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ONLINE LEARNING EXPERIENCES OF CHINESE AND MALAYSIAN UNIVERSITY STUDENTS: A CROSS-CULTURAL COMPARATIVE STUDY

EXPERIENCIAS DE APRENDIZAJE EN LÍNEA DE ESTUDIANTES UNIVERSITARIOS CHINOS Y MALASIOS: UN ESTUDIO COMPARATIVO INTERCULTURAL

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ABSTRACT

The online learning experience, a crucial indicator for measuring the quality of online education, is of utmost significance to optimize course design and enhance learning outcomes. This study compares online learning experiences among university students in China (n=129) and Malaysia (n=127) using the Australian CEQ framework. Chinese students reported a markedly higher online learning experience than their Malaysian counterparts (M = 3.78 vs. M = 3.33). Precisely, Chinese students scored remarkably higher than Malaysian students in the dimensions of good teaching, clear goals & standards, appropriate workload, and generic skills, although no significant difference was noted in the dimension of appropriate assessment. Besides, Chinese students' experience declined with grade level, while Malaysians remained stable. Thus, both countries should enhance online education through resource sharing, technical support, and course design improvements. Cross-cultural collaboration is recommended to promote educational equity and quality, offering insights for global online education optimization.

Keywords: Chinese and Malaysian university students; online learning experience; cross-cultural comparison.

RESUMEN

La experiencia de aprendizaje en línea, un indicador crucial para medir la calidad de la educación en línea, es de suma importancia para optimizar el diseño de los cursos y mejorar los resultados de aprendizaje. Este estudio compara las experiencias de aprendizaje en línea entre estudiantes universitarios en China (n = 129) y Malasia (n = 127) utilizando el marco CEQ australiano. Los estudiantes chinos reportaron una experiencia de aprendizaje en línea notablemente superior a la de sus contrapartes malasias (M = 3.78 frente a M = 3.33). Precisamente, los estudiantes chinos obtuvieron puntuaciones notablemente superiores a las de los estudiantes malasios en las dimensiones de buena enseñanza, objetivos y estándares claros, carga de trabajo apropiada y habilidades genéricas, aunque no se observaron diferencias significativas en la dimensión de evaluación apropiada. Además, la experiencia de los estudiantes chinos disminuyó con el nivel de grado, mientras que la de los malasios se mantuvo estable. Por lo tanto, ambos países deberían mejorar la educación en línea mediante el intercambio de recursos, el soporte técnico y las mejoras en el diseño de los cursos. Se recomienda la colaboración intercultural para promover la equidad y la calidad educativas, ofreciendo perspectivas para la optimización de la educación en línea global.

Palabras clave: Estudiantes universitarios chinos y malasios; experiencia de aprendizaje en línea; comparación intercultural.

INTRODUCTION

The rapid advancement in the field of artificial intelligence and information technology has led to a remarkable surge in global higher education in digitalization. Digital technology has surpassed the temporal and spatial boundaries of conventional classroom teaching, aiding the expeditious accumulation of dispersed top-tier educational resources, thereby allowing premier university courses to transcend campus boundaries and be shared across institutions, regions, and even countries. Accordingly, online learning has appeared as a vital source for university students to obtain knowledge, rendering the enrichment of the online learning experience a pivot for higher education institutions and educational departments globally. However, online learning also faces several challenges, with the foremost being low course completion rates, unsatisfactory active engagement, diminished learning motivation, and learner dissatisfaction due to these issues.

The validity and depth of online learning experiences do not exist in isolation but are deeply embedded within the social ecosystem in which students are situated. According to Bronfenbrenner's (1977), ecological systems theory, individual development is shaped by multi-level interactions across microsystems (e.g., family, classroom), mesosystems (educational institutions), and macrosystems (cultural values). Within this framework, variations in online education environments across nations can be attributed to the complex interplay of social habits, educational systems, and cultural contexts (Ferrer et al. 2022), which collectively shape students' distinctive learning behaviors and adaptation patterns. As representative developing countries in Asia, China and Malaysia's online education practices reflect both the commonalities of global technological diffusion and the profound differences rooted in local contexts.

China's online learning ecosystem, built upon collectivist culture, high-stakes examination traditions, and government-led technological promotion, fosters students' adaptability to structured curricula and reliance on authority. In contrast, Malaysia's multicultural background, streaming education system, and Western colonial heritage have cultivated more open-ended and pragmatic learning strategies. Although both countries face shared challenges such as digital divides and weakened teacher-student interaction, differences in cultural cognitive logic and institutional inertia may lead to divergent student experiences with identical technological tools (Aguilera-Hermida et al., 2021).

However, existing research predominantly focuses on online education effectiveness within single cultural contexts, leaving the dynamic coupling mechanisms of culture-education-technology in cross-national comparisons underexplored. Using ecological systems theory as an analytical framework, this study compares the heterogeneity of online learning experiences among Chinese and Malaysian university students to reveal how social habits, educational trajectories, and cultural contexts influence technology-enabled practices through nested mechanisms. This exploration not only contributes to refining cross-cultural online education theory but also provides empirical evidence for optimizing regional digital education ecosystems and designing culturally responsive pedagogical strategies.

Comprehending the essence of the online learning experience is imperative to optimize course design and enhance learning outcomes. The academic definitions of learning experience predominantly stem from views in education, psychology, and user experience. From an educational standpoint, the learning experience signifies the experiences and feelings that students obtain in and around the course. From a psychological standpoint, learning experience denotes the subjective feeling experienced by learners during the learning process (Csikszentmihalyi 2000). From the user standpoint, it is defined as the learner's subjective cognition and response to a product or service. In addition, the Glossary of Education Reform (Great Schools Partnership, 2025), defines learning experience as any interaction, course, or environment that creates experience during the learning process. As a unique form of learning experience, online learning experience comprises both cognitive and emotional attributes.

Compared with traditional classrooms, the online learning experience depends more on the technological environment, interaction design, and the learner's self-regulated learning capabilities (Liu et al., 2016). It not only embraces the learners' subjective psychological feelings about the online course environment, learning activities, and learning outcomes but also covers perceptions and responses to technological platforms and teacher–student interactions. Briefly, this study defines the online learning experience as the wide-ranging reflection of learners' perceptions, responses, and behavioral manifestations toward the online teaching process, learning environment, and learning results.

Lately, the factors influencing the learning experience have become a research hotspot. Research demonstrates that technology (Shehab et al., 2021), mental health, time management (Maqableh & Alia, 2021), and learning motivation (Ferrer et al. 2022) influence students' online learning experiences. In addition, teaching strategies and examination strategies influence students' learning experiences. Besides the factors mentioned above, learner background characteristics, such as gender, age, grade level (Chen & Xie, 2021), and educational level (Tang et al. 2021), have also been identified as factors influencing learning experience. Although the factors influencing learning

experience are complex and diverse, they broadly include teaching skills, learning skills, and assessment skills.

MATERIALS AND METHODS

The assessment of learning experience is usually performed using methods like experimental studies, surveys and questionnaires, learning log behavior analysis, interviews, and mixed methods. Maqableh & Alia (2021), examined students' online learning experiences in three stages, deliberating both the positive and negative aspects of online learning. Agyeiwaah et al. (2022), used a user experience questionnaire through Qualtrics for online data collection, surveying 216 students majoring in tourism and hospitality in Macau. Zutshi et al. (2013), used learning logs published by MOOC learners as data sources to assess "why learners choose the course," "positive elements of the learner experience," and "aspects of the course that need improvement." Cao (2025), employed an image-inspired approach to examine the online learning experiences of four college students during emergency remote teaching.

Maqableh & Alia (2021), interviewed 60 online learners to further explore their experiences and determine factors of dissatisfaction. Barrot et al. (2021), applied mixed methods to investigate students' online learning experiences from the viewpoints of home learning environments and technological literacy. A review of pertinent literature revealed that the dimensions and content of learning experience differ markedly, and research subjects are often limited to a single class, grade level, or course, lacking differentiated research on large-scale online learning experiences. Hence, this study aims to utilize authoritative learning experience survey tools from abroad to examine the current state and characteristic differences of online learning experiences among university students in China and Malaysia, thereby expanding the related research.

The Course Experience Questionnaire (CEQ) is a vital tool to assess the quality of higher education courses. Since its development by Lancaster University in the 1980s, it has been extensively used for performance evaluation of teaching efficacy. The CEQ has been revised and modified multiple times. The earliest version contained 30 items, categorized into five dimensions: Quality Teaching (8 items), Clear Goals and Standards (5 items), Appropriate Workload (5 items), Appropriate Assessment (6 items), and Emphasis on Independence (6 items). However, Richardson (1994), identified problems with the scale structure, especially with the "Emphasis on Independence" dimension, which had a weak structure. Consequently, it was removed, and a General Skills dimension was incorporated, creating the CEQ-23 version.

This revision markedly enhanced the stability of the scale and the clarity between item dimensions (Wilson et al., 1997). The CEQ has been extensively applied in higher education quality research in Western countries like Australia (Hirschberg & Lye, 2016), Canada (Kreber 2003), and Ireland. The Australian government even uses CEQ results as a key criterion for university rankings (Webster et al., 2009). Originally applied to the evaluation of learning experiences in conventional courses, the CEQ has also been established to be suitable for measuring online course learning experiences. Given the high internal consistency and satisfactory factor structure of the CEQ-23 version (Wilson et al., 1997), we will use this version as the measurement tool for online learning experiences.

We enrolled undergraduate students from two universities in China and two universities in Malaysia, with a total sample size of 256 participants. The Chinese sample comprised 129 students (males, 78 [60%]; females, 51 [40%]) from universities in Hebei and Guangxi. The Malaysian sample comprised 127 students (males, 32 [25%]; females, 95 [75%]) from two universities in Selangor. All participants were surveyed anonymously, and participation was voluntary with no compensation offered.

The CEQ, developed by Marsh et al. (2011), in Australia, is one of the leading tools used for collecting feedback on teaching from university students. This questionnaire is an authoritative course quality assessment tool, designed from the viewpoint of students' learning experiences to assess teaching quality. We used a modified version of the CEQ, which contains 5 dimensions (Good teaching scale, Clear goals & standards scale, Appropriate assessment scale, Appropriate workload scale, Generic skills scale) and 23 items, scored using a 5-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree). To amplify the accuracy of the assessment, some items were reverse-scored. The overall average score and the average scores for each dimension serve as the scale scores, where higher scores denote a higher level of student experience in online learning.

We evaluated the internal consistency reliability of the questionnaire using the Cronbach α coefficient. The overall Cronbach α for the Chinese sample was 0.92, with coefficients ranging from 0.71–0.97 for different dimensions (Table 1).

Table 1. Cronbach α values of the Chinese sample.

Construct	subconstruct	construct
Learning Experience Scale		0.92
Good teaching	0.97	
Clear goals and standards	0.73	
Appropriate assessment	0.73	

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Appropriate workload	0.71
Generic skills	0.97

Source: Prepared by authors

For the Malaysian sample, the overall Cronbach α was 0.82, with coefficients ranging from 0.73–0.92 for different dimensions (Table 2). A coefficient >0.7 represents acceptable reliability, whereas a coefficient >0.8 signifies very good reliability. Thus, the questionnaire demonstrated good internal consistency in this study.

Table 2. Cronbach α values of the Malaysian sample.

Construct	subconstruct	construct
Learning Experience Scale		0.82
Good teaching	0.92	
Clear goals and standards	0.77	
Appropriate assessment	0.81	
Appropriate workload	0.73	
Generic skills	0.90	

Source: Prepared by authors

In addition, factor analysis was used to measure the questionnaire's structural validity, accompanied by Kaiser-Meyer-Olkin (KMO) and Bartlett's tests. The results revealed that the KMO value for the Chinese sample was 0.91, while that for the Malaysian sample was 0.87 (both >0.8). Furthermore, the Sig. The value of Bartlett's test of sphericity was <0.05, suggesting statistical significance. The results of the KMO and Bartlett tests were good, confirming the questionnaire's structural validity. Hence, the questionnaire attained an ideal level of reliability and validity.

The survey was conducted anonymously using a self-report format, and data for both the Malaysian and Chinese samples were collected through the Sojump platform. For the Malaysian sample, data were mainly collected by randomly selecting students from the library, who then shared the survey link in class group chats. Besides, some data were collected through local students who shared the survey link in school event organization groups. For the Chinese sample, data were mainly collected by instructors, who shared the survey link in class management groups. All data were processed and analyzed using SPSS 23.0 software.

RESULTS AND DISCUSSION

Differences in Scale Scores between Chinese and Malaysian Students by Grade and Gender

A 2 (Nationality) × 2 (Gender) × 4 (Grade) between-subjects analysis of variance (ANOVA) performed on the learning experience data suggested a significant main effect of nationality ($F_{(1, 240)} = 46.39$, $P < 0.01$). Notably, Chinese students ($M = 3.78$, $SD = 0.49$) scored higher on the scale than Malaysian students ($M = 3.33$, $SD = 0.37$). Besides, we observed a significant interaction between nationality and grade level ($F_{(1, 240)} = 6.82$, $P < 0.01$). Further analysis revealed significant grade differences among Chinese students ($F = 8.72$, $P < 0.01$), with a declining trend noted in scale scores as grade level increased.

Comparison of Online Learning Experience Across Different Nationalities and Grade Levels

To further elucidate specific differences in online learning experiences across various dimensions for Malaysian students from different nationalities and grade levels, we performed a variance analysis with each dimension as the dependent variable. The results revealed that, irrespective of the grade level, the main effect of nationality remained significant for each dimension. Notably, the main effect of grade level was significant for the dimensions of appropriate assessment and appropriate workload (Table 3).

Table 3. Analysis of variance for the five dimensions of the online learning experience (N = 256).

	GTS	CGS	AAS	AWS	GSS
Main Effect of Nationality	34.14**	10.06**	4.35*	55.68**	26.17**
Main Effect of Grade	2.33	0.87	2.84*	2.94*	1.19
Interaction Effect	5.70**	4.91**	1.71	1.48	4.49**

Note: The numbers in the table denote F values. *P < 0.05; **P < 0.01. GTS (Good Teaching Scale), CGS (Clear Goals

& Standards Scale), AAS (Appropriate Assessment Scale), AWS (Appropriate Workload Scale), GSS (Generic Skills Scale)

Source: Prepared by authors

Further analysis, using nationality as a grouping variable, encompassed independent-sample t-tests for each dimension and overall scores, with corresponding P values listed in Table 4. In the "appropriate assessment" dimension, Chinese students scored lower than Malaysian students; however, Chinese students scored markedly higher than Malaysian students in the other four dimensions. In addition, a significant nationality × grade-level interaction was observed in the dimensions of quality teaching, clear goals and standards, and generic skills. Further analysis revealed that, for Chinese students, first-year students reported the highest scores, but fourth-year students had the lowest, with significant grade differences. For Malaysian students, fourth-year students had the highest scores, but first-year students had the lowest, with no significant grade differences.

Table 4. Comparison of the online learning experience between China and Malaysia.

Dimension	t	China (N = 129)		Malaysia (N = 127)	
		M	SD	M	SD
GTS	t = 6.24; P < 0.001	4.38	0.73	3.82	0.69
CGS	t = 3.83; P < 0.001	3.96	0.65	3.65	0.64
AAS	t = -0.72; P = 0.47	2.32	0.86	2.39	0.76
AWS	t = 8.50; P < 0.001	3.27	0.74	2.53	0.65
GSS	t = 5.63; P < 0.001	4.15	0.75	3.65	0.68

GTS (Good Teaching Scale), CGS (Clear Goals & Standards Scale), AAS (Appropriate Assessment Scale), AWS (Appropriate Workload Scale), GSS (Generic Skills Scale)

Source: Prepared by authors

Comparison of Each Item on the Online Learning Experience Scale

Both the variance analysis and dimension comparisons suggested remarkable differences in the perceived online learning experience between Chinese and Malaysian students. The average scores for each item on the online learning experience scale were compared to further explore the source of these differences. Among the 23 items, 19 items exhibited markedly higher scores for Chinese students compared with Malaysian students. For Chinese students, 2 items had significantly lower scores in the dimensions of clear goals and standards and appropriate assessment. Furthermore, 2 items reported no considerable differences in the scores between students from both countries.

Differences in Online Learning Experience between Chinese and Malaysian University Students

This study revealed remarkable differences in the online learning experience levels between Chinese and Malaysian students. While the overall average score for China's learning experience was 3.78, that for Malaysia was 3.33. On online courses at the Korea National Open University and the UK Open University yielded scores of 4.05 and 4.29, respectively. Reportedly, developed countries with better socioeconomic conditions tend to offer students more high-quality learning resources, suggesting that, although both China and Malaysia are developing countries, Chinese students exhibit a more positive online learning experience. In addition, comparisons across dimensions revealed that Chinese students scored markedly higher than Malaysian students in four areas, namely, quality teaching, clear goals and standards, appropriate learning load, and generic skills; this difference is partly attributable to the maturity of online education platforms and technological support (Maqableh & Alia, 2021). Conversely, Malaysian students could face limitations in technical support and teacher preparedness, which could adversely affect their online learning experience (Jafar et al., 2022). Furthermore, mental health and time management play vital roles in shaping the online learning experience. Briefly, Chinese students could be better at time management, while Malaysian students may face heightened mental health pressures.

Further comparisons of the items revealed that Chinese students scored remarkably higher than Malaysian students in 19 items. Nevertheless, in the dimensions of clear goals and standards and appropriate assessment, 2 items displayed lower scores for Chinese students, while 2 items revealed no significant differences. Precisely, in the "clear goals and

standards" dimension, the first 3 items, which comprised the goals set by teachers, yielded markedly higher scores for Chinese students than for Malaysian students.

The last item, however, which involves how students discover their learning expectations, was rated higher by Malaysian students, indicating that while Chinese students clearly understand the goals and standards for online learning, they encounter challenges in independently exploring their learning expectations. Perhaps, this phenomenon is attributable to the differences in the educational systems of both countries. China's education system is more conventional, highlighting knowledge accumulation and review, where teachers usually deliver course requirements directly, with a limited focus on nurturing students' independent learning and innovative thinking. Comparatively, Malaysia's education system is more open, emphasizing independent learning and critical thinking, which makes it easier for students to explore their learning expectations.

In the "appropriate assessment" dimension, Malaysian students scored higher than Chinese students in some items. Per the constructivist learning theory, learning is a process wherein students actively construct knowledge, rather than passively receiving it. If teachers overly emphasize memorization and rote learning, students might feel that the learning experience contradicts the principles of constructivism, thereby resulting in lower scores. Thus, online course design should focus on fostering students' comprehensive understanding and application skills, rather than simply focusing on the mastery of factual knowledge.

Grade and Gender Differences in Online Learning Experiences of Chinese and Malaysian University Students

Using grade as a grouping variable, one-way ANOVA was performed to examine the differences in online learning experiences among students of different grades in both countries. The results revealed noteworthy grade differences in the scores of Chinese students, corroborating Chen & Xie (2021). Specifically, first-year Chinese students reported the highest online learning experience scores, but the scores gradually decreased as the grade level increased; this phenomenon possibly correlates with China's exam-oriented education system. First-year students, having just experienced the college entrance examination, tend to possess stronger learning motivation and higher enthusiasm and participation in online learning.

However, as students advance in their studies, their learning pressure declines, and their learning attitude could become more relaxed, resulting in lower online learning experience scores in higher grades. Conversely, Malaysia's education system is more open, emphasizing independent learning and critical thinking. Consequently, Malaysian students exhibited relatively stable online learning experiences across different grades, with no noteworthy grade differences.

Using gender as a grouping variable, we examined the online learning experiences of university students in both countries. The findings revealed no statistically significant gender differences in students' scores from both countries, corroborating Tang et al. (2021). Studies have reported that the traditional gender gap in the use of information technology has disappeared lately. Indeed, research on the learning experiences of different genders has yielded some contradictory conclusions, such as higher learning experiences for male students than female students (Chen & Xie, 2021) or better online learning experiences for female students than for male students. However, any study is subject to specific temporal, spatial, and environmental limitations. Owing to differences in the definitions of online learning experience, questionnaire designs, and sample distributions across various researchers, different studies are prone to reach different conclusions.

In-Depth Analysis of Differences in Online Learning Experiences Between China and Malaysia

Common Ground: Dual Drivers of Technological Dependency and Cultural Traditions

The shared characteristics of online learning among Chinese and Malaysian students are rooted in the fusion of Asian cultural traditions and sociotechnical transformations. Students in both countries generally emphasize academic achievement as a contribution to family honor. While Chinese students tend to rely on structured syllabi, Malaysian students are more accustomed to Euro-American-style curricular frameworks. Both groups exhibit strong goal-oriented learning patterns with explicit time management during online learning. Additionally, both sides highly depend on quantitative assessment systems centered on grades. This phenomenon aligns with Bronfenbrenner's ecological systems theory, which highlights the profound influence of the "macrosystem of cultural values" on educational behaviors. However, students in both countries face common challenges, such as technological barriers caused by digital divides and insufficient online teacher-student interaction. The interplay of these similarities and differences reveals the dual role of cultural traditions and technological shifts in shaping online learning behaviors.

Structural Roots of Divergence: Differentiation Stemming from Multi-Layered Tensions in Social Ecosystems

Cultural Interaction Logic: Chinese students, influenced by the Confucian tradition of "respecting teachers and

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valuing authority," generally exhibit higher reliance on teacher authority and slower adaptation to self-directed exploratory learning (e.g., open-ended assignments). Their collectivist orientation leads to a preference for unidirectional knowledge absorption, lower engagement in classroom discussions, and structured learning formats such as teacher-led livestream lectures. In contrast, Malaysia's multicultural background (integrating Malay, Chinese, Indian, and Western elements) fosters critical thinking and proactive collaborative habits, enabling students to adapt well to cross-cultural debates and group work. However, Islamic practices (e.g., daily prayers, Ramadan fasting) may disrupt learning rhythms, necessitating flexible scheduling adjustments. Their preference for English-language platforms in technology tool selection further reflects the psychological imprint of cultural hybridity.

Educational System Inertia: China's exam-oriented education system, long centered on the National College Entrance Examination (Gaokao), prioritizes rote memorization and standardized answers. Students are accustomed to following teacher-designed study plans, with relatively weaker self-directed exploration skills; learning experiences decline in senior grades due to escalating academic pressure. Malaysia's streaming education system (national/international schools) enables earlier adaptation to autonomous learning, cultivating technological adaptability. The coexistence of Islamic traditions and Western educational values fosters group collaboration habits, flexible interdisciplinary course designs (e.g., cross-disciplinary electives), and alignment with Euro-American systems. However, public universities grapple with insufficient teaching resources.

Technological Ecosystem Disparities: China's domestic digital ecosystem is mature yet relatively closed. Students express high satisfaction with local platforms (e.g., DingTalk, Tencent Meeting) but report inconveniences with functional limitations of international tools (e.g., lack of multilingual support in Zoom). Malaysia's globally open yet unevenly distributed infrastructure relies heavily on international platforms. However, underfunded public universities face technological resource shortages (e.g., server lags), exacerbating experiential inequities and triggering crises in educational fairness.

This study has several limitations worth acknowledging. First, regarding sample selection, despite using random sampling, three crucial limitations prevail because of practical constraints: (i) Uneven geographical coverage: The Chinese sample was obtained only from Hebei and Guangxi provinces, whereas the Malaysian sample was recruited from only Selangor state, failing to adequately reflect regional developmental differences within both countries. (ii) Deficient group representativeness: male participants constituted 60% of the Chinese sample and female participants constituted 75% of the Malaysian sample, deviating from the actual gender ratios in higher education of both nations. (iii) Limited institutional diversity: all four universities surveyed were public institutions, lacking representation from private universities.

Second, dual methodological limitations existed in the study. Precisely, the measurement tools relied on self-report methods, which could be subject to social desirability bias, and the cross-sectional design further made it difficult to establish causal–temporal relationships between variables. Finally, the operationalization of cultural factors was lacking, with only crude classification by the nationality variable, failing to quantitatively assess specific cultural dimensions (e.g., individualism/collectivism orientation).

Accordingly, future research can adopt a longitudinal panel study design, collecting data at three time-points (beginning, middle, and end of the semester) across many years to elucidate the dynamic evolution of learning experiences. In addition, a "quantitative-dominant, qualitative-complementary" mixed research framework can be constructed, expanding the sample size and increasing the number of countries, with regional comparisons performed through standardized questionnaires. Besides, exhaustive interviews can be conducted for exceptional cases (e.g., the decline in learning experiences among senior students in China), collecting narratives from teachers, students, and administrators. Meanwhile, LMS (Learning Management System) log data can be used to objectively measure actual learning behaviors (e.g., video viewing duration, forum participation). Likewise, Educational Data Mining (EDM) techniques can be introduced, such as using eye-tracking to capture interaction features on the learning interface, applying Natural Language Processing (NLP) to examine sentiments in discussion forum texts, as well as constructing predictive models (e.g., Random Forest algorithms) to determine key variables influencing learning experiences. Overall, all these enhancements can offer a more solid evidence base for articulating culturally sensitive online education policies and provide theoretical support for the optimization and improvement of future online education.

CONCLUSIONS

This study suggests considerable differences in online learning experiences between China and Malaysia, reflecting the effect of diverse educational settings on students' learning behaviors. Both countries need to further improve the level of students' online learning experiences, as providing high-quality education to students remains a challenge.

In addition, both countries should fast-track the development of high-quality online course resources, encourage resource sharing, and create "golden courses." It is

imperative to continue student-centered online teaching activities, fully leverage the advantages of online education, guarantee equitable learning outcomes for every student, and endorse the fair and high-quality development of education, providing valuable insights into the optimization of global online education.

Moreover, teachers in both China and Malaysia should focus on optimizing course design and selecting course content prudently. They should not only emphasize foundational factual knowledge but also guide students in enhancing their comprehensive understanding and application skills. Furthermore, traditional classroom teaching resources and content should not be mechanically copied into online courses. Instead, flexible course design methods should be adopted to help students achieve better learning experiences and outcomes.

REFERENCES

Aguilera-Hermida, A. P., Quiroga-Garza, A., Gómez-Mendoza, S., Del Río Villanueva, C. A., Avolio Alecchi, B., & Avci, D. (2021). Comparison of students' use and acceptance of emergency online learning due to COVID-19 in the USA, Mexico, Peru, and Turkey. ***Education and Information Technologies, 26***(6), 6823–6845. https://doi.org/10.1007/s10639-021-10473-8

Agyeiwaah, E., Baiden, F. B., Gamor, E., & Hsu, F. C. (2022). Determining the attributes that influence students' online learning satisfaction during COVID-19 pandemic. ***Journal of Hospitality, Leisure, Sport & Tourism Education, 30***, 100364. https://doi.org/10.1016/j.jhlste.2021.100364

Barrot, J. S., Llenares, I. I., & Del Rosario, L. S. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. ***Education and Information Technologies, 26***(6), 7321–7338. https://doi.org/10.1007/s10639-021-10589-x

Bronfenbrenner´s, U. (1977). Toward an experimental ecology of human development. ***American Psychologist, 32***(7), 513–531. https://doi.org/10.1037/0003-066X.32.7.513

Cao, Y. (2025). Understanding Chinese students' online learning experiences with emergency remote teaching: A case study. ***Asia Pacific Journal of Education, 45***(1), 1–19. https://doi.org/10.1080/02188791.2023.2206548

Chen, H. & Xie, Q. (2021). An empirical study of university students' online learning experience and its differences. ***Chinese University Teaching,*** (12), 74–81. https://doi.org/10.3969/j.issn.1005-0450.2021.12.014

Ferrer, J., Ringer, A., Saville, K., Parris, M. A., & Kashi, K. (2022). Students' motivation and engagement in higher education: The importance of attitude to online learning. ***Higher Education, 83***(2), 317–338. https://doi.org/10.1007/s10734-020-00657-5

Great Schools Partnership. (2025). ***The Glossary of Education Reform***. https://www.edglossary.org/learning-experience/

Hirschberg, J. & Lye, J. (2016). The influence of student experiences on post-graduation surveys. ***Assessment & Evaluation in Higher Education, 41***(2), 265–285. https://doi.org/10.1080/02602938.2014.1001318

Jafar, A., Dollah, R., Sakke, N., Mapa, M. T., Hua, A. K., Eboy, O. V., Joko, E. P., Hassan, D., & Hung, C. V. (2022). Assessing the challenges of e-learning in Malaysia during the pandemic of Covid-19 using the geo-spatial approach. ***Scientific Reports, 12***(1), 17316. https://doi.org/10.1038/s41598-022-22360-4

Kreber, C. (2003). The relationship between students' course perception and their approaches to studying in undergraduate science courses: A Canadian experience. ***Higher Education Research & Development, 22***(1), 57–75. https://doi.org/10.1080/0729436032000058623

Liu, B., Zhang, W., & Jiang, Y. (2016). Online course learning experience: Connotation, development, and influencing factors. ***China Electric Education, (10)***, 90–96. https://doi.org/10.3969/j.issn.1006-9860.2016.10.016

Maqableh, M. & Alia, M. (2021). Evaluation online learning of undergraduate students under lockdown amidst COVID-19 pandemic: The online learning experience and students' satisfaction. ***Children and Youth Services Review, 128***, 106160. https://doi.org/10.1016/j.childyouth.2021.106160

Marsh, H. W., Ginns, P., Morin, A. J. S., Nagengast, B., & Martin, A. J. (2011). Use of student ratings to benchmark universities: Multilevel modeling of responses to the Australian Course Experience Questionnaire (CEQ). ***Journal of Educational Psychology, 103***(3), 733–748. https://doi.org/10.1037/a0024221

Richardson, J. T. E. (1994). A British evaluation of the course experience questionnaire. ***Studies in Higher Education, 19***(1), 59–68. https://doi.org/10.1080/03075079412331382143

Shehab, M. J., Alokla, M., Alkhateeb, M., & Alokla, M. (2021). Hybrid learning aided technology-rich instructional tools - A case study: Community College of Qatar. ***Studies in Educational Management, 10***, 18–33. https://doi.org/10.32038/sem.2021.10.02

Tang, Y. M., Chen, P. C., Law, K. M. Y., Wu, C. H., Lau, Y.-Y., Guan, J., He, D., & Ho, G. T. S. (2021). Comparative analysis of student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector. ***Computers & Education, 168***, 104211. https://doi.org/10.1016/j.compedu.2021.104211

Webster, B. J., Chan, W. S. C., Prosser, M. T., & Watkins, D. A. (2009). Undergraduates' learning experience and learning process: Quantitative evidence from the East. ***Higher Education, 58***(3), 375–386. https://doi.org/10.1007/s10734-009-9200-6

Wilson, K. L., Lizzio, A., & Ramsden, P. (1997). The development, validation and application of the Course Experience Questionnaire. ***Studies in Higher Education, 22***(1), 33–53. https://doi.org/10.1080/03075079712331381121

Zutshi, S., O'Hare, S., & Rodafinos, A. (2013). Experiences in MOOCs: The perspective of students. ***American Journal of Distance Education, 27***(4), 218–227. https://doi.org/10.1080/08923647.2013.83806