The role of MOOCs in promoting social inclusion through employability: a rapid assessment of evidence

Il ruolo dei MOOC nel promuovere l'inclusione sociale attraverso l'occupabilità: una rapida valutazione delle evidenze scientifiche

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ABSTRACT This paper presents results of a rapid review of evidence pertaining to the potential of open online learning to enhance employability and inclusion in Europe. Non-traditional access routes into higher education opportunities are still seldom used, but open online learning offers a route to reconceive traditional roles within knowledge communities. There is evidence to suggest that, through enhancing opportunities for flexible delivery of education, MOOCs can innovate the way that we approach degree programmes, lifelong learning, continuous education (CE) and continuous professional development (CPD) to promote social inclusion in Europe. While most MOOC participation has been among relatively privileged people, designers need to plan for MOOC learners who are diverse physically, culturally, economically, geographically, linguistically and in terms of their motivations, skills and prior learning. For effective lifelong learning, these MOOC learners need to develop a range of skills: digital, communicative, heutagogical, peer learning, and time management.

KEYWORDS Social Inclusion; MOOCs; Open Online Learning; Employability; Innovation; Lifelong Learning.

SOMMARIO Questo documento presenta i risultati di una revisione della letteratura di evidenze scientifiche relative al potenziale dell'apprendimento online e open per migliorare l'occupabilità e l'inclusione in Europa. Sebbene le vie di accesso non tradizionali all'educazione superiore siano ancora raramente utilizzate, l'apprendimento online aperto offre un modo per ripensare i ruoli tradizionali all'interno delle comunità della conoscenza. Vi sono evidenze che suggeriscono che, attraverso il miglioramento delle opportunità di erogazione flessibile dell'istruzione, i MOOC possono innovare le modalità di gestione e organizzazione dei corsi di laurea, l'apprendimento permanente, l'istruzione continua (CE) e lo sviluppo professionale continuo (CPD) per promuovere anche l'inclusione sociale in Europa. Sebbene la maggioranza dei partecipanti ai MOOCs siano persone relativamente privilegiate, è necessario progettare i MOOCs pensando a studenti

diversi fisicamente, culturalmente, economicamente, geograficamente, linguisticamente e in termini di motivazione, abilità e apprendimento precedente. Per un apprendimento permanente efficace, gli studenti dei MOOCs devono sviluppare una serie di competenze come la competenza digitale e comunicativa o come l'autonomia nell'apprendimento, l'apprendimento tra pari e la gestione del tempo.

PAROLE CHIAVE Inclusione Sociale; MOOC; Apprendimento Online Aperto; Occupabilità; Innovazione; Apprendimento Permanente.

1. INTRODUCTION

The Europe 2020 strategy for inclusive growth was mandated in 2010 (European Commission, n.d.). Within ten years, it aspired to lift at least 20 million people out of poverty and social exclusion and to increase employment of the working age population (aged 20-64) to 75%. However, the most detailed statistics available from Eurostat suggest that little progress is being made towards this goal (Atkinson, Guio, & Marlier, 2017). Di Cataldo and Rodríguez-Pose (2016) found that the dynamics of employability and social inclusion vary considerably across the European area, depending on local contextual factors like infrastructure, human capital, innovation, and quality of government.

Enhanced employability is typically associated with improved social inclusion and well-being. The psycho-social benefits of work are associated with higher levels of social inclusion and well-being, and better productivity (Dunstan, Falconer, & Price, 2017; Gustafsson, Peralta, & Danermark, 2018; Messersmith, Patel, Lepak, & Gould-Williams, 2011). Open online learning has long been viewed as a route to social inclusion (Hockings, Brett, & Terentjevs, 2012; Balula, 2015; Bossu & Stagg, 2018). Though this narrative has been challenged (e.g. Funes & Mackness, 2018), there is interest at the European policy level to further explore this potential.

MOOCs (Massive Open Online Courses) can refer to a wide range of online course offers and related services (Bayne & Ross, 2014). MOOCs have raised particular interest in this regard because of their potential to offer targeted learning and upskilling opportunities to a range of excluded groups. For instance, MOONLITE (n.d.) is an ongoing EU-funded project dedicated to supporting social inclusion through MOOCs. Its mandate is to produce MOOCs specifically for socially excluded groups (like refugees and immigrants) and offer a range of short and flexible courses focused on developing key knowledge and skills. Such offerings can support transitions between countries, vocations, formal and informal learning experiences, and cultural contexts.

MOOCs offer easier access to the acquisition of basic literacy and numeracy skills (Brandt, 2015) but also to higher education and CPD at scale. One consequence of the pervasiveness and ubiquity of the Internet is that it has become possible to provide multimedia content to a large audience at much lower cost than before (Whitaker, Randolf New, & Duane Ireland, 2016, p. 349), which provides avenues for innovation and impact. In digital societies, MOOCs (both content and related services) therefore offer the chance of expanding access to education through digital innovation, improving employability and promoting social inclusion.

In 2017, the main European MOOC platforms (Futurelearn, FUN, Miriadax and EduOpen) and the OpenupEd partnership established the European MOOCs Consortium (EMC, n.d). The EMC is a coalition of major European MOOC providers offering more than 1,000 MOOCs attracting 15 million learners. EMC represents large networks of 280 universities in a variety of European countries and languages areas. The Erasmus+ funded EMC for Labour Markets (EMC-LM, 2019) project enables the EMC coalition to extend their work, in collaboration with European partners. EMC-LM (2019) is an EC Knowledge Alliance project involving public employment services, companies and sectoral industrial organisations, universities, and platform providers. The project aims to build capacity for innovation in education, training and the broader socio-economic environment through a shared framework for action.

Underpinning and informing this work is a rapid assessment of evidence focused on the potential for MOOCs and open online learning to support employability, innovation and entrepreneurship in Europe. This paper summarises selected results of this review with a particular focus on employability as a route to social inclusion. Some discussion is first devoted to the rapid evidence assessment method used in the review (Section 2). The subsequent three sections present the synthesis results. Section 3 sets out the distinctive European framing of issues around social inclusion and employability. Based on evidence collected from empirical studies, routes for open online learning to support inclusion and employability are then described in Section 4. Finally, some features of an inclusive approach to open online pedagogy are identified and critically assessed (Section 5). The paper concludes with a discussion which reflects on the results of the review and the method used.

2. METHOD: RAPID EVIDENCE ASSESSMENT

A "Rapid Evidence Assessment" (REA) is a streamlined literature review; the 'rapid' element means that concessions may be made in relation to the breadth, depth and comprehensiveness of the search for the sake of a fast and agile approach to summarizing and synthesizing evidence (Barends, Rousseau, & Briner, 2017). REA are often employed by decision makers to get a quick overview of a particular field that can guide future activity. This approach may also be adopted – as in the case of EMC-LM – to identify evidence on a shorter timeframe than a typical research cycle, or to identify areas for future research or collaboration. In the case of EMC-LM, the scope and purpose of the review included:

- screening previous projects regarding needs analysis of labour markets, and the development, delivery and use of MOOCs for meeting these needs;
- analysis of data generated by employment services;
- screening of labour market needs and opportunities for continuous education and training, as well as Continuous Professional Development (CPD)/Continuing Vocational Training (CVT), related to competence development, employability, innovation, entrepreneurship and career development;
- state of the art analysis on the role of MOOCs in continuous education/business training related to needs and opportunities in Europe;
- good practices in MOOC delivery by platforms and universities (organisational aspects, platform technology and tools, business models);
- good practices in the use/uptake of MOOCs by companies or workforce/employees;
- experience in pedagogies, technologies, support services, business models on MOOCs for the labour market;
- comparing institutional models (platforms and universities) on MOOCs for the labour market.

Evidence was identified and reviewed by experts from the consortium (see Acknowledgement). After piloting, a tool was designed to collect data consistently. The PICOC method was also used to ensure that research-relevant fields (population, intervention, comparison, outcome, context) would be included (da Costa Santos, de Mattos Pimenta, & Nobre, 2007; Schardt, Adams, Owens, Keitz, & Fontelo 2007). This meant that information about the nature and outcomes of the research studies was consistently extracted from the evidence base. In addition, fields were created for assessing the quality and relevance of a particular resource, as well as fields for capturing other relevant metadata. Quality metrics included the personal reflections of the reviewer, as well as whether a study's design was theoretical or data-led; peer-reviewed; or included controlled studies or meta-analysis. For EMC-LM, the purpose of the exercise was not to conduct foundational research but to synthesize information and evidence in such a way as to describe possible future actions of the Knowledge Alliance.

The initial base for relevant evidence was a range of EU-funded project results and recommendations. Many of these EU-funded projects referred to a consistent body of literature; these were often added to the review's evidence base. Project partners also suggested further sources to include, such as relevant evidence from policy papers, technical reports, infographics, briefings, PhD studies and grey literature. Google Scholar was the primary database for bibliographic search. Keyword combinations were used to find relevant material. These included: MOOCs; employability; CPD; CVT; inclusion; lifelong learning; innovation; Europe; TVET. Other specialist repositories – such as the CORDIS archive of EU projects – were also searched.

Since this exercise took place within a Knowledge Alliance project, selection of evidence was mediated by the interests and expertise of the consortium. For instance, the majority of the evidence selected pertains to Europe and is biased in this way. This calibration towards the interests of collaborators – and the 'rapid' nature of the method – could be seen to limit the objectivity of results compared with a more traditional systematic literature review (see Section 6, Discussion).

172 pieces of evidence were identified for detailed review. 2016 was chosen as a general cut-off point for evidence selection. This was to ensure that the review focused on the state of the art. Some older pieces of evidence were included if they were considered particularly important (e.g. being cited consistently in newer literature). The intention was to focus on summarising newer evidence rather than review the many papers which articulate the potential of MOOCs rather than evidence of impact. Scientific papers were omitted if they did not present original data, except where they provided an important context or theoretical framing. Table 1 summarises the different types of evidence reviewed.

FORMAT	FREQUENCY	PERCENTAGE
Book	5	2.91%
Book chapter	9	5.23%
Conference paper	39	22.67%
Journal paper	38	22.09%
Policy paper	17	9.88%
Report	49	28.49%
Website	15	8.72%
Total	172	100%

Table 1. Summary of evidence reviewed.

Table 2 organises these according to scale ('Context' in the PICOC approach).

SCALE	FREQUENCY	PERCENTAGE
Micro (Institutional / Regional)	23	13.37%
Meso (Federal / National)	41	22.67%
Macro (International / Continental)	108	62.79%

Table 2. Scale of evidence reviewed.

Table 3 shows which sectors were the focus of the evidence. An attempt was made to gather a balance of evidence from a range of sectors. The preponderance of evidence around the quaternary sector, namely education and research, is perhaps unsurprising since MOOCs are educational tools and hence are commonly the focus of educational investigation. In addition, there are also a number of high-level policy and strategy documents and reports in the evidence base. There was less evidence pertaining to agriculture, resource management, manufacturing, engineering and construction available.

SCALE	FREQUENCY	PERCENTAGE
Primary (agriculture, natural resource management)	8	4.65%
Secondary (manufacturing, engineering & construction)	5	2.91%
Tertiary (service industries)	10	5.81%
Quaternary (education & research)	120	69.77%
Quinery (government, policy, senior leadership)	29	16.86%
	172	100%

Table 3. Sectoral focus.

Of the evidence base, 129 items of scientific evidence (papers, reports) were catalogued according to an index of grounding in empirical data. These are summarised in Table 4.

RESEARCH STUDIES	FREQUENCY	PERCENTAGE
Theoretical paper	25	4.65%
Literature review	19	2.91%
Survey	37	5.81%
Randomized controlled study	1	0.78%
Meta-analysis of randomized controlled studies	4	3.10%
Other	23	17.83%
	129	100%

Table 4. Research studies included.

Evidence reviews were distributed for analysis across the consortium according to partner expertise and interest, length and complexity, and relevance. Reviews took place between April and June 2019 and were submitted through Google Forms for compilation. The resulting database was synthesized to summarise the evidence around the key aspects of interest. The full results of the evidence review can be found in Farrow (2019).

3. EMPLOYABILITY AND SOCIAL INCLUSION IN EUROPE

The European Commission (2017a, pp. 2-3; 2017b) describes the situation in Europe with respect to readiness for employment and future development at length:

- 70 million Europeans lack adequate reading and writing skills, and even more have poor numeracy and digital skills, putting them at risk of unemployment, poverty and social exclusion;
- 12 million are long-term unemployed, half of whom are considered 'low-skilled';
- 40% of employers have difficulties recruiting employees with skills that can enable them to grow and innovate;
- skills mismatches hinder productivity and growth;
- the economy is undergoing a digital transformation which requires technical training as well as new ways of working that emphasize innovation and entrepreneurship;
- the EU workforce is ageing and shrinking, making it necessary to increase labour market participation; need to facilitate mobility of EU citizens, make better use of immigrant labour, and reduce 'brain drain' (c.f. Kapanen et al., 2016);
- the quality and relevance of training opportunities varies widely;
- negative perceptions of the value of training/education can act as a barrier to the involvement of younger people;
- learning and skills development increasingly take place outside traditional academic education (online, workplace, professional development; social activities; volunteering), though these experiences often go under-recognised;
- an innovation gap: higher education institutions are often not contributing as much as they should to innovation in the wider economy, particularly in their regions;
- the different components of higher education systems do not always work together seamlessly;
- persistent and growing social divisions affecting people from disadvantaged socio-economic or immigrant backgrounds;
- lack of transversal, problem-solving, communication, digital and entrepreneurship skills.

Many Europeans work in jobs that do not match their talents, while concomitantly 40% of European employers have difficulty sourcing employees with the skills needed to grow and innovate. In addition, Higher Education Institutions (HEIs) and employers often have differing perceptions of the readiness of graduates for the workplace (European Commission, 2017a). Eurostat (n.d.) describes how those without basic skills are increasingly disadvantaged by precarious employment and technological development. It is becoming increasingly unlikely that individuals can rely solely on skills learned in academic education till the end of their working lives.

CEDEFOP (2019, p. 8) reports that uptake of vocationally-oriented qualifications is typically low, and there is no evidence to suggest this is changing over time, despite digital innovation. There is a difficulty in certifying skills for learners in different Member States, especially if learners are mobile (European Commission, 2017d). Educational outcomes are strongly influenced by students' socio-economic status and migrant background (Joint Employment Report) (European Commission, 2019a, p. 37). Not everyone gets an equal chance to acquire the skills and qualifications valued in the labour market (p. 39). Language skills also present a barrier to employment for many (Perifanou, 2015). The Adult Education Survey (European Commission, 2019b) showed that a lack of motivation and/or understanding of the need for learning is an important barrier to participation:

> "*The accelerating changes on the labour market, the demand for higher skills and the penetration of digital technologies in all aspects of daily life give added urgency to the need*

> *to upskill people who have not mastered basic skills and have not gained a qualification to ensure their employability*".

It is not enough to import skills from outside Europe, since insufficient generic, knowledge, language, and team working skills are also found among foreign graduates (Kapanen et al., 2016). In addition, infrastructure investment for open online learning represents an ongoing challenge (Milovanovitch, 2018, Lehto, 2016, p. 66; Niederman, Butler, Gallupe, Tan, & Urquhart, 2016), especially at the platform level (Lehdonvirta, Margaryan, & Davies, 2017).

Unemployment is an issue across the European area, where employment opportunities are unevenly distributed (de Waard et al., 2014). The European Union (2018) notes that more effort is needed to modernize and improve Member State education systems, which are actually moving away from EU objectives on basic skills development. EADTU (2017, p. 13) points out that, although MOOC uptake in Central and Eastern Europe is increasing, it remains in a vulnerable incubation phase:

"*Most Central and Eastern European universities are not accepted by the big MOOC platforms in the US by lacking the reputation (in ranking) and finances to become a partner*" (c.f. Lehto, 2016). So, many HEIs in Central and Eastern Europe that want to be involved in MOOCs "*cannot connect to big MOOC players and are potentially left behind or need to invest in platform, tools and services themselves*" giving rise to "*enormous differences*" between countries as a result of unequal participation (EADTU, 2015, p.7). HEIs are therefore looking for alternatives, for example by developing their own MOOC platforms, mainly based on OpenedX and Moodle (e.g., UNED, Fachhochschule Lübeck); by using a cloud solution like Canvas (e.g, Derby); or through a regional collaboration (EduOpen in Italy, CADUV in Czech Republic), etc.

Dos Santos, Punie, and Castaño-Muñoz (2016, pp. 89-90) note that there is a significant cost implication to validating and certifying MOOC learning. Assessment is central to recognizing learning, and institutions have tended to either pass this cost on to learners or restrict eligibility in order to control costs. Many excluded or disadvantaged learners are not in a position to absorb these costs and so may have an inferior experience or be denied some form of formal recognition. Witthaus et al. (2016) make the point that

> "*formal recognition requires tutors to review performance and students to have their identities validated. This all requires financing. To the extent that these costs have to be passed on to the learners* […] *MOOCs become that much less open and less inclusive. The challenge for institutions is to overcome this low cost and high value incompatibility in the most cost-effective way*".

The European Commission (2017d) has set out a vision for 2025 in which learning, studying and doing research in Europe would not be hampered by traditional borders. The proposed 'European Education Area' would emphasize trust, mutual recognition, cooperation and the exchange of best practice; making learning mobility a reality for all; removing obstacles to the recognition of qualifications, modernising curricula; boosting language learning; improving education, training and lifelong learning. Key to this are the international mobility of staff and learners (European Commission, 2017b; European Union, 2018) and the need to improve use of existing frameworks accordingly and look for technology-driven solutions (European Union, 2016). Training is often not very innovative and digital transformation rates are slow in some parts of Europe (ReSkill, 2017, p. 20).

> "*In all countries, the majority of adult learning is of a non-formal nature, usually work-related and provided as well as financed by employers or individuals themselves. Such learning often targets those employees who already have the highest levels of skills and are performing the most complex jobs, while for the rest of employees, opportunities to access training are often much more limited. The fact that most learning is of a non-formal nature also implies that it is often of only short duration and aims to develop company-specific skills. This*

> *results in a situation where most adult learning is not able to help adults develop skills that are more transferable across companies, including the basic skills – literacy, numeracy or ICT*" (Joint Employment Report) (European Commission, 2019a, p. 49).

The European Union (2018) recognizes that online learning tools are an integral part of training and re-skilling for employability. People with education and training have a greater chance of finding employment (European Union, 2016). The European Pillar of Social Rights acknowledges the universal right to lifelong learning as a route to managing work transitions more successfully and participating more fully in society (European Commission, n.d.). Those with a tertiary education are four times more likely to engage in lifelong learning than low-qualified adults (European Union, 2016). Apprenticeships are considered a particularly effective form of work-based learning in vocational education because they develop mutual trust, provide relevant skills, and smooth the transition between work and study (European Commission, 2017c, p. 2). The unmet demand for labour – as expressed by the job vacancy rate – has been rising since the end of 2014 in the EU and the Euro area (European Commission, 2017a). In response, schemes have been set up to encourage immigrants to set up businesses, and though some have been successful in this, Traeger (2015) questions whether entrepreneurship is a realistic expectation from disadvantaged communities, especially those such as refugees.

4. MOOCS FOR INCLUSION AND EMPLOYABILITY

There are four main dimensions of interest with MOOCs (BizMOOC, 2019; Hood & Littlejohn, 2016; EADTU, 2017; Henderikx & Jansen, 2018):

- MASSIVE - MOOCs are designed for implementation of eLearning at scale;
- OPEN - MOOCs are typically free to access without prior entry requirements, content may be made available on an "open" licence and registration may be porous;
- ONLINE - typically, all elements in a MOOC are delivered online;
- COURSES - MOOCs are bundles of structured learning content (which may be experienced in supported or unsupported modes).

From this basic differentiation, a diverse ecosystem of MOOC offerings has developed (Bayne & Ross, 2014, pp. 21-22) characterised by different pedagogies, business models and audiences (Farrow *et al*., 2015), and using a range of technologies to innovate elements of educational delivery (Schwerer & Egloffstein, 2016).

> *"While MOOCS have emerged as a new form of open online education around the world, research is still lagging behind to come up with a sound theoretical basis that can cover the impact of socio-economic background variables, ICT competences, prior experiences and lifelong learning profile, variance in intentions, environmental influences, outcome expectations, learning experience, and economic return on taking and completing Massive Open Online Courses (MOOCs)"* (Kalz et al., 2015).

The initial enthusiasm for MOOCs – which perhaps reached a peak in 2013 – has given way to a moresober assessment of their potential. Based on a study of 12.67 million course registrations from 5.63 million learners, Reich and Ruipérez-Valiente (2019) provide evidence that current average MOOC completion rates are as low as 3.13%. Instead of disrupting educational models, they argue, open online education is acting as a way of outsourcing core functions of higher education institutions (c.f. Orr, Weller, & Farrow, 2018). However, it should be noted that completion rates are a traditional indicator of quality, and not necessarily the most justified choice when it comes to evaluating whether MOOCs are meeting their aim to be inclusive.

> "*Quality is not objective. It is a measure for a specific purpose. In education, purpose is not a neutral or constant construct. The meaning and purpose ascribed to education shifts depending on the context and the actor, with governments, institutions, instructors, and learners approaching education from different viewpoints and consequently viewing quality through different lenses*" (Hood & Littlejohn, 2016).

Open education alternatives have been increasing in number more rapidly than formal provision. Miyazoe and Anderson (2013) argue that:

> "*The availability of ever-growing amounts of open educational resources (OER) and the consequent non-formal learning opportunities fuel this 'opening' of the traditional education systems. These free and open opportunities for both interpersonal and student-content interaction create an interaction surplus that can be used to augment and enhance formal educational curricula and systems*".

The rapid emergence of MOOCs and OERs has led to the belief that MOOCs can lead to the next generation of learning experiences through innovative partnerships (Stracke & Tan, 2018). Vacanti et al. (2015, p. 50) note that the affordance of MOOCs – supporting interaction, collaboration, evaluation, and self-reflection – mean they should be approached differently than traditional education.

Lanvin and Evans (2018, p. 41) argue that diversity and inclusion is now an important driver for talent competitiveness and innovation. However, reaching out to disadvantaged communities remains a challenge. One review of literature (N=96) which looked at the potential for open online learning to help disadvantaged learners within the Global South (King, Pegrum, & Forsey, 2018). It highlights access to the Internet, participant literacies, online pedagogies, the context of content, and the flow of knowledge between North and South as critical factors in supporting participation. Transversal programmes are becoming increasingly important (CEDEFOP, 2019, p. 9). This can be understood to as a response to the need to incorporate a broader range of academic and vocational components in search of an ideal balance. Integration of higher-level VET through apprenticeship or dual workplace/HE training is increasing, and professional experience is increasingly an expectation for higher level teachers working in a vocational context. Stokes, Towers, Jinks and Symington (2015) describe a MOOC designed for prospective students of dentistry and the dental professions. Learners from 79 different countries accessed their MOOC. Most were not dental students but practitioners looking for specific information, people browsing the subject, non-native speakers trying to improve their English, and patients anxious about dental treatment.

'*Academic drift*' and '*vocational drift*' have been proposed as concepts for explaining change processes in higher education and VET (CEDEFOP, 2019; Tight, 2015). "Academic drift" refers to the tendency of HEIs to aspire to higher status, or for non-HEIs to aspire to an academic status (e.g. recognition, rights, institutional profile). In the VET context, CEDEFOP (2019, p. 17) refers to an academic drift model for higher VET:

a. increasing the share of (general, abstract, theoretical) knowledge and strengthening theory-based reflection in VET programmes/qualifications offered at higher levels, to facilitate permeability and progression (such as providing access to higher education studies);
b. strengthening institutional links between higher VET providers and HEIs;
c. 'Vocational drift' is generally understood as "*strengthening VET principles in higher education*" (CEDEFOP, 2019, pp. 17-19). This can lead to new forms of labour market co-operation, new markets and providers, and new learning programmes.

The vocational aspects of such programmes can be strengthened by:

a. strengthening the focus on professional experience as an entrance requirement for learners and/or for obtaining the qualification (such as by introducing or strengthening possibilities for obtaining

the qualification based on validation of professional experience);

b. increasing the share of practical or work-based learning;
c. establishing stronger links to labour market stakeholders to encourage employer engagement, strengthening the role of social partners (such as by involving employers and industry representatives in designing and delivering qualifications, as well as in certification processes).

The most recent Joint Employment Report (European Commission, 2019a) suggests that "*there is a strong positive relationship between the share of adults (aged 25-64) receiving guidance [services for learning] and the share of those eventually participating in learning*". Employers are the ones who typically provide or finance the learning of their staff, though there is evidence that subsidies (e.g. grants) made directly to enterprises can be an effective form of financial incentivization.

Based on a study in Germany, Kapanen et al. (2016) suggest that the focus for graduate employability should be job application skills, generic career and workplace competencies, self-development skills, and (inter-)cultural knowledge. They acknowledge the importance of learner motivation and cite Dacre Pool and Sewell (2007, p. 281) to emphasize the importance of "*psychological concepts – self-efficacy, self-confidence and self-esteem – as important factors of individual employability*". Da Costa and Labord (n.d.) suggest that increased accountability often results in better pay or recognition.

One significant challenge to the rhetoric surrounding MOOCs and employability is that European MOOC learners are predominantly highly educated, more likely to be male, digitally literate (Pitt, Friedl, Jansen, & Driha, 2017, p. 373; Condé & Cisel, 2019; Truyen, 2016, p. 49; Niederman, Butler, Gallupe, Tan, & Urquhart, 2016). In other words, "*people furthest from the labour market have the greatest upskilling needs but are hardest to reach*" (European Union, 2016, p. 3). MOOC completion rates remain low (Burd, Smith, & Reisman, 2014) and may be falling (Reich & Ruipérez-Valiente, 2019).

5. INCLUSIVE OPEN PEDAGOGIES

The internationalization of higher education offers transnational opportunities (Henderikx & Jansen, 2018) but requires HEIs to design MOOC to support learners from a variety of backgrounds (Petronzi & Hadi, 2016). There are arguably three main pedagogies that have historically been used to inform design of and involvement in MOOCs: cognitive-behaviourist; social constructivist; and connectivist (Department for Business, Innovation and Skills, 2013). The theory is that new digital technologies "*allow students to more easily take up positions as prosumers (both consumer and producer) of learning*" (Hanlon, 2015, p. 10). In reality, university courses are often designed for campus students and then made available as MOOCs, but online learners do not have the same access to facilities and support (Parkinson, 2014, p. 16). An extensive review of MOOC literature found that, despite the rhetoric around MOOCs emphasizing them as disruptive, distributed, and democratic, in fact "*most MOOC implementations so far still follow a top-down, controlled, teacher-centred, and centralized learning model*" (Yousef, Chatti, Schroeder, Wosnitza, & Jakobs, 2014, pp. 16-17).

The 'one size fits all' approach typical of MOOC can present challenges for learners. Colas, Sloep and Garreta-Domingo (2016) highlight the importance of understanding cultural context for learning; even where MOOCs are available in an understood language, learners can struggle with other elements that can be important for learning. Some might be overwhelmed by teaching that is too theoretical or abstract rather than practical and applicable. Traeger (2015) highlights the example of refugees, who face particular challenges to participation.

Even for those without specific economic or cultural disadvantage, adapting to flexible learning opportunities and combining learning with work and family life can be difficult (European Commission, 2019b,

p. 15). Learners are sometimes required to build, nurture or otherwise participate in online communities, and this is not always found easy (Perifanou, 2015). Many do not have Internet access (Slavova, 2017) and some learners do not have adequate bandwidth to download learning content (King et al., 2018).

Okada, Rabello and Ferreira (2014, p. 122) find in open educational approaches the possibility of transforming the roles of "*teachers and students from dispensers and receptacles of knowledge to both co-learners – collaborative partners on the process of sensemaking, understanding and creating knowledge together*". Collaborative open learning features OER production, feedback loops, co-ordinating and network building. The COLEARN open research network represents an example of such an approach, which is contended to support "*critical-creative thinking, communication and collaboration as well as scientific literacy through collaborative inquiry-based learning*" (p. 128)

Many pedagogical challenges specific to MOOCs have been highlighted within the literature, including: assessment (Vacanti et al., 2015); pedagogical adaptation (Hanlon, 2015; Stracke, 2017); engaging learners (Petronzi & Hadi, 2016, p. 113; Stokes et al., 2015); and facilitation (Liyanagunawardena et al., 2015, p. 558). The importance of language skills for both international collaboration and accessing learning and training opportunities means that companies are increasingly requiring a higher standard of English from new recruits (Anthony, 2015, pp. 2-5).

Accreditation of informal qualifications can improve student employability (even with a smaller offer of credits) (Martins Ferreira, 2016). In this context, MOOCs have specifically been proposed to address life-long learning and competency shortages (EADTU, 2017, p.10); and also as a way to boost productivity and market competitiveness (Karnouskos, 2017). Furthermore, MOOCs are considered a tool for designing strategic opportunities for developing required skills and competencies (EADTU, 2017; Patru & Balaji, 2016, p. 11).

Linguistic diversity presents a challenge to supporting inclusion through online education. Slavova (2017, p. 61) recommends the use of international teams to write course content, and cautions against 'excessive' use of video, which can be harder to follow without a transcript for second language learners. The LangMOOC project proposed the Massive Open Online and Interactive Language Learning Environment (MOOILLE) framework. On the basis of this framework, Perifanou (2015) suggests that MOOC pedagogy should:

- enhance active communication between all the participants (peer-peer, student-teacher, open class community);
- facilitate collaboration [and] collective intelligence through group projects, forums etc.;
- support autonomy (Autonomous/Self-paced/Self-Regulated Learning/Reflection);
- keep participants engaged and motivated via interesting, playful interactive and updated activities (Playful/Game based learning);
- provide sufficient tutors in support of the learning process.

In a study of computer science teachers (N=900) Sentance and Humphreys (2015) found that "*technology-enabled communities of practice can make effective online learning communities in the domain of education*" but "*there is also value in face-to-face interaction, not least where people are reticent to join discussions and as such do not fully participate in the online community*". Students will vary in the degree to which they want to participate in co-creating knowledge, in which they are willing to engage in discussion (in a traditional model) or create their own "bundling" of educational components (Niederman et al., 2016). Similarly, Petronzi and Hadi (2016, pp. 113-128) emphasize the importance of academic involvement in discussion and moderation since many learners are discouraged by silent or short responses. Furthermore, the involvement of academics has a positive impact on perceived course quality (p. 119). It is essential to bear these dynamics in mind when considering open online education as a route to inclusion.

Jansen and Teixeria (2015, p. 4) highlight the importance of the European Credit Transfer System (ECTS). Public funding, networked universities, and the relatively advanced state of certification is considered to be an advantage Europe's education systems enjoy over other global regions, but it remains unclear whether implementation is adequate. The European Commission (2017b) supports ECTS through the integration of work placements into higher education programmes. Those of poorer socio-economic and/or migrant backgrounds continue to have weaker education outcomes (European Commission, 2018).

One crucial consideration for inclusive online pedagogies is accessibility. HEIs and MOOC providers need to ensure accessibility of resources and technical support for learners (Osuna Acedo & Camarero Cano, 2016; Schwerer & Egloffstein, 2016), aspects which can be addressed through learning design (MOOCAP, n.d.; Brasher, Weller, & McAndrew, 2016; Canals & Mor, 2014; Esfer & Cagiltay, 2018).

Traeger (2015) argues that MOOCs do not by default imply better access to the higher education system. Without any formal credits for completion, he argues, MOOCs remain 'just' informal/non-formal learning. According to this position, the claims of MOOC to be democratizing are directly correlated to the recognition of learning. Many studies (including Vrillon, 2017) have suggested that MOOCs are primarily used by relatively privileged individuals. One study of a Spanish MOOC found that only 8% of learners had no university experience or were not connected in some way with the operating university (FUNDAE, n.d.). The real challenge for inclusion is to engage learners non-formally and outside of educational institutions. For instance, Parkinson (2014) identifies how particular MOOCs can fill a need for short, specific, professionally oriented education through professional development courses that aren't accredited by universities.

6. DISCUSSION

This paper has described the results of a rapid assessment of evidence pertaining to the possibility of supporting European employability through open online learning, specifically in the form of MOOCs. Key issues in the design and delivery of MOOCs were explored using a database of empirical evidence and other literature. The goal of the exercise was to provide a state-of-the-art description of ways that MOOCs and open online learning can support social inclusion through enhanced employability. The synthesis presented above summarises the evidence.

To maximise the impact and potential of MOOCs, providers must design for diversity, both in terms of the profiles of learners addressed and the circumstances under which they learn. Conversely, learners must also adapt their approach, developing the skills (self-management, communication, team-working, digital competences, etc.) which will be increasingly important in the workplace and in formal education, with open provision filling the space between.

Employability should be recognised as a partial indicator of social inclusion and this paper should not be read as an attempt to reduce social inclusion to employability. However, there is much evidence to suggest that finding meaningful and rewarding work is an effective route to inclusion and wellbeing. As open online education evolves, there are points of convergence between workplace technologies and educational systems which offer great potential to include greater numbers in employment. However, the crucial issue is to develop systems that equalise rather than reinforce existing privilege.

Much has been written about how most MOOCs are designed and taken by relatively affluent, typically white and educated males (e.g. Glass, Shiokawa-Baklan, & Saltarelli, 2016; Farrow, de los Arcos, Pitt, & Weller 2015; Lambert, 2020). It is important to understand that structural inequalities also apply to those building and evaluating online learning systems. In a review of MOOC studies published between 2013 and 2015, Veletsianos and Shepherdson (2016) note that more than 80% of MOOC research originates from individuals who have a home institution in Europe or North America, and that almost half of MOOC

research is never cited. Furthermore, a quantitative-positivist method, supported by big data, has emerged as the primary form of MOOC research. As the authors note, only a minority of studies use interpretivist approaches to understand the impact of online learning opportunities, even though these methods (interviews, observations, focus groups) are traditionally valued in research with excluded groups.

As Adam (2019) argues, the Western centricity of MOOC platforms and their epistemologies can further marginalise knowledge communities for whom the approach is challenging. There is still relatively little research on addressing unequal access to education within Europe through MOOCs. Until effective ways of understanding the needs of excluded groups prove influential, then structural inequalities in access to education are likely to persist. As Di Cataldo and Rodríguez-Pose (2017) note, it is unlikely that educational investments can fulfil the inclusion objectives of the Europe 2020 strategy by themselves. However, to be inclusive and equitable, learning systems need to integrate social inclusion into their agendas (Bartlett & Pagliarello, 2016). Also needed are nationally and regionally co-ordinated responses that overcome resistance to digitalisation and build credibility in CPD and CVT delivered online (de Andrade et al., 2018).

While the potential for harnessing data science to support learning deserves to be explored, it should also be noted that the monitoring involved in collecting relevant data points could act as a barrier to participation for some social groups who might interpret this as unnecessary surveillance. Furthermore, the lack of transparency regarding the data collected by MOOC platforms inhibits more effective co-ordination of educational provision (Slavova, 2017). Here there is a sensitive balance to be struck between offering support to marginalised groups and acting on their behalf with regards to the use of personal data. The flexibility of delivery offered by open online learning continues to constitute a historically significant opportunity to improve employability at scale (Orr et al., 2018) but more scalable and generic approaches are less likely to be inclusive or reflect the concerns of specific groups.

While some elements of this review conform to the typical expectations of a scientific literature review, there were also divergences. For instance, both peer reviewed and non-peer reviewed material was included. Both can be considered as forms of evidence, but more normative weight can be assigned to data that has undergone scientific review. Attributing different epistemological values to evidence as the synthesis takes place can be challenging, particularly where evidence might be inconclusive (as is often the case). Evidence was chosen primarily for interest to the EMC-LM project and its possible actions within the life of the project. The risk of selection bias is elevated in REA compared with systematic literature reviews (Barends et al., 2017, p. 4). Nonetheless, it is hoped that the reported synthesis provides a practical overview of the potential for MOOCs to support social inclusion.

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