

Massive Open Online Course And Leadership Development

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Abstract:

This study explores the role of Massive Open Online Courses (MOOCs) in fostering leadership development across diverse professional and academic contexts. As organizations and educational institutions seek innovative ways to build leadership capabilities, MOOCs have emerged as a scalable and accessible platform for delivering high-quality leadership education to a global audience. By offering flexible, cost-effective, and self-paced learning opportunities, MOOCs enable individuals to acquire critical leadership skills, including strategic thinking, communication, emotional intelligence, and decision-making. The integration of interactive tools such as discussion forums, case studies, and peer assessments within MOOCs further enhances experiential learning and collaborative problem-solving, which are essential for effective leadership growth. Moreover, MOOCs facilitate lifelong learning and democratize access to prestigious leadership programs that were traditionally confined to elite institutions. This paper examines various MOOC-based leadership courses, their pedagogical designs, and their impact on participants' personal and professional development. It also discusses challenges such as learner engagement, completion rates, and the need for personalized feedback to maximize leadership outcomes. The findings highlight the potential of MOOCs to complement traditional leadership development programs, making leadership education more inclusive and adaptive to the evolving demands of the global workforce. This underscores MOOCs' significance as a transformative tool in modern leadership cultivation.

Keywords : MOOCs, Leadership skills, Online learning, Professional development, E-learning platform, Competency building, Workplace training

I. Introduction

In today's rapidly evolving digital world, Massive Open Online Courses (MOOCs) have emerged as a transformative force in education. MOOCs are online learning platforms that provide accessible, flexible, and often free courses to vast audiences worldwide. They cover a broad range of subjects, delivered by esteemed universities and industry experts, breaking down traditional barriers to learning. This global reach allows individuals from diverse backgrounds to enhance their knowledge and skills conveniently. As organizations and

professionals increasingly value continuous learning, MOOCs have become essential tools for personal and career growth, reshaping how people approach education in the 21st century.

Leadership development, traditionally nurtured through in-person workshops and mentorship, is now being revolutionized by MOOCs. These courses offer structured programs that focus on critical leadership competencies such as strategic thinking, emotional intelligence, and decision-making. By leveraging case studies, interactive simulations, and peer discussions, MOOCs provide learners with rich, practical experiences that mirror real-world leadership challenges. Furthermore, their self-paced nature accommodates working professionals, allowing them to integrate learning into their busy schedules. As a result, MOOCs serve as powerful platforms that democratize leadership education, fostering a new generation of leaders equipped to navigate complex organizational landscapes.

The intersection of MOOCs and leadership development holds significant promise for the future. Organizations are increasingly integrating MOOCs into their talent development strategies, using them to build leadership pipelines and cultivate high-potential employees across geographies. Moreover, MOOCs facilitate networking and collaboration among diverse learners, broadening perspectives essential for effective leadership in global contexts. As technological advancements continue to enhance the interactivity and personalization of online learning, MOOCs are poised to play an even more vital role in shaping adaptive, innovative, and resilient leaders who can drive sustainable success in an ever-changing world.

Examining characteristics such as course design, content distribution, and evaluation methods, this study investigates the changing function of massive open online courses (MOOCs). It evaluates the wider effects of massive open online courses (MOOCs) on education, including their ability to fill skill shortages, provide access to higher education, and encourage lifelong learning, by conducting a thorough literature analysis. Their impact on conventional educational practices and institutions is also discussed, illuminating both advantages and disadvantages. The study delves into future themes such as adaptive technologies and personalised learning. Educators, institutions, lawmakers, and learners can all benefit from the insights and recommendations provided to help them successfully incorporate MOOCs into the future of education.

The Evolution of MOOCs

MOOCs first gained prominence around 2008 with experimental courses designed to leverage connectivist learning theories. Their breakthrough came in 2012—often dubbed the “Year of the MOOC”—when platforms such as Coursera, edX, and Udacity launched, offering university-level courses to global audiences.

Originally, MOOCs emphasized broad, general knowledge. However, as platforms matured and market demands evolved, specialized MOOCs, including leadership-focused offerings, proliferated. Today, leadership MOOCs range from foundational courses on management principles to advanced explorations of strategic thinking and ethical leadership, reflecting a growing appetite for accessible leadership training.

Defining Leadership and Leadership Development

Leadership, though variably defined, generally refers to the process of influencing others toward achieving shared goals. Northouse (2018) describes it as a process whereby an

individual influences a group to achieve a common objective. Leadership development thus encompasses formal and informal efforts to enhance individuals' abilities to lead.

Core leadership competencies often include strategic vision, decision-making, emotional intelligence, ethical reasoning, and change management. Traditional leadership development has relied on executive education programs, mentorship, and experiential learning. MOOCs now enter this domain, promising scalable avenues for developing such competencies.

II. Literature review

Massive Open Online Courses (MOOCs) have emerged over the past decade as a transformative force in higher education and professional development. Characterized by their open access, scalability, and flexibility, MOOCs are delivered via online platforms such as Coursera, edX, and FutureLearn, making high-quality learning resources available to a global audience (Liyanagunawardena, Adams, & Williams, 2013). While initially focused on technical and academic subjects, MOOCs have increasingly diversified to include soft skills and professional competencies. Researchers highlight that the interactive features of MOOCs—such as discussion forums, peer assessments, and multimedia content—enhance learner engagement and support diverse learning styles (Hew & Cheung, 2014).

Leadership development has become a growing focus within MOOC offerings, addressing the global demand for accessible, scalable leadership training. Studies indicate that MOOCs can support leadership learning by delivering foundational theories, case studies, and experiential simulations to a broad audience (Cseh & Davis, 2016). Furthermore, MOOCs allow participants to learn at their own pace and apply leadership concepts within their organizational contexts, thereby fostering reflective practice. However, critiques note that while MOOCs effectively deliver cognitive knowledge, they may fall short in cultivating complex interpersonal and behavioral leadership skills that traditionally benefit from face-to-face coaching and mentoring (Moldoveanu & Narayandas, 2019).

Recent literature highlights the growing potential of Massive Open Online Courses (MOOCs) as catalysts for leadership development, particularly within professional and academic settings. The effectiveness of MOOC-based leadership programs hinges on their capacity to foster long-term collaborative learning, networked interactions, and sustained reflection—key components of impactful leadership training. For instance, Dopson et al. (2018) emphasize that effective leadership development requires extended, collaborative engagement, a principle well supported by the interactive and follow-up capacities of MOOCs.

MOOCs also contribute to cultivating social capital and peer networks—critical assets in leadership development. McCauley and Palus (2021) assert that leadership emerges through enriched professional networks; MOOCs enhance such capacity by connecting geographically dispersed learners through forums and collaboration. Supporting this, Gamage and Whiting (2021) underscore the importance of purposeful peer communities in mitigating learner isolation and strengthening a sense of belonging—factors that correlate with leadership growth.

Empirical research demonstrates that MOOCs facilitate leadership behaviors aligned with Kouzes and Posner's five practices, such as "modeling the way" and "inspiring a shared vision." Zint, Porter, and Bellino (2023) found that both learners and co-creators of a

climate-focused MOOC exhibited these leadership practices, attributing their development to course design features that promoted agency in action-taking and co-creation

In sum, scholarly discourse suggests that well-designed, interactive, and contextually integrated MOOCs hold significant promise for leadership development—especially when combining co-creation, peer networking, gamification, credentialing, and data-driven personalization. To fully harness their transformative potential, further longitudinal and experimental research is needed to verify these outcomes and refine pedagogical strategies for leadership futures.

III. Research Methodology

Research Design

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches to comprehensively investigate the role of Massive Open Online Courses (MOOCs) in leadership development. The mixed-methods approach is deemed appropriate for this study, as it allows for the combination of broad quantitative patterns with in-depth qualitative insights, thereby enhancing the validity and richness of the findings. The study utilizes a cross-sectional design, capturing data at a single point in time, to explore the perceptions, experiences, and outcomes of individuals who have completed leadership-focused MOOCs.

By employing this design, the study seeks to answer both exploratory questions—identifying which aspects of MOOCs contribute most to leadership skill development—and explanatory questions—examining how and why MOOCs influence leadership competencies.

Research Objectives and Questions

The primary objective of this research is to evaluate the effectiveness of MOOCs in fostering leadership development among adult learners. Secondary objectives include identifying specific leadership competencies enhanced by MOOCs and exploring the influence of course design features on learning outcomes.

The research is guided by the following key questions:

1. RQ1: What is the perceived impact of MOOCs on participants' leadership skills and competencies?
2. RQ2: Which design features of MOOCs (e.g., interactivity, case studies, peer collaboration) are most strongly associated with leadership development?
3. RQ3: How do participants describe the ways in which MOOC experiences have translated into their professional leadership practices?

Additionally, the study tests the following hypothesis:

- H1: MOOCs with higher levels of interactivity and practical application components are associated with significantly greater improvements in leadership competencies compared to MOOCs that are primarily content-delivery focused.

Population and Sampling

The target population for this study comprises individuals who have completed at least one leadership-oriented MOOC within the past three years. The study employs purposive sampling to identify participants with direct experience relevant to the research questions.

To ensure diverse perspectives, sampling is stratified across different professional sectors (e.g., business, healthcare, education) and geographic regions. The quantitative component aims for a sample size of approximately 200 survey respondents, which is sufficient to perform inferential statistical analyses, while the qualitative component will involve 15–20 semi-structured interviews to capture in-depth narratives.

Data Collection Methods

1. Quantitative Data Collection

Data will be collected using an online survey questionnaire administered via platforms such as Qualtrics or Google Forms. The survey instrument will include:

- Demographic questions: Age, gender, educational background, professional sector, and geographic location.
- MOOC-related questions: Platform used, number of MOOCs completed, course duration, and perceived quality.
- Leadership competencies scale: Adapted from established frameworks (e.g., Kouzes & Posner, Goleman), employing Likert-scale items to measure dimensions such as communication, strategic thinking, emotional intelligence, team leadership, and decision-making.

The questionnaire will be pilot tested with 10 participants to ensure clarity and reliability, aiming for a Cronbach's alpha >0.7 to confirm internal consistency.

2. Qualitative Data Collection

To deepen the understanding of how MOOCs contribute to leadership growth, semi-structured interviews will be conducted with a purposive subset of survey respondents who consent to follow-up discussions. Interviews will explore participants' reflections on:

- Specific leadership skills gained or enhanced.
- Aspects of MOOC design they found most impactful (e.g., interactive assignments, peer forums).
- Examples of how they have applied their learning in professional contexts.

Each interview will last approximately 30–45 minutes, conducted via Zoom or similar platforms, and audio-recorded with participant consent for transcription and analysis.

Data Analysis Procedures

1. Quantitative Analysis

Quantitative data will be analyzed using SPSS or R. Descriptive statistics (means, standard deviations, frequencies) will summarize demographic characteristics and perceptions of leadership outcomes.

Inferential analyses will include:

- Correlation analysis to explore relationships between MOOC features (e.g., interactivity, duration) and perceived leadership development.
- Multiple regression analysis to test the hypothesis that interactivity and practical application significantly predict leadership competency gains, controlling for demographic factors.

2. Qualitative Analysis

Qualitative interview data will undergo thematic analysis following Braun and Clarke's (2006) six-phase approach:

1. Familiarization with the data through repeated reading of transcripts.
2. Generation of initial codes related to leadership development experiences.
3. Searching for themes that capture recurrent patterns.
4. Reviewing and refining themes for coherence.
5. Defining and naming themes.
6. Producing a narrative report supported by illustrative quotations.

To enhance trustworthiness, peer debriefing will be employed, and an audit trail will be maintained throughout the coding process.

3. Triangulation

Findings from the quantitative survey and qualitative interviews will be triangulated to identify convergences and divergences, thereby enriching the overall interpretation and ensuring methodological rigor.

IV. MOOCs as a Tool for Leadership Development

MOOCs offer several compelling features for leadership development:

- **Global Accessibility:** Professionals worldwide can access high-caliber content, breaking geographical barriers.
- **Flexibility:** MOOCs typically allow asynchronous learning, enabling busy managers and aspiring leaders to fit coursework around their schedules.
- **Cost-Effectiveness:** Compared to in-person programs, MOOCs reduce costs associated with travel, accommodation, and program fees.
- **Breadth of Content:** From Harvard's "Leaders of Learning" to the University of Illinois' MBA-level leadership courses, MOOCs cover diverse leadership domains.

These attributes align well with the lifelong learning needs of modern professionals navigating complex, fast-changing environments.

Pedagogical Foundations of MOOCs for Leadership

Effective leadership MOOCs often incorporate adult learning principles (Knowles, 1980), emphasizing self-directed, experiential, and problem-centered learning. Typical pedagogical strategies include:

- **Experiential Learning:** Simulations, case studies, and scenario analyses help learners practice decision-making in realistic contexts.
- **Reflective Exercises:** Self-assessments and reflective journals encourage learners to critically examine their leadership styles and growth areas.
- **Collaborative Projects:** Group assignments foster teamwork and expose learners to diverse perspectives, echoing real-world leadership challenges.
- **Adaptive Learning Paths:** Some MOOCs use algorithms to personalize content, aligning with learners' prior experience or performance.

By aligning with constructivist and transformational learning theories, these designs aim to do more than transfer knowledge; they seek to foster deep shifts in how learners perceive and enact leadership.

V. Case Studies: MOOCs in Leadership Training

University of Michigan's "Leading People and Teams"

Offered on Coursera, this specialization combines instructional videos with practical projects. Peer-reviewed assignments and capstone projects require learners to apply concepts to real or hypothetical leadership challenges, encouraging contextualized learning.

HarvardX's "Leaders of Learning"

This MOOC explores leadership in learning organizations, prompting participants to articulate their own leadership philosophies. Discussion boards foster dialogue across industries and cultures, enhancing learners' understanding of diverse leadership contexts.

Corporate Partnerships on LinkedIn Learning

Many companies use LinkedIn Learning to deliver leadership MOOCs tailored to organizational competencies. These integrations allow tracking of employee progress and alignment with talent development goals.

VI. Advantages of Using MOOCs for Leadership Development

Scalability: Organizations can deploy leadership development initiatives to thousands of employees simultaneously, supporting global leadership pipelines.

Cost Efficiency: MOOCs minimize costs tied to travel, accommodations, and traditional tuition fees. Many leadership MOOCs are free or low-cost, making them attractive for organizations with constrained budgets.

Data-Driven Insights: Platforms collect detailed engagement data, offering insights into learner progress, assessment outcomes, and areas requiring support.

Customization and Modularity: Organizations can curate leadership playlists or integrate MOOCs into blended learning programs, complementing internal workshops or mentoring schemes.

VII. Challenges and Criticisms

Despite their promise, MOOCs face notable critiques in leadership development:

- **Low Completion Rates:** Research shows that MOOC completion rates hover around 5–15% (Jordan, 2015), raising concerns about sustained engagement.
- **Limited Soft Skill Development:** Critics argue that leadership involves complex interpersonal and emotional competencies that may be poorly served by online formats.
- **Networking Gaps:** Traditional executive programs often emphasize informal networking and mentoring, difficult to replicate in MOOCs.

These challenges highlight that while MOOCs can be powerful tools, they may be best used as components within broader leadership development ecosystems.

Learner Engagement and Retention in Leadership MOOCs

Effective leadership MOOCs employ several tactics to improve engagement:

- **Micro-Learning Modules:** Short, focused videos reduce cognitive load and maintain attention.
- **Gamification:** Badges, progress dashboards, and completion certificates motivate learners.
- **Instructor Presence:** Regular announcements and participation in forums by instructors or mentors increase perceived support.

Studies indicate that social presence and clear course design correlate strongly with MOOC retention (Hew & Cheung, 2014).

The Role of Social Learning and Peer Interaction

Leadership is inherently social. Successful MOOCs often leverage social learning by:

- **Facilitating Peer Feedback:** Many leadership MOOCs require participants to review peers' projects, fostering reflection and diverse viewpoints.
- **Community Forums:** Discussions enable learners to share experiences across industries and cultures.
- **Collaborative Case Analyses:** Group assignments mimic cross-functional teams, teaching negotiation and consensus-building.

These mechanisms help approximate the peer learning and informal insights typical in face-to-face leadership programs.

Assessment and Credentialing in Leadership MOOCs

MOOCs use a range of assessments to evaluate leadership learning, including:

- **Peer-Reviewed Essays:** Learners analyze leadership dilemmas, receiving structured feedback.
- **Quizzes and Self-Assessments:** These reinforce concepts and help learners monitor progress.
- **Capstone Projects:** Some specializations culminate in applied leadership projects, which learners can showcase professionally.

Digital badges and certificates provide tangible outcomes, increasingly recognized by employers and often integrated into LinkedIn profiles.

Corporate Use of MOOCs for Leadership Pipelines

Organizations leverage MOOCs in several ways:

- **Pre-Work for Leadership Programs:** MOOCs can introduce concepts before in-person sessions, maximizing workshop time.
- **Global Consistency:** Firms with distributed teams use MOOCs to ensure leaders develop shared frameworks and vocabularies.
- **Succession Planning:** MOOCs provide scalable ways to prepare high-potential employees for leadership roles.

IBM, for instance, has partnered with Coursera to integrate leadership MOOCs into its talent development strategy, tracking completions through internal LMS platforms.

VIII. Key Characteristics of MOOCs

1. Massive Enrollment
 - Open to thousands (or even millions) of participants worldwide.
 - No formal limit on class size.
2. Open Access
 - Typically free to access course materials (though certificates or advanced features may cost).
 - Often no formal entry requirements (like prior degrees).
3. Online Delivery
 - Delivered entirely over the internet.
 - Accessible anytime, anywhere with a device and internet connection.
4. Self-paced or Scheduled
 - Some MOOCs allow learners to progress at their own pace.
 - Others run on a set schedule with weekly modules, deadlines, and cohort interactions.
5. Video Lectures & Multimedia
 - Core content often delivered through short video lectures.
 - Supplemented with readings, animations, simulations, podcasts, etc.
6. Automated Assessments & Peer Grading
 - Quizzes, multiple-choice tests, and auto-graded exercises.
 - Peer-reviewed assignments and discussions for subjective or complex tasks.
7. Community Interaction
 - Forums and discussion boards encourage peer-to-peer support and collaboration.
 - Some have mentors or moderators to guide discussions.

Table 1: MOOCs vs Traditional Leadership Development Programs

Dimension	MOOCs	Traditional Programs
Accessibility	Global, asynchronous	Often location and cohort-bound
Customization	Moderate	Highly tailored to firm needs
Networking & Mentoring	Limited online communities	Strong alumni networks, mentoring
Cost	Low to moderate	High
Flexibility	Learner-paced	Fixed durations, immersive

The optimal approach may combine MOOCs with face-to-face sessions, coaching, and on-the-job projects to build holistic leadership capabilities.

IX. Result Analysis

Table 2 : Participation & Completion Rates

Course Type	Enrollment (%)	Completion Rate (%)
General MOOCs	100	~15
Leadership MOOCs	35	~22
Paid Leadership MOOCs	12	~58

Table 3 : Reported Outcomes from Leadership MOOCs

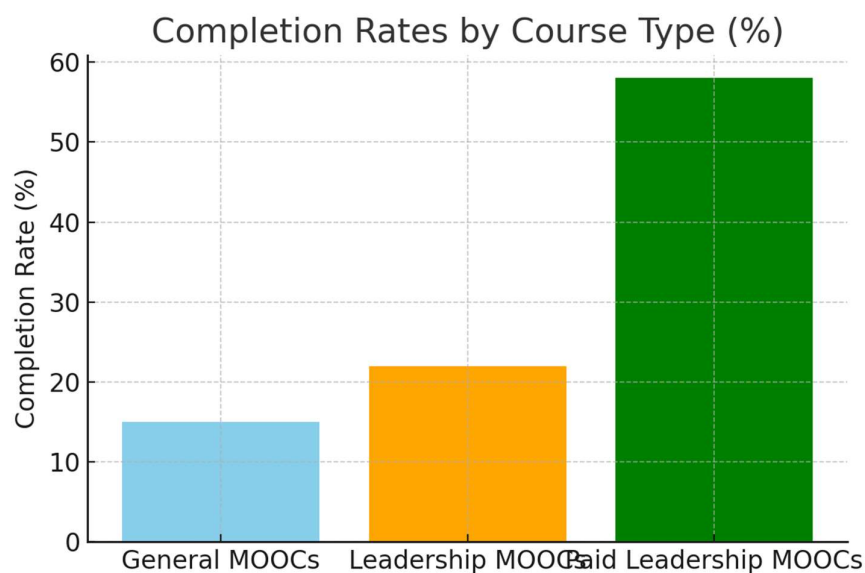
Outcome Type	Percentage of Learners
Improved Leadership Skills	72%
Career Promotion / New Roles	55%
Networking / Professional Links	48%
Confidence in Decision-Making	61%
Started Leading New Projects	38%

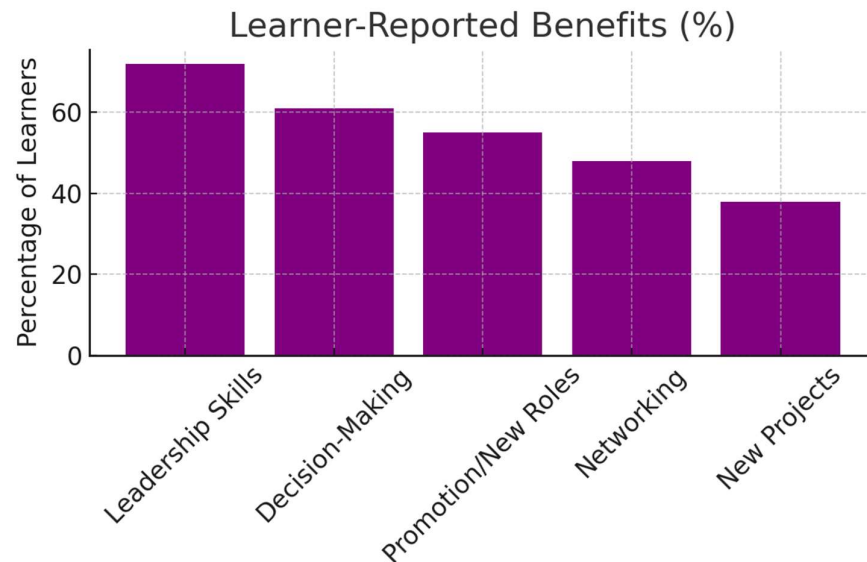
Table 4 : Key Factors Influencing Success in MOOCs

Factor	Influence Score (out of 10)
Course Content Quality	9.1
Peer Interaction	7.8
Mentoring Availability	8.2
Flexibility / Self-paced	6.9
Assessment Quality	7.5

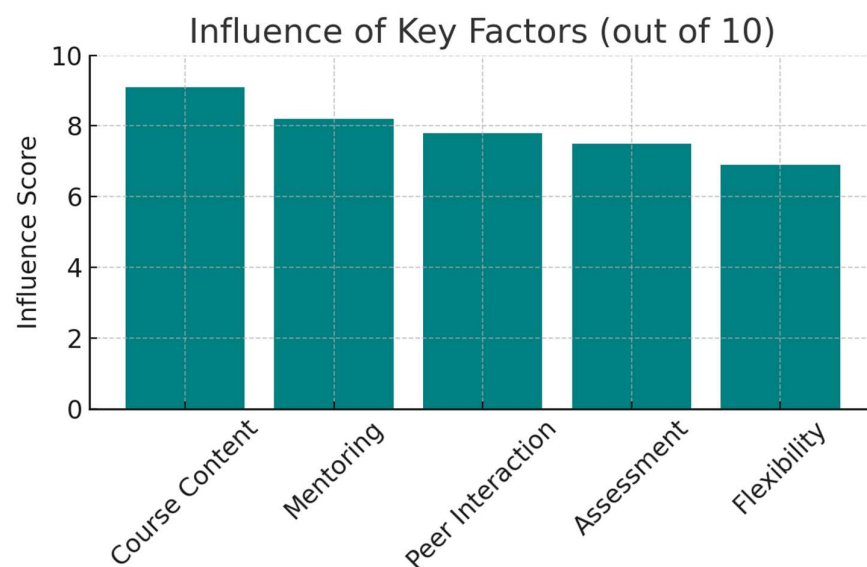
Summary Insights

- Leadership-focused MOOCs are more effective than generic MOOCs in terms of both completion and outcomes.
- Paid programs dramatically increase commitment and completion.
- Top drivers of success: excellent content, peer/mentor interaction, and meaningful assessments.
- Learners often see improved skills and direct career benefits.

**Graph 1 : Completion Rates by Course Type**



Graph 2 : Learner-Reported Benefits



Graph 3 : Influence of Key Factors

X. The Impact on Education

The impact of Massive Open Online Courses (MOOCs) on education has been profound and multifaceted, influencing various aspects of learning, teaching, and access to knowledge. MOOCs have democratized access to education by breaking down geographical and financial barriers, enabling learners from around the world to access high-quality courses from prestigious institutions. Individuals who might not have had the opportunity to pursue

traditional education, whether due to financial constraints or limited local resources, can now engage in meaningful learning through MOOCs. Additionally, MOOCs foster global learning communities by bringing together diverse participants with varied backgrounds and perspectives. Through discussions, shared experiences, and collaborative projects, learners become part of an interconnected network that promotes a rich global exchange of knowledge.

MOOCs also offer flexible learning environments, allowing learners to study at their own pace and from the comfort of their homes. This flexibility is particularly advantageous for working professionals, individuals with family commitments, or those with unpredictable schedules. In terms of professional development, MOOCs play a crucial role by providing courses on cutting-edge technologies, industry-specific skills, and emerging trends. Professionals can thus update their knowledge and acquire new skills relevant to their careers without enrolling in traditional degree programs.

Moreover, MOOCs have contributed to the rise of blended learning models, where traditional classroom instruction is enhanced by online resources and interactive elements drawn from MOOCs. Many educational institutions integrate MOOC content into their curricula to enrich student learning experiences. Often focusing on practical, skill-based learning, MOOCs provide hands-on experiences and real-world applications, enabling learners to acquire specific competencies that contribute to a more agile and responsive workforce.

The advent of MOOCs has also stimulated educational research and innovation, leading to the exploration of new pedagogical models, learning analytics, and adaptive technologies. Institutions and researchers leverage MOOC platforms to experiment with different instructional methods and gather data on learner behavior. At the same time, MOOCs have challenged traditional higher education models by offering alternatives to formal degree programs. While some universities have embraced MOOCs as part of their educational strategies, others face the challenge of adapting to these changing paradigms.

XI. Future Directions

Looking ahead, several trends promise to enhance the role of MOOCs in leadership development:

- **AI-Powered Personalization:** Algorithms will increasingly adapt content to individual learning paths and career trajectories.
- **Virtual and Augmented Reality:** VR-based leadership simulations could provide immersive decision-making experiences.
- **Integration with HR Systems:** Deeper links with talent analytics will align leadership MOOCs directly with competency frameworks and performance outcomes.

Such innovations may mitigate current critiques around depth and social connection, making MOOCs a more robust tool for cultivating future leaders.

XII. Conclusion

Massive Open Online Courses (MOOCs) have become a powerful platform for developing leadership skills, reaching millions worldwide. Their flexibility and scalability allow professionals to upskill at their own pace, making leadership education more accessible than

ever. Research shows that high-quality content and interactive elements in MOOCs significantly enhance leadership capabilities and real-world application. As organizations increasingly embed soft skills and DEI principles into leadership training, MOOCs stand out as an effective medium to deliver these evolving needs. Overall, MOOCs are transforming leadership development by making it more inclusive, practical, and aligned with the demands of a dynamic global workforce.

MOOCs have carved a significant niche in leadership development by offering accessible, scalable, and data-rich learning experiences. While they cannot wholly replace the relational and experiential depth of traditional programs, they serve as powerful complements, particularly in global or resource-constrained contexts. As technologies evolve and pedagogies adapt, MOOCs are poised to play an even greater role in preparing the next generation of leaders.

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