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Enhancing translation technology skills through blended learning: a study of student perceptions and satisfaction with bMOOC in higher education

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The rapid advancement of translation technology and the increasing demand for professionals skilled in its application have highlighted the need for innovative and flexible pedagogies. Blended learning, which combines online and face-to-face components, has emerged as a promising method to address these educational needs. This exploratory study investigates students' perceptions of the usefulness and satisfaction with a blended massive open online courses (MOOCs) approach for learning translation technology, which integrates MOOCs, online activities, guest talks, and on-site learning activities. Data were collected through questionnaires from a diverse group of 67 participants, including working adults as well as undergraduate and postgraduate students in Hong Kong. The quantitative analysis revealed that students held positive attitudes towards the integration of online components, such as MOOCs and live seminars, with face-to-face workshops. Participants were generally satisfied with the diverse learning activities and the range of topics covered by the bMOOC-TT approach. They perceived bMOOC-TT as both useful and effective. Specifically, the online learning components provided greater flexibility and autonomy, while the in-person activities facilitated hands-on practice of application of advanced translation software and more direct interaction. Additionally, the study found that younger learners tended to have more positive perceptions and acceptance of the bMOOC-TT approach.

KEYWORDS

blended learning, blended MOOC (bMOOC), students' perspectives, perceptions, satisfaction, translation technology competence, translation technology training

1 Introduction

1.1 Translation technology

With the rapid evolution of technology, translation technology—particularly artificial intelligence (AI)-assisted and neural machine translation—has become a transformative force in the translation industry and translator education (Chan and Tang, 2024a; Chan and Tang, 2024b). To meet the dynamic demands of the language service market, it is essential for translators, translation trainers and learners to adopt a diverse range of digital tools and online resources, which can enhance efficiency, effectiveness, and overall quality of translation education and practice (Chan and Tang, 2025). However, in spite of the growing importance of digital literacy in translation technology, research indicates that both pre-service and in-service translators, as well as some trainers, may not sufficiently acquire the necessary skills to keep pace with the rapid advancements in this field (Venkatesan, 2023). For instance, Chan's (2025c) study revealed that more than half of translation students possessed limited proficiency

in using computer-assisted translation (CAT) tools, despite expressing a strong interest in acquiring post-editing skills, gaining hands-on experience with current software, and participating in system demonstrations. This gap is exacerbated by a lack of accessible, open-source resources and insufficient integration of translation technology training in existing translation programs (Bououden et al., 2024).

Some researchers emphasize that integrating translation technology training into higher education curricula faces numerous challenges, including cognitive, procedural, attitudinal, and institutional barriers (Kenny and Doherty, 2014). Moreover, the rise of generative AI tools, such as ChatGPT and DeepSeek, has introduced new complexities and challenges. While learners increasingly rely on these tools for quick translations, it is observed that many university translation students, in-service translators, and self-learners often receive inadequate training in the ethical and effective use of such technologies (Chan, 2024). These findings demonstrate the urgent need for open, accessible, up-to-date learning resources to equip language learners and professionals with the skills required to navigate the rapidly evolving digital landscape of the translation industry.

1.2 Massive open online courses (MOOCs)

Massive Open Online Courses (MOOCs) have become a significant platform for open learning, offering free or subscription-based educational resources to a wide audience without prerequisites (Voudoukis and Pagiatakis, 2022). Classified by Pilli and Admiraal (2016) into four categories based on massiveness and openness, MOOCs range from small-scale paid courses to large-scale, fully open extended MOOCs (xMOOCs), which feature structured, teacher-led content. While MOOCs provide accessibility, flexibility, and learner autonomy, they face criticism for high dropout rates and low completion rates due to limited interactivity, insufficient support, and low learner motivation (Alj, 2024; Khalil and Ebner, 2014; Papadakis, 2023).

In terms of translation technology training, few MOOCs on CAT are available, such as outdated courses on SDL Trados Studio 2011 (Yu and Han, n.d.) and more recent offerings like the University of Washington's "Localization: Adapting Digital Content to Local Markets" (dos Santos, 2025). However, these resources are often paid, lack institutional quality assurance, and are insufficient for self-learners and in-service professionals seeking.

1.3 Blended learning and bMOOC

The critique concerning the absence of real-time interaction and support in MOOCs has prompted the creation of alternative pedagogies, including blended MOOCs (bMOOCs) (Tang and Chan, 2024). bMOOCs combine online MOOC lessons with face-to-face interactions, aiming to address the shortcomings of purely online learning environments. This approach offers several advantages, including enhanced adaptability, promotion of interaction, and encouragement of active learning (Tang and Chan, 2024). bMOOCs, such as flipped classroom models, provide teachers with greater teaching flexibility and reduced time and location constraints, benefiting the effectiveness of both teaching and learning. Blended learning strategies are becoming more and more popular; however,

there is still a lack of pertinent research on how learners' background characteristics—such as gender, age, and prior learning experience—correlate with their satisfaction (Kumar and Kala, 2021). Moreover, despite their potential, bMOOCs have not garnered as much attention as traditional MOOCs, especially in the context of training with translation technologies. This is particularly crucial for English/Chinese translation, which serves the largest population and represents one of the most significant language pairs in the market. It is essential to explore how bMOOC approach can enable language learners to continuously update the digital competence needed for their evolving roles as professional language service providers.

Recent studies have highlighted the growing importance of blended learning approaches, particularly in the context of translation technology education. bMOOCs have been shown to enhance learner engagement and provide flexible, scalable solutions for skill development in specialized fields such as translation technology. For instance, Wang et al. (2024) conducted action research on flipped blended learning on competence improvement in translation technology training. The results of the mixed methods revealed that flipped blended learning enhanced interaction with peers, context and content and improved learners' translation competence. However, there is a lack of studies underscoring the relevance of adopting a bMOOC approach in translation technology education; it is particularly important as it may not only address the diverse needs of learners but also align with the increasing demand for technology-driven pedagogies in higher education. By situating the current research within this under-researched context, the study aims to contribute to the literature on the effectiveness of bMOOCs in translation technology training.

1.4 Research aims

The novelty and distinct contribution of this paper lies in its exploration of the application of a bMOOC approach in translation technology education, an area that remains under-researched despite its growing relevance in higher education. Unlike previous studies that primarily focus on traditional or fully online methods of teaching translation technology, this research emphasizes the unique advantages of blending face-to-face and online learning modalities to address the diverse needs of learners. By integrating technology-driven pedagogies with the flexibility and scalability of MOOCs, the study not only responds to the increasing demand for innovative educational frameworks but also provides empirical evidence on the effectiveness of bMOOCs in enhancing translation technology training. This contribution is particularly significant as it bridges the gap between theoretical advancements in translation technology and practical pedagogical approaches, offering a learner-centered model that aligns with the evolving landscape of translation technology training in higher education. A larger study (Chan, in press) using a mixed method approach investigated the overall impacts of a blended MOOC approach for translation technology learning (bMOOC-TT), including learners' usage of digital tools and online resources as well as the learning outcomes of translation technology competence measured by self-assessment and performance in objective tests. While the previous analyses (Chan, in press) emphasize the evaluation of skill acquisition and knowledge gains, this paper focuses mainly on the affective perspective, i.e., quantitative analysis of students' perceptions and satisfaction with bMOOC-TT.

- How do the students perceive the overall usefulness of bMOOC-TT?
- Are they satisfied with the various learning activities and topics?
- Do learners' background characteristics - gender, age, prior experience of translation technology, and previous MOOC learning experience - correlate with their perceived learning experience of bMOOC-TT?

2 Related studies

MOOCs were originally designed to be stand-alone online courses; in recent years, there has been a growing number of studies suggesting the creation and implementation of bMOOCs may better support in-class learning activities (Li, 2019). Moreover, evidence from empirical studies also supports the effectiveness of bMOOCs. For in-stance, de Moura et al. (2021) found that integrating MOOCs into blended learning by replacing some in-person hours with MOOC-based classes improved the teacher-to-student ratio and was well-received by students for its quality and value. The blended learning approach enhanced student engagement and reduced educational costs. Similarly, Ivashkina et al. (2022) reported positive outcomes in Russia, where bMOOCs benefited students in laboratory courses, independent studies, and exam preparation. A high perceived level of interaction with peers, instructors, content, and technology was also observed in a higher education institution in Vietnam, where Pham (2024) used a mixed-method approach to investigate the satisfaction of 339 students. In general, results of previous research indicate that bMOOCs increase flexibility and accessibility, foster the development of digital literacy and self-paced learning, and enhance engagement and motivation (Stoufi, 2023; Bandara and Jayaweera, 2024). Eradze et al. (2019), in their review of 48 empirical studies on bMOOCs, indicated that blended learning in the context of MOOCs generally yields positive results.

On the other hand, some studies have highlighted challenges associated with bMOOCs, including the need for institutional support, infrastructure, and resources, the necessity for relevant prior knowledge, and inconsistencies in MOOC material quality (Bralic and Divjak, 2018). Other constraints involve quality and scheduling issues, student-teacher interaction as well as concerns about academic integrity (Williams, 2024). For example, Yousef et al. (2015) evaluated a bMOOC course on teaching methodologies using the L2P-bMOOC platform in Egypt and Germany. Their study identified several limitations, including a teacher-centered and centralized learning model, insufficient assessment and feedback mechanisms, limited interactivity between learners and video content, and challenges arising from the diverse backgrounds of MOOC participants.

Most research has concentrated on flipped classrooms and science disciplines, such as computer engineering (Kumar and Kala, 2021; Yu et al., 2023). Abdel-Maksoud (2019), for instance, examined the effects of MOOCs-based flipped classroom on learning engagement and course grades of 155 pre-service teachers in Egypt. There remains a significant gap in understanding the effectiveness of bMOOCs in translation education, especially in translation technology training (Chan, 2025c; Chan, unpublished). Among the limited number of studies in this area, Peng et al. (2023) implemented a blended learning approach using a small private online course in a translation class. They found that students were satisfied with the blended course and

showed notable improvements in their translation knowledge and professional skills. Hence, this study explores students' perceptions of the efficacy of the bMOOC approach, which integrates face-to-face workshops, custom-developed, open-access MOOCs, and various learning activities in translation technology training.

3 Methodology

3.1 Overall design of bMOOC-TT

The bMOOC-TT approach adopted in this study was based on Yousef et al. (2015) evaluation approach, an effective bMOOC combines elements of connectivist MOOCs (cMOOCs), xMOOCs, and face-to-face learning models. It was designed by leveraging the strengths of each model: the flexibility and student-centred network learning of cMOOCs, the interactivity and structure, instructor-led teaching of xMOOCs, and the immediate feedback and synchronous human interaction of face-to-face learning. This bMOOC was specifically for translation technology training, aimed at providing learners with both theoretical knowledge and practical skills. To achieve these learning outcomes, the learning activities were crafted to create an effective and integrated model that addresses common constraints of traditional MOOCs, such as ineffective feedback, limited interactivity between learners and instructors, and insufficient face-to-face engagement.

The online learning activities were open-access and primarily designed for experienced translators, translation students, translator trainers, language professionals, and anyone interested in learning about the application of translation technology in the English-Chinese and Chinese-English translation practice. The delivery mode and learning activities included seven in-person face-to-face workshops, four MOOCs, seven live online seminars via Zoom, and six guest talks. The materials were available in both Chinese and English. Each online seminar and onsite workshop lasted approximately 1 h. The MOOCs were hosted on Udemy, a popular online learning platform, providing unrestricted access to 22 custom-made videos consisting of 10 modules. These modules included a variety of learning resources, such as software demonstrations, video lectures, learning notes, reference readings, and hands-on activities. The modules covered the following 10 topics: (i) Introduction to Translation Technology, (ii) MT, (iii) CAT, (iv) Evaluation of MT Output, (v-vi) Translation in Phrase (formerly Memsources), (vii) Introduction to Trados, (viii) Introduction to Wordfast, (ix) Introduction to Localization and Other Tools, and (x) Comparison of Translation Technology Tools and Summary.

3.2 Training method and activities

In the study, bMOOC-TT integrated online and onsite learning activities lasting four consecutive months. The participants were encouraged first to gain an overall understanding of translation technology concepts, development, and available tools through the four MOOCs, which included online course materials for self-directed learning. Following that, they participated in live online seminars that provided software demonstrations and synchronic communication between experienced trainers and peers in order to reinforce and

deepen their understanding of the materials covered in the MOOCs. To enhance accessibility, the recorded online seminars were also made available. In addition to the instructors, various experts and scholars were invited to deliver a total of six synchronous webinars or in-person guest talks to offer more chances for real-time discussion, allowing participants, industrial practitioners, and researchers to share their insights. Following the conceptual components, face-to-face workshops were held in a language lab, allowing learners to access the technological tools discussed and gain practical, hands-on experience with various translation technology platforms. [Figure 1](#) shows the training procedures and activities.

3.3 Data collection and analysis

Utilizing an exploratory design, this research examined students' perceptions of bMOOC-TT, focusing on its overall usefulness, satisfaction, and learning experiences in various learning activities. It also explored potential relationships between student background characteristics and their perceptions.

Regarding data collection, voluntary response sampling was employed to recruit participants, targeting full-time undergraduates, postgraduates, and distance-learning translation students from universities in Hong Kong. Invitations were sent via email. The sample size of 67 students was determined by the number of participants who completed all the required tasks, following email invitations sent to translation and language students in Hong Kong. While the sample may appear modest, it reflects a fully engaged cohort, ensuring that the data collected is both comprehensive and representative of students who actively participated in the bMOOC-TT learning activities.

To evaluate perceptions of bMOOC-TT, a questionnaire was adapted based on relevant studies (e.g., [Yousef et al., 2015](#)) and

administered to the 67 participants via the online survey platform – Qualtrics, before and after their participation in bMOOC-TT learning activities. The questionnaire consisted of students' demographic information, including gender, age, prior experience with translation technology, and previous MOOC learning experience. It also included their usage of digital tools for translation practice as well as their self-rated language proficiency and translation competencies. The questionnaire featured both open-ended response items and closed-ended questions.

The questionnaire aimed to gather participants' opinions on the overall usefulness of bMOOC-TT, to investigate their satisfaction with various learning activities and topics, and to assess any changes in their perceptions and proficiency. The statistical analysis was also used to investigate the relationship between the learner variables and their perceptions. In the statistical analysis, a multiple regression model was conducted to examine potential differences in participants' perceived learning experiences resulting from their background characteristics, including age, gender, prior experience with translation technology, and prior experience with MOOCs. All statistical analyses were performed by SPSS 27.0.

4 Results

Among the 67 participants, there were 24 males and 43 females, all native Chinese speakers. Of these, 20.9% were native Mandarin speakers, while 79.1% identified as Cantonese speakers. The group included 14 postgraduate students, 51 undergraduate students, and two distance learning students who were also working adults or language service providers.

The age distribution of the participants showed that over 80% were 23 years old or younger, with 19.4% aged between 18 and 20, and 61.2% aged between 21 and 23. This age distribution reflects the

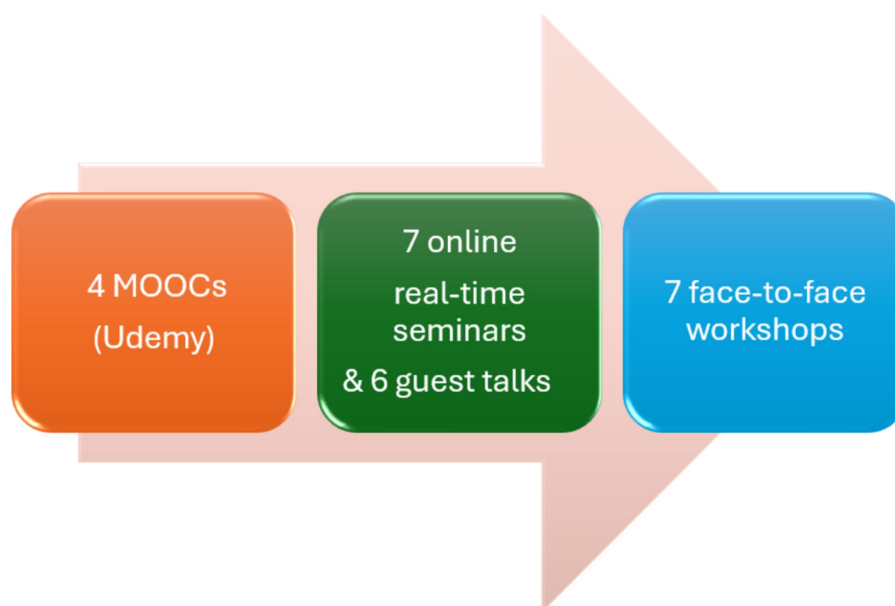


FIGURE 1
Training method and activities.

predominance of full-time students in the sample. Additionally, 10.4% of participants were aged between 24 and 30, 7.5% were between 31 and 40, and 1.5% were between 51 and 60 years old.

Regarding their prior training in translation technology or experience with MOOCs, 29 participants had taken formal courses or studied translation technology independently. The most commonly used translation technology tools among the participants were web-based dictionaries (65.7%) and free web-based machine translation tools (77.6%). Furthermore, only 16 participants had previous experience with MOOCs.

4.1 Overall usefulness

The perceived usefulness of bMOOC-TT was evaluated using a five-item questionnaire. Participants rated each item on a 5-point Likert scale, where 1 represented the lowest level of usefulness, and 5 represented the highest. The total possible score ranged from 5 to 30. As shown in Table 1, the average score was 4.5, indicating that learners generally found the bMOOC-TT to be useful and expressed satisfaction with it in various aspects, such as learning outcomes and motivation.

4.2 Perceptions of various learning activities and topics

Regarding participants' perceptions of various learning modes and activities, the highest rating was given to the "Face-to-face workshop" item, with a mean score (*M*) of 106.42 derived from item summation and a standard deviation (*SD*) of 20.62. Participants generally rated most other learning activities with an average score above 4 on a 5-point Likert scale, indicating positive attitudes towards all aspects. A relatively low rating was given to the guest talks, with a mean cumulative score of 104.14 and a standard deviation of 19.79. A summary of the mean scores for each item is provided in Table 2.

Regarding the perceived usefulness of various topics covered in the learning activities, participants responded to items using a 6-point Likert scale, ranging from 1 (lowest level of usefulness) to 6 (highest level of usefulness). In this study, participants' scores ranged from 30 to 60, with a mean (*M*) of 53.66 and a standard deviation (*SD*) of 9.32. The reliability of the scale, as indicated by Cronbach's alpha, was 0.98. Participants rated "Module 6: Translation in Phrase: Translation Memory" the highest, with a mean score of 5.45 and a standard deviation of 0.91. Additionally, participants gave an average score

above 5 for all other topics, indicating a generally positive perception of the usefulness of the various topics covered. Relatively lower ratings were given to "Module 8: Introduction to Wordfast" (*M* = 5.30; *SD* = 1.09), "Module 9: Introduction to Grammarly, Passolo, QuillBot, and Wordtune" (*M* = 5.30; *SD* = 1.13), and "Module 10: Comparison of Translation Technology Tools and Summary" (*M* = 5.30; *SD* = 1.06). A summary of the mean scores for each item on this scale is provided in Table 3.

4.3 Relationship between students' background characteristics and their perceived learning experiences

In terms of students' perceived learning experiences, younger age group participants had better learning experiences and perceptions among all activities of this research project. In particular, younger age group participants had better learning experience and perceptions on MOOCs via Udemy (*b* = 22.79, 95% CI [12.49, 33.10], *t* (66) = 4.42, *p* < 0.001), face-to-face workshops (*b* = 22.98, 95% CI [10.88, 35.09], *t* (66) = 3.80, *p* < 0.001), real-time online seminars (*b* = 27.48, 95% CI [15.54, 39.43], *t* (66) = 4.60, *p* < 0.001), and guest talks (*b* = 21.87, 95% CI [10.27, 33.46], *t* (66) = 3.77, *p* < 0.001). Table 4 summarizes the above results.

5 Discussion

The results of this study support the increasing amount of data showing that blended learning strategies, like the bMOOC-TT model, can greatly improve the adaptability and efficiency of translation technology training. The participants generally responded favorably to the combination of online components and in-person workshops. A closer look reveals a number of insights into how these modalities interact to shape the learning experience and meet the unique needs of translation technology learners. The study highlights the importance of flexibility and autonomy provided by the online components of bMOOC-TT, such as MOOCs and live seminars, while the onsite workshops provided students with hands-on practice and direct interaction with instructors and peers, which are critical for acquiring technical skills and mastering translation technology tools.

In line with the positive findings in previous studies (Chan, 2025a; Chan, 2025b; Tang and Zhang, 2024), technologies facilitate blended learning and enhance the flexibility and effectiveness of both teaching and learning. The findings of this study indicate that the integration

TABLE 1 Overall usefulness of bMOOC-TT.

	Mean score	SD
It provides a blended learning environment which merges the benefits of face-to-face and online learning.	4.55	0.78
Face-to-face and online learning together helps me to improve my academic achievement/learning outcomes.	4.46	0.79
Face-to-face and online learning together increase my motivation to share and discover new ideas.	4.49	0.81
Face-to-face and online learning together enable me to accomplish tasks more quickly.	4.49	0.77
The blended learning approach can be used to complete the traditional classroom approach.	4.48	0.82
I am satisfied with this blended learning environment.	4.49	0.91
Average score of blended learning	4.50	0.75

TABLE 2 Perceptions of various learning activities.

	b-MOOC-TT	MOOCs	Face-to-face workshops	Online seminars	Guest talks
It enhances my knowledge and overall understanding of translation technology.	4.64 (0.54)	4.48 (0.77)	4.42 (0.93)	4.36 (1.00)	4.42 (0.82)
It enhances my skills in using machine translation tools	4.52 (0.75)	4.33 (0.98)	4.48 (0.90)	4.31 (1.05)	4.3 (0.99)
It enhances my skills in using computer-aided translation tools.	4.52 (0.75)	4.28 (1.08)	4.57 (0.85)	4.31 (1.08)	4.29 (1.05)
It enhances my knowledge of Phrase.	4.48 (0.8)	4.34 (0.99)	4.48 (0.90)	4.4 (0.99)	4.32 (1.06)
It enhances my knowledge of Trados.	4.36 (0.93)	4.28 (1.06)	4.37 (1.01)	4.28 (1.08)	4.24 (1.11)
It enhances my knowledge of Wordfast.	4.31 (0.96)	4.18 (1.10)	4.28 (1.02)	4.21 (1.07)	4.12 (1.13)
It enhances my translation productivity and efficiency.	4.51 (0.75)	4.3 (0.97)	4.42 (0.95)	4.33 (1.01)	4.29 (1.05)
It enhances my editing skills.	4.43 (0.84)	4.25 (1.02)	4.38 (0.98)	4.27 (1.02)	4.18 (1.09)
It provides positive learning outcomes.	4.51 (0.7)	4.43 (0.78)	4.40 (0.97)	4.40 (0.94)	4.41 (0.88)
It provides satisfactory learning experience.	4.54 (0.79)	4.4 (0.87)	4.35 (1.02)	4.45 (0.94)	4.38 (0.89)
It enhances learning effectiveness.	4.54 (0.70)	4.42 (0.82)	4.42 (1.00)	4.39 (0.95)	4.32 (0.98)
It provides useful content.	4.63 (0.57)	4.54 (0.79)	4.54 (0.85)	4.45 (0.94)	4.44 (0.90)
It provides opportunities to interact.	4.34 (0.90)	4.12 (1.18)	4.42 (0.95)	4.16 (1.18)	4.18 (1.08)
It provides practical demonstration.	4.42 (0.76)	4.25 (1.05)	4.52 (0.85)	4.27 (1.07)	4.24 (1.04)
It provides hands-on practice.	4.34 (0.90)	4.10 (1.18)	4.48 (0.89)	4.06 (1.23)	4.11 (1.14)
The learning experience is fun.	4.48 (0.82)	4.27 (0.98)	4.4 (1.00)	4.28 (1.10)	4.38 (1.00)
It enhances learning motivation/interests.	4.60 (0.68)	4.34 (0.91)	4.46 (0.90)	4.43 (0.93)	4.47 (0.79)
It enhances my engagement in learning.	4.51 (0.82)	4.25 (1.04)	4.43 (0.95)	4.36 (1.08)	4.41 (0.89)
It increases learning flexibility.	4.63 (0.74)	4.58 (0.76)	4.32 (1.06)	4.39 (1.04)	4.45 (0.90)
It facilitates independent learning/life-long learning.	4.61 (0.74)	4.61 (0.74)	4.37 (1.07)	4.43 (0.99)	4.48 (0.83)
It provides learning support.	4.57 (0.74)	4.45 (0.82)	4.54 (0.90)	4.52 (0.88)	4.52 (0.75)
It allows me to learn according to my pace and needs.	4.64 (0.64)	4.57 (0.7)	4.32 (1.03)	4.37 (0.97)	4.47 (0.85)
It supports collaborative learning.	4.43 (0.91)	4.30 (1.12)	4.45 (0.92)	4.25 (1.15)	4.27 (1.12)
It facilitates student-centered learning.	4.58 (0.7)	4.52 (0.79)	4.46 (0.92)	4.49 (0.89)	4.44 (0.90)
Total score	108.13 (15.60)	104.62 (18.77)	106.42 (20.62)	104.55 (22.21)	104.14 (19.79)

*The numbers in the above table are representing: Mean (SD).

TABLE 3 Perceived usefulness of various topics.

	Mean Score	SD
Module 1: Introduction to translation technology	5.42	0.94
Module 2: Machine translation	5.34	1.02
Module 3: Computer-aided Translation	5.43	0.94
Module 4: evaluation of Machine Translation Output	5.36	1.03
Module 5: Translation in Phrase: Overview	5.40	0.92
Module 6: Translation in Phrase: Translation Memory	5.45	0.91
Module 7: Introduction to SDL Trados Studio	5.36	1.07
Module 8: Introduction to Wordfast	5.30	1.09
Module 9: Introduction to Grammarly, Passolo, QuillBot, and Wordtune	5.30	1.13
Module 10: Comparison of Translation Technology Tools and Summary	5.30	1.06

TABLE 4 The association between users' background characteristics and perceived learning experience.

	MOOCs	Face-to-face workshops	Online seminars	Guest talks
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Gender	−0.24 (4.35)	−5.03 (5.03)	−4.42 (5.06)	0.63 (4.78)
Age	−22.79 (5.15)***	−22.98 (6.05)***	−27.48 (5.97)***	−21.87 (5.80)***
Prior experience with translation technology	9.53 (4.23)*	6.54 (4.86)	9.36 (4.96)*	9.43 (4.60)*
Prior experience with MOOC	5.01 (4.87)	2.71 (5.47)	6.35 (5.65)	6.99 (5.25)

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

of online components, such as MOOCs and live seminars, with onsite workshops in the bMOOC-TT approach was generally well-received by students. This aligns with previous literature suggesting that blended learning can enhance student satisfaction and learning outcomes by combining the strengths of both online and face-to-face instruction (Garrison and Kanuka, 2004). Specifically, the online components of bMOOC-TT allowed greater flexibility and autonomy, which is consistent with the literature highlighting the benefits of online learning in terms of convenience, engagement, and self-paced study (Chen et al., 2021). This flexibility is particularly essential in the context of translation technology, where learners may need to balance their studies with professional commitments in the fast-paced digital era.

The face-to-face activities in bMOOC-TT facilitated the hands-on practice of the application of translation technology tools and direct interaction with the instructors and peers, which are critical for acquiring practical translation skills and receiving timely feedback, particularly in this technical field where practical application is important. This finding supports the notion that in-person interactions can enhance the learning experience by fostering a stronger sense of community and connectivity and providing opportunities for collaborative learning. The combination of these modalities in bMOOC-TT appears to offer a balanced approach that caters to both conceptual understanding and practical skills which are particularly important for incorporating translation technology tools in translation practice.

The research also indicated that students particularly appreciated the onsite activities and topics related to the application of CAT tools, such as Phrase. These findings suggest that students have a strong

preference for acquiring practical and technical skills associated with the operation and application of advanced and complex translation software. This stands in contrast to their relatively low interest in basic translation solutions and tools intended for proofreading, editing, and paraphrasing. The focus on mastering advanced tools reflects a desire among students to improve their proficiency with cutting-edge and multi-functional technology, which is becoming increasingly vital in the professional translation industry. This insight highlights the importance of incorporating advanced technical training into translation technology curricula to better prepare students for the demands of the modern translation landscape. Additionally, it is crucial for translation trainers and in-service translators to continually acquire up-to-date knowledge and new digital literacy, particularly skills in using technological tools such as emerging generative AI tools, to support their professional development and keep pace with the rapid changes in the translation industry (Chan, 2025d).

The positive perceptions and attitudes of younger learners towards bMOOC-TT suggest that this demographic may be more receptive to technology-enhanced pedagogies, which is consistent with research revealing that younger learners are generally more adept with digital tools and technology-driven learning.

Moreover, learners' attitudes and perceptions of blended learning strategies, such as bMOOC-TT, might be influenced by cultural factors. The majority of the study's participants were native Chinese speakers from Hong Kong, a region where hierarchical educational traditions and collectivist values may influence learning preferences (Rao et al., 2016). For instance, learners from collectivist cultures often value face-to-face interactions and collaborative learning environments, which align with the positive reception of onsite

workshops observed in this study. Through more direct engagement and interaction with instructors, these on-site workshops strengthened the sense of community and shared learning, which aligns with cultural norms that prioritize interpersonal relationships and group harmony. Furthermore, the comparatively high level of satisfaction with live seminars and guest lectures might be a reflection of the cultural value that traditional Chinese educational systems place on mentorship and expert knowledge (Ning, 2024). Future research could explore how cultural dimensions, such as individualism versus collectivism or high-context versus low-context communication styles, impact learner engagement and satisfaction with blended learning models. Understanding these cultural influences can help curriculum designers tailor bMOOC approaches to better meet the needs of diverse learner populations.

The findings of this study offer several pedagogical implications for the design and implementation of blended MOOCs in the context of translation technology education. First, the effective integration of online and onsite components can enhance the overall learning experience by combining the flexibility and autonomy of online learning with the hands-on practice provided by onsite activities. Translation trainers should consider using an adaptive blended approach to cater to diverse learning needs and preferences. The effectiveness of bMOOC instruction relies heavily on the availability of robust infrastructure, comprehensive support, and adequate resources. To ensure the successful adoption of the bMOOC approach, it is crucial to engage in careful instructional design and conduct regular reviews of the implementation process.

6 Conclusion

By integrating online components (such as MOOCs and live seminars) with onsite workshops, the study found that students were generally satisfied with the diverse learning activities offered by bMOOC-TT. They perceived bMOOC-TT as both useful and effective. Specifically, the online learning components provided greater flexibility and autonomy, while the face-to-face activities facilitated hands-on practice and more immediate interaction. It suggests that the flexibility and autonomy provided by the online components of bMOOC-TT not only enhance convenience but also empower learners to take greater control of their learning journey. This empowerment is particularly significant in translation technology education, where learners must adapt to rapidly evolving tools and workflows. Additionally, the study revealed that younger learners tended to have more positive perceptions and attitudes towards bMOOC-TT. In addition, the collaborative nature of onsite workshops appears to play a critical role in fostering peer-to-peer/instructor interaction and problem-solving skills. Beyond hands-on practice, these workshops provided opportunities for students to work together on authentic translation tasks, share insights, and learn from each other's experiences. This collaborative dynamic is particularly valuable in translation technology, where teamwork and adaptability are essential for navigating real-world challenges.

To optimize the balance between MOOC content and in-person sessions, curriculum designers should adopt a adaptive approach that integrates conceptual knowledge with practical application of technological tools for translation tasks. For example, MOOCs can be used to deliver foundational concepts and self-paced learning

materials, while in-person sessions can focus on hands-on practice, collaborative problem-solving tasks, real-time feedback and immediate technical support. A recommended strategy is to structure the curriculum so that online modules introduce key topics, followed by face-to-face workshops that allow learners to apply these concepts using translation technology tools. For software demonstration delivery, instructors should prioritize interactive and learner-centered methods. Using live demonstrations with screen-sharing tools, offering detailed tutorials, and allowing students to practice on their own during the session are all examples of best practices. Teachers can also increase student engagement by incorporating case studies and real-world scenarios into demonstrations so that students can see how the tools are applicable in real-world translation situations. These sessions can be recorded and made available for review to help students who might require more time to understand complicated operation of software features. Curriculum designers can create a well-rounded and efficient learning experience that meets the needs of a variety of learners by fusing the flexibility of MOOCs with the immediacy and interactivity of in-person sessions.

While the study provides valuable insights, it has several limitations. First, the sample size was relatively small, which may limit the generalizability of the findings. Second, the study focused exclusively on the English/Chinese translation context, which restricts its applicability to other language pairs and cultural contexts. Moreover, it is a geographically and linguistically narrow sample, as it focuses exclusively on translation and language students in Hong Kong, which may limit the generalizability of the findings to other contexts or language pairs. Furthermore, the study relied heavily on self-reported data, such as student perceptions and attitudes, which may introduce self-report bias.

Future research may address the limitations identified in this study by including a larger and more diverse sample size to enhance the generalizability of the findings. For example, studies may explore the efficacy of blended MOOCs in different translation contexts and with various language pairs to determine whether the observed benefits of bMOOC-TT are consistent across different settings. Future research could also expand the scope to include participants from diverse geographic regions and linguistic backgrounds, thereby providing a broader perspective on the applicability of bMOOC-TT in varied educational and cultural settings. Researchers could also investigate the long-term impact of blended learning approaches on learners' translation technology competence and professional development. Future studies may identify the key components of the blended model that most significantly influence learning outcomes. In addition, exploring how structured group activities or team-based projects in onsite workshops impact learning outcomes could provide valuable insights for curriculum design. Furthermore, future research could investigate how AI-powered bMOOCs impact students' interactions with AI tutors and their overall learning efficiency.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the author, without undue reservation.

Ethics statement

The studies involving humans were approved by Hong Kong Metropolitan University. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

VC: Writing – original draft, Writing – review & editing.

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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