

3. Probing EMI Teachers' Psychological Experiences in Chinese Higher Education: A Mixed Methods Approach

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Introduction

In the fields of applied linguistics and higher education, the advent of English-medium instruction (EMI) in education, prompted by the rising globalization of higher education, has garnered intensive interest. While there is no shortage of studies about the design and provision of EMI programs and courses (see Macaro *et al.*, 2018 for a comprehensive review), research on EMI teachers' voices and experiences has remained relatively scarce (Yuan *et al.*, 2022). In particular, despite some research evidence elucidating the various personal and contextual challenges faced by EMI teachers (e.g. Gustafsson, 2020) as well as possible contextual affordances such as training programs and collaborative opportunities (e.g. Lasagabaster, 2018), there is a dearth of studies on their psychological experiences in EMI courses. In general, psychological experiences entail the aspect of intellect and consciousness experienced by an individual as a complex and dynamic combination of their perceptions, memory, emotions, will, and so on. In many EMI programs, especially those situated in English-as-a-foreign-language (EFL) contexts (e.g. China), EMI teachers are often found to be ill-prepared and under-supported in their work contexts (e.g. Curdt-Christiansen *et al.*, 2021). As a result, their classroom teaching and continuing development may involve strong psychological turbulence and disorder (Yuan, 2021), which require their constant reflection, monitoring, and adjustment. Therefore, investigating EMI teachers' psychological experiences is crucial to shed light on their mental and affective state. Such research can offer practical implications for supporting their continuous learning, improving teaching quality, and enhancing personal wellbeing.

To this end, the present study adopts a mixed-methods approach to investigate EMI teachers' self-efficacy (SE), collective efficacy (CE), outcome expectancy beliefs, satisfaction, and stress in Chinese universities. This scope elucidates EMI teachers' cognitive functioning as manifested in their self-evaluation and goal orientations (i.e. SE and outcome expectancy beliefs). Meanwhile, it also taps into their social relations and the potential impact of these relations on their teaching beliefs and practice in specific contexts (i.e. CE). Moreover, their affective experiences, namely satisfaction and stress, are integrated into the study thus contributing to a holistic and in-depth understanding of EMI teachers' professional practice and continuing development in higher education. Given the heterogeneity of EMI teachers' disciplinary backgrounds and teaching experiences, the study also looks into the correlation between their demographic variables (gender, discipline, and academic position) and psychological state, since these factors are considered influential in shaping EMI teachers' professional perceptions and engagement as revealed in our previous research (Yuan & Qiu, 2023). In this way, the study can generate insights into the psychological process involved in becoming, and being, an EMI teacher and shed light on how to adjust and maintain a positive and robust mindset when confronting the complexities and challenges of EMI teaching in higher education.

Literature review

Conceptualizing teachers' psychological experiences

The term 'psychological experiences' is often used, albeit loosely, to refer to 'a category of thinking, a minimal unit of analysis that includes people (their intellectual, affective, and practical characteristics), their material and social environment, their transactional relations (mutual effects on each other), and affect' (Roth & Jornet, 2014: 107). Drawing on this definition, the present study operationalizes EMI teachers' psychological experiences in terms of five critical dimensions – i.e. SE, CE, outcome expectancy beliefs, satisfaction, and stress – which collectively shape their inner world when adopting EMI in content-area classrooms.

Informed by social cognitive theory (Bandura, 1997), many researchers have paid attention to teacher SE, which is defined as ‘individual teachers’ beliefs in their own ability to plan, organize, and carry out activities that are required to attain given educational goals’ (Skaalvik & Skaalvik, 2010: 1059). With a high level of SE, teachers tend to demonstrate confidence and resilience in their daily work, especially in the face of challenging situations such as policy change and educational reform (Gordon *et al.*, 2022). Compared to those with low SE, they are thus more likely to harvest job satisfaction, leading to an enhanced sense of intrinsic motivation and commitment towards teaching (Lazarides *et al.*, 2018).

Despite the acknowledgement of SE as a critical feature of competent teachers, existing studies (e.g. Gordon *et al.*, 2022; Yuan & Zhang, 2017) have revealed the complexities involved in fostering teacher SE, which is intertwined with a variety of individual and environmental factors. For instance, teachers’ outcome expectancy beliefs, defined as their personal estimates of whether certain behaviors will lead to desirable results (Schunk, 1991), can directly influence their SE when they evaluate their teaching objectives and engagements based on their professional competence in classroom instruction. A teacher who sets a high goal (i.e. positive outcome expectancy beliefs) may experience a decline in SE if their current teaching abilities fail to bring about the expected results, and vice versa. At the contextual level, school leadership, curriculum structures, and opportunities for collegial interactions and continuing development serve as mediating factors that may enhance or diminish teachers’ SE in their work environment (e.g. Yang, 2020; Yuan & Zhang, 2017).

Relatedly, scholars interested in the interactive relationship between teachers’ SE and the external environment have paid attention to the notion of CE, which describes ‘teachers’ perceptions of their collective ability to use their resources to deal with difficult or challenging situations, as well as to produce and enrich successful learning environments’ (Meyer *et al.*, 2022: 596). Given that teaching is essentially a social profession, CE, proposed by Bandura (1997), reflects how teachers evaluate and judge the overall level of teaching effectiveness in their professional communities (Goddard *et al.*, 2004). Thus, CE is not only the sum of individual teachers’ SE, but a representation of the organizational capacity and potential in generating positive learning outcomes for students. Teachers with high SE may experience low CE when they feel isolated and marginalized in their working contexts, which can result in a loss of motivation and emotional burnout. Consequently, a large number of studies (e.g. Ninković *et al.*, 2022; Voelkel, 2022) emphasize the need to establish professional learning communities characterized by shared visions, distributed leadership, and mutual trust. As such, teachers can build up both their SE and CE and form positive outcome expectancy beliefs to support their continuous exploration, collaboration, and innovation in teaching.

Moreover, teachers’ job satisfaction and stress constitute another important dimension of their psychosocial experiences (e.g. Troesch & Bauer, 2017). Job satisfaction, referred to as ‘a state of mind determined by the extent to which the individual perceives their job-related needs to be met’ (Evans, 1997: 833), is a highly subjective and contextualized construct often charged with strong emotions. Previous studies such as Caprara *et al.* (2003) and Klassen *et al.* (2010) labelled job satisfaction as a decisive factor in shaping teachers’ work attitudes and performance, and they further posited that SE and CE both contribute to job satisfaction. To gain and maintain job satisfaction, teachers must cope with potential stress, which is defined as the feeling of negative emotions resulting from their work (Kyriacou, 2001). Indeed, teaching is a stressful occupation where teachers need to face *internal stressors* in relation to their teaching beliefs, values, and goals and *external stressors* brought by demands from students, parents, colleagues, and administrators compounded by work overload, shifting policies, as well as societal expectations and needs (Carroll *et al.*, 2021). While job stress can be damaging to a teacher’s sense of satisfaction, it can also provide stimulus for teachers to hone and improve their practice and promote job satisfaction mediated by teachers’ SE and CE (e.g. Nathaniel *et al.*, 2016).

EMI teachers in higher education

Research on EMI teachers has gradually advanced over the past few years owing to a heightened recognition of their role as a linchpin in developing and refining EMI curricula and courses. Several researchers (see Dang *et al.*, 2021 for a comprehensive review) have examined the professional challenges and needs of EMI teachers, depicting a general picture of their professional state when transitioning into EMI teaching in higher education. For instance, many EMI teachers reported their limited English proficiency and thus expressed the need for discipline-specific language training to support their EMI teaching (Gustafsson, 2020). Others with relatively advanced linguistic abilities shared concerns about their pedagogical competence, thus calling for systematic training and support to help reform and innovate their classroom practice (e.g. incorporating a language focus into their teaching) (Curd-Christiansen *et al.*, 2021).

Another important line of research pertains to the cognitive and affective domains of EMI teaching experienced by disciplinary teachers in specific institutional and geographical regions. Yuan *et al.* (2022), for instance, investigated EMI teachers' complex, dynamic beliefs in a mainland Chinese university. In this study, the different types of beliefs concerning the roles of English and EMI, about EMI teaching and learning, and university curricula and policies, constantly interacted with each other in guiding EMI teachers' professional practice and social engagement. Huang's (2019) study in Taiwan, using 'identity' as a conceptual lens, focused on instructors in law and the humanities, demonstrating how participants' agentic thinking and actions were driven by their ideal identities as educators within EMI classrooms. Outside the Chinese context, Rowland and Murray's study (2020) at an Italian university, found that the teachers perceived language proficiency to be a powerful factor mediating students' mastery of subject knowledge. Through their strategic teaching (e.g. showing tolerance towards language mistakes and using Italian in classroom instruction), they incrementally witnessed students' content comprehension and academic growth, which led to a strong sense of job satisfaction. Furthermore, Brown's (2019) study in Japan uncovered that the work conditions of foreign faculty in an EMI program featured elements of tokenism and invisibility, which eroded their professional agency and autonomy in everyday work. Overall, this bulk of studies, though mainly regarding the intertwined relationship between beliefs, identities, and agency, attests to the complexities and idiosyncrasies of EMI teachers' inner world, which call for more research attention.

By conceptualizing teachers' psychological experiences in terms of five critical dimensions, i.e. SE, CE, outcome expectancy beliefs, job satisfaction, and job stress, the present study seeks to understand how disciplinary teachers perceive and engage in EMI teaching in Chinese higher education. The study sets out to answer three questions:

1. What are EMI teachers' levels of SE, CE, outcome expectancy beliefs, job satisfaction, and job stress in Chinese universities? How do they differ from each other?
2. What are the relationships among the five factors?
3. How does demographic information (i.e. gender, discipline, and academic position) affect the five factors of EMI teachers?

Research contexts and participants

The study is part of a larger research project on EMI teachers' professional experience and continuing development in Chinese higher education (see Yuan & Qiu, 2023). Forty-five EMI teachers from different universities in China, who spoke Chinese as their first language, voluntarily participated in this study, and three of them were interviewed about their SE, CE, outcome expectancy beliefs, job satisfaction, and stress. The questionnaire used in this study consisted of five scales, and the demographic information of the teacher participants is presented in Table 1.

Table 1. Demographic information of EMI teachers

Gender	Male: 13 Female: 32
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Age group (years old)	20–29: 6 30–39: 28 40–49: 7 50–59: 4
Teaching experience at tertiary level (mean teaching experience: 8.32 years; mean EMI teaching experience: 5.17 years)	1–9: 31 10–19: 9 20–29: 2 30–39: 3
Tier of the affiliation	985 Project: 16 211 Project: 4 Tier 1: 4 Tier 2: 12 Tier 3: 9
Discipline	Soft science (e.g. journalism and translation): 37 Hard science (e.g. electronic engineering and medicine): 8
Highest degree	Master's degree: 25 Doctoral degree: 20
Academic position	Assistant Professor: 26 Associate Professor: 13 Professor: 6
Overseas education experience	Yes: 38 No: 7
Overseas working experience	Yes: 12 No: 33
EMI teaching experience (years)	1–9: 39 10–19: 3 20–29: 2 30–39: 1

Note: Tier = Universities in China are typically ranked into tiers, reflecting their academic and research excellence, funding, and reputation. Tier 1 institutions are regarded as the most elite and competitive, followed by Tier 2 universities. The Projects 985 and 211 universities, initiated by the Chinese government, fall into Tier 1. These initiatives were launched to establish world-class universities, cultivate high-level professional talent, and enhance China's international competitiveness over the past decades.

Research instruments

Questionnaire adaptation

EMI teacher self-efficacy: The SE scale was adapted from some existing teacher SE scales (Chan, 2008; Dellinger *et al.*, 2008; Skaalvik & Skaalvik, 2007; Tschannen-Moran & Woolfolk Hoy, 2001). We changed the wording of the question items from general or other education domains to EMI education. The scale assesses EMI teacher SE on five dimensions: (1) instruction (e.g. I can answer students' questions so that they understand difficult problems), (2) classroom management (e.g. I can effectively manage routines and procedures for classroom learning), (3) student motivation (e.g. I can motivate students to perform to their fullest potential), (4) accommodation of individual differences (e.g. I am able to plan activities that accommodate the range of individual differences among my students), and (5) monitoring and feedback for learning (e.g. I can clarify students' misunderstandings or difficulties in content subject learning). It includes 20 question items, four for each dimension.

EMI teacher collective efficacy: The CE scale, adapted from existing studies (Schwarzer *et al.*, 1999; Skaalvik & Skaalvik, 2007), contains 12 items which cover three dimensions: (1) group competence in dealing with students (e.g. we are able to get through difficult students), (2) group competence in EMI instruction (e.g. since we are a competent and experienced team of EMI teachers, we can improve our instructional quality in spite of system constraints), and (3) group competence in collaboration with colleagues (e.g. we can handle conflicts constructively because we work as a team). The wording of the original question items in previous studies was changed into the EMI education domain. The participants were asked to treat the EMI teachers in their faculty or department as a group and to think about their collective efficacy. The adaptation of this questionnaire was also based on the preliminary findings of an interview with three EMI teachers recruited through the researchers' personal contact. Given that EMI teacher CE has not yet been investigated in the literature, the interviews with the EMI teachers helped us refine the scale for more in-depth investigation. In the end, four items were added based on the interview, such as 'we are confident that we will be able to motivate our students'.

Outcome expectancy beliefs: Five question items were adapted from Riggs and Enochs' (1990) questionnaire on teachers' outcome expectancy beliefs (e.g. The inadequacy of a student's content subject learning can be overcome by good teaching in the EMI course). We changed the wording into the EMI context (e.g. EMI course) to make sure that the questionnaire measured teachers' outcome expectancy beliefs in EMI courses.

Job satisfaction: Four items were adapted from Caprara *et al.* (2003) and Klassen and Chiu (2010) to measure teachers' job satisfaction in the EMI context (e.g. I am fully satisfied with my job as an EMI teacher).

Job stress: The job stress scale contains one general question item adapted from Klassen *et al.*, (2010) (i.e. I find teaching EMI courses to be stressful), and 10 items asking about the source of stress (e.g. workload, students, and curriculum) from existing studies (Boyle *et al.*, 1995; Klassen & Chiu, 2010).

Upon adapting all items that comprised the questionnaire of this study to a seven-point Likert scale, the authors invited three scholars specialized in EMI and education psychology and two EMI teachers to comment on the design and the wording. After receiving the experts' and teachers' feedback on the questionnaires, the authors removed one item from each dimension, slightly revised the wording to enhance clarity, and finalized the questionnaires with a total of 48 items. The reliability analysis was conducted using SPSS software version 27. The results indicated that all the scales are reliable, with Cronbach's alpha values greater than 0.700: SE (Cronbach's alpha = 0.954), CE (Cronbach's alpha = 0.733), outcome expectancy beliefs (Cronbach's alpha = 0.708), job satisfaction (Cronbach's alpha = 0.892), and job stress (Cronbach's alpha = 0.854).

Interview protocol

In line with the research questions, an interview protocol was designed to probe the EMI teachers' perceptions and experiences in their situated contexts. The protocol covered the teachers' motivations, goals, knowledge, and skills in teaching EMI, as well as their perceived challenges and coping strategies from past experiences. Questions regarding the participants' self-evaluation of their teaching effectiveness, the possible changes they planned to make, and the contextual support they needed were also included. Special attention was also paid to the critical incidents – i.e. meaningful events that instigated strong emotional reactions and caused cognitive changes – which occurred during the process of EMI teaching. By guiding the participants to recount and reflect on such incidents in the interviews, we were able to gather detailed information regarding the participants' psychological experiences, particularly how they perceive, feel, and react to real-life situations in EMI teaching.

Data collection

For data collection, the authors first invited the EMI teachers they were familiar with to voluntarily complete the questionnaire online. Teachers' consent was sought before the study. These teacher participants also sent out the

questionnaires to their colleagues and friends in different mainland Chinese universities. Forty-eight responses were collected, but three were incomplete and excluded. At the end of the questionnaires, the teachers were asked about their willingness to participate in a follow-up interview based on their questionnaire input. Among those who agreed to participate, we invited three EMI teachers for the semi-structured interview. The three teachers – two females (Maggie and Molly) and one male (Jimmy) – were selected through convenience sampling since they were known to the researchers. For privacy and confidentiality purposes, the names used in this study are pseudonyms. Their disciplinary backgrounds (i.e. education, translation, and estate management), academic positions, and working institutions were also taken into consideration to maximize diversity in participant selection. Specifically, Maggie and Jimmy had obtained doctoral degrees in their respective fields from overseas universities. At the time of the study, Maggie, with an associate professor title, worked in a comprehensive university with a strong orientation in science and engineering. She had just started teaching EMI courses with less than one year's experience. Jimmy, an assistant professor in a teacher education oriented university, had been engaged in EMI teaching for three years. Molly held a master's degree in translation and had been teaching EMI courses in translation and linguistics as a lecturer for two years in a provincial university. To pursue her continuing education, Molly quit her job and enrolled in a PhD program in an overseas university. Our survey and interview thus focused on her previous EMI teaching experience and reflections.

Following the questionnaire survey, semi-structured interviews were conducted with the three EMI teachers via phone or Skype. The interviews, each lasting around half an hour and conducted in Chinese (i.e. the participants' first language), centered on their personal perspectives and practices in EMI classrooms. Through a conversational and reflective process of meaning construction guided by the protocol, the participants were able to provide useful information about their self-efficacy and collective efficacy as EMI teachers in their working contexts and explicate their outcome expectations, job satisfaction, and stress (if any) that arose from their daily practice and social interactions.

Data analysis

Inferential statistical analysis was conducted with the questionnaire data using SPSS version 27. Related-samples Friedman's two-way analysis of variance by ranks tests was conducted to compare the means of the five scales. Follow-up Mann-Whitney U tests were performed to compare the means of the scales and to investigate the role of demographic variables (i.e. gender and disciplinary background) in the teachers' SE, CE, outcome expectancy beliefs, job satisfaction, and job stress. The Kruskal-Wallis one-way ANOVA test was adopted to compare the questionnaire data of the teachers with different academic positions. Effect sizes (Cohen's *d*) were also calculated based on the means of the scales, and the thresholds for small, medium, and large effect sizes are 0.20, 0.50, and 0.80, respectively (Cohen, 1988). Pearson's correlation analysis was also performed to explore the relationships of the five factors.

The interview data were transcribed verbatim using NVivo software and then the accuracy of the transcription was verified by the first two authors. A qualitative, thematic approach was adopted to analyse the transcript based on the research questions. Through careful reading and re-reading, a range of codes were identified, which reflected the teachers' SE and CE in delivering EMI courses, their outcome expectancy beliefs, and their job-related satisfaction and stress (if any). These codes were further compared, refined, and grouped into different categories, which were then subject to a cross-case comparison to ascertain the general patterns shared by the three cases in their EMI classroom practices. While the first author analysed the interview data independently, he engaged in rounds of discussion with the other two authors (who were familiar with both EMI literature and the Chinese context) to seek their comments, which enhanced the validity of the interpretation.

To triangulate and explain the survey results, we also paid attention to the personal (e.g. English proficiency, personal backgrounds, and previous experiences) and contextual (e.g. university policy and collegial support) factors

shared by the three participants in the interviews. The first two researchers conducted the analysis independently and reached a consensus through rounds of discussion.

Questionnaire results

Descriptive statistics

The mean and standard deviation (SD) for each item on the EMI teachers' SE, CE, outcome expectancy beliefs, job satisfaction, and job stress scales are presented in Table 2. All individual scale results are included in the Appendix. The teacher participants believed that they could teach EMI courses well because, except for item 15 (mean = 4.87; see Table 5 in the Appendix), the means for SE items were 5.0 or above in the seven-point Likert scale (1 = strongly disagree and 7 = strongly agree). However, the overall CE for their EMI group competence in dealing with students, teaching EMI courses, and initiating collaborations among colleagues in the group was significantly lower ($M = 4.66$, $SD = 1.07$) than their overall SE ($M = 5.42$, $SD = 0.86$), as tested in the related-samples Friedman's two-way analysis of variance, $p < 0.001$, with a medium size effect ($d = 0.78$). The p-values were adjusted after the Bonferroni correction for multiple tests. In terms of their outcome expectancy beliefs (see Appendix), this group of teachers expressed high levels of confidence that all items on the scale indicated their teaching behaviour positively facilitated students' learning ($M > 4.00$). They were generally satisfied with their job as EMI teachers ($M = 5.22$, $SD = 0.97$) and had a significantly lower level of job stress ($M = 4.13$, $SD = 1.58$), $p < 0.05$, with a large size effect ($d = 0.83$). According to their responses, teachers reported that their stress appeared to be primarily related to factors such as their heavy workload, the large class size, their responsibilities for students' achievement, and the students' lack of interest in the course content and their teaching (see Table 7 in the Appendix).

Table 2. Descriptive statistics for the questionnaire data

Scale	Dimensions	Mean	SD
SE scale	Instruction	5.63	0.83
	Classroom management	5.57	0.86
	Motivation of students	5.71	0.79
	Accommodation of individual differences	5.29	0.95
	Monitoring and feedback for learning	5.48	0.86
CE scale	Dealing with students	4.84	0.93
	Instruction	4.91	1.03
	Collaboration with colleagues	4.93	1.17
Outcome expectancy beliefs		5.00	0.71
Job satisfaction		5.22	0.97
Stress		4.13	1.58

Pearson's correlation analysis was conducted to investigate the relationships among the five factors. The results (Table 3) suggested, first, a positive correlation between teachers' SE, CE, and job satisfaction, revealing that higher SE is linked to increasing CE and job satisfaction. Second, their CE was positively correlated with job satisfaction and stress. Third, outcome expectancy beliefs were also positively correlated with job satisfaction.

Table 3. Correlation analysis

	SE	CE	Outcome	Satisfaction	Stress
SE	1	0.507**	0.122	0.615**	0.004
CE	0.507**	1	0.183	0.438**	0.416**
Outcome	0.122	0.183	1	0.404**	0.186
Satisfaction	0.615**	0.438**	0.404**	1	0.608
Stress	0.004	0.416**	0.186	0.608	1

Note: ** means $p < 0.001$.

The role of demographic information

Table 4 presents the means and standard deviations (in brackets) based on the factors, gender, discipline, and professional title. The quantitative results of EMI teachers were compared based on gender and disciplinary background using the Mann-Whitney U tests. Likewise, professional title (from assistant, associate, to full professor) was compared using a Kruskal-Wallis one-way ANOVA test. The statistical analyses, however, revealed that no significant differences were found in terms of gender, disciplinary backgrounds, and/or professional title ($p > 0.05$). Regardless of these demographic variables, the teachers had similar levels of SE, CE, outcome expectancy beliefs, job satisfaction, and stress. It should be highlighted that we only included six hard science EMI teachers and six full professors. The small sample size might have also affected the results.

Table 4. The role of gender, discipline, and professional title

	Gender		Discipline		Professional title		
	Male (N = 13)	Female (N = 32)	Soft science (N = 37)	Hard science (N = 8)	Assistant Prof. (N = 26)	Associate Prof. (N = 13)	Full Prof. (N = 6)
SE	5.57 (0.77)	5.36 (0.90)	5.35 (0.86)	5.75 (0.86)	5.23 (0.93)	5.72 (0.76)	5.61 (0.55)
CE	4.58 (0.79)	4.69 (1.18)	4.60 (1.16)	4.93 (0.50)	4.75 (1.16)	4.47 (1.14)	4.67 (0.41)
Outcome	4.77 (0.63)	5.09 (0.73)	5.01 (0.71)	4.95 (0.78)	4.95 (0.71)	5.06 (0.83)	5.10 (0.49)
Satisfaction	5.04 (0.92)	5.29 (1.00)	5.18 (0.98)	5.41 (1.01)	5.23 (1.06)	5.33 (0.72)	4.92 (1.17)
Stress	3.92 (1.26)	4.22 (1.70)	4.05 (1.63)	4.50 (1.31)	4.12 (1.58)	4.08 (1.71)	4.33 (1.51)

Interview findings

Aligned with the survey results, the interview analysis showed that the three teachers possessed an overall high level of SE as EMI teachers. Both Maggie and Jimmy reported a systematic process of planning, monitoring, evaluation, and adjustment in their content-area classrooms to ensure teaching effectiveness. As Maggie elaborated,

I think my confidence in teaching is directly related to the efforts I put into lesson preparation. I would spend a great amount of time reviewing the course content before each session. ... In this way, I can walk into the classroom with confidence. (Maggie)

Similar to Maggie, Jimmy shared how he constantly checked the students’ responses and progress during his teaching and made necessary modifications to maximize students’ classroom participation and content understanding. For example, in an online EMI course he taught during the COVID-19 pandemic, he frequently engaged in communication with students to seek their feedback. One observation he made was that some students struggle with diverse accents in the EMI classroom given their different ethnic and social backgrounds. Thus, he deliberately encouraged the students to ‘slow down the pace and use other means, such as the chat box, to facilitate their communication’. As he managed to help students overcome the learning barrier, Jimmy became more self-efficacious about his EMI teaching. Interestingly, in Molly’s case, in addition to the efforts she made in lesson preparation, she also attributed her SE to the positive influence of her previous EMI teachers. As she recalled, she was teaching a course related to translation theory and practice, which was similar to the course she had taken

during her MA study. Thus, not only did she try to organize the course in a similar structure, but she also intentionally followed her previous teacher's instructional style.

I would start with knowledge input and then initiate questions and organize tasks for students. ... In other words, I will move from theories to practice. (Molly)

In this way, Molly felt 'secure and comfortable' in her teaching, which added to her SE in delivering the EMI course. As opposed to their high SE, the three teachers reported a relatively low level of CE, corroborating the finding of the questionnaire survey. The reasons behind such a phenomenon were quite complex. Since EMI programs were at the budding stage in their respective university, they were one of the 'pioneers' who took up EMI teaching, and there was thus a lack of collegial communication and collaboration in their daily work. As Maggie described,

I designed the whole course from scratch and taught it all by myself. The majority of the colleagues were teaching in Chinese. We barely had any communication. (Maggie)

She further shared that the university encouraged young teachers with overseas educational experience to offer EMI courses. However, given the increasing research pressure faced by new teachers to bid for external grants, conduct research projects, and publish in international journals, they might find it challenging to make collaborative efforts for EMI teaching reform and innovations, thus explaining the low level of CE. In Molly's case, she recalled that she was one of the few EMI teachers in the faculty, where EMI was regarded as 'something new but peripheral' in the curriculum (Molly). Without an EMI teacher community, her CE remained low throughout the two years of her teaching.

Interestingly, Jimmy stated that he preferred to 'teach the course independently'. His preference might be attributed to his strong SE as an EMI teacher:

At this stage, I think I would rather teach the course all by myself, as I have my personal understanding about how to teach it in my specific area. Of course, I would like to share and collaborate with other colleagues later, when the course is at a more mature stage. (Jimmy)

Thus, EMI teaching presented an opportunity for Jimmy to translate his own teaching beliefs into practice with full autonomy. In terms of outcome expectancy beliefs, the interviews showed that Maggie and Jimmy placed a strong emphasis on students' content comprehension and application, whereas Molly held a more integrated view by highlighting the dual focus on content learning and language development in her course. As revealed in the interviews, they managed to live up to their own outcome expectations by adopting a flexible and reflective stance in their EMI teaching, which led to an overall level of satisfaction as EMI teachers. For instance, Molly introduced the approach of project-based learning in her classroom, incorporating the use of Chinese to encourage students' active participation and to facilitate their content-language integrated learning. As she reflected, students can consciously or unconsciously learn both (content and language) through the translation project with different forms of support, including their first language. In a similar vein, Jimmy elucidated his attempts to 'push students to think, discuss, and learn' through systematic questioning and feedback based on selected readings.

I think it is important to slow down and provide students with sufficient scaffolding so that they can work with you (the teacher) to address and solve the problem. (Jimmy)

The findings thus attest to the positive relationship between the participants' active investment in EMI teaching, their positive outcome expectations, and their job satisfaction, as captured by the quote below:

I was happy to see the positive feedback from my students. ... I remember I was pretty nervous at the beginning, but after a while, I felt more and more confident and relaxed. ... I think as long as I make efforts, the outcomes should be good. (Maggie)

Despite their general satisfaction about the investment and outcomes of teaching, some external stressors also existed. For instance, as reported by Maggie and Molly, the lack of pedagogical training and support posed challenges to their EMI teaching as they had to ‘figure out the whole course design independently’ (Maggie) and ‘learn through trials and errors’ (Molly). Even though they managed to teach the courses effectively, they yearned for specific and systematic training on the implementation of EMI courses:

I took some workshops on teaching provided by the university, which mainly focused on generic teaching issues. ... We also needed guidance and support that specifically targeted EMI. (Maggie)

Molly further pointed out that the traditional training mode might not be able to suffice; instead, ‘it is necessary to establish a supportive platform that could offer sustainable support for EMI teachers with specific needs’. Her view was echoed by Jimmy. Despite his personal preference for independent teaching, he stated the need for a professional community, where EMI teachers from similar disciplinary backgrounds could work collaboratively to construct subject curriculums, hone their teaching practice, and promote students’ EMI learning. The absence of community/institutional support therefore might bring a sense of uncertainty and stress to the participants’ long-term engagement in EMI teaching.

Another stressor derived from the university’s policy and regulation on EMI teachers’ professional work. In Molly’s case, she strongly criticized the inspection system of her university, where the department/faculty leaders would visit her classrooms unannounced to observe her teaching. However, they seldom provided feedback after the teaching, which, as described by Molly, simply made her feel ‘untrusted and anxious’ as a university teacher. For Maggie, she attributed her stress to the institutional requirements on research productivity and outputs, which took away her time and energy directed at EMI teaching. As she opined, ‘the tension between research and teaching was strongly felt by university teachers especially the novice ones’. In other words, not only did the university policy reduce her CE in EMI teaching as reported above, but it also generated some stress as she was expected to meet different and even competing demands in her daily work.

Discussion

Drawing on data collected from questionnaire surveys and follow-up interviews, the study examines EMI teachers’ psychological experiences with a particular eye on their SE, CE, outcome expectancy beliefs, job satisfaction, and job stress. The questionnaire findings confirm previous literature (e.g. Yuan *et al.*, 2022) by revealing the stress embedded in EMI teaching derived from a heavy workload, the large class size, responsibilities for students’ achievement, as well as students’ limited interest in course content. The interview results further identify the lack of professional training, limited collegial and institutional support, and unsupportive inspection system as potential factors that induce stress and affect job satisfaction (Brown, 2019; Curdt-Christiansen *et al.*, 2021; Dang *et al.*, 2021). Interestingly, the participants seemed to take these stressors positively, as indicated by their strong sense of SE. As shown by the interview analysis, they were able to cope with the potential obstacles through careful preparation, monitoring, and adjustment and produce positive teaching results in line with their outcome expectancy beliefs related to students’ content comprehension and learning in EMI courses. The alignment between their SE and outcome expectations thus strengthened their confidence and motivation, which gave rise to their overall satisfaction about EMI teaching, as observed in some previous studies (Klassen *et al.*, 2010; Yuan & Zhang, 2017). Behind the participants’ strong SE might be their qualifications and past experiences (most have studied in overseas universities with around half holding a doctoral degree), which enabled them to be resourceful and strategic in adjusting the

mode of EMI in content area classrooms. This finding also speaks to Huang (2019), illustrating the power of teacher agency in supporting EMI teachers to actualize their idealized identities through continuing practice.

The study takes a further step by exploring EMI teachers' CE, which was found to be positively correlated with job satisfaction. However, compared to SE, the participants' CE was significantly lower, suggesting their lack of confidence in the collective competence and potential to deliver EMI courses in their situated communities. The result, to some extent, is surprising, considering the collective culture prevalent in Chinese schools/universities and society in general, which emphasizes collaborative engagement and learning. On the other hand, the low level of CE might be explained by the status of EMI education, which, though moving forward at a rapid pace, was still at a rudimentary stage without systematic planning, guidance, and quality control. Against such a backdrop, many EMI teachers practice in isolation with limited collegial interactions (Yuan, 2021). Interestingly, during the follow-up interview, one participant, Jimmy, shared his lack of willingness to collaborate with other EMI teachers, partially owing to his strong SE and personal motive to translate his pedagogical beliefs into practice. This case seems to suggest the potential tension between SE and CE in mediating how EMI teachers practice and collaborate in their disciplinary teaching. How to understand and navigate such a tension merits further attention in research and practice in the field of EMI and beyond.

Further, our study reveals that gender did not play a significant role in shaping EMI teachers' psychological experiences, and there were also no statistical differences among teachers with different disciplinary backgrounds and academic positions in this regard. Such a result may be owing to the small sample size of the study, but it may also be explained by the general condition faced by the EMI teachers in our study. Specifically, most of the participants ($n = 39$) held less than nine years of EMI teaching experience, and their outcome expectancy beliefs were primarily concerned with students' comprehension of content knowledge without delving into other dimensions of students' disciplinary learning (e.g. developing students' discipline-specific academic literacy and preparing them for their future work in specialized fields). Meanwhile, there was a lack of systematic and discipline-related support to facilitate their exploration and innovation of EMI teaching in their respective field as shared by the interviewees. Overall, the participants appeared to be at the 'survival' stage with a general goal to meet the basic demands of EMI teaching, where the possible influence of work experience and disciplinary backgrounds on their psychosocial state might still remain ambiguous and weak.

Implications and conclusion

Based on the findings and discussion, we present two practical implications in this section, while we also discuss the limitations of the study with some possible directions for future research. Firstly, the psychological experiences of EMI teachers are crucial for their well-being in higher education. Our study found that the participants with high levels of SE and CE tended to exhibit job satisfaction, suggesting that universities should recognize the role of positive psychological experiences in maintaining and boosting the well-being of EMI teachers. Secondly, effective interventions are needed to address potential emotional exhaustion resulting from stress. Although our participants reported low levels of stress, interviews revealed a range of stressors calling upon active responses from universities and EMI stakeholders. Indeed, EMI teachers in many contexts (e.g. China, Korea, and Vietnam) often face a variety of challenges related to their own language abilities, teaching styles, available resources, and university policy (e.g. institutional requirements on research outputs), which may have an adverse impact on their well-being and motivation, ultimately leading to a decline in the quality of education for students in EMI classrooms. As a cure, providing EMI teachers with tailored support and collaborative opportunities (Lasagabaster, 2018) to promote their positive experiences would be beneficial.

The limitations of the study need to be acknowledged. Firstly, the study did not conduct the factor analysis to examine the construct validity of the questionnaires due to the small sample size. This calls for more systematic and large-scale research in the future. Secondly, the study solely captured the psychological experiences of EMI teachers

at a specific point of time, without accounting for the chronological changes of these experiences in situated contexts. To address this, future research could adopt a longitudinal approach to examine the evolving SE, CE, job satisfaction, and job stress of EMI teachers, and how they adapt to changes in the EMI classroom over time. Thirdly, most of the participants were at a relatively early stage of their career (only six were full professors) with a small number of them ($n = 8$) from the hard sciences. There is thus a need to elicit voices from the underrepresented groups in future research. Lastly, this study utilized both quantitative and qualitative methods to depict a general picture of EMI teachers' psychological state. Future researchers can consider conducting in-depth qualitative investigations following an ethnographic design, which could provide additional insights into EMI teachers' psychological functioning and changes.

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Appendix 3.1

Table 5. EMI teachers' self-efficacy

	Items	Mean	SD
Instruction	1. Explain central concepts in my subjects so that most students can understand.	5.40	0.99

	2. Provide good guidance and instruction to all students, regardless of their level of ability.	5.16	1.09
	3. Answer students' questions so that they understand difficult problems.	5.38	1.05
	4. Make myself understood in English during my EMI teaching.	5.38	1.15
Classroom management	5. Effectively manage routines and procedures for classroom learning tasks.	5.40	0.99
	6. Establish routines to keep activities running smoothly.	5.56	0.97
	7. Manage disruptive behavior in the classroom.	5.22	1.15
	8. Make my expectation clear about student behavior.	5.58	1.25
Motivation of students	9. Motivate students to perform to their fullest potential.	5.04	0.90
	10. Get students to do their best even when working with difficult problems.	5.73	0.99
	11. Motivate students to use English in their content subject learning.	5.58	1.18
	12. Exert a positive influence on the academic development of my students.	5.33	1.26
Accommodation of individual differences	13. Plan activities that accommodate the range of individual differences among my students.	5.07	1.10
	14. Plan evaluation tasks that accommodate individual differences among my students.	5.00	1.11
	15. Implement teaching methods at an appropriate pace to accommodate differences among my students.	4.87	1.27
	16. Utilize teaching aids and learning materials that accommodate differences among my students.	5.11	1.27
Monitoring and feedback for learning	17. Provide students with specific feedback about their content subject learning.	5.47	0.92
	18. Provide students with specific feedback about their English language performance in specific subjects.	5.16	1.04
	19. Clarify student misunderstandings or difficulties in content subject learning.	5.51	1.25
	20. Adjust teaching and learning activities based on students' learning needs.	5.40	1.05

Table 6. EMI teachers' collective efficacy

	Items	Mean	SD
Dealing with students	21. We are able to get through to difficult students.	4.51	1.36
	22. We are confident that we will be able to motivate our students.	5.29	1.14
	23. We successfully address individual students' needs.	5.16	0.88
	24. We have a common set of rules and regulations that enable us to handle student disciplinary problems successfully.	4.64	1.30
Instruction	25. I am convinced that we can guarantee high instructional quality even when resources are limited or become scarce.	4.82	1.27
	26. Since we are a competent and experienced team of EMI teachers, we can improve our instructional quality in spite of system constraints.	4.89	1.32
	27. We are well prepared to teach the EMI courses we are assigned	5.24	1.30

	to teach.		
	28. We are skilled in various methods of teaching.	5.16	1.19
Collaboration with colleagues	29. We can develop and carry out educational projects in a cooperative manner even when difficulties arise.	4.71	1.36
	30. We handle conflicts constructively because we work as a team.	4.82	1.40
	31. We can achieve educational goals because we stick together and do not get demoralized by the day-to-day hassles of this profession.	5.22	1.09
	32. We are able to accomplish something positive in the faculty since we are a competent team of EMI teachers that grows every time we are challenged.	5.00	1.38

Table 7. Teachers' outcome expectancy beliefs, satisfaction, and stress

	Items	Mean	SD
Outcome expectancy beliefs	33. When a student does better than usual in an EMI course, it is often because the teacher exerted extra effort.	4.93	1.37
	34. If students are underachieving in an EMI course, it is most likely due to ineffective teaching in the EMI course.	4.09	1.24
	35. The inadequacy of a student's content subject knowledge can be overcome by good teaching in the EMI course.	5.40	1.01
	36. The inadequacy of a student's English language knowledge can be overcome by good teaching in the EMI course.	5.11	1.23
	37. Students' achievement in an EMI course is directly related to their teacher's effectiveness in EMI course teaching.	5.07	1.03
Job satisfaction	38. I am fully satisfied with my job as an EMI teacher.	5.13	1.14
	39. I am happy with the way my colleagues and superiors treat me.	5.24	1.43
	40. I am satisfied with what I achieve at work as an EMI teacher.	5.09	1.35
	41. As an EMI teacher, I feel good at work.	5.18	0.98
Job stress	42. I find teaching EMI courses to be stressful.	4.13	1.58
	How great a source of stress are these factors?		
	43. Too much work to do	4.67	1.02
	44. Having extra duties/responsibilities because of absent teachers	4.49	1.41
	45. Having a large class size	4.13	1.60
	46. Being responsible for students' achievement	4.22	1.57
	47. Having noisy students	3.04	1.83
	48. Maintaining class discipline	2.80	1.73
	49. Dealing with students' impolite behavior or rudeness	2.73	1.66
	50. Students' limited English proficiency	4.51	1.41
	51. Students' lack of interest in course content	3.93	1.63
	52. Students' lack of interest in EMI teaching	4.18	1.66