Proceeding of International Conference on Arabic Language (INCALA)

Organized by Arabic Department, Faculty of Letters, Universitas Negeri Malang

Utilizing edX Features as a MOOC Platform for Self-Paced Arabic Language Courses: A Qualitative Content Analysis

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ABSTRACT

This study aims to analyze the features of edX as a Massive Open Online Course (MOOC) platform for self-paced Arabic language courses. Learners increasingly need flexible learning that is not bound to a fixed classroom, yet it remains unclear how far a MOOC platform supports Arabic skills. The study used a descriptive qualitative design with content analysis of edX features, drawing on secondary data from literature and platform documentation. The features were assessed against the standards of an optimal Arabic course and mapped onto the four language skills and grammar. The findings show that edX organizes and reuses course materials efficiently, and that its multimedia modules, transcripts, automatic quizzes, and discussion forums suit listening, reading, and grammar. However, speaking and writing lack automatic assessment, right-to-left support needs testing, and course quality depends on the instructor. These results imply that edX needs supplementary tools and sound instructional design.

Keyword MOOC; edX; Arabic language learning; self-paced learning; content analysis

مستخلص البحث

يهدف هذا البحث إلى تحليل خصائص منصة edX بوصفها منصة للدورات المفتوحة واسعة النطاق عبر الإنترنت (MOOC) في دورات اللغة العربية للتعلم الذاتي. فالمتعلمون يحتاجون إلى تعلم مرن لا يرتبط بقاعة دراسية ثابتة، ولكن مدى دعم هذه المنصة لمهارات اللغة العربية لا يزال غير واضح. استخدم البحث المنهج الوصفي النوعي بأسلوب تحليل المحتوى لخصائص المنصة، اعتمادا على بيانات ثانوية من الدراسات العلمية ووثائق المنصة. وقُيّمت هذه الخصائص في ضوء معايير الدورة المثلى للغة العربية، ثم رُبطت بالمهارات اللغوية الأربع والقواعد. وأظهرت النتائج أن المنصة تنظم المواد التعليمية وتعيد استخدامها بكفاءة، وأن الوسائط المتعددة والتفريغ النصي والاختبارات الآلية ومنتديات النقاش مناسبة للاستماع والقراءة والقواعد. غير أن مهارتي الكلام والكتابة تفتقران إلى التقويم الآلي، وأن دعم الكتابة من اليمين إلى اليسار يحتاج إلى اختبار، وأن جودة الدورة تعتمد على المعلم. وتشير هذه النتائج إلى ضرورة دعم المنصة بأدوات إضافية وتصميم تعليمي جيد.

كلمات أساسية تعلم اللغة العربية؛ edX؛ الدورات المفتوحة واسعة النطاق عبر الإنترنت؛ التعلم الذاتي؛ تحليل المحتوى

Introduction (المقدمة)

Arabic language learning requires balanced mastery of four language skills, namely listening (istimā‘), speaking (kalām), reading (qirā’ah), and writing (kitābah), together with the rules of the language (qawā‘id), which learners must understand and apply in context. In the digital era, information and communication technology (ICT) has widened the reach of Arabic learning and encouraged innovation in learning resources, including multimedia such as video, audio, and interactive quizzes that can support learning when they are designed carefully (Mayer, 2021).

At the same time, many learners and members of the public are busy, mobile, and differ in the flexibility of their time and place, so they need a learning model that is not tied to a rigid classroom. Massive Open Online Courses (MOOCs) respond to this need. A MOOC is a general concept of large-scale online learning that anyone in the world can access openly, whereas edX is a platform that offers courses in this model and gives learners independent access to structured modules from universities around the world. Nevertheless, a comprehensive evaluation of MOOCs by Hollands and Tirthali (2014) concluded that MOOCs fell short of some of the expectations placed on them, which shows the importance of examining what a platform can actually offer for a particular subject such as Arabic.

Several studies have examined MOOCs and edX in related contexts. Islieh et al. (2021) investigated how a creative MOOC design could be used in a flipped classroom to engage secondary school students in learning Arabic. Guettia and Louani (2025) discussed e-learning strategies at an Algerian university, including the integration of a MOOC into the edX platform. Hollands and Tirthali (2014) provided a comprehensive evaluation of MOOCs that compared expectations with reality. Nevertheless, these studies focused on learner engagement, institutional strategy, or MOOCs in general. To the authors’ knowledge, few have mapped the features of edX specifically and systematically onto the needs of Arabic language courses, including the four skills and grammar.

Therefore, this study analyzes the features of edX as a MOOC platform for self-paced Arabic language courses and assesses how well they meet the standards of an optimal Arabic course, namely multimedia modules with transcripts, automatic formative quizzes, and interactive discussion forums. The novelty of this study lies in (1) a structured mapping of edX features for Arabic courses and (2) an analysis of the quality and standards of online Arabic language courses. The research questions are: (1) what are the operational characteristics and efficiency of edX as a MOOC platform in supporting the management of self-paced Arabic course materials? (2) to what extent are the features of edX (multimedia modules, transcripts, automatic formative quizzes, and discussion forums) suitable and of

sufficient quality to meet the standards of an optimal Arabic course? and (3) what are the capacity and functional limits of edX in supporting the four Arabic language skills (istimā‘, kalām, qirā’ah, kitābah) and the rules (qawā‘id/tarkīb) through self-paced learning?

Methods (منهجية البحث)

2.1 Research Design

This study employed a descriptive qualitative design with the content analysis method (Krippendorff, 2018). A descriptive qualitative design was chosen because the aim was to examine, dissect, and evaluate the main features of the edX platform and to describe them in depth, not to test hypotheses (Creswell & Creswell, 2018). The study was carried out as a group project (Group 5) in the [course name] course at the Arabic Education Study Program, Faculty of Letters, Universitas Negeri Malang, in the [odd/even] semester of [academic year].

The features and content of edX were analyzed against the standards of an Arabic language course and mapped to show how far the platform supports self-paced learning and mastery of the four Arabic language skills (istimā‘, kalām, qirā’ah, kitābah) and their rules (qawā‘id).

2.2 Research Object and Data Sources

The object of this study is the edX software, a platform that offers online courses in the MOOC model. The analysis focused on the features available to learners and course authors in the course studio and the learning management system (LMS). Because Open edX (free, community-maintained software) and the hosted edx.org service differ in their service model, the reference platform of this study is [state one: Open edX software / edx.org].

The data were secondary data obtained from scientific literature, namely journal articles and research reports on MOOCs, edX, and online Arabic language learning, supplemented by the official Open edX documentation (Open edX, n.d.). To illustrate how the features appear to learners, the team also examined an edX course ([course title and provider]) and documented its video with transcript, quiz, and discussion forum components.

2.3 Data Collection Techniques and Instruments

Data were collected through document study, namely searching, selecting, and reading literature and documentation related to the features of edX, supported by direct exploration of the platform. The research team served as the main instrument, supported by the analysis matrix in Table 1. The matrix was developed from the research questions and from the standards of an optimal Arabic course, namely the availability of multimedia modules (video/audio with transcripts), automatic formative quizzes, and interactive discussion forums, [and was reviewed by the course lecturer before use].

Table 1. Analysis Matrix

Aspect	Indicators
Operational characteristics and efficiency (RQ1)	Architecture (studio and LMS); openness; scale; reuse and management of components; accessibility and mobile access; service model
Feature suitability and quality (RQ2)	Video and audio with transcripts; HTML5 and text components; formative quizzes with automatic feedback; discussion forum; progress tracking and course dates
Support for skills and grammar (RQ3)	Features that support istimā‘, kalām, qirā’ah, kitābah, and qawā‘id/tarkīb; Arabic script and right-to-left (RTL) display; automatic scoring of speaking and writing
Suitability categories	High: the feature natively supports the task with automatic feedback. Medium: partial support or reliance on manual review. Low: no native support found.

2.4 Data Collection Procedure

Data collection proceeded in the following steps. (1) Determining the reference platform and the scope of features to be analyzed. (2) Searching and selecting literature and documentation on MOOCs, edX, and Arabic language learning from [databases, e.g., Google Scholar] using keywords such as [list keywords]. (3) Exploring the features of edX, including a sample course, and documenting them with notes and screenshots. (4) Recording the findings in the analysis matrix according to the research questions. (5) Checking the recorded findings against the literature and documentation.

2.5 Data Analysis

The data were analyzed using content analysis (Krippendorff, 2018) combined with the interactive model of Miles et al. (2014), consisting of data condensation, data display, and conclusion drawing/verification. The features and their content were read repeatedly, coded, and grouped into categories corresponding to the research questions: operational characteristics and efficiency, feature suitability and quality, and support for the four skills and grammar. The suitability of each feature for each skill was then categorized as high, medium, or low using the criteria in Table 1 and displayed in tables. Credibility was maintained through source triangulation (literature, official documentation, and direct exploration of the platform) and [peer discussion among team members / review by the lecturer].

2.6 Research Ethics

No human participants were involved. All data were obtained from published literature and publicly accessible documentation of the platform. All sources are acknowledged through citations and the reference list, and screenshots were used only for academic illustration.

Results & Discussion (نتائج البحث ومناقشاتها)

Table 2 summarizes the main findings by aspect and shows which research question (RQ) each finding answers. The following subsections elaborate on these findings.

Table 2. Summary of Main Findings by Aspect

Aspect	Main finding	RQ
Architecture	A studio for course authoring and an LMS for learning; courses are hierarchically structured and can be exported (OLX)	RQ1
Management efficiency	Components can be duplicated and reused; question banks are managed through a content library	RQ1
Multimedia and transcripts	Video with transcript options, as well as HTML5 content and embedded text	RQ2
Assessment	Multiple choice, checkboxes, dropdown, text input, numerical input, and open response assessment (self, peer, staff)	RQ2 and RQ3
Interaction	Discussion forum, bookmarks, and grade and progress tracking	RQ2
Arabic-specific needs	An Arabic interface translation is available; RTL support is still reported by the community to have gaps; no built-in automatic pronunciation assessment was found	RQ3

3.1 Operational Characteristics and Efficiency of edX

Table 3 presents the characteristics of edX and their implications for self-paced Arabic courses. edX is open and open source, so the software can be installed and modified, and course managers can adapt its display and add components. It is designed for large numbers of participants, which suits a broad and diverse audience of Arabic learners. Automatic assessment and access at any time suit learners with limited time. Course authoring in the studio is separated from course delivery in the LMS, so teachers can focus on the design of materials. The platform refers to the WCAG 2.1 AA accessibility guidelines and uses a responsive web design, so lessons can be studied from a mobile phone. Finally, the service model differs: Open edX is free and managed by its community, whereas edx.org is a hosted service, which is why a reference platform must be determined from the beginning of a study.

Table 3. Characteristics of edX and Their Implications

Characteristic	Explanation	Implication for self-paced Arabic courses
Open and open source	The software can be installed and modified	Managers can adapt the display and add components
Large scale	Designed for a large number of participants	Suits a broad and diverse audience
Self-paced learning	Automatic assessment and access at any time	Suits learners with limited time
Studio and LMS	Course authoring and delivery are separated	Teachers can focus on the design of materials
Accessibility and mobile	Refers to WCAG 2.1 AA; responsive web	Materials can be studied from a mobile phone
Service model	Open edX is free and community-managed; edx.org is a hosted service	A reference platform must be determined from the start of the study

In terms of efficiency, the hierarchical course structure and the ability to export a course (OLX) allow materials to be organized by unit and moved between courses. Components can be duplicated and reused, and question banks are managed through a content library, so a teacher who writes a set of grammar items does not need to rewrite them for every unit. The main features identified were video lessons, discussion forums, quizzes and exercises, progress tracking, course dates, program types, a course catalog, reading materials and handouts, assignments, certificates, a learner dashboard, and a course outline.

These findings indicate that edX is operationally efficient for managing course materials, which is consistent with its design for large-scale open courses. However, large-scale access does not by itself ensure that expectations are met (Hollands & Tirthali, 2014), so the suitability of the features for Arabic must be examined, as presented in the next sections.

3.2 Suitability and Quality of edX Features

Video lessons can be delivered with transcript options, and HTML5 or embedded text components allow written text to be displayed alongside the media. For Arabic learners, an interactive transcript connects the written Arabic text with its pronunciation, so learners can follow a listening text. This is consistent with the premise of multimedia learning that combining verbal and visual or auditory representations can support learning when it is designed carefully (Mayer, 2021). However, audio quality and variation in dialects must be designed by the course manager, because the platform only delivers the media.

Formative quizzes with automatic feedback are available in several formats, including multiple choice, checkboxes, dropdown, text input, numerical input, and drag and drop (Open edX, n.d.). These formats measure vocabulary (mufradāt) and grammar (qawāʿid) effectively, and instant feedback and randomized question pools suit repeated practice.

Discussion forums allow interaction among participants and with instructors, while bookmarks, grade tracking, progress tracking, and course dates help learners monitor their progress and manage their study time. These features support a structured and self-paced learning pattern. At the same time, the interaction is asynchronous and does not replace live conversation, as discussed in Section 3.4. Overall, the features meet the three standards of an optimal Arabic course (multimedia with transcripts, automatic formative quizzes, and interactive forums), but their quality depends on how the course is designed.

3.3 Support for the Four Skills and Grammar

Table 4 maps the features of edX onto the four Arabic language skills and grammar and states the level of suitability for each.

Table 4. Suitability of edX Features for Arabic Skills and Grammar

Skill	Supporting features	Suitability	Notes
Istimā‘ (listening)	Video and transcript; multiple choice; text input	High	The transcript helps learners trace the listening text; audio quality and dialect variation must be designed by the course manager
Kalām (speaking)	ORA with file upload; discussion forum	Low to medium	No built-in automatic pronunciation assessment was found; feedback depends on teachers or peers, so it is difficult to scale
Qirā’ah (reading)	Text/HTML5 components; multiple choice; dropdown	High	Reading comprehension is easy to assess automatically; RTL display and diacritics (harakat) must be tested in the version used
Kitābah (writing)	Text input; ORA (self, peer, staff)	Medium	Text input requires an exact match, so variation in diacritics or spelling can be marked wrong; longer writing depends on ORA
Qawā‘id/tarkīb (grammar)	Multiple choice; dropdown; drag and drop; answer explanations	High	Instant feedback and randomized question pools suit repeated practice

Table 4 shows that suitability is high for listening, reading, and grammar, medium for writing, and low to medium for speaking. This pattern is not surprising because the strongest tools of the platform are objective items with automatic feedback, whereas skills that require productive output depend on review by a teacher or peers. In other words, edX can carry the receptive skills and grammar practice in a self-paced course, but it cannot by itself replace the human feedback that speaking and writing need.

3.4 Strengths, Limitations, and Implications

The strengths of edX for Arabic courses are (1) multimodal materials, with video, text, and native speaker audio in one learning flow; (2) interactive transcripts that connect Arabic writing with its pronunciation; (3) evaluation with automatic feedback, which is effective for measuring vocabulary and grammar; (4) discussion forums for interaction among participants and with the instructor; and (5) a modular and phased structure that is flexible and not tied to a classroom.

Its limitations are (1) speaking (kalām) is not yet optimal because there is no built-in recording and pronunciation assessment; (2) the assessment of writing (kitābah) is limited because automatic feedback is available only for objective items; (3) support for Arabic script and right-to-left direction requires adjustment of diacritics and question layout; (4) social interaction is asynchronous, and forums do not replace live conversation; and (5) quality depends on the teacher, since edX is only a platform and the design of materials and audio comes from the instructor.

These findings imply that edX needs supplementary tools, for example for recording and reviewing learners’ speech and for live interaction, and that its effectiveness depends on good instructional design (Mayer, 2021). This study did not test learning outcomes, so the findings concern suitability and not effectiveness.

3.5 Limitations

This study was limited to an analysis of the features of edX based on secondary data from literature and platform documentation, supplemented by the exploration of a sample course, and it did not involve learners or teachers. Platform features and documentation change between versions, so the findings should be rechecked against the version used, and they cannot be generalized to all MOOC platforms. Further research is needed to test the use of edX with Arabic learners, including its usability and learning outcomes.

Conclusions (الخاتمة)

This study found that (1) edX is operationally efficient for managing self-paced Arabic course materials because it is open, designed for large-scale participation, separates course authoring (studio) from delivery (LMS), and allows components and question banks to be reused; (2) its multimedia modules with transcripts, automatic formative quizzes, and discussion forums are fairly suitable for the standards of an optimal Arabic course, although their quality depends on the course design; and (3) it supports listening, reading, and grammar well, whereas speaking, writing, and live interaction remain limited and need supplementary tools. It is recommended that course designers combine edX with tools for speaking and writing feedback and test Arabic script and RTL display in the version used, and that future researchers test the platform empirically with Arabic learners.

Acknowledgment

The authors thank [name of lecturer] for supervision and review of this article. [Funding source, if any.]

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