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Research Article

Going Above and Beyond: Revolutionising Thai Secondary Schools Education via MOOC Course Development

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ABSTRACT

This study aims toward developing and implementing a Massive Open Online Course (MOOC) learning model specifically for Thai secondary schools in order to address challenges in relation to online learning with the intention to create a tailored curriculum, content, and online lessons which comply with learners' needs in the changing landscape of teaching and learning. The research involved 70 school representatives from the Secondary Educational Service Area Office of the Mahasarakham prefecture with their consented participation in interviews and questionnaires for data collection. The data was then analysed via content analysis and descriptive statistics. The key findings of the study deduce that the students have their own learning devices, with 80% having internet access from home. Students are actively engaged in online learning, showing positive participation and effective use of teacher programs. Teachers provide strong support and recommend online resources, indicating moderate views towards the MOOC implementation. Recommendations from the study include limiting MOOC course content to 12 hours, with 35% delivered through video media in 10-minute segments. Teacher development guidelines must emphasise classroom management, teaching skills, and digital proficiency. Overall, this research contributes to the advancement of MOOC learning models in Thai secondary education, aiding in facilitating the shift towards digital teaching and learning methods.

Keywords: Curriculum Development, Massive Open Online Courses (MOOC), New Normal, Secondary School

1. INTRODUCTION

Throughout the 21st century, several facets of society, including the economy, industry, and education, have seen swift and significant changes. This development has been defined by the shift from conventional services to technology-based solutions, resulting in higher levels of productivity in all sectors [1]. In the education industry, such noticeable shifts have been witnessed towards the use of modern technology to provide students with a broader array to open the door of educational opportunities with ever stronger focus on cultivating proficiencies in data analysis and information synthesis. This paradigm change has also resulted in a redefining of the role of educators, who are now seen to be builders of education rather than just disseminators of knowledge. This is due to the fact that learning has become more personalised and specialised [2].

Considerable efforts towards education reform are currently undergone in Thailand, displaying the reflection of a broader global trend towards prioritising information and communication technology (ICT) across educational frameworks in the country through substantial investments, of which such trends are emblematic of the nation-wide recognition that the resilience and prosperity of a nation are directly correlated to the capabilities of its population. This can be built upon through a forward-looking education curriculum [3]. Massive Open Online Course (MOOC) classrooms have become a focal point of attention as a result of the necessities brought about by the emergence of

COVID-19 outbreak [4], furthering towards the requirement for educational solutions of novelty.

Academics and researchers have hypothesised that incorporating massive open online courses (MOOCs) into foundational education might stimulate the expansion of educational opportunities and foster a lifelong culture of learning [4]. A pioneering research initiative in Thailand is focused on developing a specialised open education management system for secondary schools in the Maha-Sarakham prefecture. This system will be based on massive open online courses (MOOCs). The objectives of this project are to develop online courses, curate instructional content, and construct assessments that seamlessly integrate into the massive open online course (MOOC) platform. One of the primary goals of this endeavour is to provide students with the opportunity to quickly and easily transfer credits that they have earned via online learning to their traditional academic approaches.

A blueprint for a revolutionary pedagogical method in basic education, through the research effort, is expected to lead outcomes towards a strategic plan for region-wide implementation and hopefully, adoption by educational institutions, which is comprehended to bring about the betterment of learning outcomes and cultivate a culture and mindset towards self-directed learning, critical thinking, and flexibility among the targeted students. This programme will provide students with the essential expertise to excel in an increasingly digital and linked society. This will be accomplished by bridging the realms of technology and education. In addition, policy recommendations for anticipated paths are examined, as well as the ways ahead for further study to be conducted in this specific field in the future.

2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

A. MOOC Course Development: Urgent and Vital

Primarily, MOOCs offer educational opportunities to a wide audience, enabling them to consistently grow and improve their skill-set, expertise, and academic comprehension without the boundaries, such restrictions, including rigours of minimum learner enrolment requirements. In order to attain success in this format of educational provision, various amount of methodologies and learning management systems can be integrated into the learning system, permitting students to study at their own pace, in accordance with their individual capabilities and capacities without the problem of physical class attendance. By eliminating the requirement for students to travel to attend lectures, open education employs a wide variety of learning approaches.

Instead, learning occurs through various multimedia, and there may be supplementary learning experiences scheduled periodically. Educational institutions implementing open education prepare lessons in advance, enabling learners to engage with self-direction so as to learn via numerous media types. Therefore, the significance of open education and reversed learning approaches has gained popularity, particularly in the modern world where education and technology are closely intertwined and pushed towards the different and unprecedented target groups of diverse needs - a departure from what the stake was traditionally.

B. Open Education: Towards a Changing Future

It can be interpreted that open education is a type of lesson and/or course for a subject which is openly taught and accessible to the mass via the internet with the aims to create a repository of learning resources, empowering interested individuals to learn and explore without any learning hindrances. In these lessons and courses, detailed information may be provided to the extent that those who access the system can learn about the course's level, instructors, lecturers, the frequency and weekly duration of lectures, and the specifics of each week's lecture contents.

Course objectives, learning materials both digital and physical release, and computer software applied in teaching are outlined and utilised as a knowledge market open to the larger public whose electronic devices and internet access are to be had. This provides equal educational opportunities for interested parties. Contemporarily, open education and reverse learning are becoming more prevalent in today's society with the interrelatedness between education and technological innovation given the fact that it can potentially facilitate limitless knowledge access and revolutionary educational formats and methodologies realised from such arrangements to aid learners through knowledge provision and acquisition. Such developments have risen to the occasion as a relief to the existing learning obstacles while addressing societal demands in learner-centred education.

C. Conceptual Framework

The MOOC conceptualisation is applied in this research in an effort to address the creation, application, and

development of MOOC class format for numerous secondary school learners to reduce physical classroom periods and wave off any limits in learning pathways in contrast with traditional classrooms through the adoption of open education framework. The selection of class contents and topics for secondary school education is performed to derive online classes, including the following process: content selection, difficulty level organisation, media creation, quiz development, outcome measurement, and system upload. The developed curriculum is then trailed and vindicated by 35 affiliated secondary schools under the jurisdiction of *"Bureau de la zone des services d'enseignement secondaire de la préfecture de Maha-Sarakham"* for effectiveness and outcomes, preparing for dissemination and knowledge transfer to other educational institutions in the future, aligning with Thailand's national strategy to transform into 'Thailand 4.0' educational reform initiatives, framework, and strategies towards self-driven education, critical thinking, and adaptability amongst students.

3. RESEARCH METHODOLOGY

This research takes a discourse of a research and development (R&D) format with an exploratory nature aimed at addressing the challenges of such learning arrangements through creating curriculum, contents, and online lessons within the MOOC system, evaluating the effectiveness of the developed curriculum, and presenting best-practices for teacher development in the preparedness for teaching online lessons for this type of learning arrangements.

Primarily, this research is to align the development of MOOC class arrangements and the curriculum and the needs of learners as an effort of transitioning towards novel learning approaches which can be exploited by educational institutions and instructors to devise and enhance the efficiency and effectiveness of the learning process by cutting down physical classroom time as well as integrating technological advancement into the curriculum itself. The research procedure involves the design and development of a MOOC-integrated educational scheme, online courses, and contents based on the target learners' demands with the consideration of differing learning capabilities and capacities, preferences, and goals aimed to establish a learning environment that is engaging, interactive, and effective, enabling learners to mature in their full potential.

The study is also inclusive of the measure effectiveness assessment tools and methods of the developed courses, developed to provide insights into the advantages and drawbacks of the curriculum, enabling the room for continuous improvements throughout the project period. The study also includes the best practices for the development of teachers/educators towards the readiness preparation and the use of MOOC as the main learning delivery method, which has been crafted provide teachers with the expertise, skill-set, and resources to effectively deliver such format of lessons, ensuring that learners receive quality instruction and support.

4. RESEARCH OUTCOMES AND IMPLEMENTATION RECOMMENDATIONS

Throughout an extensive period of trial, the following can be obtained as the outcomes from this research:

A. Observed Online Learning Behaviours

The outcomes from the collected survey has led to the following discoveries: all the surveyed students are in the possession of their mobile communicative devices, including smartphones, laptops, and tablets. The stability of internet connection is reported to the acceptable level by 80% of the surveyed students. A higher level of engagement is noted as students inquire their questions and clarifications from their respective teachers and classmates throughout the online learning periods. Autonomously, students report that the access to programmes and software deployed while in class session by teachers for teaching can be done without much difficulty. Teachers provide supplementary documents, including worksheets and repository sources, beyond online teaching management to a considerable extent.

B. Issues of the Online Method and Learners' Needs

There are a significant chunk of students living in rural parts with unfavourable internet connection stability. In addition, the impact of adverse weather also pose significant challenges on how scheduled online classes are formatted, as it poses concerns and severe disruptions through strong winds and heavy rain. Students' concerns are expressed highly for teachers' ability to provision in-class material in advance of the class, as well as establishing methods towards alternative learning methods to accommodate the readiness of their students as well as in times of disruption to the teaching sessions. The expression of preference towards novel and contemporary learning media

and appropriate channels is prevalent for the group to enable student-focused learning flexibility as they aim to learn independently and compare the effectiveness of their learning outcomes with traditional teacher-led instruction.

C. MOOC Course Development and Assessment

As a way to overcome the stipulation of learning hour requirement, video excerpts must be produced with 35% of the class contents for each course, not surpassing 10 minutes in duration. It must be emphasised that every course must be constructed to include supplementary materials for further studies to be undertaken by students, knowledge enhancement activities, and other resources to enhance learning, totalling up to 65% of the total course duration. The outcome of such arrangements must demonstrate complete alignment with the determined learning outcomes in terms of the media and teaching contents.

D. Teacher Development Methods

Opportunities to enable teachers to engage in the process of designing classroom management by examining the core curriculum, school curriculum, assessment criteria, and evaluation in order to inform the entire instructional framework must be realised in conjunction with the teaching framework, including the creation of educational management plans, administrative plans, budgeting, and monitoring and evaluation plans with the priority provided for individual difference in teaching styles, content appropriateness, skill set, and abilities in learning management. Appropriate practical training programmes must be supported in favour of collaborative approaches for consistent classroom management. Improvements and developments are customised and adapted in classrooms based on essential technological resources for effective learning management and maximised knowledge acquisition by students.

Schools and district-focused educational authorities must contribute to support and empower educators and teachers with innovative and contemporary teaching practices, includes through information technology skills given the centrality towards organizing activities throughout the teaching and learning process. In addition, plans for the revision and analysis of the use of information technology and digital platforms by teachers must be evaluated in order to evaluate their skills, make systematic and/or operational improvements, and further in system development.

Training and development programmes must include activities which are catered directly in response to the needs of learning management, and considered in regard to the alignment with the operational context of the school itself. Schools' regulations and policies must be crafted to empower every teachers' self-development in the use of information technology, and digital platform and communication in the learning management process to aid in the accessibility of materials and equipment, including media and information technology, and improving the information technology infrastructure in schools to enhance teachers' readiness for learning management.

E. Policy and Ways Forward Recommendations

The following is recommended as ways forward policies in response to the improvement of education quality through the integration of information technologies and digital platforms:

The prioritisation must be directed towards teacher/educator support and promotion in specialised areas, such as technology, digital technology, and communication skills to assure adequate preparation for effective innovative and digital integration in classroom and pedagogical methods, which can be seen in numerous formats, including offering training and development programmes for teachers/educators to enhance their skill-set and expertise in technology and digital integration, as well as creating online MOOCs or class content.

In addition, it is critical that the promotion of digital and technological integration is encouraged with the aims to develop and adopt technology and creativity by instructors for teaching and creating educational materials, while also offering students the educational opportunity on demand, which can be driven through the advocation for online learning platform integration, digital release of class materials, and tools that provoke critical thinking and creativity amongst students, enhancing the experience further beyond traditional classroom of familiarity and contributing to the cultivation of individualised and lifelong learning mindset going forward.

Administrators require novel and further assistance in guideline formulation to implement such novel pedagogical and administrative approaches, along with the hybridisation of learning options for students, which can be achieved through a coherent guideline aimed at promoting the utilisation of technological and digital integration, as well as the inclusion of explicit instructions for implementing these strategies in the classroom in both traditional and online

settings.

The support for the growth of teachers/educators and the encouragement for them to take higher and active involvement in planning classroom management is of perennial vitality given their closeness to students. This can be executed through the creation of cooperation and sharing environment for teachers while encouraging their endeavours in the academia to foster the ownership and responsibility towards effective teaching methods to result in enhanced learning experience for students.

In fact, further policies to empower teachers' expertise and understanding of technological and digital integration through equipping teachers/educators with appropriate tools and materials to effectively instruct and manage classes. This can be carried out effectively by granting them with appropriate access to the digital library of resources, training and development programmes, and support services to assist teachers in technological and innovative integration into their teaching methods. Through this, it will enhance their class delivery strategy and facilitate in the creation of captivating and efficient learning experiences for students as a result.

5. CONCLUSION AND DISCUSSION

The establishment and development of the MOOC learning management system aim to prepare and adapt to the new lifestyle of education for basic education schools under the supervision of the Basic Education Committee. MOOC technology and principles are deployed to provide learning opportunities at the foundational education level, aligning with educational reform that emphasises information technology, and communication to enhance learning activities [5]. MOOC systems consist of seven main components: management, system and service, teaching, planning and design, implementation, learning outcome evaluation, and management [5].

From the outcomes of this research, teachers generally expressed a favourable opinion on using MOOCs, with a desire for training and assessment at the individual level, advice and guidance on online teaching management in a mentoring system, and external professional development at the institutional level [6].

Regarding satisfaction with the developed lessons in the MOOC system, overall satisfaction is rated highly, with the top three factors contributing to satisfaction being: (1) the lessons' facilitation of content review, (2) the alignment of images and videos with the learning content, and (3) the lessons' inspiration and motivation for learning [7]. Adaptation efforts during the COVID-19 spread improved with the introduction of adjustment guidelines, involving various dimensions, namely learning and teaching, learning support and resources, measurement and evaluation, and student activity management [7]. This is highly consistent with the study by Martin and Fernandez (as cited in Intarachai in the year 2012 [8]) on the role of new technology in the Moodle learning process as a tool for teaching physics suggests that learners respond well to online physics teaching, enhancing both their abilities and knowledge and the study by Bi (as cited in Intarachai in the year 2012 [8]) suggests that students who engage in face-to-face learning activities transition well to network-based learning. The design of educational websites correlates with the design of teaching and development, instructional content delivery, and the promotion of management components in design [8].

In a nutshell, MOOC technology and principles are used to provide learning opportunities at the foundational education level, aligning with educational reform that emphasizes the use of information technology and communication to enhance learning activities for both teachers and students [5]. Teachers express favourable sentiments towards MOOC format and its platform, with a desire for training and assessment at the individual level, individualised guidance on online teaching management, and institution-encouraged external professional development [6]. Adaptations during the COVID-19 outbreak has improved with the introduction of adjustment guidelines, involving the various dimensions in school setting, including (but not limited to) learning and teaching, learning support and resources, measurement and evaluation, and student activity management [7]. The design of educational websites correlates with the design of teaching and development, the delivery of instructional content, and the promotion of management components in design [8].

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