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Learner preferences and expectations regarding micro-credential programmes



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Executive Summary

Rapid technological advancements and the growing importance of green transitions and sustainability are driving significant transformations in society, the labour market, and the demand for skills. Workers, companies, institutions of higher education, and students are all struggling to keep up with these changes, resulting in a rising demand for short, personalized learning experiences. Micro-credentials emerged as a popular option, providing flexible and concise learning opportunities for adult learners that complement traditional qualifications. Despite their growing interest among educational institutions and students being key stakeholders in the micro-credential ecosystem, there is still little empirical evidence on learners' perspectives regarding micro-credentials. Bridging this knowledge gap is crucial for universities to design programmes that address the diverse learning needs of individuals and correspond to their learning demands. This report explores the drivers and preferences of learners towards micro-credentials through mixed method research consisting of surveys and focus group sessions. The sample consisted of 129 students and alumni from continuous education programmes at ten European higher education institutions involved in the Erasmus+ funded project MCE - Modularization for continuing education and micro-credentials. The project's goal is to establish a substantial body of evidence and facilitate additional institutional advancements towards the necessary transformations for ensuring micro-credentials that are of high quality, trusted, and widely acknowledged.

The analysis of the research data revealed various factors driving learners to pursue micro-credentials. The primary drivers include personal interests and career objectives, with social and academic motives playing a secondary role. Findings point to a notable preference for short courses that accommodate students' work and family commitments, lasting less than two or three months, with a part-time commitment of six to fifteen hours per week. Students show a stronger inclination towards micro-credentials that offer practical applications, in contrast to the perceived emphasis on theoretical knowledge in traditional college or master's programmes not enough for addressing all the challenges presented in the labour market. Many students prefer online and self-paced courses, where they can learn at their own convenience. Among them, many learners value the opportunity to have real-time interactions with instructors through synchronous "questions and answers" sessions. Learners highly appreciate the modularization of micro-credentials into levels of deepening of content and getting a certificate after finishing the course. However, many learners express concerns regarding their recognition in the job market, as well as potential overqualification with degrees that may not be valued by employers in the long run. The research suggests different learner demands and perceptions regarding micro-credentials, highlighting the diverse motivation of individuals for participating in them. The insights generated in the report can support universities in developing responsive micro-credentials and enhancing their offerings to better align with the evolving demands of learners.

Table of contents

Contingut

Executive Summary.....	3
1. Introduction	5
2. Methodology.....	6
2.1. Participants and procedure.....	7
2.2 Measures and analysis	9
3. Results.....	10
3.1.1. Motivations for participating in micro-credentials	10
3.1.3- Perceived benefits and disadvantages of micro-credentials	15
3.2 Preferences for micro-credentials	20
3.2.1. Preferences regarding the format of the course.....	20
3.2.2. Placement of micro-credentials in the qualifications landscape	24
3.2.3. Preferences regarding the certification.....	26
4. Discussion and Conclusion	30
References	34

1. Introduction

Occupations across various industries are undergoing significant changes due to the digital and green transitions (Cedefop, 2022), the changing nature of work (Brown & Michil, 2022), and the impacts of the Pandemic (Tamoliune et al., 2023). The World Economic Forum (2020) predicts substantial job disruption through automation in the coming decade, which will require a rapid reskilling and upskilling of the current workforce. Expanding education and training opportunities for adults has gained salience in the education agenda. In the European context, the European Union (EU) has set a goal that at least 60% of adults should participate in training every year by 2030 (European Education and Culture Executive Agency, 2021). This goal is part of the EU's 2030 social targets, which aim to encourage lifelong learning and make learning more accessible and valued for individuals. Against this backdrop, new, worldwide, shorter modalities of learning and skills' certification are being developed by higher education and training institutions to respond to these needs (EU, 2022), providing alternative learning pathways for adult learners (McGreal & Olcott, 2022).

Short learning and certification opportunities, commonly referred to as micro-credentials, have become a global trend (Brown et al., 2021; Cedefop, 2023) and are being offered in a variety of modalities. In this regard, micro-credentials can complement, substitute, or constitute a combination of traditional qualifications (Brown & Michil, 2022), or even certify competencies acquired through various experiences, work, or study (Cedefop, 2023). However, there still remains much uncertainty about learners' demand and their recognition by employers (Oliver, 2022; Resei et al., 2019). Their variety of forms and the broad diversity of terms to refer to them in the last decade have caused confusion among universities, employers, policymakers, and learners and makes it difficult to assess the prestige and recognition of these credentials in a cohesive way (Laryea et al., 2021). To address this factor, the European Union recommended an European approach that provides a clear definition. According to this approach, "micro-credentials are a record of learning outcomes acquired through a small volume of learning. They are assessed against defined criteria and designed to meet societal, personal, cultural, or labour market needs. Learners own and can share portable micro-credentials, which can be standalone or combined into larger credentials" (Council of the European Union, 2022, p. 13). The approach also includes standard elements to describe micro-credentials, facilitating implementation across countries.

In recent years, the scientific literature about micro-credentials has increased (Tamoliune et al., 2023) with numerous articles exploring different aspects of micro-credentials in the changing higher education context, including their role in post-COVID-19 recovery and their characteristics in higher education and adoption challenges (Thi Ngoc Ha et al., 2023), and the perspectives of employers (Gauthier, 2020; Miller & Jorre, 2022), higher education leaders (Brown et al., 2023) or students (Pirkkalainen et al., 2023; Yilik, 2021). There remains, however, limited evidence on the perspective from the learners' side (Brown & Michil, 2022; Bruguera et al., 2022) that can be used to inform and shape offerings that cater to the needs and demands of professionals in an ever-changing global landscape (Leong et al., 2020; Shapiro et al., 2021). To address this gap and gain a better understanding of learners' expectations, needs, and preferences regarding microcredentials, it is crucial to generate

more learner-oriented empirical data (Thi Ngoc Ha et al., 2023). This report presents the results of a research study analysing learners' perspectives on micro-credentials. The study addresses two main research questions:

RQ1) What drives learners to pursue micro-credentials?

RQ2) What are their preferences regarding micro-credentials?

The goal is that these findings inform universities and other providers, enabling them to create relevant offerings that align more effectively with learners' needs and expectations.

This report expands existing research (Bruguera et al., 2022) on the few empirical data generated on the learners needs and expectations for micro-credentials by providing evidence on learners' expectations and preferences from learners of nine European countries, focusing on themes hitherto unexplored, such as preferences for learning modalities, duration of learning, types of certification and willingness to pay for certification.

2. Methodology

This report presents a mixed-method research study that explores students' perspectives on micro-credentials. The study involved 129 students and alumni from ten different higher education institutions participating in the MCE project consortium during the second semester of 2022 and the first semester of 2023. The research followed a concurrent embedded design (Creswell, 2009), combining focus groups and a questionnaire to collect both qualitative and quantitative data simultaneously. Qualitative data took priority in interpreting participants' motivation, preferences, and expectations, while the survey provided additional baseline information (see Figure 1). Instead of comparing the data from the two methods, they were considered complementary sources that provided an overall understanding of the different research questions.

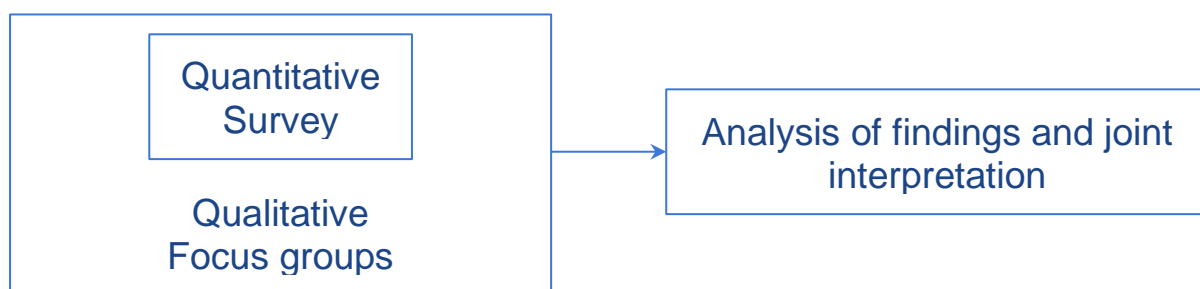


Figure 1- Mixed methods concurrent embedded design used in the study

Regarding qualitative research, synchronous online focus groups were conducted to facilitate open discussions among participants and gather rich qualitative data on their perceptions and ideas (Fàbregues et al., 2016). This approach closely resembles traditional face-to-face focus groups, providing the flexibility of scheduling and participation from the comfort of participants' homes or offices (Stewart & Shamdasani, 2017). While, for quantitative research, an online survey was employed to collect quantitative data on participants' knowledge, feelings, values, and preferences (Fink, 2017). This method offers cost-effectiveness and efficient data management. The interview script and questionnaire items were developed based on established theoretical frameworks in micro-credentials and higher education

(Brown et al., 2023; Tamoliune et al., 2023; Thi Ngoc Ha et al., 2023), ensuring a solid conceptual foundation for the research.

2.1. Participants and procedure

The participants for this study were selected using intentional sampling, which involves a non-probability-based approach (Babbie, 2013). The population of interest consisted of adult learners who were taking or had taken part in continuous education courses within the last five years in the participating universities. This choice was driven by the objective of targeting individuals who already had encountered the need or desire to pursue continuing education. The courses varied in duration, ranging from one-month seminars to longer courses spanning six or more months. Participants included 129 learners from the 10 MCE higher education institutions consortium: FernUniversität in Hagen, Germany (FernUni), Hellenic Open University, Greece (HOU), Katholieke Universiteit Leuven, Belgium (KU Leuven), Kaunas University of Technology, Lithuania (KTU), National University of Distance Education, Spain (UNED), Open Universiteit, The Netherlands (OUNL), Universidade Aberta, Portugal (UAb), Università telematica internazionale, Italy (Uninettuno), Universitat Oberta de Catalunya, Spain (UOC), and Open University of Cyprus, Cyprus (OUC). The ethics committees of each institution granted permission to contact participants while ensuring their privacy and anonymity. Prior to the focus group sessions, participants who expressed interest were given a brief questionnaire, along with an informed consent document, to gather their thoughts and opinions on micro-credentials. It's important to note that 129 respondents completed the questionnaire; however, only 115 of them ultimately participated in the focus groups. Fourteen individuals, whose names were anonymized, could not be identified and were subsequently excluded from the participants' list.

An intentional sampling method was carried out to select participants. In this type of sampling, the sample is chosen not according to probability but based on the researcher's judgement of which participants would be most useful or representative (Babbie, 2013). The selection process aims to identify “cases rich in information for in-depth study” (McMillan and Schumacher, 2010, p.349). As these authors suggest, “the power and rationale of intentional sampling lie in the fact that an in-depth study of certain cases can yield valuable insights into the subject under examination” (p.350). Our aim was not primarily concerned with generalising the results, but rather with exploring the aspects that learners find relevant in the context of micro-credentials, the main aspects of interest to them, their specific drivers, and their justifications for preferring accredited short courses.

Regarding the participants' socio demographic information, 53% were women and the most prevalent age group was between 46-55 years old. Participants had higher levels of education, with almost three quarters of them with at least a bachelor's or master's degree, as shown in Table 1. Most of them were currently employed, and almost half of them were studying towards a degree. The participants included learners from several European countries, with a significant number of participants from Spain, the Netherlands, Greece, Italy, Lithuania, Portugal, and Germany. Learners came from a diversity of occupations, including pharmacists, IT professionals, psychologists, civil servants, or primary and secondary school teachers.

Table 1- participants socio-demographic profile

Age (years)	Count	% (survey responses)
25 or less	6	4,7%
26-35	13	10,1%
36-45	27	20,9%
46-55	51	39,5%
56-65	25	19,4%
66 or more	7	5,4%
Gender	Count	% (survey responses)
Man	59	45,7%
Woman	69	53,5%
Other / I prefer not to say	1	0,8%
Highest degree of training achieved	Count	% (survey responses)
Primary	0	0%
Secondary	6	4,7%
Baccalaureate	10	7,8%
Bachelor degree	46	35,7%
Master degree	40	31%
Doctorate / PhD	8	6,2%
Vocational training	19	14,7%
Professional status	Count	% (survey responses)
Studying a bachelor's, master's or doctoral degree full time without working	8	6,2%
Studying a bachelor's, master's or doctorate part-time while working	51	39,5%
Working	52	40,3%
Unemployed	6	4,7%
Inactive	12	9,3%
Country of the participants	Count	% (survey responses)
Spain	40	31%
Netherlands	32	24,8%
Italy	10	7,8%
Lithuania	10	7,8%
Greece	10	7,8%
Portugal	9	7%

Germany	9	7%
Belgium	5	3,9%
Cyprus	2	1,6%
Mozambique	1	0,8%
Norway	1	0.8%

Focus groups with the 115 students from the 10 European higher education institutions involved in the MCE project were conducted in a series of 26 sessions, either in-person or through online platforms such as Zoom or Microsoft Teams, spanning between the second half of 2022 and the first half of 2023. All these sessions were conducted in different languages, recorded, subsequently transcribed, and translated in English, when needed.

2.2 Measures and analysis

The focus group transcripts were subjected to thematic analysis, a method of identifying key content from interview transcripts and organising it into themes (Braun & Clarke, 2006). Thematic analysis involves segmenting, categorising, summarising, and reconstructing qualitative data to capture important concepts (Given, 2008). The analysis was carried out using ATLAS.ti 23, a software suite designed for analysing large amounts of textual, graphic, and video data. The analysis followed the recommended steps for thematic analysis posed by Friese et al. (2018), incorporating an iterative validation process to ensure reliability (Creswell, 2009). This process involved validating the codes through discussions among the authors. Additionally, descriptive statistics were utilised to analyse the survey data (Babbie, 2016). The analysis follows a hybrid approach starting with an initial code map guided by the questionnaire’s questions, which evolved once we coded the text and identified 262 new relevant codes. Figure 2 shows the mixed method procedure carried out for the research.



Figure 2- Mixed methods research interpretation

3. Results

The study presents the findings of a focus group and survey conducted with 129 students and alumni of continuous education programmes within the 10 higher education institutions involved in the MCE project. The objective was to explore learners' perspectives on micro-credentials. The results are categorized below based on the principal aspects that emerged from both the quantitative and qualitative analysis.

3.1. Motivations towards micro-credentials

Results provided valuable insights regarding two aspects concerning learners' motivations for micro-credentials: their incentives for engaging in these programmes and their perspectives on the advantages and disadvantages associated with them.

3.1.1. Motivations for participating in micro-credentials

Table 2 provides a summary of learners' awareness of micro-credentials and their main motivations for enrolling in short courses that offer credentials.

Table 2- Motivations to participate in micro-credentials

Are you familiar with the term micro-credential?	Count	% (survey responses)
No	59	45,7%
Yes	70	54,3%
Have you participated in a course with micro-credentials?	Count	% (survey responses)
No	65	50,4%
Yes	64	49,6%
What motivations would you have to participate in micro-credentials? (participants could select multiple options)	Count	% (survey responses)
For the pleasure of learning new things	93	72,1%
Keep up with my occupation	76	58,9%
Explore new fields and see if I like them	61	47,3%
Make my skills more visible to employers	58	45%
Improve my employment situation (promotion, greater recognition)	58	45%
Out of curiosity	54	41,9%
Enter a "long" training (bachelor's or master's degree)	25	19,4%
Change job	23	17,8%
Find a job	19	14,7%
Change professional discipline	18	14%

Meet new people	14	10,9%
Other motivation	3	2,3%
I do not need to continue training; I already have all the knowledge I need	2	1,6%

Around half of the participants were familiar with the term "micro-credentials," sometimes linking this concept with that of MOOCs, while the other half were unfamiliar with what a micro-credential is and what it entails, although many of them may have actually participated in accredited short training programs before.

I was not aware of the term, but it was explained to me when I agreed to participate in this survey. I had read about it, but I didn't have a clear picture of what the term really entails.

I knew the term, but I didn't actually consider that the OUC university offering of stand-alone modules would count as microcredentials offerings. I don't really know.

I had not heard of the short training programme that I participated in being referred to as micro-credentials before. This is the first time I am coming across this term.

When I received the mail mentioning the term micro-credentials, I searched for its meaning and found that it refers to short courses that can be accredited. However, I also became a bit confused as I realized that not all short courses can be accredited.

However, at the beginning of the focus groups sessions the term was clarified, and the interviewees associated microcredentials with accredited short training programs to avoid confusions. Many learners were motivated to pursue micro-credentials because they found fulfilment in gaining new knowledge and were personally curious about the course content. Additionally, some learners expressed a desire to explore uncharted territories and delve into unfamiliar fields that pique their interest. This underscores the prevalent intrinsic motivation for learning that is observed among learners engaging with micro-credentials.

The course I took initially focused on professional topics, but over time, my motivation shifted, and new subjects emerged that sparked my curiosity. As a result, I began exploring and delving into these new areas of interest. Now, I would enroll in new courses more for personal reasons rather than professional ones.

Because of my age, I would do them [micro-credentials] more for personal enrichment, I don't think they would give me much more in terms of work.

My primary motivation to continue training throughout my life, as long as my skills permit, is for personal satisfaction. I have a strong passion for learning and consider myself to be a very curious person.

However, findings indicate that motivation related to career advancement and professional growth are also important among many learners' participation in micro-credentials. An important number of participants do not view micro-credentials primarily to secure new employment or switch careers, if they are already employed. Instead, they see them to bridge

the knowledge and skill gaps in their current occupations that were not covered in their initial education, particularly in previous bachelor's or master's degrees.

Primarily, I enrol in courses to stay updated and remain relevant in my work sector.

I work in the help desk department of my company, which focuses on electronics software. I decided to enrol in the course in digital corporate communication to broaden my knowledge and gain a fresh perspective on the technological aspect. The university has been invaluable to me as it has provided an in-depth understanding of topics that would have only been briefly touched upon in my workplace without allowing me a real understanding.

Absolutely, it is essential to continuously enhance your professional knowledge and qualifications in a rapidly changing world. Moreover, there is a strong desire to explore new subjects, acquire fresh knowledge, and develop skills that can be applied in both professional and personal spheres of life.

I strongly believe that lifelong learning is very important for both me and my profession. We have to always be up to date because falling behind could result in job loss.

Many learners' motivation to pursue micro-credentials is strongly influenced by their aspirations for career growth. Micro-credentials offer a valuable opportunity for making skills more visible to employers. Whether it's the case of young professionals entering the workforce or experienced individuals seeking new opportunities, micro-credentials serve as a pathway to demonstrate their expertise through recognized certifications. Additionally, micro-credentials are commonly seen as a fast-track method for employees to advance their careers and gain greater recognition in their current positions.

When a company wants to hire you, they usually ask, "Can you do this?" and you respond, "Yes." Then they inquire, "Do you have any documentation to prove your ability?" So, at times, it is crucial to possess both the knowledge and the corresponding documentation. Many companies value having a certificate or paper that verifies your expertise and accomplishments. It adds credibility, and it's considered a positive attribute.

I am applying for a job in an IT consultancy. One crucial aspect for such companies is the ability to market their consultants to other organizations. Certifications can play a significant role in showcasing the consultant's skills and qualities, helping to demonstrate their value to potential clients.

Although one may possess certain skills and competencies, their worth is not fully recognized unless they are backed by official documentation such as a university degree or certificate. I have personally experienced this while attempting to change my job.

Accreditation is necessary for any type of job promotion. So, of course, having accredited training increases my chances of advancing to a higher position within the organization.

Working in the administration, it is true that having these micro-credentials is very important when applying for public administration jobs.

Another crucial motivation for some learners to engage in micro-credentials is to explore new domains. Participating in short programmes allows them to assess their interest in a different professional area, helping them determine whether they want to further delve into this new field or subject. This gateway opportunity makes micro-credentials an attractive option for individuals as an effective door entrance to other training options.

Piloting new fields? Yes, exactly. I wasn't aware before of the various applications of mediation, especially in the legal or economic domain. Since I am not a lawyer myself, it was fascinating to learn [through introductory micro-credentials] about the diverse areas where mediation can be used.

I was so interested in that course at the OU that it sparked my enthusiasm and motivated me to pick up my other studies again, eventually leading to their successful completion.

Using the example of a seminar I attended this summer; I view short-term training courses as a way to test my interest and motivation in a particular subject matter. It is like taking a pill of a course to see if it meets my expectations.

3.1.2- Factors that learners evaluate when taking a micro-credential

Table 3 displays the average ratings of various factors that adult learners consider when selecting a micro-credential, as assessed through a Likert-scale questionnaire.

Table 3- Average rating (max 5 points) of most valued factors or participants for choosing a micro-credential

To what extent do you value the following factors when choosing a micro-credential?	Mean
Learn at the time you want	4,69
Learn at your own pace	4,66
That you can connect through your PC	4,40
Accompaniment of the teacher/tutor and support of other students	4,22
Earn a state-recognized degree/certificate	4,29
Be taught by a university	4,26
Multimedia educational content (videos, etc.)	4,24
Content on demand	4,19
The prestige of the institution that imparts it	4,20
Obtain a degree/certificate recognized by employers	4,16
Obtain a degree/certificate from a prestigious university	4,19
Modularity (that the contents can be grouped with other studies)	4,13
That you have access to recognized teachers	4,12
Obtain a degree/certificate from a recognized company (eg Microsoft, Google)	3,50

Being able to interact with a global community of learners	3,49
Obtain a certificate in digital format	3,47
Socializing with other students	3,20
That you can connect through your phone	3,09
Face-to-face classes	2,74
Obtain a certificate that can be posted on social networks	2,71

Overall, the findings suggest that most adult learners prioritize flexibility and convenience when selecting a micro-credential. The factors that received the highest mean values were the ability to learn at one's own pace, the flexibility to choose the preferred learning time, and the convenience of accessing the content through a computer. In contrast, face-to-face classes received the lowest mean value, indicating that most adult learners seeking micro-credentials do not prefer traditional in-person learning formats. This implies that most adult learners, in particular, strongly associate certified short courses with highly flexible modalities of training that accommodate their time commitments, level of dedication, and other personal obligations.

The convenience of online learning [micro-credentials] was particularly beneficial for me due to my age and living in the countryside. Unlike younger students who prefer campus-based education, I found the flexibility of studying from home on my terrace to be perfect. I could arrange my study sessions according to my schedule, whether it was at night or in the morning. It was so ideal that I would have liked to continue and even pursue a Master's degree. The online learning format suits me perfectly.

Flexibility? Yes, it's incredibly important! Flexibility is a key factor because it allows you to continue learning while still being able to work. For instance, if you have a full-time job and finish at four o'clock or check out at five or six, you can allocate time later to focus on your studies. This level of flexibility is highly valuable as it enables you to learn at your own pace.

In my experience, whether I attended classes in the morning or afternoon at a traditional university, studying for an hour would often necessitate an additional 2 to 3 hours of travel, leading to a chaotic schedule. Enrolling in an online university [micro-credential] has allowed me to better organize my time, providing the opportunity to make more efficient use of my schedule.

The guidance from teachers were important factors in some adult learners' decision to enroll in micro-credentials. Those learners prioritize seeking support networks over socializing with other students, especially compared to younger learners or those in universities with face-to-face education. In this regard, many learners value micro-credentials for how they ensure a quick resolution for their needs regarding a skills and knowledge gap.

I also prefer to study independently, and I have taken two courses with online guidance or lectures. To be honest, the online lectures didn't provide much additional value. However, I appreciate the ability to ask questions and seek

clarification from teachers when I don't understand something or need to connect it with other concepts. In that sense, I find guidance helpful, but I don't feel that online lectures contribute significantly to my learning experience.

The teacher's accompaniment is highly important because it provides support when you encounter difficulties or struggle to understand something. If you need clarification, there is someone available to assist you. Additionally, receiving feedback helps you gauge if you are on the right track. Overall, this level of support and feedback is greatly appreciated.

I prefer working independently, and group work is not my preference. However, it is important to have a contact person available to provide support and assistance with specific questions. They may not necessarily be the author of the course unit, but there should be at least one knowledgeable person who can offer support at a high competence level.

The reputation of the institution, providing access to high-quality multimedia educational content, played a crucial role in influencing several adult learners' decision to enrol in micro-credentials. There are multiple reasons behind this choice. Opting for a prestigious institution seems to ensure access to quality, updated, and relevant contents. This aspect, in turn, seems to increase recognition from employers and organizations.

If you obtain your certificate from a private school or university that is not recognized, employers may question its significance. Your certificate may not hold any value if it is not from a state-recognized institution. This highlights the importance of carefully researching and selecting the educational institution where you plan to learn. The choice of institution plays a crucial role in determining the credibility and value of your certificate in the eyes of employers.

I recall when I began my degree programme, hearing remarks such as 'Don't ever go to the university that gives away degrees like candy. Companies will just laugh at you.' Upon seeing these comments, I became hesitant about pursuing my studies at that University. After all, why invest my time and energy in a programme that won't benefit me in the long run?

The primary objective is to pursue prestige, but not the kind that comes from internet ads or similar sources. Instead, it refers to the recognition earned by an institution for its quality of work. This is especially true when considering institutions that are already familiar and have a well-established reputation in their field. The level of familiarity provides reassurance that any investment made will be worthwhile and not wasted.

3.1.3- Perceived benefits and disadvantages of micro-credentials

To better understand the drivers behind learners' participation in micro-credentials, Table 4 provides a summary of the most frequently mentioned advantages and disadvantages associated with these certified short learning experiences.

Table 4- Benefits and disadvantages of micro-credentials

What benefits would you associate with micro-credentials?	Count	% (survey responses)
New possibilities for recycling and professional updating	99	76,7%
Allows to acquire specific/key knowledge and skills	99	76,7%
More flexible learning.	99	76,7%
Professional development that ends with an accreditation	86	66,7%
Updated content in an agile and regular way	73	56,6%
Greater customization	67	51,9%
They complement the "long" formation	52	40,3%
Reduces the cost of studying (compared to longer courses)	37	28,7%
Facilitate transition to a "long" formation	37	28,7%
What disadvantages would you associate with micro-credentials?	Count	% (survey responses)
Little recognition/lack of validation by educational institutions	67	51,9%
Little credibility, recognition or value from employers	54	41,9%
In the long run they increase the cost	39	30,2%
Complex bureaucracy	25	19,4%
Lack of accompaniment, socialization and support (by teachers and classmates)	23	17,8%
Lack of modularity	21	16,3%

Micro-credentials offer several perceived advantages for learners, which can be summarized into three main categories. First, many learners perceive micro-credentials as a new and effective means to acquire just-in-time, practical, and hands-on knowledge and skills for professional recycling and updating. Thematic analysis revealed previously unidentified survey advantages of micro-credentials. They address the need for market-oriented training by responding to a desire for specific and relevant skills to cover for a particular need. While longer programmes, such as bachelor or master's degrees, provide theoretical foundations, they are often seen as less practical and demanding of greater commitment.

Some subjects in traditional education can be challenging for students because they cover a lot of material that may not be relevant in their future careers. That's why I highly value short learning programmes. Instead of pursuing a master's degree, I can focus directly on acquiring specific skills that are necessary for my job. If I decide to learn something new in the future, like Linux programming, I can simply focus on acquiring the skills that will be relevant for that specific job. I don't have to go through an entire package of unrelated material.

The last micro-credential I completed was on sustainability. I didn't have high expectations, as it felt like going back to preschool, but it turned out to be incredibly enriching. The teacher made connections between the problem of pollution and the

overall sustainability of the planet, and then applied it practically to our work. That's what I look for in short learning programmes, practical application to my job. It's similar to a master's degree because it prepares you for practical work in the field.

All fields are evolving, and I believe that practical application of acquired skills is a key aspect. It's not enough to be knowledgeable in theory; we must be able to apply these skills in the real world. That's why I highly value courses that provide hands-on experiences and practical components. For instance, I participated in a course that explored the legislative aspects of everything that happens online. During the course, the top-performing students were given the opportunity to attend a real conference where the actual dynamics of internet governance were discussed. It was an amazing and highly insightful experience.

Some master's degrees cover material that is redundant with one's bachelor's degree. If a course covers subject matter that I have already learned in Psychology, I am not interested in taking it. They have to provide that practical part that you lack.

Second, flexibility stands out, in addition to being a strong motivator to pursue a specific training option, as a perceived benefit of micro-credentials, highly appreciated by most learners. Flexibility allows individuals to learn at their own pace and on their own schedule. and makes studying more feasible, particularly for those who are balancing work and education, enabling a sustainable balance of time, life, and work for learners. Additionally, some participants in this study reported that micro-credentials were more manageable than longer courses for being very associated with flexibility modalities of training.

It's a quick, easy, and highly flexible way to acquire new knowledge and skills without the need to spend four years in a university setting. One of the key advantages is the lower cost of study compared to traditional programmes that often focus on theoretical knowledge. With micro-credentials, you have the convenience of learning at your own pace and from anywhere that suits you.

Flexibility is extremely important to me as it allows me to manage my time, create a balanced schedule, and align it with the other aspects of my life. It is a fundamental component of my work-life balance.

For me, flexibility is the most crucial factor to consider when taking a course. I cannot commit to a course that interferes with my work hours, as I may have to leave it midway.

The third category of benefits associated with micro-credentials is related to the learners' opportunity to access quality, up-to-date contents through training options that ensure a minimum of quality. University credentials are regarded as an assurance of high-quality learning, providing valuable evidence of the skills and competencies of applicants to prospective employers and companies, although learners can trust training offering from other learning providers. Additionally, the involvement of distinguished teachers and industry

professionals in the course enhances the reputation of the course and its certification and reinforces the quality of the training for employers and companies.

[Micro-credentials] are a good tool to quickly learn the latest information on the different topics of interest. There is a new state-of-the-art in every sector. That learning is really an important aspect.

One advantage I see in micro-credentials is their relevance. Certain subjects, such as software, can become obsolete within a span of four years. Pursuing a traditional degree may not allow enough time to learn and apply these skills before they become outdated.

I think it depends a bit on the subject. That there may be very practical issues associated with things that are really very much in the business world and that it makes sense for a company to certify, right? And this is like something very concrete, a training focus to a very deep level of detail. And there is another type of training that makes more sense to me that it be a university that certifies it.

Regarding the disadvantages, one of the primary concerns expressed by most learners is the limited recognition of micro-credentials by employers and universities. Various factors contribute to this issue, emphasizing the importance of addressing the recognition and understanding of micro-credentials to alleviate learners' doubts. On one hand, learners often worry about the relevance of micro-credentials relative to traditional macro-credentials. The lack of clarity regarding the nature of micro-credentials and their relationship to other training options also contributes to these concerns.

And I believe it's a disadvantage, and I've noticed it because I've included it on my Curriculum Vitae. People don't seem to pay much attention to it or appreciate it as much as they do with a completed higher education or university degree. During job interviews, the focus is often on the main educational qualifications, and I find myself having to bring up the separate courses I've taken. It's not given the same level of recognition or acknowledgment.

When you do a short degree, even if a seminar is sometimes like a second degree, it does not seem to have that relevance that a degree or any other longer study would have. Even if you collect a lot of studies in this sense.

One of the disadvantages of micro-credentials is the lack of coordination between universities and companies in recognizing these credentials. This lack of recognition, along with the associated economic implications, can diminish the value of pursuing micro-credentials. Therefore, there should be better coordination to ensure proper recognition of these credentials.

One of the concerns learners have about micro-credentials is the pressure to accumulate many micro-credentials as proof of their knowledge and skills in various subjects. This factor can lead to a degree's overqualification. Some learners are worried that the accumulation of

these credentials, especially when displayed on LinkedIn or their resumes, may diminish their value to employers and companies in the long run by showing an overqualification.

You can become highly specialized in a particular field to the point where you may be considered overqualified for certain jobs. In these cases, employers might hesitate to offer higher pay despite acknowledging your expertise.

I can include all those courses on my CV, but it becomes quite lengthy with 25 pages.

Some learners are also often concerned that pursuing numerous short courses, each with their own cost, may result in higher overall expenses compared to undertaking a single comprehensive programme.

The cost of training can be exorbitant, reaching up to €4,000 or €5,000 for courses that are often deemed necessary to land certain jobs or positions due to the 'credentials overcollection' phenomenon. We need to find ways to make these courses more affordable.

When it comes to possible disadvantages, I would highlight the economic aspect. If I were to take a single exam or a course from Microsoft's top-level courses, it would cost me between €4,000 and €700. The book alone is around €100, and the exam fee is €150. So, the cost is definitely a relative factor to consider.

So far, I believe the cost is a drawback. Some courses can be quite expensive. Now that I am employed, my employer can cover those costs. While flexibility is important for short courses, it also makes it easy to postpone them. However, if the courses can be paid for by the employer, it becomes a different scenario.

Other learners have also raised concerns that the—sometimes excessive—short duration of micro-credentials and the lack of clear learning pathways afterwards may lead to knowledge and skills that are insufficient for a comprehensive understanding of the subject matter, suggesting many learners are quite rationale when making decisions about whether to enrol or complete a micro-credential.

Let's say you mention that you completed a minor in Business Administration. Assuming each module is worth five credits, that means you have only taken three courses in business administration. Now, if I ask myself, "What have you really learned with just those three modules?" It seems quite limited.

Excessive specialization does not guarantee job selection. For instance, a waiter who only focuses on a course about carrying coffee with a specific foam on a tray may not be chosen for a job. The rest of the skills take a back seat, so you have no capacity for resolution in a volatile and flexible work environment.

I found it frustrating that there wasn't any continuity [after the micro-credential].

Also, another stated disadvantage by learners is that the quality and relevance of these courses cannot always be predicted or previously assessed by potential participants.

I believe there is a lack of control over micro-credentials. While many things may be organized, there seems to be less emphasis on quality assurance. In some cases, there may be no quality control at all.

Micro-credentials may not be suitable for all professions or subjects. For example, a surgeon who has taken a micro-credential course would not be qualified to perform surgeries, or a builder would not have the necessary skills to construct a house. Micro-credentials do not guarantee practical proficiency. Not everyone trusts short learning courses or micro-credentials because of the lack of a certification system, and many employers are unfamiliar with micro-credentials and how they work.

I believe there is less control and quality assurance in micro-credentials. With numerous offerings, there might be a lack of organized oversight and effective quality control.

3.2 Preferences for micro-credentials

Learners' preferences for micro-credentials can be broadly categorized into two main themes: those related to the learning experience and those pertaining to the acquired credentials and their cost.

3.2.1. Preferences regarding the format of the course

Table 5 presents the specific considerations expressed by research participants regarding their preferred format for short learning experiences.

Table 5- Learner's preferences regarding the format of the short learning experience of the micro-credential

Do you prefer a course...	Count	% (survey responses)
online	76	58,9%
face-to-face	4	3,1%
mixed: face-to-face and online	49	38%
If the course is online, do you prefer it...	Count	% (survey responses)
Asynchronous: you connect when you have availability	50	38,8%
Synchronous: you connect at the same time as your teachers / classmates	16	12,4%
Mixed, that is, it mixes synchronous and asynchronous elements	63	48,9%
What would be the ideal length of a micro-credential?	Count	% (survey responses)
1 month or less	11	8,5%
From 1 to 2 months	27	20,9%
From 2 to 3 months	47	36,4%
From 3 to 4 months	14	10,9%
From 4 to 5 months	2	1,6%

From 5 to 6 months	19	14,7%
6 months or more	9	7%
What is your ideal schedule for a short training?	Count	% (survey responses)
Morning	61	47,3%
Afternoon	56	43,4%
Night	72	55,8%
Weekend	77	59,7%
Ideal dedication	Count	% (survey responses)
Full time	10	7,8%
Part time	119	92,2%
How many hours a week could you dedicate to it?	Count	% (survey responses)
1-5	36	27,9%
6-10	53	41,1%
11-15	23	17,8%
16-20	12	9,3%
21-25	2	1,6%
26 or more	3	2,3%

The majority of the participants preferred online micro-credentials, some of them based on their positive prior experiences with online learning. The socio-demographic data of participants reveals that most of them are middle-aged and have already completed their initial university education. Given their current circumstances, many of them work and have specific obligations that do not allow face-to-face interactions or informal meetings. Attending face-to-face master classes can be time-consuming and disruptive to their schedules, often taking up half to a day or more. In contrast, online courses provide the flexibility of study schedules without the need for travel or fixed time commitments. These findings highlight the common association of micro-credentials with online training options.

I face unique challenges compared to others as I have three children and my own business. Initially, I doubted my ability to pursue studies again, but the flexibility of online education has allowed me to make significant progress.

I appreciate the value of meeting in person and having a live conversation, but online micro-credentials offer great convenience. With online modality, you have the flexibility to access content from anywhere, whether you are at home or in the office, at a time that suits you. This is not possible with in-person courses, as it requires scheduling, travel, and other logistical arrangements, including coordinating with family.

While there have been moments in my life when I would have preferred face-to-face, I have embraced the virtual world ever since it became available. It enabled me to overcome various obstacles such as time constraints, travel, work commitments, and family responsibilities.

After experiencing the convenience of online courses, many learners' express reluctance to return to a face-to-face training environment. However, while very few learners prefer fully physical courses, a considerable percentage of learners find hybrid modalities appealing. These modalities encompass online courses that incorporate in-person practical sessions, events, or meetings between professors and students during the course.

I prefer a hybrid/blended approach. Online learning is beneficial, but it lacks practical experience. Combining online with in-person components would be the ideal model.

I have mixed feelings about it. The online format has been fantastic for me, especially since I live near Heidelberg. It saved me the hassle of travelling to Hagen, which is not just around the corner. However, there's something special about connecting with people in person and getting to know them on a deeper level. So, I have mixed feelings about it. From an organizational standpoint, I would say online is excellent, but from a human perspective, I believe hybrid is the better option.

The hybrid or mixed approach is undoubtedly the way forward. In my opinion, it will be the preferred option. Addressing certain needs often requires hands-on interaction and continuous sharing, which can be best achieved through a hybrid experience based on my own observations. Relying solely on remote or online methods may not fulfil all our teaching practice needs and gaps.

If I were to pursue a micro-credential, I would like to highlight that I prefer a format that is not entirely online. In purely online training, it can be challenging to accurately assess whether a person has truly mastered the provided material.

In terms of online courses, an asynchronous format is particularly convenient for adult learners that are working seeking flexibility in their studies. It allows these professionals to access course materials and complete assignments at their own pace, accommodating their work and other commitments. However, many learners express a desire for a blended option that combines asynchronous learning with some synchronous sessions (primarily online) for real-time resolution of doubts. They value tutorials or "Questions & Answers" sessions from time to time to interact with instructors or peers. This blended approach offers flexibility and convenience while fostering interactive and collaborative learning experiences. Nevertheless, learners also appreciate peer support during their courses.

I prefer hybrid micro-credentials that incorporate both synchronous and asynchronous components. The asynchronous part allows for flexibility in managing the metacognitive and reflection aspects at one's convenience. For the

synchronous part, scheduling sessions late at night would cater to individuals who work during the day.

In terms of preferences, I believe that theoretical classes should be conducted entirely online. It would be beneficial to have an online mentor who can periodically check in to ensure everything is going well. This mentor could offer assistance if any challenges arise or provide support when needed.

I previously mentioned that I can envision having a feedback discussion with the lecturer at the conclusion of each learning unit, where we can reflect together on the material covered.

I find tutorial sessions valuable as they offer an opportunity to ask questions and engage in discussion. Ideally, I would like to have these sessions either at the beginning or towards the end of the course, providing a chance to clarify any uncertainties and deepen my understanding of the material.

When it comes to course length, learners have varying preferences based on the topic being covered. Some senior profiles of learners looking for up-skilling options of training prefer shorter, concise courses that offer quick applicability, while other profiles of learners looking for reskilling options of training or are hesitant about their trajectories are open to investing more time in exploring new fields and related concepts. Despite these variations, the majority of learners value brevity and prefer courses that last three months or less, with an ideal duration of one or two months. If learners find a course particularly interesting and wish to delve deeper into the subject, they may consider pursuing longer-term training such as a bachelor's or master's degree. But in general, brevity is valued.

I see micro-credentials as a modern and efficient approach to learning. They provide a way for people to acquire new skills without having to go through traditional, lengthy processes like obtaining a master's degree that can take several years. Instead, micro-credentials allow individuals to focus on specific skills and professions they are interested in, enabling them to learn quickly and directly. What you can learn in just six months, would previously take three years. I think it is just a new way to shorten everything.

I see a significant advantage in terms of timeliness when it comes to certain subjects. For instance, topics like software can become obsolete within a span of four years. Pursuing a degree in such subjects may not be feasible as the knowledge obtained might no longer be relevant by the time of completion.

A one-month course can be restrictive, as one may feel there is more to learn beyond the initial content. With a longer duration, learners can delve deeper into the subject matter and explore related topics,

I think that, if we are talking about short courses, for me they don't last as long as 2 or 3 months. I have specific needs, and they are needs that in 15 or 10 days I should be able to have solutions, because they are very specific.

3.2.2. Placement of micro-credentials in the qualifications landscape

During the focus groups, participants expressed varying opinions regarding the role of micro-credentials within the broader spectrum of formal training. To provide an overview of these perspectives, Table 6 presents the total number of citations emerged from the thematic analysis that include opinions on this aspect.

Table 6- Learner’s preferences for micro-credentials placement in qualifications landscape

How learners place micro-credentials in the formal training landscape	Count	% (total of citations)
Micro-credentials can be stacked together to form a higher level of qualification.	42	34,7%
Micro-credentials provide and supplement existing lack of training	24	19,8%
Micro-credentials as an introduction to a topic and a gateway to another training	24	19,8%
Micro-credentials as complementary to another longer trainings	22	18,2%

An interesting number of participants demonstrate a keen interest in the option to combine multiple micro-credentials to achieve a higher-level qualification. They value the flexibility this approach offers, allowing them to tailor their learning journey according to their own pace and avoiding the pressure of completing a lengthy programme. Accordingly, if learners discover that a specific micro-credential is not aligned with their interests, they have the freedom to discontinue it without impeding their progress towards the higher degree.

It would be highly beneficial if the credentials are officially recognized, as they can be combined and serve as a stepping stone for further studies. This ensures that the time invested in earning the credentials is not wasted.

Another opportunity could be to package micro-credentials together, creating cumulative offerings that provide more value than individual micro-courses. By incorporating additional activities or combining them, these packages could serve as a propaedeutic foundation for specialized areas or further study.

I think it's important to have a system of micro-credentials that allows individuals to continue their learning journey. For example, someone could take a pre-course and then follow up with another course in 6 months. These micro-credentials can be combined to provide a comprehensive education in a certain field. It would be great if these micro-credentials could culminate in a final exam or project that provides the same value as a master's degree.

I have taken two courses at the UOC. If they had been complete subjects of the master's degree, I would have already completed two more subjects. However, these micro-courses offer a lower commitment, and when I find a course that interests me, I can take it without feeling burdened. This allows me to explore topics I am interested in and decide whether I want to continue pursuing them or not.

The option to stack micro-credentials into different levels, such as basic, intermediate, and advanced, is highly valued by many learners. They recognize the advantages of having these options available. This allows them to choose the level that best fits their needs, understanding that advanced programming knowledge requires a different starting point than learning the fundamentals. In this regard, for fostering their motivations, learners suggest that credentials should be awarded upon completion of the highest level. This approach enables learners to gradually improve their knowledge and skills while having a clear pathway towards achieving their desired level of expertise.

It's like building with LEGO blocks. It's like having a few LEGO blocks and creating something on your own. For example, in a department like the environment, there's a technological aspect involved, right? So, if you want to delve deeper into environmental studies, you can put together a package that includes relevant courses.

I guess you can do that with the separate modules, but perhaps it would be more motivating if you start from the beginning. You begin with a propaedeutic course and then gradually progress through the separate modules. Let's take the example of a minor. You could aim to complete a minor with a micro-credential of fifteen ECTS. Once you've accomplished that, you realize that you have more than just one module of five ECTS. This realization can provide a certain level of motivation, as you think, "If I've achieved this, I can repeat it a few more times at intervals and eventually complete my propaedeutic course.

I'm curious about Criminology. But, what do I have to do? Embark on a 2 or 4 year career? On the other hand, maybe if I had my trying on Criminology, then maybe I could go deeper and see if I do Criminology 2, Criminology 3 and more on the subject.

Two other points are highlighted by some learners regarding the relationship of micro-credentials with other traditional forms of university education, such as bachelor's or master's degrees. Firstly, their relevance lies in providing training that is not covered in longer programmes and has less capacity to assimilate new trends, platforms, and technologies. This point was emphasized in some learners' motivations for seeking practical and labour market-oriented micro-credentials. On the other hand, it is important for micro-credentials to serve as a gateway to a specific topic or discipline, and by extension, to further education in that area, such as a university master's degree.

Certainly, to have micro-courses that correspond to a degree you would have to do 2000 of them. And that doesn't make sense. They have to be topics/courses that complete something that maybe the university does too generically and so a microcourse completes a gap. It cannot and should not replace a basic course of study such as a degree. The university must enable people with degrees to be expendable in the workplace immediately and microcourses must complete gaps in topics not covered by traditional programmes.

I believe that micro-courses will be the future of education, gradually replacing traditional specializations. Even in the US, there is a growing trend towards shorter specialization programmes. Personally, I prefer to focus on a specific topic and complete a series of micro-courses to gain competence in that area.

One aspect that I find important is the personalized and targeted nature of micro-credentials. They provide concrete and specific actions that can serve as a foundation for further studies. As other participants mentioned, they can be a stepping stone towards pursuing more in-depth learning. These focused actions often serve as starting points, allowing us to make connections to other topics we want to explore and develop.

3.2.3. Preferences regarding the certification

Table 7 provides an overview of the learners' considerations regarding certification and the associated price range they are willing to pay for micro-credentials.

Table 7- Learner's preferences for the certification of the short learning experiences

Preference for credentials	Count	% (survey responses)
You prefer a course that offers an official credential	111	86%
You don't care if the course offers an official credential or not	18	14%
Maximum price per credit in euros (€) that you would be willing to pay for a short course (up to 30 credits) that does not offer an official credential?		
	Count	% (survey responses)
0€-50€	76	58,9%
51€-100€	11	8,5%
100€-150€	8	6,2%
151€-200€	8	6,2%
More than 201€	11	8,5%
I don't know	15	11,6%
Maximum price per credit in euros (€) that you would be willing to pay for a short course (up to 30 credits) that does offer an official credential?		
	Count	% (survey responses)
0€-50€	41	31,8%
51€-100€	13	10,8%
100€-150€	16	12,4%
151€-200€	11	8,5%
More than 201€	26	20,2%
I don't know	22	17,1%

When given the option, most learners express a preference for obtaining an official and recognized credential upon completing a course. However, the importance placed on obtaining such credentials and the reasons for seeking specific types of certifications may vary

among learners. Junior learners attach greater significance to course certification due to their limited work experience. They view certifications as valuable additions to their CVs, enhancing their chances of attracting employers and meeting their expectations. On the other hand, senior learners perceive credentials to promote themselves or gain greater recognition in their current positions. They use certifications to showcase their skills and competencies to their companies in order to enhance their professional careers.

I'm currently applying for a job in an IT consultancy. One crucial aspect for these companies is their ability to market and showcase the qualities of their consultants to potential clients. In this context, certifications can play a significant role in demonstrating the consultant's expertise.

Yeah, providing evidence of achievements is crucial. When a company is considering hiring you, they often ask, 'Can you do this?' and your response may be 'Yes.' However, they then inquire, 'Do you have a document that proves your capability?' That's when having certifications becomes truly important. It validates your knowledge and accomplishments. Many companies value the reassurance provided by a certification that confirms your expertise and practical experience.

I understand that for people who are just starting out, like my son who has recently graduated as a psychologist, accreditation is important. I advise him to prioritize accredited programs when he applies, as some employers or organizations may not recognize non-accredited credits or teaching hours.

However, learners have varying needs when it comes to credentials, which means they do not all place the same level of importance on them when pursuing a micro-credential. Different learners have different reasons for their focus. Some have very specific considerations while others have very general ones. Few of the learners prioritize finding inspiring and interesting content over qualifications, while others see credentials as just another important aspect of their short learning experience. However, credentials seem to provide an opportunity to further their education based on the credits earned from completing them. Below we show the disparity of opinions in this regard.

As I mentioned in my introduction, certificates are not crucial for my professional development since I consider it to be complete. What truly matters to me is gaining control over acquired knowledge and receiving feedback.

Currently, I am not concerned whether the course is accredited or not, as I am satisfied with my professional position. However, as life is unpredictable, my perspective may change in the future. For instance, even though I am a unit head now, I may aspire to be promoted to the Head of Department in the future, and a degree may be a requirement. Therefore, I realize that having an accredited course could be beneficial for my career advancement.

Learners are generally willing to pay more for a learning experience that offers official credentials because credentials can enhance their employability and serve as a reward for their efforts. Alternatively, they are willing to pay much less if the short learning experience does not offer a credential and some may even expect it to be free. The factors that explain this openness to pay more correspond to the officiality that grants the credential and the fact that sometimes a higher price of the course means that it implies higher quality.

It sends a positive signal if there is a cost associated with a course. If it's completely free, I might question its quality. Many companies perceive free courses as less valuable.

The price of a micro-credential also depends on various factors. If it comes with a guarantee of securing a job with a salary proportional to the cost of the micro-credential, then there might be a willingness to pay. However, if I were pursuing the micro-credential out of curiosity alone, I wouldn't want to spend much on it.

I understand that there is a clear drawback with micro-credentials, such as the pricing per credit. However, based on my experience with the UOC, I value the specialized and targeted nature of the training, and therefore don't mind paying more. Why? Because that system is also very respectful of my career and my needs. So, I understand that if they are more expensive for me it is not wasting money.

I understand that the certification fee for micro-credentials applies only when you reach level 3, after completing levels 1 and 2. However, levels 1 and 2 are optional and based on your interests, so you have the choice not to pursue certification for those levels. Level 1 focuses on basic knowledge, level 2 on intermediate knowledge, and level 3 on professional-level knowledge. Therefore, certification becomes necessary at the professional level.

Many learners attach significant importance to the credibility and prestige of the institution or organization that issues the micro-credentials. They strongly prefer credentials that are recognized by European institutions and carry academic credit recognition. In general, learners perceive university-issued credentials as more valuable compared to those issued by companies, as the latter may lack universally valid content or commercialization purposes. While some companies may accredit learners in their specific technologies or standards, learners believe that these credentials do not hold the same level of value as those issued by universities. However, in some technological fields, the choice between a university or a company credential may depend on the specific topic being studied.

When searching for a job or negotiating a higher salary, it is essential to first establish a favourable impression with the prospective employer. Demonstrating your ability to fulfil job requirements and position yourself as the top candidate is crucial. This can be evaluated based on the reputation of the organization that issues your certification.

I chose the university's name primarily because I believed that being associated with that university implied high quality.

Certifications should ideally be endorsed by public educational institutions, such as the Ministry of Education or universities, rather than private companies. This helps to avoid commercialization and ensures credibility.

I prefer recognized training courses, which I believe should be offered through universities. If a private company comes to train me, I think there might be some bias, some interest, and then I might not get where I want to get or what I'm interested in. I place high value on courses that are recognized in the university system.

I believe that obtaining academic credit would provide a crucial element of differentiation from all the non-official offers out there. It would not only help me determine the quality and relevance of the training, but also provide me with an official recognition that carries weight in the academic and professional world.

A participant in the focus groups highlighted the common learners' concern to align the vision and recognition of micro-credentials among universities, students, and employers, ensuring that they meet the needs of the various stakeholders involved.

In conclusion, I believe that micro-credentials have great potential and are necessary. However, for them to be truly empowering, they need to be recognized by universities and employers. It is essential to establish a common framework and ensure that everyone understands what a micro-credential is, its purpose, and the skills it represents.

In terms of credential characteristics, in general learners seem to prefer easily digitally shareable certifications, although it is not seen as essential by all focus groups participants. Many of them emphasize the importance of specifying course content, duration, and acquired skills clearly. Including evidence of course completion is particularly valued in some professional fields, like graphic design, marketing, or IT services. Accurate course naming is also considered essential. While many learners prioritize verifiability and digital traceability, the need for credentials to be easily shareable on social media is not a top priority. However, some learners appreciate the option to showcase their credentials on professional networking platforms like LinkedIn.

Digital? Through social media? Absolutely! In fact, the job offer I received came through LinkedIn. Even at my current job, I found it on LinkedIn. Employers often visit LinkedIn to gather information. So, it's crucial to be able to share credentials on LinkedIn. While not all social media platforms are relevant, LinkedIn is specifically designed for professional purposes.

In my opinion, the certificate should definitely be in a digital format, something that can be easily shared on social networks. Nowadays, even company representatives tend to rely more on a person's LinkedIn account rather than a traditional CV.

Sometimes, employers don't even ask for a CV; they simply review the LinkedIn profile. Therefore, it is essential for the certificate to be digital.

I have a good understanding of the requirements of the Administration for the recognition of any training. In order to assess the value of a course, it is necessary to provide clear information about the hours dedicated to it, as well as the full name and syllabus of the course. The Administration requires this information, and it is essential.

Regarding grades, the majority of learners do not consider them particularly important for course certification, as they believe they do not add much value to their CV unless they are exceptionally high. However, learners do consider it beneficial to mention if the course includes some type of assessment, as it indicates to potential employers that the course was rigorous and required active participation from the learner.

I've never actually taken an exam to obtain a certificate. However, I believe it is highly important for your employer, especially if you have invested in it, to have tangible proof of your accomplishments.

As one of the first LinkedIn users in Italy, I have taken numerous courses, but I have never displayed any certificates. I don't believe they truly validate my skills since anyone can simply sign up and complete the course in the background. When it comes to online universities, I chose Neptune precisely because it appears more serious. I reviewed their documentation and found a ranking where universities are listed. Quality matters to me, especially when I am no longer seeking employment or trying to prove my abilities. It's pointless to showcase a course that anyone can complete by simply paying for it.

I think it's important for a certification to reflect that you've put in effort and dedication, which may not always be the case with courses that lack exams or assessments. It's reassuring to have a final exercise or some form of evaluation that demonstrates you've invested time and effort into learning the material. This helps to distinguish the course or programme as substantive and meaningful, rather than just a cursory or superficial offering.

4. Discussion and Conclusion

This report presents a mixed-method research study aimed at exploring learners' perspectives on micro-credentials. Literature in general, and academic research, in particular, lack an understanding of learners' viewpoints (Brown et al., 2023; Bruguera et al., 2023). Addressing learners' needs and preferences is crucial for the further development of micro-credentials. While other papers have focused on the perspectives of employers (Gauthier, 2020; Miller & Jorre, 2022), higher education leaders (McGreal & Olcott, 2022), students (Pirkkalainen et al., 2023; Yilik, 2021), or providers (Oliver, 2019), this research aligns with the need to consider multiple stakeholder perspectives to gain a comprehensive understanding of micro-credentials (Tamoliune et al., 2023). In the pursuit of understanding the intricate dynamics of

learner preferences and expectations regarding micro-credentials, this study has aimed to delve into the multifaceted aspects of such educational provisions.

To gain deeper insights into learners' drivers, preferences, and the significance of credentials, a focus group study complemented with questionnaires was conducted aiming at addressing the issue that many authors have raised regarding the lack of attention paid to learners' perspectives (Thi Ngoc Ha et al., 2022). The insights derived from this exploration are not only enlightening but are also instrumental for educational institutions that are navigating the evolving landscapes of micro-credential programs. By aligning these programs more concisely with learner needs and market requisites, institutions can optimize the impact and relevance of micro-credentials in the contemporary educational ecosystem.

After conducting a thorough analysis of learners' drivers and preferences regarding micro-credentials, several noteworthy findings have emerged, indicating a promising starting point for further research. Firstly, it is worth highlighting the efforts made by various organizations, such as the European Union (Council of the European Union, 2022), UNESCO (Oliver, 2022), and the European Centre for the Development of Vocational Training (Cedefop, 2023), to establish a common definition of 'micro-credential' in order to clarify its meaning for stakeholders. However, despite these efforts, learners still appear to be unclear about the concept of micro-credentials, the types of learning experiences they encompass, and their defining characteristics. This suggests that the ambiguity identified by Oliver (2022) continues, potentially limiting learners' understanding of the potential benefits associated with micro-credentials due to general inadequate information and awareness.

This research reveals that learners predominantly perceive micro-credentials as valuable due to their inherent flexibility, modularity, and their capacity to facilitate the acquisition of specific knowledge and skills. However, the recognition of micro-credentials by both universities and employers emerges as a pivotal factor, validating the learner's investment of time and effort and enhancing their prospects in academia and the employment market. The credibility and prestige of the institution issuing the micro-credentials significantly influence their perceived value. Learners exhibit a marked preference for credentials issued by reputable universities over those from private companies, associating higher reliability and quality with the former. This inclination highlights the critical role of institutional reputation in the competitive domain of micro-credential offerings and underscores the necessity for institutions to uphold and enhance their reputational standing.

Universities and other providers are currently exploring various ways to incorporate micro-credentials into their academic offerings. These include using them as supplements to formal education, integrating them into existing programmes, offering them as alternative pathways, or utilizing them as stepping stones to more comprehensive programmes (Brown & Michil, 2022). Our findings suggest that learners view the ability to customize their studies favourably, such as by enrolling in modular courses that contribute to broader degrees. In this context, learners are generally inclined to pay more for micro-credentials that offer official

recognition and are perceived as high-quality. The association of a cost with a course often serves as an indicator of its quality, and official credentials are viewed as a means to augment employability and serve as a tangible reward for the learner's endeavours. The preference for credentials that are digitally shareable and verifiable is also evident, with platforms like LinkedIn and Europass becoming integral for professional showcasing of academic achievements. This study also underscores the importance of rigorous assessments in micro-credential programs, signalling the substantive nature and seriousness of the course. It provides tangible proof of accomplishment and effort, setting the program apart from less rigorous offerings.

This research makes a significant contribution by employing a combination of qualitative and quantitative methods to capture the perspectives of students and their motivations for pursuing micro-credentials. It generated a rich and comprehensive set of empirical data, over nine countries, addressing a gap in the existing literature, as highlighted by Tamoliune et al. (2023) and Thi Ngoc Ha et al. (2023). In addition, our findings indicate that students generally hold positive perceptions of micro-credentials, in line with the findings of Brown & Michil (2022), while also acknowledging their concerns, such as the overall cost of micro-credentials and their recognition by employers and labour market. For institutional strategy makers, these findings imply the need for a strategic alignment and standardization of micro-credential offerings with market needs and a focus on enhancing institutional credibility. A balanced approach to pricing, coupled with quality assurance and official recognition, can optimize the perceived value of micro-credentials. The integration of digital sharing and verification features and the incorporation of rigorous assessments and well-structured course design are also crucial. Furthermore, while much of the academic literature on micro-credentials emphasizes their potential for professional development, employability, and institutional approaches (Gauthier, 2020; Cedefop, 2022), our research reveals a strong component of personal interest, curiosity, and a desire for lifelong learning among learners engaging in micro-credentials. It is important to acknowledge and consider this aspect alongside the professional aspects.

However, it is crucial to acknowledge the limitations of this study. The diversity in learner perspectives, the sample size, and the rapidly evolving landscape of micro-credentials may impact the generalizability of the findings. Because of these considerations, it is important to exercise caution when generalizing the findings of this study to other populations. Further research is essential to explore the diverse needs and preferences of different learner demographics and to stay abreast of the evolving trends in micro-credentialing. Future research could also adopt a more expansive approach, including larger and more diverse samples from different universities and learner groups in order to gain a more comprehensive understanding of micro-credentials.

In conclusion, this study has provided profound insights into the preferences and expectations of learners regarding micro-credentials. The findings emphasize the importance of official

recognition, institutional credibility, appropriate pricing, digital shareability, and rigorous assessment in enhancing the perceived value of micro-credentials. By addressing these aspects, institutions can strategically position their micro-credential offerings to meet the evolving needs of modern learners and the dynamic demands of the job market, thereby fostering the advancement of flexible and modular learning pathways in higher education.

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