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What Are the Individual Characteristics of the Learners Enrolled in the MOOC?

ABSTRACT

In this contribution, we investigate the personal and professional characteristics as well as the motives for entering training of learners enrolled in a MOOC. As discussed by Li et al. (2015), it is relevant to describe learners' individual characteristics as they may modulate their behavior. Therefore, we describe and compare the individual characteristics of these two types of learners and their similarities and differences. As a reminder, the term enrolled refers to students (N = 357) enrolled at the beginning of their studies at the Faculty of Psychology and Educational Sciences (FPSE) for whom participation in the MOOC is compulsory and part of their learning program, while spontaneous learners are learners who are free to enroll in the MOOC. The latter are the most numerous (N = 2,175) and therefore theoretically enroll in the MOOC by personal choice.

Keywords: MOOC, professional characteristics, personal characteristics, reasons for entering training.

Conceptual framework

Definition and characteristics of MOOCs

Cisel (2013a), Charlier (2014) and Kennedy (2014) consider MOOCs, or Massive Open Online Courses, to be online courses that are generally free to access and intended for large numbers of learners. According to Depover et al. (2017), the term "MOOC" is inspired by the acronym MMORPG (Massively Multiplayer Online Role-Playing Games), which refers to online role-playing games in which a multitude of players interact simultaneously in a virtual uni-

verse. However, the parallelism stops at the dimension of "massiveness" because MMORPGs, unlike MOOCs, are generally paid for and are products intended more for entertainment (video games) without any real learning ambition. MOOCs, however, aim precisely to encourage learning by as many people as possible. MOOCs are courses, often attached to a university, but not necessarily. They can take different formats – which we present below – and can be consulted entirely online in return for user registration. The notion of massiveness of MOOCs stems from the fact that these learning devices are intended for large numbers of participants. We agree with Cisel (2016b), who explains that "the term Massive, for Massive, has the defect of imposing an element of arbitrariness" (Cisel, 2016b, p. 49). Indeed, the analysis of the literature has shown us that the number of registrants differs from one MOOC to another. Some MOOCs bring together a few hundred learners, while others have several thousand registrants. The term "massive" can therefore be problematic, probably because of the lack of a standard characterizing the massiveness of MOOCs. Although somewhat arbitrary, such a standard would allow courses to be ranked against each other. Another problem concerning the characterization of massiveness concerns the moment of accounting of learners participating in the MOOC (entry vs. exit). Indeed, for Cisel (2016b), it is not possible to anticipate the number of learners who will enroll in a MOOC. In the interests of rigor, he advocates "talking about MOOCs only at the end of the course, when it has proven its ability to attract a large audience" (Cisel, 2016b, p. 49).

As Depover et al. (2017) explain, one of the characteristics of MOOCs is that they are scalable: pedagogically, they are designed to allow for gradual scaling. They point out that this scalability implies several constraints, in terms of organization, costs and pedagogical approaches. From an organizational point of view, it is necessary to use a hosting platform capable of accommodating many learners who can interact simultaneously. This type of platform generally has a high cost linked to the cost of hosting servers, maintenance, hiring qualified staff to provide technical support, etc. From a pedagogical point of view, designers must anticipate massification by proposing appropriate supervision, opting for tasks that can be carried out by large cohorts (self-correcting questionnaires, peer evaluation, etc.). The evolving character of the massification of MOOCs goes hand in hand with a principle of openness: "if we want to respect the principle of openness that characterizes MOOCs, we must be able to cope with an influx of candidates that was not necessarily anticipated" (Depover et al., 2017, p. 10). The notion of openness can have several meanings depending on the perspective adopted (Cisel, 2016b; Depover et al. 2017).

Openness refers first of all to the fact that MOOCs are generally free (to register). Cisel (2016b) explains that, in some cases, the notion of openness is not necessarily linked to that of Open Educational Resource "insofar as most of the content disseminated in MOOCs is under a proprietary license, with the exception of the MOOCs on the FUN platform" (p. 50). Indeed, as argued by Yeager et al. (2013 cited by Julien & Gosselin, 2016), some MOOCs ask their learners to sign a non-reuse, non-modification, or even non-redistribution agreement of the course content. The notion of free access is not universal and does not apply to all MOOCs. Some are accompanied by a range of paid services to which learners have to subscribe in order to benefit from (personalized) coaching, access to additional content or to be able to take an assessment allowing them to access a certification (Julien & Gosselin, 2016; Depover et al. 2017). The "open" character of MOOCs is also linked to the fact that they do not always require any prerequisites (diploma, experience, etc.) on the part of the learner who wishes to enroll, apart from mastery of the language – which is not systematically checked beforehand – in which the MOOC is designed (Roy et al., 2016; Depover et al., 201+7) and compliance with the timetable of the programmer's organization (Cisel, 2016b). Furthermore, within this "mass" of learners, Roy et al. (2015) point out that sometimes some registered users have no experience of distance learning.

The "online" nature of the MOOC refers to the fact that the course is hosted on an online platform although, as we have seen, some developers offer participants hybrid learning arrangements in which face-to-face learning can also have a place. Face-to-face learning can take different forms: teacher-developers traveling around the world to meet their learners, the setting up of coworking spaces (Cisel, 2013b), face-to-face coaching, or even the taking of certification tests (Depover et al., 2017).

Regarding the notion of "course", Depover et al. (2017) point out that the MOOC differs from "classic" online courses offered in a web-based distance learning context by its open and massive character. These authors, citing Depover and Orivel (2012), insist that MOOCs are not just a collection of online resources such as those offered by "French digital thematic universities whose ambition is limited to sharing course materials in digital format that can be made available to students" (Depover et al., 2017, p. 10). For Hennequin (2014), MOOCs are structured more like lecture theatre courses and involve several pedagogical actors (teachers, assistants, etc.) who evolve together and exchange with learners. The MOOC is an online course designed to enable the acquisition of knowledge and the development of skills. Following this logic, Cisel (2016a)

explains that a device (e.g. an online resource) offering only static resources cannot be called a MOOC. MOOCs are based on a pedagogical scenario designed by their creators. This scenario generally proposes learning activities in which a learner is "active" and has the possibility of interacting, on the one hand, with tools with cognitive potential, such as video-pedagogical capsules or exercises – generally self-correcting, given the possible "massive" number of learners – and, on the other hand, with other individuals by exchanging, for example, with tutors or peers. Furthermore, Cisel (2016b) states that it is the temporality that makes the difference between a space containing resources and a MOOC. Indeed, the latter offers learners activities (evaluated or not) delimited in time; it therefore has a beginning and an end. The beginning corresponds to the start of the learning activities and the end corresponds to the limit of their completion (when these activities are assessed). Now that the main characteristics of MOOCs have been established, it seems interesting to us to look at the audience that participates in these distance learning devices.

MOOC learners: what characteristics?

In this section, we will look at the individual and motivational characteristics of learners who enroll in MOOCs. We will try to identify the learners (geographical distribution, level of education, socio-professional sector, etc.) who enroll in MOOCs, and we will try to define the reasons why they enroll on the basis of empirical data from the techno-pedagogical literature.

Study by Breslow, Pritchard, DeBoer, Stump, Ho & Seaton (2013)

Breslow et al. (2013) analyzed the Circuits and Electronics MOOC offered on the edX platform by MIT and Harvard University in March 2012. This MOOC, the first to be conducted in a consortium between these two American universities, offered a variety of resources, including video lectures, interactive exercises, online labs and a discussion forum. The 155,000 students enrolled came from 194 countries around the world. The majority spoke English (67%) or Spanish (16%). At the end of the learning process, 7,161 students responded to the survey sent to them. Of the 1,100 students asked about their age, most said they were between 20 and 30 years old. Breslow et al (2013) estimate that 88% of the learners surveyed were male, 37% of the learners had an undergraduate degree compared to 28% with a master's or vocational degree and 27% with a secondary school diploma. Of the total number of registered learners, 7,100 (or 4.58%) obtained their certification.

Study by Christensen, Steinmetz, Alcorn, Bennett, Woods and Emanuel (2013)
Christensen et al. (2013) also looked at the profiles of learners enrolled in MOOCs. Their study of 32 MOOCs hosted on Coursera revealed several characteristics of the learners (N = 34,000). 83% of the enrollees had a higher education degree (bachelor or master). Of the learners, 40% were under 30 years old, 50% were between 30 and 60 years old and 10% were over 60 years old. The analysis indicates that 70% of the learners were professionally employed, 17% had student status, 7% were unemployed and 6% were retired.

MOOCs@Edinburgh group study (2013)
The MOOCs@Edinburgh group (2013) analyzed data collected from 6 MOOCs offered by the University of Edinburgh. Their research found that of all registered users (N = 309,628), approximately 39.9% logged on to the MOOCs in the first week, 53.3% completed the activities and 11.7% participated in the certificate assessment. Prior to the closure of registration, a survey was sent to 217,512 learners; 21% of registrants responded. Respondents came from 203 countries, the majority from the USA (28%) and the UK (11%). The survey shows that 33% of users were between 25 and 34 years old. The MOOCs@Edinburgh group (2013) found that 75% of registered users were having their first MOOC experience and 53% had only participated in one other MOOC. Over 70% of respondents claimed to have a university degree and 40% claimed to have a PhD. At the end of the MOOC, a second survey was launched; 4.96% of the registrants responded. The survey conducted shows that 98% of these respondents "felt they had got what they wanted from the course(s)" (MOOCs@Edinburgh, 2013, p. 2), stating that the duration, pace and level of the MOOC was relatively good and that they had spent an average of 2–4 hours per week on this distance learning facility.

Gillani & Eynon's study (2014)
Gellani and Eynon (2014) analyzed a MOOC developed by the University of Virginia and hosted on the US platform Coursera in 2013. This MOOC aimed to learn about business-related issues. The course, which attracted more than 87,000 registrants, was designed to be interactive with extensive use of forums and numerous videos illustrating case studies. Learners could complete a peer-reviewed project. They were asked to complete a survey at the beginning and end of the MOOC to gather information about their professional and educational background and motivations. Approximately 9% of registrants completed the first survey, compared to 1.15% for the second. The researchers refer to Arm-

strong and Overton (1977) and Couper (2000) to explain this low response rate and mention the possible existence of a response bias insofar as learners who have completed a course will not necessarily reconnect to the platform and, by extension, will not answer the questionnaire. This may seem paradoxical for a solution based on digital communication, but it should be noted that it is not always possible to contact learners directly by email, as MOOC managers often do not have access to contact details for reasons of user data protection. Communication between the two parties is sometimes exclusively via the platform hosting the MOOC. As regards the learners enrolled in the MOOC, the study showed that the majority were young adults aged 25 to 34 (39.9%), already holding a first (42.1%) or second cycle degree (36.3%), mostly professionally active and participating in the MOOC to refine their professional skills.

Study by Bar-Hen, Javaux & Villa-Vialaneix (2015)

Bar-Hen et al. (2015) focused on the MOOC Fundamentals in Statistics hosted on the French platform FUN. This online course, developed by the University of Paris Sorbonne in 2014, welcomed 7,997 learners, who benefited from different resources such as forums, videos or quizzes. A self-assessment questionnaire offered to registrants (N = 6,918 respondents) revealed that most learners were male (68%) and that about three quarters of participants who provided their location data lived in France. The remaining learners were mostly from Francophone Africa. The average age of the participants, close to 36 years, indicates a low level of interest on the part of students enrolled in initial training. On the other hand, the study reveals a massive presence of learners with a Master's degree (48.51%). The other participants have an undergraduate degree (14%), a doctorate (13.5%) or a bachelor's degree (7%). This indicates a desire on the part of learners to deepen or complete their knowledge in a philosophy of "enrichment" and continuing education, since the type of teaching provided in this online course (statistical databases) is generally provided in the first cycle of the university curriculum in France. Finally, out of all the registered learners, 251 (3.14%) have completed all the activities proposed in the MOOC.

Study by Mariais, Bayle, Comte, Hasenfratz & Rey (2017)

Mariais et al. (2017) analyzed six MOOCs offered by Inria. According to them, the success of a MOOC can be conditioned by the content it addresses. Regarding the target audience of these MOOCs, Mariais et al. (2017) found that more than 57% of the participants had a university degree (master, engineer, PhD). Research MOOCs, according to their typology, theoretically intended for

participants with a master's degree, have a significantly higher proportion of participants with a short higher education degree. Between 40 and 50% of participants are employed. For these authors, the content offered in a MOOC influences the type of participants. For example, the MOOC on algorithms attracted many teachers (15%), while the MOOC on advanced computer science attracted mainly engineers (41%).

Why enrol in a MOOC?

In this section, we describe different arguments that may lead learners to enroll in a MOOC. We highlight the desire to enroll in these online education and training systems for personal or professional development purposes, or because of their convenience and accessibility to all.

For personal and/or professional development

Several factors can motivate learners to enro.l in a MOOC: impulse, desire to show the community their commitment to a training process, prestige of the institution hosting the MOOC (Bruillard, 2014), acquisition of personal or professional skills, employment or advancement opportunities (Breslow et al., 2013), curiosity, enjoyment of learning, increase in the chances of succeeding in obtaining a degree (Mariais et al., 2017), etc. Engagement in a MOOC would come from motivation which is itself intrinsically linked to performance (Karsenti & Bugmann, 2016), even if the latter does not explain learners' participation. In other words, the success of the activities proposed in the MOOC would encourage learners to persevere.

A survey by Belanger and Thornton (2013) reveals several categories of learner motivation (N > 10,000) to enroll in a MOOC: geographical location resulting in distance from higher education institutions, inability to study, interest in the (online) teaching method, desire for professional development, desire to learn more, etc. These authors propose four main categories of motivation that can explain why learners enroll in this type of e-learning device: continuing education and learning new things, enjoyment of the learning experience, convenience of the learning experience and experimentation with this type of e-learning. Gillani and Eynon (2014) also asked learners (N = 1,964) about their motivations for enrolling in a MOOC. They report that the majority (93%) of learners enroll for professional development. The rest enroll for the pleasure of learning (6%), because the MOOC is a way for them to access knowledge (1%) or because the course is offered by a famous university (<1%).

Breslow et al (2013) also analyzed the motivation of learners (N = 1,173) to enroll in a MOOC-type distance learning process. For 55.4% of the learners surveyed, enrolment in the MOOC was linked to the desire to acquire new knowledge in the field concerned. Just over a quarter, 25.5% to be exact, took up the MOOC as a personal challenge and 8.8% said they enrolled in the course to benefit from possible job opportunities or advancement. It is worth noting that Breslow et al. (2013) found that there was no correlation between learners' motivation to enroll in a MOOC and course completion.

In their research, Mariais et al. (2017) suggested that the main form of motivation driving learners to enroll in MOOCs would be intrinsic in nature. Between 64% and 77% of registrants would claim to take the MOOC for the pleasure of learning or to satisfy personal needs. The second most important motivation for learners (between 36% and 51%) would be to increase their professional opportunities. Indeed, according to Cisel (2013b), the majority of learners enrolled in MOOCs are no longer students, but workers who, for organizational reasons, do not necessarily have the time to undertake traditional training. This learning craze could be very positive for participants as it reaches thousands of people from all over the world with different backgrounds and life experiences (personal and professional).

Reasons for entering a MOOC

Cisel (2016b) looked at the reasons for entering training, documented by Carré (2001), of learners (N = 6,222) registered in 11 MOOCs. It is important to distinguish between motivation and reasons for entering training. As Cisel (2016b) points out, unlike motivation, reasons for entering training are the only observable elements. They correspond to the explanation given directly by the respondents and collected through a survey to justify their enrolment in a training course. This author specifies that these reasons for entering training should not be confused with motivation in the strict sense of the term, as there may be a discrepancy between the reason given by the respondent and the actual motivation for enrolling in training. We will define motivation in accordance with Cisel (2016b), who cites Vallerand and Thill (1993), as a construct representing "the internal and/or external forces producing the initiation, direction, intensity and persistence of a behavior" (Cisel, 2016b, p. 35). Carré (2001) distinguishes ten motives for entering training which are organized along two dimensions. The first corresponds to a continuum of self-determination and distinguishes between extrinsic and intrinsic motivations that may underlie entry into training. The second contrasts learning with participation: [it] divides the motivations

for engaging in training between those that aim at acquiring training content (knowledge, skills, attitudes), thus focusing on learning knowledge, and those that aim at participation, i.e. enrollment and/or attendance in training. (Carré, 2001). Vertongen et al. (2012, p. 4) add that this dimension "indicates whether the objective of the training is aimed at the acquisition of knowledge (learning) or rather at mere enrolment and/or attendance within a group (participation)".

Motives from intrinsic motivation

According to Deci and Ryan's (2000) theory of self-determination, intrinsic motivation motives correspond to the highest level of self-determination. Adam and Louche (2009) translate Deci and Ryan's (2000) idea that intrinsic motivation is based on the needs for competence and self-determination and that all factors related to these needs are relevant for the development of intrinsic motivation. In this sense, and more specifically in computer-supported collaborative learning environments, Temperman (2013) cites Rienties et al. (2009) to emphasize that learners motivated by mastery goals engage more in activity-focused exchanges. He also refers to De Lièvre et al. (2009), who found that a higher degree of intrinsic motivation leads learners to critically evaluate what their peers do or say in discussion forums. Table 1 shows the intrinsic motivations for engagement in training according to Carré (2001).

Table 1. Reasons for involvement in training of an intrinsic nature according to Carré (2001)

Epistemic motive	"Learning, acquiring knowledge, cultivating oneself, etc. are processes that find their justification (their "reinforcements") in themselves. Motivation here is linked to the content itself. We speak here of "personal taste" (...), curiosity, even passion for learning or knowledge" (Carré, 2001, p. 47).
Socio-affective motive	"It is about participating in training to benefit from social contacts. It is the social conditions in which the training takes place that count. (The training should offer opportunities for exchange with others)" (Carré, 2001, p. 47).
Hedonic motive	"It is about participating in training to benefit from social contacts. It is the social conditions in which the training takes place that count. (The training should offer opportunities for exchange with others)" (Carré, 2001, p. 47).

Source: Authors' own elaboration on the basis of Carré (2001).

The first of these three motives is more likely to concern learning-oriented individuals, while the other two are more likely to concern participation-oriented individuals.

Extrinsic motivation motives

So-called extrinsic motivations refer to goals outside the training. Deci and Ryan (1985) define extrinsic motivation as a phenomenon in which the learner engages in a behavior in order to generate a consequence external to the activity he/she is carrying out (reward, good result, congratulations, etc.) or to avoid negative consequences (feeling guilty, bad results, etc.). Table 2 presents the intrinsic motives for commitment to training according to Carré (2001).

Table 2. Intrinsic motives for commitment to training according to Carré (2001)

Professional reason for the operation	"It is a question here of acquiring competences (knowledge, aptitudes, attitudes), perceived as necessary to carry out specific activities in the field of work, in order to anticipate or adapt to technical changes, to discover or perfect practices, always with a precise performance objective" (Carré, 2001, p. 50).
Personal operational motive	"The personal operational motive is now about acquiring skills perceived as necessary for carrying out specific activities outside the field of work (leisure, family life, associative responsibilities, etc.), once again with a concrete and clearly identified goal of action" (Carré, 2001, p. 51).
The professional reason	"In this case, it is a question of acquiring the skills and/or symbolic recognition necessary to obtain a job, to keep it, to develop it or to transform it. The reason for engaging in training is here centred on a logic of professional orientation, career management or job search (before or alongside its economic, operational or identity-related characterisation)" (Carré, 2001, p. 52).
The economic reason	"The reasons for participation are here explicitly material: participation in a training action will bring economic benefits. These may be direct or indirect" (Carré, 2001, p. 48).
Prescribed reason	"In discrete forms (the pressure of social conformity, the 'advice' of a superior, the intervention of an influential person, etc.) or explicit forms (the constraint of enrolment, provided for by law), commitment to training results from the injunction of others, evoking the most extrinsic dimensions of motivation" (Carré, 2001, p. 49).
Derivative motive	"To acquire the competences (knowledge, skills, attitudes) and/or symbolic recognition necessary for a transformation (or preservation) of one's identity characteristics as such, from the point of view of professional, cultural, social or family identification, by maintaining or transforming one's social or family status, function, level of qualification, title, etc. This motive is therefore centered on the recognition of the environment and social image, apart from any economic motive. This motive is therefore centered on the recognition of the environment and the social image of the self, apart from any economic motive" (Carré, 2001, p. 51).

Identity motive	"To acquire the skills (knowledge, aptitudes, attitudes) and/or symbolic recognition necessary for a transformation (or preservation) of one's identity characteristics as such, from the point of view of professional, cultural, social or family identification, by maintaining or transforming one's social or family status, function, level of qualification, title, etc. This motive is therefore centered on the recognition of the environment and social image, apart from any economic motive. This motive is therefore centered on the recognition of the environment and the social image of the self, apart from any economic motive" (Carré, 2001, p. 51).

Source: Authors' own elaboration on the basis of Carré (2001).

Methodology

Context

The context of this study focuses on the study of the MOOC Educational innovation of which you are the hero... developed by UMONS. This MOOC was hosted on the FUN platform during the first quadrennium of the 2016–2017 academic year. It welcomed more than 8,265 learners. It can be described as a distance learning and teaching device, welcoming a heterogeneous public composed of learners that we describe as spontaneous or enrolled. The former were learners who were probably enrolled in the training scheme to acquire knowledge that could be reinvested in their professional lives. The latter were students enrolled in the beginning of the bachelor's degree in Psychological and Educational Sciences at the University of Mons (Faculty of Psychology and Educational Sciences), for whom participation in this device was credited in their university course.

The MOOC was conceived on the initiative of the General Pedagogy and Educational Media Department, under the academic responsibility of Professor Bruno De Lièvre – thesis director – and Associate Professor, Gaëtan Temperman, in association with the Cellule facultaire de pédagogie facultaire (CFPU), through the involvement of an assistant (Karim Boumazguida) – also a doctoral student. Our position is therefore that of a researcher-designer evaluating the educational system in the scripting and management of which he has participated.

Pedagogical scenario of the MOOC

In this sub-point, we present the way in which the MOOC was structured by describing the modules and the learning activities (lives, MCQs, capsules, etc.) relating to them. We explain the contents and objectives of the device and focus on each of its components (informative, formative and interactive) relating to the different research variables. It should be noted that for the reader's convenience, and in order not to be redundant, we do not develop the "technical" elements (educational capsules produced on Office Mix, in particular) similar to those presented in the pre-experimentation.

Hosting of the MOOC

The MOOC studied was launched on the France Université Numérique (FUN) hosting platform. Each chapter of the online course corresponds to a training module. To facilitate navigation, each chapter was structured in the same way: general information on the modules, instructions on the specific tasks to be performed and, finally, a link to the video clips hosted on the Office Mix platform. Several additional resources were also made available to learners (tutorials, syllabus, etc.). The platform includes a discussion forum allowing learners to exchange information asynchronously.

The teaching team had also set up a public Facebook group for learners, the "UMOOC" group. Each learner could post and exchange asynchronously with other registered users. Aware that some learners prefer to opt for forums because they appreciate the fact of being able to access information from the MOOC centrally (Alario-Hoyos et al., 2013) while others prefer social networks (Cisel, 2017) with which they are more familiar (Guillemet, 2014), we voluntarily opted for these two types of communication tools.

Description of the learning modules

The MOOC is subdivided into six thematic modules that allow learners to discover theoretical content through videos and then to assess their understanding through formative self-correction questionnaires. It had a double objective: to get learners to identify pedagogical principles (in the videos) and to articulate these principles to design a collaborative or individual synthesis illustrating their links and application. The objectives of the MOOC were communicated explicitly and transparently to the learners. Their transmission was also the result of a request from the FUN platform managers. Overall, the learning modules constituting the MOOC addressed 78 key concepts enabling students to acquire knowledge

in educational sciences. These concepts are mainly related to central themes considered by Hattie (2009) as making a difference in terms of learning (feedback, collaborative learning, didactic design of course materials, etc.). They were selected by the educational team because they were illustrative of the themes addressed in the different modules. The designers opted for these themes in order to offer active professionals and future practitioners pedagogical tools and principles whose effectiveness is proven in and validated by research. They have also taken care to propose, for each theme, concrete examples to enable learners to visualize the application of these principles in the field. It should be noted that the learners registered for the MOOC were able to benefit from the content for a period of two years. Pedagogical support was offered to learners for eight weeks. They were able to consult the different contents related to the different modules from week 1 (the first week or "week 0" being intended for contact) without following a logical order. Nevertheless, we provided learners with a schedule that allowed them to follow the modules in a chronological order. As in the pre-experimentation, each module was divided into an informative part (consultation of the capsules), a formative part (completion of the quizzes) and finally an interactive part (completion of an infographic and a conceptual map in group and with all the peers).

Research questions and variables

As part of this exploratory research, and in an attempt to understand who the learners are within the MOOC, we asked ourselves two research questions based on the three variables we have just described.

The first question is descriptive and relates to the characteristics of spontaneous and enrolled learners in the MOOC.

§ Question 1: What are the individual characteristics of learners enrolled in the distance learning MOOC?

This research question is subdivided into five sub-questions concerning the geographical origin, gender, age groups, level of education and finally the socio-professional sector of the learners. Then, we asked ourselves about the motives for entering the training course that led spontaneous and enrolled learners to register in the MOOC.

§ Question 2: What do learners say about their reasons for joining the MOOC?

On the basis of the questionnaire developed by Carré (2001), we looked at the intrinsic and extrinsic motivations driving spontaneous and enrolled learners to enroll in the MOOC. We analyzed the motives for entering the course in

relation to these dimensions on the one hand, and to participation and learning on the other.

We also asked learners about their previous experience with other MOOCs and how they had found out about the MOOC. This type of question may be useful for the sustainability of the system and the selection of communication channels for future sessions.

Analysis of the results of the first study

In this section, we present the different analyses carried out to answer our research questions.

In order to answer the questions, the sub-sample for our analyses consisted of subjects who met the following criteria:

- having completed the questionnaire on individual characteristics.

Question 1: What are the individual characteristics of the learners enrolled in the hybrid distance learning MOOC?

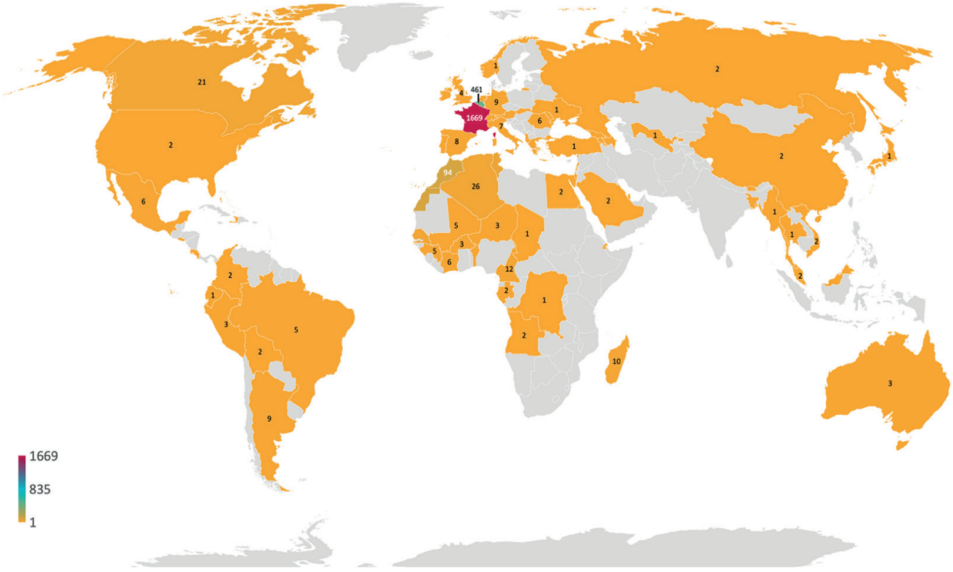

Figure 1. Geographical location of the learners registered in the MOOC

Source: Authors' own elaboration.

The sample considered consisted of 2,532 learners from 76 states around the world. The majority of learners registered for the MOOC (N = 1,669 or 65.92%) indicated that their geographical area is France. The second most represented location is Belgium (N = 461, or 18.21%). We note that the set of learners from neither France nor Belgium represents approximately 15.88% of our sample (N = 404).

Figure 1 also allows us to appreciate that learners came from all over the world. In addition to Western Europe, many other countries are represented. We note that the remaining learners are mostly from North Africa, mainly Morocco (N = 94 or 3.71%) or other French-speaking countries (Canada, Senegal, etc.).

We can see in Table 3 that the questionnaire was completed by 68.6% of women (N = 1736) and 31.4% of men (N = 796).

Table 3. Distribution of learners by gender

	Number	Proportion (%)
Men	796	31.44 %
Women	1,736	68.56 %
Total	**2,532**	**100.00 %**

Source: Authors' own elaboration.

Table 4 shows that, whatever the enrolment method, the majority of learners are women.

Table 4. Comparison of distributions of enrolled and spontaneous learners by gender

	Workforce	Men	Women	Totals
Enrolled	observed	**84** (23.53 %)	**273** (76.47 %)	**357**
	expected	112.23	244.77	
Spontaneous	observed	**712** (32.73 %)	**1,463** (67.26 %)	**2,175**
	expected	683.77	1491.23	
Totals		**796** (31.44 %)	**1,736** (68.56 %)	**2,532**
		$X^2 = 11.63$; $p < 0.001$		

Source: Authors' own elaboration.

Thus, among the enrolled participants we count 273 women (76.47%) and 84 men (23.53%), whereas the group of spontaneous participants is composed of 1,463 women (67.26%) and 712 men (31.44%).

Comparing these gender distributions of the two groups ($x2 = 11.63$; $p < 0.001$), however, we can conclude that they are significantly different and that the female representation in the enrolled group is statistically higher than in the spontaneous group (in which we observe slightly more male subjects than expected, unlike the enrolled group). We can perhaps see this as an effect of the very female composition of the FPSE student population that constitutes this first group.

From a descriptive point of view, Table 5 allows us to observe that the average age of all learners combined (N = 2,526) is 39.68 years. Enrolled subjects had an average age of 22.94 years, while spontaneous subjects had an average age of 42.44 years.

Table 5. Descriptive statistics on the age of learners (in years)

	M	SD	**Min.**	**Max.**
Enrolled **(N = 357)**	22.94	7.72	18	61
Spontaneous **(N = 2,169)**	42.44	9.91	19	78
Learners **(N = 2,526)**	**39.68**	**11.79**	**18**	**78**

Source: Authors' own elaboration.

In order to assess whether the subjects in our groups have significantly different mean ages, we applied the Mann-Whitney U test to compare our distributions. Indeed, the normality tests (Kolmogorov-Smirnov procedures, see Table 6) showed that neither of them followed a normal distribution (with $p = 0.000$ in both cases), ruling out the use of a parametric procedure.

Table 6. Normality tests of the age distributions of enrolled and spontaneous learners

	Statistics Kolmogorov-Smirnov	**P-value**
Enrolled **(N = 357)**	0.338	0.000
Spontaneous **(N = 2,169)**	0.041	0.000

Source: Authors' own elaboration.

The result of the Mann-Whitney test is detailed in the following table. It shows that the two groups of learners do have significantly different average ages (p = 0.000).

Table 7. Comparison of ages of enrolled and spontaneous learners

Workforce	Statistics Mann-Whitney U	Statistic of the standardized test	P-value
2,526	72,724.500	26.643	0.000

Source: Authors' own elaboration.

More specifically, we can therefore confirm that enrolled learners are statistically younger (22.94 years) than spontaneous enrollees (42.44 years). As shown in Figure 2, the MOOC is mostly attended by subjects between 35 and 44 years of age, for both sexes. Figure 3 shows that this trend is also true for spontaneous learners (N = 2,169).

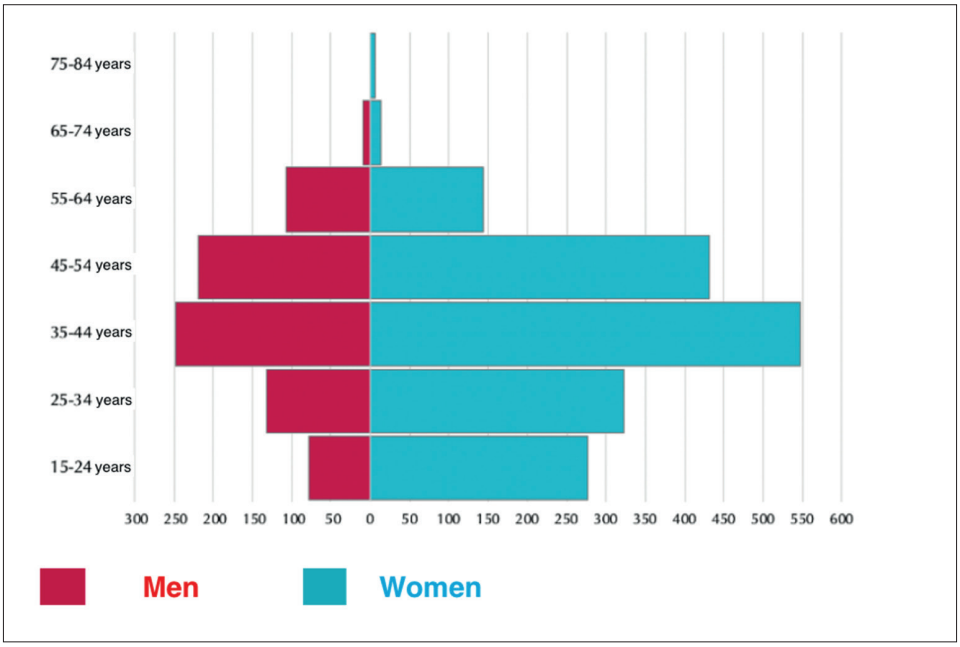

Figure 2. Age pyramid of registered MOOC learners (N = 2,526)

Source: Authors' own elaboration.

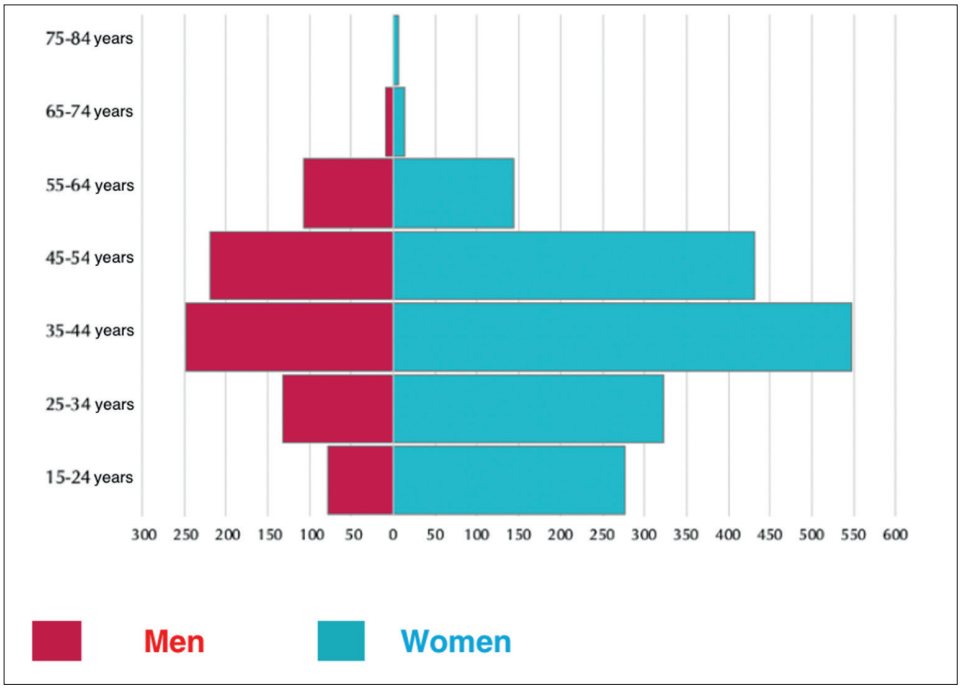

Figure 3. Age pyramid of spontaneous subjects enrolled in the MOOC (N = 2,169)
Source: Authors' own elaboration.

In contrast, we observe a rather different distribution among enrolled learners (see Figure 4). The majority of these learners are between 15 and 24 years old, again for both sexes.

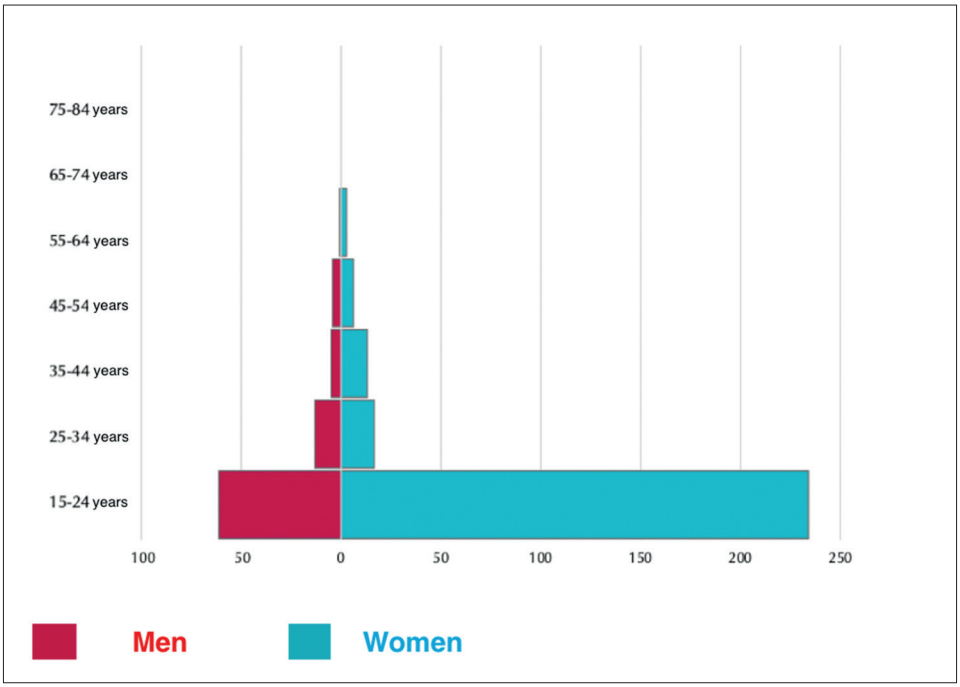

Figure 4. Age pyramid of enrolled subjects in the MOOC (N = 357)
Source: Authors' own elaboration.

What is the level of education of the learners enrolled in the MOOC?
We were also interested in the educational background of the learners enrolled in the MOOC.

From a descriptive point of view, it appears that the majority of respondents declared themselves to have a post-secondary degree (see Figure 5). We also observe that spontaneous learners are the most highly educated (see Figure 6).

The majority of these learners have a university degree of the long type (N = 1,267, i.e. 99.76% observed for 85.9% expected). In contrast, the enrollees generally had a secondary school diploma (N = 311, or 87.11%).

The secondary school diploma is the highest level of education attained by this type of learner (N = 312, or 73.07% observed for 15.44% expected) compared to spontaneous learners (N = 115, or 26.93% observed for 84.56% expected). It should be noted that enrolled learners had to have at least an upper secondary school diploma to access higher education. Given the characteristics of our sample, we have deliberately excluded outliers that could bias our statistical treatment. Therefore, we do not consider the categories "no diploma", "primary school diploma" and "doctorate" as they do not relate to enrolled learners.

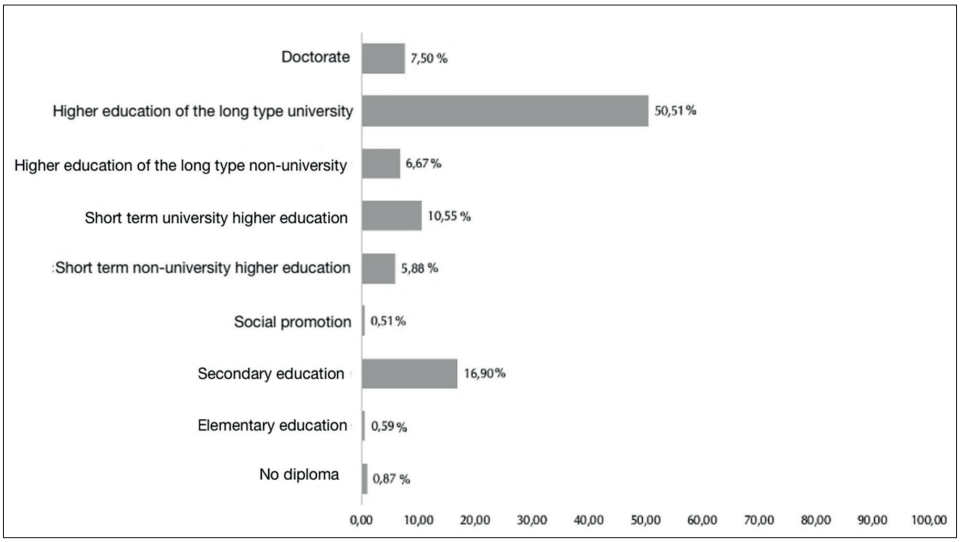

Figure 5. Educational background of MOOC registrants (N = 2,532)
Source: Authors' own elaboration.

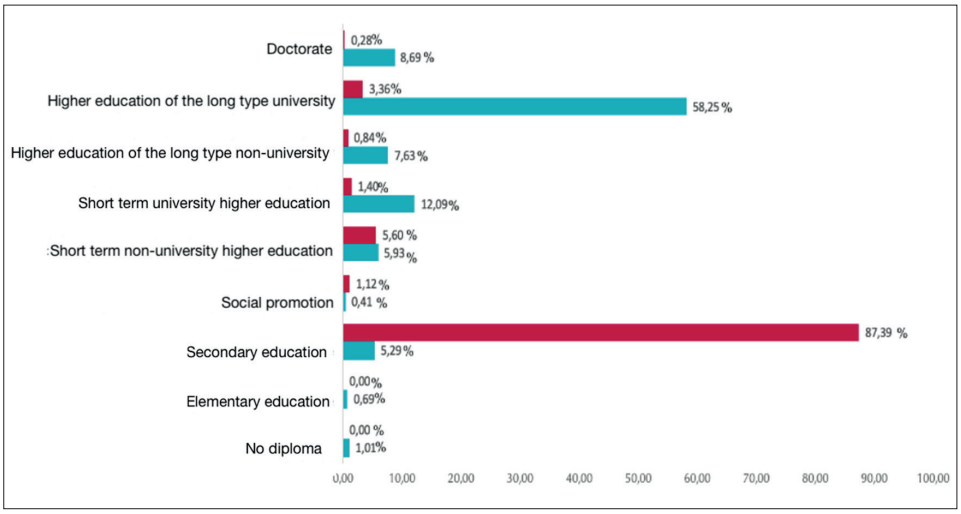

Figure 6. Educational level of spontaneous and enrolled learners
Source: Authors' own elaboration.

Using the x2 statistical test, we assessed whether the observed numbers were close to the expected theoretical numbers. The comparison of the distributions allows us to conclude that there is a significant difference between the two groups of participants in terms of educational level (Table 8: x2 = 1355.51; ddl = 1; p < 0.001).

Table 8. Comparison of educational levels of enrolled and spontaneous learners

	Workforce	Enrolled	Spontaneous	Totals
Secondary education	observed	**312** (73.07 %)	**115** (26.93 %)	**427**
	expected	65.79	360.20	
Social promotion	observed	**4** (30.77 %)	**9** (69.23 %)	**13**
	expected	2.00	10.99	
Short term non-university higher education	observed	**20** (13.42 %)	**129** (86.58 %)	**149**
	expected	23.01	125.99	
Long non-university higher education	observed	**5** (1.87 %)	**263** (98.13 %)	**268**
	expected	41.39	226.60	
Higher education of the long type non-university	observed	**13** (7.26 %)	**166** (92.74 %)	**179**
	expected	27.64	151.35	
Higher education of the long type university	observed	**3** (0.24 %)	**1,267** (99.76 %)	**1,270**
	expected	196.14	1,073.85	
	Totals	**357** (15.44 %)	**1,949** (84.56 %)	**2,306**
		χ2 = 1,355.51; p < 0.001		

Source: Authors' own elaboration.

In fact, it appears that "enrolled subjects" are significantly more likely than expected to have secondary education and social promotion diplomas (312 vs. 65.79 and 4 vs. 2.00 respectively). Conversely, spontaneous subjects are the most likely to have diplomas in the four categories of higher education (129 vs. 125.99; 263 vs. 226.60; 166 vs. 151.35 and 1,067 vs. 1,073.85 respectively).

Table 9 shows the distribution of learners in 18 different socio-professional sectors. These socio-economic sectors were modelled on the International Standard Industrial Classification of all economic activities proposed by the Organisation internationale du Travail – International Labor Organization (2005).

Table 9. Distribution of learners by socio-professional sector

Sectors	Descriptions	Sample size	%
1	Manufacturing activities	**31**	1.20
2	Mining and quarrying	**1**	0.00
3	Public administration	**100**	3.90
4	Agriculture, hunting and forestry	**13**	0,50
5	Other community, social and personal service activities	**159**	6.30
6	Wholesale and retail trade, repair	**22**	0.90
7	Construction	**11**	0.40
8	Education	**1,415**	55.90
9	Students	**402**	15.90
10	Hotels and restaurants	**13**	0.50
11	Real estate, business services	**45**	1.80
12	Financial intermediation	**13**	0.50
13	Private household employing domestic staff	**1**	0.00
14	Extra-territorial organizations and agencies	**6**	0.20
15	Production and distribution of electricity, gas and water	**13**	0.50
16	Retired	**13**	0.50
17	Unemployed	**103**	4.10
18	Health and social work	**171**	6.80

Source: Authors' own elaboration.

We asked learners the following question: "How long have you been employed?". On average, the participants who answered this question (N = 1998) had been professionally employed for 17.06 years (see Table 10).

Table 10. Descriptive statistics on the duration of employment of learners (in years)

	M	SD	Min.	Max.
Enrolled	1.61	5.23	0	34
Spontaneous	17.21	9.49	0	48
Learners	17.06	9.53	0	48

Source: Authors' own elaboration.

Descriptively, we observe that spontaneous learners had been professionally employed for a longer period of time than enrollees.

This observation stems from the fact that, as explained earlier, although some enrolled learners were already professionally inserted, the majority of subjects were just starting their life as students.

Undoubtedly, the socio-professional sector of education is the most represented, accounting for the majority of enrollees (55.90%). In view of the large number of learners belonging to this sector, we examined the category in more detail (see Figure 7).

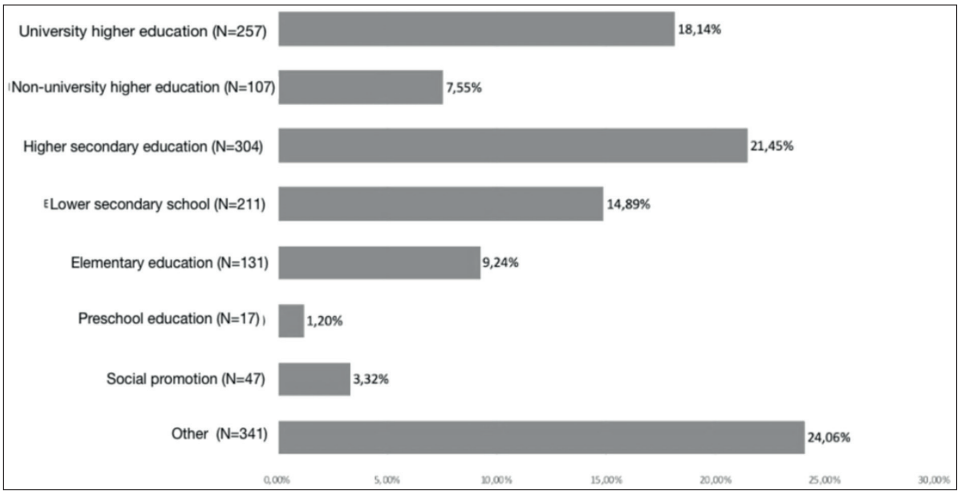

Figure 7. Registered MOOC learners in education occupations
Source: Authors' own elaboration.

In connection with the above-mentioned gender characteristic, we were interested in the numbers of registrants belonging to the socio-professional sector of education. Of the 1,415 listed under this label, 66.64% are female. Our analysis shows that the majority of learners (40.07%) have been professionally employed teachers for between 11 and 20 years (N = 567).

Question 2: What do learners say about their reasons for engaging in the hybrid MOOC?

As a reminder, we have adapted Carré's (2001) questionnaire on the reasons for entering (classical) education in such a way that it can be used in the context of a MOOC (see Table 11). To help the reader distinguish the reasons for engagement that encouraged participants to enrol in the MOOC, we offer different graphical representations.

Table 11. Motives for entering training according to Carré (2001)

# 1	Hedonic motive
# 2	Identity motive
# 3	Epistemic motive
# 4	Economic motive
# 5	Prescribed motive
# 6	Vocational reason
# 7	Personal Operating Ground
# 8	Social-emotional motive
# 9	Professional operating motive
# 10	Derivative motive

Source: Authors' own elaboration on the basis of Carré (2001).

First, we propose a representation highlighting the motives that drove our overall population (N = 2,532) to enroll in our MOOC (Figure 8).

Learners engaged in the MOOC are generally driven by epistemic (92.01%), professional operational (81.34%), hedonic (73.88%) and personal (66.57%) motives.

	Learners (N = 2,532)	
# 4	Epistemic motive	92.01 %
# 9	Professional operating motive	81.34 %
# 1	Hedonic reason	73.88 %
# 7	Personal motive	66.57 %

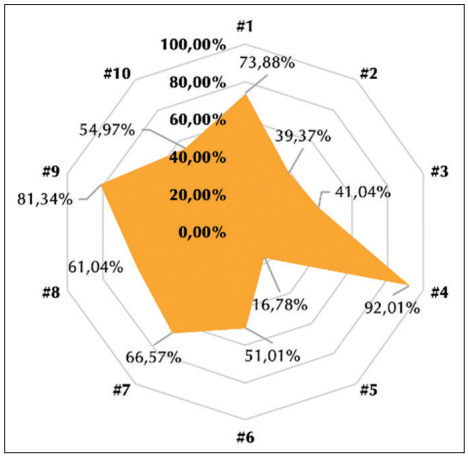

Figure 8. Motives for entering training for learners registered in the MOOC

Source: Authors' own elaboration.

Like the learners as a whole, the "spontaneous" are mainly driven by epistemic (94.59%), professional (85.80%), hedonic (75.33%) and personal (66.22%) motives (compare Figure 9).

	Spontaneous (N = 2,175)	
# 4	Epistemic reason	94.59 %
# 9	Professional operating reason	85.80 %
# 1	Hedonic motive	75.33 %
# 7	Personal operating motive	66.22 %

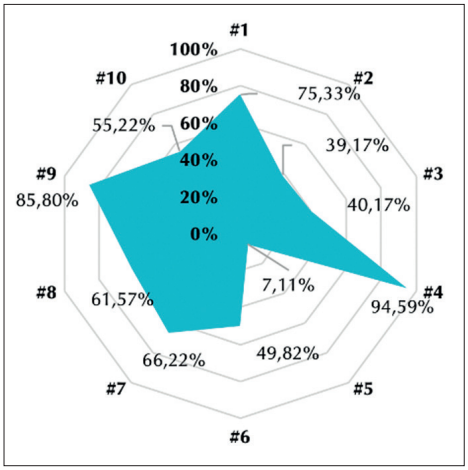

Figure 9. Reasons for entering training for spontaneous MOOC learners
Source: Authors' own elaboration.

We also find a strong presence of epistemic (76.30%), personal operational (68.73%) and hedonic (65.04%) motives among enrolled learners (see Figure 10). Nevertheless, we note a major difference between spontaneous and enrolled learners with regard to the prescribed motive: 75.68% of enrolled learners are driven by this motive as opposed to 7.11% of spontaneous learners.

	Enrolled (N = 357)	
# 4	Epistemic reason	76.30 %
# 5	Prescribed reason	75.68 %
# 7	Personal operative reason	68.73 %
# 1	Hedonic reason	65.04 %

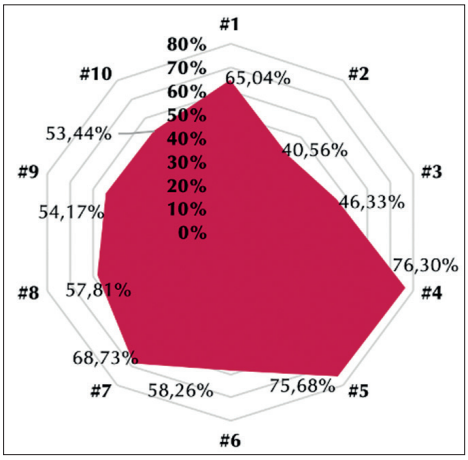

Figure 10. Reasons for entering training for enrolled learners
Source: Authors' own elaboration.

The conditions for applying a parametric test were checked using the Kolmogorov-Smirnov test. The significance of the normality test implies the use of a non-parametric test. As we can see in Table 12, the application of the Mann-Whitney U test reveals a significant difference between the subjects of the two groups in the importance they gave to the hedonic (p = 0.000), epistemic

(p = 0.000), economic (p = 0.000), prescribed (p = 0.000), vocational (p = 0.000), socio-emotional (p = 0.013) and professional operative motives (p = 0.000).

Table 12. Comparison of enrolled and spontaneous learners' scores on entry motives

Motifs		Enrolled	Spontaneous	U Mann-Whitney	P-value
# 1	Hedonic	65.04 %	75.33 %	501 286.000	0.000
# 2	Identity	40.56 %	39.17 %	371 418.000	0.181
# 3	Economic	46.33 %	40.17 %	340 839.000	0.000
# 4	Epistemic	76.30 %	94.59 %	599 102.000	0.000
# 5	Prescribed	75.68 %	7.11 %	58 303.500	0.000
# 6	Vocational	58.26 %	49.82 %	340 533.500	0.000
# 7	Personal operational	68.73 %	66.22 %	385 916.500	0.853
# 8	Socio-affective	57.81 %	61.57 %	419 153.500	0.013
# 9	Professional operative	54.17 %	85.80 %	623 467.500	0.000
# 10	Derivative	53.44 %	55.22 %	407 787.000	0.120

Source: Authors' own elaboration.

Enrolled learners appear to have been significantly more motivated by economic (46.33%), prescribed (75.68%) and vocational (58.26%) motives than spontaneous learners (40.17%; 7.11% and 49.82% respectively). Conversely, spontaneous learners were clearly more motivated by hedonic (75.33%), epistemic (94.59%), social-emotional (61.57%) and vocational (85.80%) motives than enrolled learners (65.04%; 76.30%; 57.81% and 54.17% respectively). On the other hand, there were no significant differences in the identity (40.56% vs. 39.17%), personal operational (68.73% vs. 66.22%) and derivational (53.44% vs. 55.22%) motives.

Discussion

In this research we asked ourselves two research questions:

- Question 1: What are the individual characteristics of learners enrolled in the distance learning MOOC?
- Question 2: What do learners report about their motives for engaging in the MOOC?

To answer this first question, we describe the enrolled and spontaneous learners who connected to the MOOC Educational innovation of which you are the hero... with regard to variables relating to their personal characteristics (geographical origin, gender, age, level of education, socio-professional sector).

The subjects of our first research presented a less variable profile insofar as these learners were students enrolled at the beginning of the bachelor's cycle at the FPSE of the UMONS, for the most part recently graduated from secondary education and generally living in Belgium. It is therefore on the subjects of our second research, presenting a much wider diversity, that these analyses were focused. Indeed, our online teaching and training system brings together enrolled participants, who have registered for the MOOC as part of their "classic" university curriculum, and spontaneous participants who have registered for their own reasons.

These learners come from 76 countries, mostly developed, mainly from France (N = 1,669) and Belgium (N = 461). The large number of Belgian participants can be attributed to the presence of enrolled learners (N = 357) registered at UMONS. As for the French presence, it is probably related to the platform chosen for the dissemination of the MOOC, namely France université Numérique (FUN). Indeed, Cisel (2016b) notes that 65.92% of the users of the FUN platform in 2015, i.e. one year before the launch of our MOOC, connected from France. He also finds that the proportion of registrants on the FUN platform from states with a high level of development is higher (approximately 78.00% for about 11.00% of registrants from countries with a low level of development). Another possible explanation for the large majority of learners from French-speaking countries is the predominance of learners who are fluent in the language of instruction used in a MOOC: this is documented by Breslow et al. (2013) who indeed point out that this is generally a characteristic of MOOC registrants. The average age of all learners is 39.68 years, which is in line with the trends we found in the studies by Christensen et al. (2013), Gillani and Eynon (2014) and MOOCs@Edinburgh (2013). Most learners (68.56%) are female. This finding contrasts this time with those posited in the literature, where it is generally indicated that it is male individuals who enroll in MOOCs (Breslow et al., 2013; Li et al., 2014; Bar-Hen et al., 2015). Also, for Cisel (2016b, p. 120), "the FUN audience is predominantly male, with 60% male; the sex ratio varies significantly across disciplines". The MOOCs@Edinburgh (2013) researchers also state that the gender of MOOC participants differs according to the content of the courses. The subject matter of our MOOC is education, a discipline which, according to the OECD (2017), is more popular with women, and this could

explain the over-representation we are concerned with. It should be noted that there are significantly more women in the group of enrolled participants than in the other, slightly more male, group. This is not surprising, since the majority of the participants enrolled are intended to be psychologists. And according to the labor force survey conducted by the Directorate General Statistics of the Belgian Federal Public Service Economy, SMEs, Self-employed and Energy (2019) on approximately 21,000 psychologists, 83.10% are female and only 16.90% are male.

The majority of spontaneous learners have a long university degree (58.25%). We observe that their level of education does not differ from that generally observed in the literature. Indeed, MOOC "consumers" have often already obtained a degree from a higher education institution (Breslow et al., 2013; Christensen et al., 2013; MOOCs@Edinburgh, 2013; Cisel, 2016; Mariais et al., 2017). These already graduated learners would enroll in MOOCs to deepen or complement their knowledge related to the subject matter covered in this type of learning device (Gillani & Eynon, 2014; Bar-Hen et al., 2015). We observe only a very small minority of mainstream learners with less than post-secondary education (6.99%). MOOCs, as they stand, may not be adequate for sharing knowledge and developing skills with the learners who would need them most (Depover et al., 2017). Logically, all enrolled subjects have at least a secondary school diploma. This is indeed a requirement for access to higher education. Spontaneous learners are generally professionally employed, and many are from the education sector (55.90%). The high presence of teachers in a MOOC related to education is not surprising. Referring to the study by Gillani and Eynon (2014), we hypothesize that these are professionals who enroll in a MOOC to deepen their knowledge and improve their skills so that they can apply them in their original professional environment.

We also analyzed the motives for engagement (second research question), as defined by Carré (2001), claimed by MOOC registrants. As Ho et al. (2014) explain, given the wide diversity of people enrolling in MOOCs, it seems legitimate that motives differ according to learners' perspectives. We found that the subjects in our studies were generally driven by epistemic (92.01%), professional operative (81.34%), hedonic (73.88%) and personal operative (66.57%) motives. Our results corroborate those of Cisel's research (2016b), which argues that the most dominant motives for engagement among learners enrolled in a MOOC are mainly the two operative motives followed closely by the epistemic motive. According to him, the latter is manifested in learners who enroll in MOOCs for the pleasure of learning rather than to complete exercises

and thus obtain a certification. The importance of the professional and personal operative motives for our subjects could stem from their desire to engage in the MOOC for practical reasons and be related to the fact that participants would engage in MOOCs to deal with concrete problems likely to be encountered in everyday life (Cisel, 2016b), to reinvest the newly acquired knowledge in a future project, and to learn from the MOOCs. knowledge in a future project and to be able to complete a parallel project (Cisel, 2017).

The high position of the hedonic motive in the ranking we were able to establish could be explained by the fact that subjects wish to learn in a device for the practical conditions it offers: they appreciate the freedom of learning that is left to them to progress at their own pace by immersing themselves in the contents proposed in the MOOC (Hao, 2014) and are particularly fond of useful or easy-to-use devices (Aharony & Bar-Ilan, 2016).

Finally, a comparison of spontaneous and enrolled learners shows us that the latter seem to be significantly more driven by the economic, prescribed, and vocational motives than the former. The prescribed motive is logically among the most claimed by the enrolled learners who participate in the MOOC as part of a compulsory training linked to their academic course. As for the importance of the vocational motive, we assume that it stems from a desire on the part of learners enrolled in a university course to acquire skills that may be necessary to obtain a future job.

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