enrolled; and Traditional Universities have statistically significant higher number of international students enrolled.

**ENROLLED WOMEN AND INTERNATIONAL STUDENTS BY PROGRAMME TYPE**

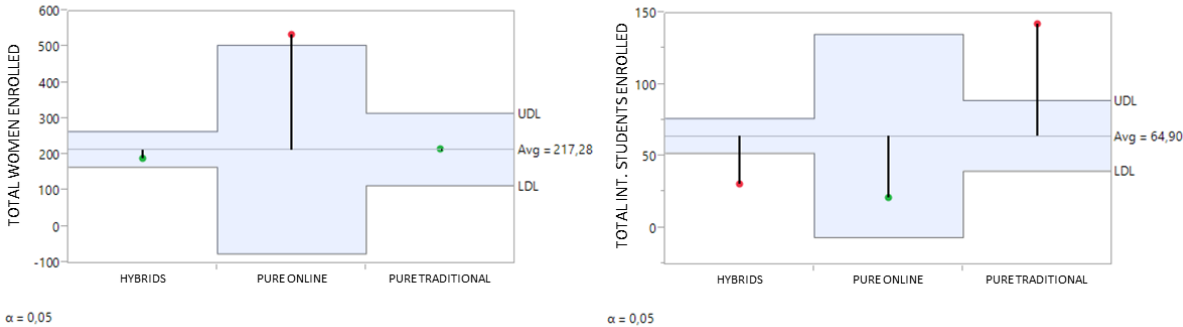


Figure 2 – Analysis of Means enrolled women and international students by programme type

If it is excluded from the analysis the Executive MBA's enrolments, usually a more restricted type of MBA, the statistical analysis appears relatively similar to the previous analysis, with the Pure Online courses having a slightly higher difference in women enrolments:

**ENROLLED WOMEN AND INTERNATIONAL STUDENTS BY PROGRAMME TYPE**  
(excluding Traditional Executive MBA's)

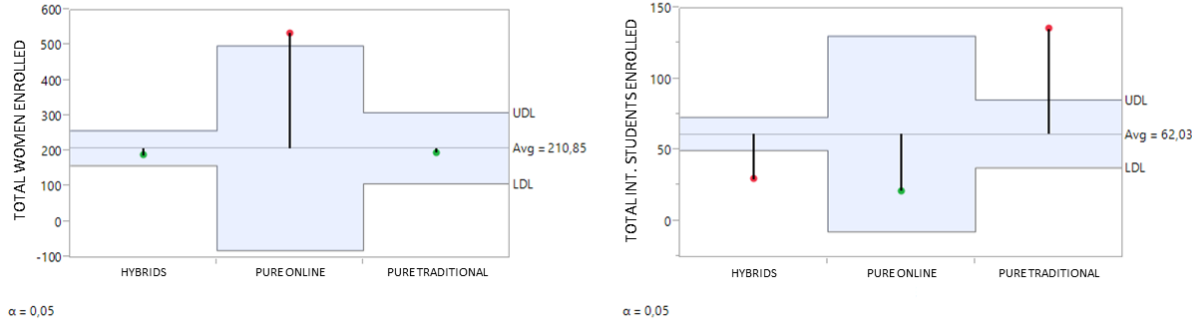


Figure 3 – Analysis of Means of enrolled women and international students by programme type (excluding Traditional Executive MBA's)

If, in addition, it is only considered the Traditional courses' Full-Time MBA's enrolments, the same conclusions are achieved with the difference that Pure Online courses' women enrolments increase even more:

**ENROLLED WOMEN AND INTERNATIONAL STUDENTS BY PROGRAMME TYPE**  
(excluding Traditional Part-Time and Executive MBA's)

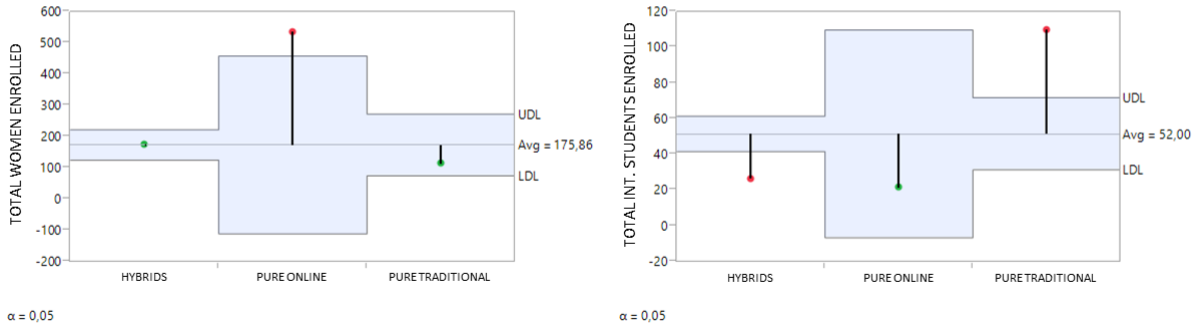


Figure 4 - Analysis of Means of enrolled women and international students by programme type (excluding Traditional Part-Time and Executive MBA's)

Finally, if only the Traditional Part-Time MBA enrolments are accounted a major difference occurs in terms of international students enrolments as Pure Online Universities tend to have a statistically significant higher number of students and Pure Traditional a statistically significant lower number of this students' cohort.

## ENROLLED WOMEN AND INTERNATIONAL STUDENTS BY PROGRAMME TYPE (excluding Traditional Full-Time and Executive MBA's)

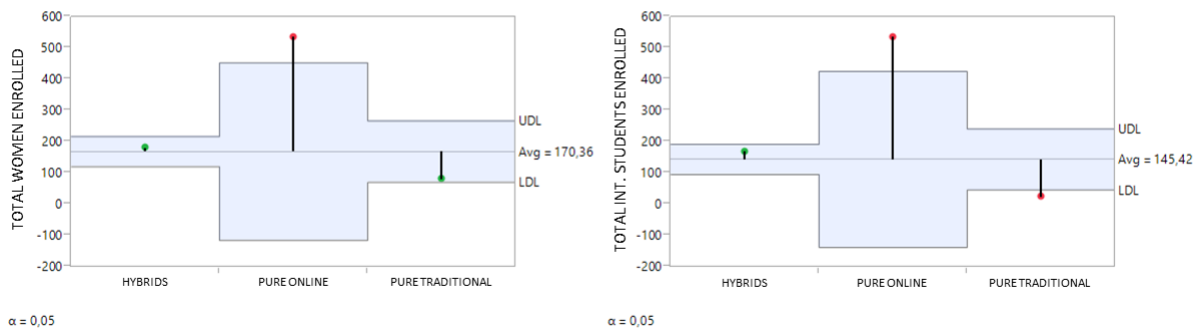


Figure 5 - Analysis of Means of enrolled women and international students by programme type (excluding Traditional Full-Time and Executive MBA's)

In conclusion, regarding gender differences, the main statistical difference is that Pure Online programmes tend to have significantly higher number of women enrolled, following the first conclusions of the descriptive overview and thus supporting the validation of H1. Still, no statistically significant differences were found regarding Hybrid and Pure Traditional courses. Moreover, no significant changes were found when specifically focusing on each type Traditional MBA programmes. In terms of international students enrollment, the conclusions of the previous sub-section, which tended to not validate H2, are mostly corroborated by this latter analysis as Hybrid courses tend to have statistically significant lower number of international students enrolled and Pure Traditional Universities significantly higher numbers. However, no statistically significant difference were found regarding Pure Online courses, unless when considering only Part-Time MBA's as Traditional courses. For this latter case, Pure Online programmes have statistically significant higher number of international students enrolled and Pure Traditional programmes have statistically significant lower numbers, thus leading to a possible conclusion that Pure Traditional Part-Time MBA's may have some types of immovable barriers, like Online MBA's seem having, that might be preventing international students to enroll. Thus overall, no sufficiently strong evidence was found, unless this last one, which could allowed us to validate hypothesis H2.

Thus, by supporting H1 it is conclusive that Online MBA's may be an important consideration for the highly significant women educational market and therefore it will be important to further on understand, when testing H1a, H1b and H1c, which are the specific enablers that are allowing this to happen. As what international students are concerned, by not validating H2 it will be important to understand which are the specific barriers Online MBA's are facing international students with and preventing them to enroll, when

validating H2a. This may be of particular significance taking into account the potential benefits of OE for the internationalization strategy of HE institutions.

### **b. H1a: Flexibility**

It is important to notice that the further factors for H1a, H1b, H1c and H2a, were collected from the previous referred source of *U.S. News* and the categorization respects the divisions made by the source itself, thus enabling a more accurate analysis.

As focusing on understanding the potential enablers of OE's having more women enrolled, H1a analyzes the **flexibility** this type of programmes are capable of offering vis-à-vis other types of more traditional programmes, as well as at the same time controlling for the specific structural characteristics which may or not create inflexibility barriers.

- It is considered that the most flexibility tools offered the higher the number of women enrolled. 6 tools were summed into a single flexibility tools factor FLEX TOOLS = *if the factor totals 0 it means the programme does not offer any of such tools; if it sums 6 it means it offers all tools*: live streaming video of lectures (LIVEVID), live streaming audio of lectures (LIVEAUD), recorded video of lectures (RECVID), recorded audio of lectures (RECAUD), mobile app for smartphones (APPSMART), mobile app for tablets (APPTAB);
- Also, as the programmes offer the same structure online as the one on-campus, thus the same benefits are given to both students' population, and no differentiations are created: access to same faculty; access to same curricula; access to same career center. A singular structural similarity factor (SAMESTRUCT) was combined (*if the factor totals 8 than the programme offers a maximum of structural similarity, if it totals 0 it offers a maximum of structural differentiation*);
- Finally, as programmes demand more on-campus presence to students they create inflexibility barriers for its students (*all further factors are coded 1 if it's a mandatory on-campus requirement and coded 0 if it is not*): on-campus orientations (OCORIENT), on-campus group works (OCGROUPS), on-campus exams (OCEXAMS) and collaboration with on-campus students (OCSTUD). One factor (INFLEXSTRUCT) was created combining all the four factors measuring a programme's inflexible structure (*if the factor totals 4 it means it*

requires maximum of on-campus presences, if it totals 0 it is considered to have a maximum flexible structure).

	ALL APPLICANTS (n=142)	% ENROLLED WOMEN (n=156)
FLEXTOOLS	0,0130	0,0124
SAMESTRUCT	0,0960	-0,1594**
INFLEXSTRUCT	-0,2509***	-0,2340***

Table 1 - Flexibility measures Spearman correlation with all applicants and % women enrolled

First of all, although with a positive correlation coefficient, no conclusions can be made regarding the correlation of courses with more flexibility tools and the overall number of applicants and the percentage of women enrolled.

At the same time, SAMESTRUCT and INFLEXSTRUCT have a statistical significance for the relative weight of women enrolled in OE programmes. The results show that as a programme tends to offer the same characteristics as its traditional counterpart, the less that programme tends to have women enrolled. Also, if the programme tends to demand more on-campus presences less women tend to be enrolled.

In a more individually detailed analysis, of which of the above tools are more significantly important, an analysis of means was made:

FACTOR	OFFERS TOOL?	n	LDL	GROUP MEAN	UDL
LIVEVID	Yes	109	43,4%	44,6%	46,4%
	No	47	41,4%	45,6%	48,4%
LIVEAUD	Yes	106	43,3%	45,2%	46,5%
	No	50	41,6%	44,3%	48,3%
RECVID	Yes	151	44,5%	44,6%	45,3%
	No	5	32,4%	54,8%	57,4%
RECAUD	Yes	148	44,4%	45,0%	45,4%
	No	8	35,0%	44,0%	54,8%
APPSMART	Yes	123	43,7%	45,3%	46,1%
	No	33	40,5%	43,6%	49,3%
APPTABLET	Yes	114	43,5%	45,6%	46,3%
	No	42	41,1%	43,1%	48,7%
<b>TOTAL SAMPLE</b>		<b>156</b>		<b>44,9%</b>	

Table 2 - Analysis of Means of flexibility tools relation with % women enrolled

Regarding the individual components of the flexibility tools, it is interesting to note that there are relatively more women enrolled in programmes without recorded video

lessons and, on the other hand, programmes with a higher percentage of enrolled women tend to have mobile apps, particularly for tablets.

Moreover, it is important to notice the statistically significance of online programmes that do not have faculty also teaching on-campus and tend to have more women enrolled:

**STRUCTURAL SIMILARITIES BETWEEN ONLINE AND TRADITIONAL PROGRAMMES OF HYBRID UNIVERSITIES**

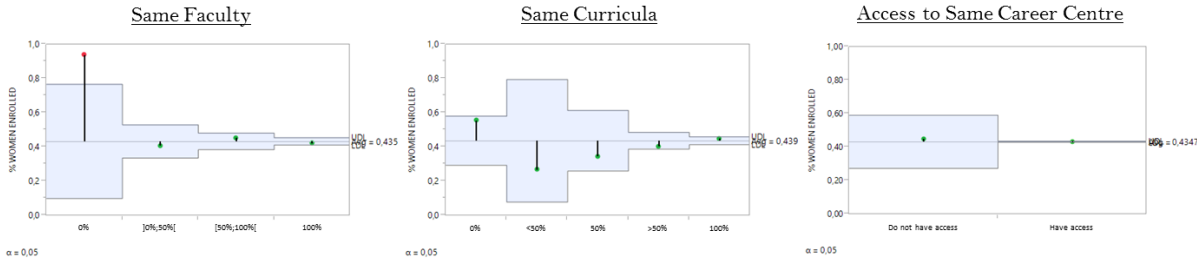


Figure 6 - Analysis of Means of programmes' structure similarity relation with % women enrolled

Regarding the INFLEXSTRUCT components, it is central to refer that, although for all four factors there tends to be less women enrolled in programmes with such requirements, courses with mandatory group works have statistically significant lesser women enrolled:

FACTOR	MANDATORY?	<i>n</i>	LDL	GROUP MEAN	UDL
OCEXAMS	<i>Yes</i>	17	38,4%	39,5%	51,4%
	<i>No</i>	139	44,1%	45,6%	51,4%
OCSTUD	<i>Yes</i>	49	40,6%	43,2%	47,7%
	<i>No</i>	107	42,6%	45,0%	45,7%
OCORIENT	<i>Yes</i>	32	40,4%	41,9%	49,4%
	<i>No</i>	124	43,7%	45,7%	46,1%
OCGROUPS	<i>Yes</i>	19	38,8%	37,6%**	51,0%
	<i>No</i>	137	44,1%	45,9%**	45,8%
<b>TOTAL SAMPLE</b>		<b>156</b>		<b>44,9%</b>	

Table 3 – Analysis of Means of programmes' inflexible structures relation with % women enrolled

Thus, taking into account the coefficients analysis, the differences between women and the overall applicants for the SAMESTRUCT factor and the individual components' analysis, H1a, tends to be supported.

### c. H1b: Technological Support

Due to the particular characteristics of women facing technology, H1b allows an analysis of the **support** offered to students of these programmes. Two measures of technical assistance to students were collected:

- The number of hours a dedicated contact center (CONTACT) is always or usually available for students;
- The number of assistant tech staff (TECHSTAFF) in the online programme.

	ALL APPLICANTS	% ENROLLED WOMEN
CONTACT	(n=138) 0,1819**	(n=152) -0,0130
TECHSTAFF	(n=128) 0,3030***	(n=140) -0,1468*

Table 4 - Technical support measures Spearman correlation with all applicants and % women enrolled

In a general overview to all applicants, both the existence of a contact center opened more hours and a larger tech staff in an OE programme, tends to mean this programme has more applicants, being both statically significant. However, the same conclusion cannot be drawn for women. In the case of the existence of a contact centre no conclusions can be made as there is no statistical significance. Concerning, the TECHSTAFF factor, there is a negative correlation with the percentage of women enrolled in the programmes.

This means that the existence of technical support for women, does not necessarily mean there will be more women enrolled leading not to support H1b.

### d. H1c: Social Learning

As also seen, it is important to consider the potential interaction and **collaboration** offered in such programmes, as this could be crucial for the female student population attendance, as H1c suggests:

- As measure of collaboration were considered if the schools offered or not such enabling tools: bulletin boards (BULLB), simulations (SIMUL), online laboratories (ONLAB), webchats (CHAT) and videochats (VIDCHAT). A single factor combining all of the previous offerings was created (COLTOOLS – *if the factor totals 5 it means the programme offers all the previously referred tools, if it totals 0 the programme offers none*);



- Also, the programme's own promotion of collaboration was taken into account (COLPROMO) corresponding to the percentage of a programme's curricular courses in which collaboration is actively promoted by the instructors;
- As a way to assess if there is a high student-faculty interaction in the programme, it was accounted how many times there are evaluations (EVAL) and feedback (FEEDB) per month.

	ALL APPLICANTS	% ENROLLED WOMEN
COLTOOLS	(n=142) 0,1276	(n=156) 0,0542
COLPROMO	(n=141) -0,2002**	(n=155) -0,0651
EVAL	(n=112) 0,0546	(n=121) 0,2573
FEEDB	(n=105) 0,1977**	(n=115) 0,0816*

Table 5 - Social measures Spearman correlation with all applicants and % women enrolled

Regarding the results, COLPROMO has a statistical significant negative impact in the overall number of applicants of a programme as, by contrast, FEEDB has a statistically significant positive impact. This latter factor is also the only one in which there is a statistical significant correlation with the percentage of women enrolled. Particularly, as more feedback per month is given from teachers to students more women tend to be enrolled in the programme. Yet, no any other conclusion can be made regarding the other factors for women as they were not proven statistically significant.

In an individually detailed analysis, of which of the above collaborative tools are more relevant an analysis of means was made:

FACTOR	OFFERS TOOL?	<i>n</i>	LDL	GROUP MEAN	UDL
BULLB	<i>Yes</i>	139	44,1%	44,8%	45,7%
	<i>No</i>	17	38,3%	45,6%	51,5%
SIMUL	<i>Yes</i>	123	43,7%	44,5%	46,1%
	<i>No</i>	33	40,5%	46,4%	49,3%
ONLAB	<i>Yes</i>	80	42,7%	46,7%	47,1%
	<i>No</i>	76	42,6%	43,1%	47,3%
CHAT	<i>Yes</i>	136	44,0%	44,8%	45,8%
	<i>No</i>	20	38,9%	45,5%	50,9%
VIDCHAT	<i>Yes</i>	130	43,9%	44,9%	45,9%
	<i>No</i>	26	39,8%	44,8%	50,1%
<b>TOTAL SAMPLE</b>		<b>156</b>		<b>44,9%</b>	

Table 6 - Analysis of Means of collaborative tools relation with % women enrolled

In this analysis also for none of the tools a significant conclusion can be made as there is no statistical significance with the number of women enrolled. However, it is important to notice that from all five tools there are relatively more women enrolled in programmes with Online Labs.

As such, considering the results for both women and applicants as an all, there are no sufficient evidences to support or discard hypothesis H1c, leading to the potential insignificance of the hypothesis. This may be reinforced by the fact COLPROMO is not statistically significant for women but is for all applicants.

#### e. H2a: International students enablers and barriers

Finally, and regarding the presence of international students, H2a focus on the respective enablers and barriers from OE programmes regarding this specific student population:

- Firstly, the same flexibility and inflexibility structural factors mentioned previously in the H1a testing were considered (SAMESTRUCT and INFLEXSTRUCT)
- International student financial aid (INTAID), a specific factor which has the potential to leverage the presence of international students enrollment, was accounted (*coded 1 if financial aid to these students is given, coded 0 if not*).

In order to strengthen the results of this previous analysis, a control excluded the programmes not allowing students to live abroad as they are doing their OE course:

	ALL APPLICANTS (n=127)	% INTER. STUDENTS (n=100)
SAMESTRUCT	0,0675	0,2176**
INFLEXSTRUCT	-0,2766***	-0,1762*

Table 7 - Flexibility measures Spearman correlation with all applicants and % international students enrolled

In regards of offering the same structural conditions both online and on-campus, this is a positive correlated and statistically significant factor for the percentage of international students enrolled, and is the exact opposite conclusion from the one for H1a (there are less women enrolled in programmes offering more SAMESTRUCT). At the same time, inflexible structure tends to have a negative impact for both all applicants and international students, yielding the same findings of H1a.

In an individually detailed analysis, of which of the above structural factors are more significantly important, as well as regarding the importance of providing financial aid to these students, an analysis of means was done below.

FACTOR	OFFERS AID?	n	LDL	GROUP MEAN	UDL
INTAID	Yes	51	5,4%	6,8%	7,5%
	No	10	1,3%	4,7%	11,6%
TOTAL SAMPLE		61		6,4%	

Table 8 - Analysis of Means of financial aid relation with % international students enrolled

### STRUCTURAL SIMILARITIES BETWEEN ONLINE AND TRADITIONAL PROGRAMMES OF HYBRID UNIVERSITIES

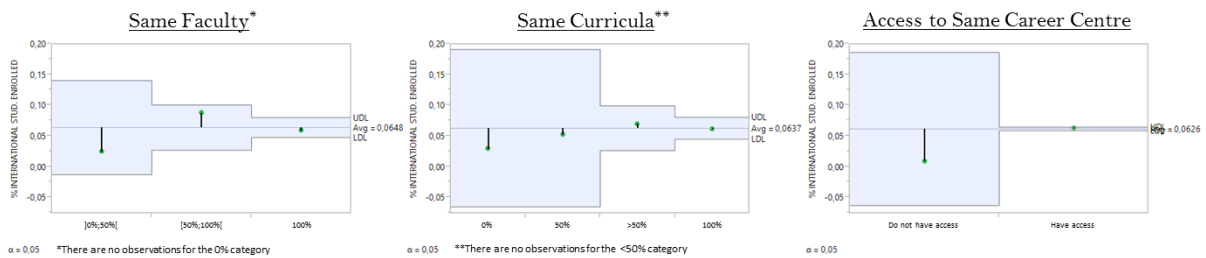


Figure 7 - Analysis of Means of programmes' structure similarity relation with % international students enrolled

FACTOR	MANDATORY?	<i>n</i>	LDL	GROUP MEAN	UDL
OCEXAMS	<i>Yes</i>	10	5,4%	5,6%	6,5%
	<i>No</i>	90	0,1%	6,0%	11,1%
OCSTUD	<i>Yes</i>	33	3,5%	5,6%	8,9%
	<i>No</i>	67	5,0%	6,5%	7,4%
OCORIENT	<i>Yes</i>	21	2,6%	4,9%	9,3%
	<i>No</i>	79	5,1%	6,3%	6,8%
OCGROUPS	<i>Yes</i>	10	5,4%	5,9%	6,5%
	<i>No</i>	90	0,8%	6,1%	11,1%
<b>TOTAL SAMPLE</b>		<b>100</b>		<b>6,0%</b>	

Table 9 - Analysis of Means of programmes' inflexible structures relation with % international students enrolled

From these, it is important to note that, although not being statistically significant programmes not offering financial aid to international students tend to have less students of this type enrolled, and vice-versa. All of these conclusions support hypothesis 2a.

## VI. DISCUSSION OF THE RESULTS

Taking into account the conclusions from the results above it is now important to understand their implications in the following of what has been reviewed in the literature.

Firstly, it has been shown in the statistical descriptive analysis as well as in H1 testing that online programmes tend to have more women enrolled, as opposed to more traditional ones, which is consistent with the literature findings.

Considering the social, cultural and economic specific constraints and context women face, OE programmes offer this important student segment the capacity to seek their most desired education (cf. section 3ii). Thus, they present, *a priori*, some characteristics (Volery & Lord, 2000), which enable women to break from some of the constraints they are faced with in the traditional programmes (Kirkup & von Prummer, 1990; Kramarae, 2001), which are built upon a male-perspective (Gunn, et al., 2003; Schofer & Meyer, 2005). This is even more pronounced in an adult higher education reality such as MBA courses (Jacobs, 1996; Kelan & Jones, 2010), as adult working students are more faced with these growing pressures, such as balancing the family-work-study lifestyle (Kramarae, 2001). Additionally, it is worth notice that these differences, by being statistical significant, constitute an important sign that women are interested in getting more education (such as MBA's in this case), but are clearly preferring online programmes because traditional ones are not being effective in addressing their specific needs.

Further on, it was tried to understand in which ways OE was leveraging women enrolments. Although due to the novelty of the thesis it was not found which *a priori* decision variables women consider when choosing between a traditional and online educational programme, the three most significant factors found in the literature review were analysed.

When revising the literature, it was concluded that nowadays women still face significant stains in juggling every aspect of their life (cf. section 3ii-b). This points out to the potential importance of flexibility and breakage of time/space/platform barriers, as a significant factor for choosing OE programmes, as seen in Kramarae (2001) and Gunn et al. (2003). The results tend to indicate this direction because programmes offering more flexibility tools tend to have more percentage of women enrolled. Also interesting is that from these specific flexibility tools the existence of mobile applications for smartphones and tablets are the most important ones, in programmes where women are usually more

enrolled. This might be explained because, as seen in Wang et al. (2009), the new technological mobile developments, which are breaking the anyway/platform barriers, are more positively considered by women.

Regarding the fact the same structure is offered in both online and traditional programmes, this is negatively and statistically significantly perceived by women. As such, this is a result of a potential *a priori* assessment that a replication of the same structure (and content) from the *offline* to the *online* does not take into account the necessary adaptations. Specifically these are statistically significant in the case of being the same faculty, as these latter are usually responsible in defining group works and exams, which might have to be taken place on-campus, and might not even be used to teach in an online environment. Also, this is strongly important because, as seen, the *offline* system is built-upon a historically male perspective (Gunn, et al., 2003; Schofer & Meyer, 2005; Kelan & Jones, 2010) and, if not carefully adapted, the online world can easily carry over the *offline* socio-cultural differences (Kramarae, 2001; Wilson, et al., 2007; Venkatesh, et al., 2014). As so, women may clearly value more online programmes which distance themselves from their on-campus counterparts.

Finally, it is important to refer that on-campus requirements are negatively and significantly perceived by all applicants and women as well, thus reinforcing the importance, for students, of breaking the time/space barriers usually associated to traditional programmes. This means OE courses, and in this case offered by hybrid universities, should embrace the flexibility the online brings without creating unnecessary barriers like on-campus requirements. In the concrete case of women, programmes that do not require on-campus presence for group works are positively perceived, possibly because these are seen as highly time-consuming activities (Kramarae, 2001).

As such, flexibility definitely plays a significant role in the reason OE offering is successful, for students as an all, but particularly for women, who are being enabled to get education without the barriers they are faced with in the more traditional programmes.

The second factor pointed out when revising the literature was the one related to the online specificity of women being historically less at ease with technology vis-à-vis men (cf. section 3ii-c). Interestingly is the fact that programmes offering having more tech staff have less women enrolled. Also noteworthy is the fact that, in contrast, these programmes tend to have more applicants than the ones which have less technical support (including in this case a contact centre opened more hours). Though one might think, at a first glance, this means

women do not prefer having the right technical assistance in a learning environment (Venkatesh, et al., 2014), that is not necessarily the case. Yes, it is true that the initial gender disparities (Kirkup & von Prummer, 1990), regarding technological usage and literacy are dissipating and, at some extent, almost disappeared with the increasingly usage of ICT in our lives (Gunn, et al., 2003). But, as already stated, the key issue with technology and women is to convey the perceived usefulness of using a particular technology, as seen with the TAM model and its specificities in the case of women (Arbaugh, 2000; Venkatesh, et al., 2014). The results point out that programmes having more tech staff have less women enrolled in a statistically significant way, and this might be the case of an *a priori* assessment by women that the ones with more tech staff have more complex platforms which simply require more assistance, thus meaning more precious time and effort is consumed in less relevant aspects of the programme. Although this conclusion reinforces the importance of further exploring this study with primary data collection from the students themselves, in order to significantly understand the importance of each decision variable when choosing an online programme, there is an indication in this direction. As seen, one of the reasons women might be choosing OE is the flexibility it brings, as it allows saving time and effort for other aspects of life, but if they need to spend more time with technical problems in an OE platform than these benefits are simply being lost. Thus, in the case of women, it tends to be more important to have a user-friendly and intuitive platform, which requires the minimal time spent with technical assistance, than to offer a wide technical support.

Finally, in the case of women, it was considered their preference for a social learning environment, based in interactivity and collaboration between students and faculty (cf. section 3ii-d). The results point out that the majority of the collaboration and interactivity measures accounted were not statistically significant, for the case of women. Only programmes in which there is higher teacher-student interactivity, feedback-wise, have more women enrolled in a statistically significant way. This latter result is consistent with women's preference for more collaborative environments (Carol, 1982; Belenky, et al., 1986). Also, programmes requiring and promoting more collaboration in their courses tend to have fewer applicants in a statistically significant way. Yet, for women this is not statistically significant. The fact that the majority of the factors are not statistically significant for women is a potential conclusion of the higher importance other aspects might have for women when choosing an online programme such, as seen, the flexibility it brings as well as the platform's easiness of use. Also, technological developments have been enabling much more reach and richness in online social interactivity (Benson, et al., 2009), as the desired

social connectedness may be achieved outside the “walls” of an online platform (Arbaugh, 2000; Venkatesh, et al., 2014; Benson, et al., 2009). Nevertheless, a relevant limitation in this study might be the biased results from adult learners whose socio-cognitive development has already been concluded (Carol, 1982), subsequently being more concerned with other aspects of their lives, and might even seeing collaboration as a negative aspect due to its time consumption (Kramarae, 2001). This latter is consistent with the fact on-campus group works are less considered by women than any other on-campus requirement.

Regarding the international students’ cohort (cf. section 3iii), it is quite outstanding to realize there are statistically significant more international students enrolled in Pure Traditional programmes and fewer statistically significant international students enrolled in Hybrid ones. Mostly, this is a potential result of structural barriers created by Hybrid universities, such as on-campus requirements. As such, if an international student has to overcome physical and monetary barriers to go to another country (Knight, 2006), for a specific on-campus presence, this might increase the starting tuition costs in a way they might value more to enrol in a full-time traditional programme and, as such, benefit from a complete international experience. The importance of full-time is greatly leveraged by the fact that part-time traditional programmes are the only ones with statistically significant less international students enrolled, precisely because they are less concentrated and more time-lengthy (U.S. News & World Report, 2014). In the more detailed overview of the impact of OE programmes’ structures in international students, these latter, like women, tend to negatively consider the presence of on-campus requirements. It is even consistent to see that, the less considered factor for these students are on-campus orientations, usually a one-time event that would make them spend money to travel for a very short presence. Also, it is important to see that, although programmes not offering financial aid to these students have less enrolled, these aids are not statistically significant potentially denoting an insufficient support in such relevant aspect for them to overcome (Altbach & Knight, 2007). This idea is greatly leveraged by the findings that international students seem to value online programmes with the same structure as their offline counterparts, potentially denoting the importance of the faculty prestige and access to the same career centre for a better work outcome in the end of the programme (Knight, 2006). Thus OE programmes have to leverage on the support given to international students in order to increase their enrolments, as this might be a missed opportunity for HE institutions big desire for internationalization.



## **Research's Limitations**

First, it is important to reaffirm, that this study only focuses on MBA students, which although being “*a useful microcosm*” (Terwiesch & Ulrich, 2014), is still a very specific part of the overall global educational system. Consequently, a more comprehensive research embracing other areas of study would be important to further understand these dynamics.

Secondly, the study centres only in the USA's reality, which is also a limitation considering the global context discussed. However, as mentioned, this focus is an important way to control for grounding differences in different education systems and the USA represent a significant educational market player for which reasonably complete data is available.

Finally, although time and effort consuming, it would be worthy to potentially collect primary data instead of using data from a third-party source, not only to further strengthen the results, as well as to find new factors explaining the phenomena why there are more women and less international students enrolled in online programmes versus traditional ones. This would also potentially allow to better understand the *a priori* decision determinants of these cohorts in choosing (or not) an OE programme.

## VII. CONCLUSION

The thesis developed has brought a novel perspective in analysing online educational programmes versus traditional ones and has given important conclusions worth considered by educational providers.

As explored through this research, the current traditional educational business model has not been quite able to answer to some of the current strains the educational system is being put through. OE, as seen, has a set of important characteristics that might turn it into an answer to such pressures and to the increasing demand from segments such as adult learning women and international students. However, this is only possible if OE programmes are able to leverage on the potential benefits they bring and as long educational providers do not create unnecessary barriers that are not in line with OE's purposes.

In the case of women, the current online programmes seem to be already answering to some of this segment's concerns, potentially through the flexibility it brings and increasingly more easy to use online platforms. Universities have then to continue leverage on the OE enablers and barriers breakers in order to fully leverage this segment's potential and should avoid any unnecessary constraints that are impeaching such barrier breakers.

Regarding the highly significant global market, in which HE institutions are actively procuring a greater presence, education has seen an important uprising with its international universalization trend. However, as seen, at least in the specific but relevant case of USA's MBA programmes, international students are not being captured by their online counterparts. Yet, theoretically speaking, OE programmes have all the natural characteristics to do so, and do not require a university to endure in any physical movement. At the same time, is interesting to see is that MOOC's, despite the limited data, are already attracting a global audience<sup>7</sup>, as they are potentially better leveraging the online capabilities in supporting these students, like providing free content. Thus, MOOC's might be an interesting way for HE providers to start addressing the global demand of education as they are able to reach to an audience thirsty for more education but that does not necessarily has the full capacity to overcome physical or monetary barriers for a full international experience or even for a more "traditional" OE programme.

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<sup>7</sup> As seen for example in *Coursera's* Alexa profile, in which 29,6% of its website's visitors come from Brazil, Russia, India and China (Alexa, 2014).

And actually, this is not a conclusion that leverages the preconceived idea that MOOC's are for the "*left behind*" (Palin, 2014). What such a strategy means is that MOOC's are actually for those who do not want to be left behind. As so universities, by being in the forefront of HE innovation are themselves creating a brand and, more importantly, a market presence in the global arena, without having to build brick-and-mortar campuses in each corner of the world. They are reaching a huge underserved student population that still does not have the financial capabilities to pay for a full HE experience, at least according to the developed world standings. However, by providing them with the right basis and skills through platforms like MOOC's, universities may be creating a new student population, with increasingly more assets and access to better jobs, that potentially in the future would be interested to enrol in adult learning courses and pay for it. Moreover, if later on in their lives, these students were satisfied with a course they have taken in a MOOC, they might enrol in the university that delivered such course. And, as seen recently, adult and executive courses are increasingly important for business schools, and HE as an all.

To sum up, the educational business model needs to clearly adapt to the current times. What this study suggests is that OE has been an opportunity to break the current model from some of its existent barriers and has enabled to, for example, grasp the significant women segment. And, although new technologies, like MOOC's, will not necessarily mean the exact pivoting of the current educational business model, they encase new opportunities to reach even further and into wider and more global audiences. Once and for all the current HE providers need to understand if they want to be on top of the opportunities these innovations bring or be the ones left behind.

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