

Additional file 3: Item-source and parallel-item mapping for the Lecturer and Student Questionnaires

Table 1. Lecturer Questionnaire (LQ) Part B: Item-source mapping

Item	Content (Abbreviated)	Source/Basis	Adaptation Notes
Section 1: Current Course Design and Teaching Focus (6 items)			
T1	Classes emphasize language accuracy more than idea development	Researcher-authored based on EFL writing literature	Reflects documented language-focus tendency in Chinese EFL
T2	Writing topics connected to students' majors	CLIL framework (Coyle et al., 2010)	Adapted to assess current content integration
T3	Explicitly teach genre-related rhetorical moves	Genre-based pedagogy literature	Researcher-authored
T4	Assignments require sources from subject areas	CLIL framework (Coyle et al., 2010)	Content integration indicator
T5	Feedback addresses both language and content quality	Researcher-authored based on feedback literature	Dual-focus feedback assessment
T6	Assessments reflect writing in major courses	CLIL framework (Coyle et al., 2010)	Alignment with disciplinary demands
Section 2: Content-Integrated Writing Orientation and Feasibility (6 items)			
T7	Integrating content helps students understand topics deeply	CLIL 4Cs framework (Coyle et al., 2010)	Cognition dimension; terminology adapted from CLIL to content-integrated
T8	Content-integrated tasks increase motivation	CLIL literature; motivation research	Affective benefit perception
T9	Access to suitable disciplinary texts/resources	Researcher-authored	Resource availability/feasibility
T10	Can align content and language objectives	CLIL dual-focus principle (Coyle et al., 2010)	Teacher capability self-assessment
T11	Managing content and language scaffolding is challenging	Researcher-authored based on CLIL implementation literature	Challenge awareness
T12	Would adopt content-integrated writing with support	Researcher-authored	Adoption intention
Section 3: Metacognitive Strategy Instruction and CALLA Practices (9 items)			
T13	Teach students to plan writing (goals, outlines)	CALLA Preparation phase (Chamot & O'Malley, 1994)	Planning instruction
T14	Explicitly model strategies (think-aloud, exemplars)	CALLA Presentation/Modeling phase	Strategy modeling
T15	Students receive guided practice with feedback	CALLA Practice phase	Guided practice
T16	Require self-evaluation after drafts	CALLA Self-Evaluation phase	Self-evaluation requirement
T17	Design transfer activities for new genres/subjects	CALLA Expansion/Transfer phase	Strategy transfer
T18	Teach when and why to choose strategies (conditional knowledge)	Metacognition theory (Flavell, 1979); CALLA	Conditional knowledge instruction
T19	Allocate class time for metacognitive strategy instruction	Researcher-authored based on CALLA	Time allocation indicator
T20	Students can describe strategies used and explain	Metacognition theory	Student metacognitive

	why	(Flavell, 1979)	articulation
T21†	Use think-aloud protocols to show problem-solving	Researcher-authored based on CALLA modeling	explicit think-aloud practice
Section 4: Supporting Students' Self-Regulated Learning (6 items)			
T22	Help students set personal goals and sub-goals	SRL theory (Zimmerman, 2000); WSSRLQ concepts	Goal-setting support
T23	Require interim deadlines for time management	SRL theory; time management dimension	Process scaffolding
T24	Encourage help-seeking (office hours, peers)	SRL help-seeking dimension (Zimmerman, 2000)	Help-seeking encouragement
T25	Prompt reflection on strengths/weaknesses	SRL self-reflection phase (Zimmerman, 2000)	Reflection prompting
T26	Most students show adequate SRL	Researcher-authored	Teacher perception of student SRL
T27†	Students delay writing due to anxiety/fear of errors	Researcher-authored; informed by SLWAI (Cheng, 2004)	affective barrier observation
Section 5: Assessment and Feedback Practices (4 items)			
T28	Rubrics include content/argument and language criteria	Researcher-authored based on assessment literature	Dual-focus assessment
T29	Students receive actionable feedback	Feedback for learning literature	Formative feedback quality
T30	Peer review is structured and improves drafts	Researcher-authored	Peer review effectiveness
T31	Use metacognitive prompts with feedback	Metacognition theory; CALLA self-evaluation	Metacognitive feedback prompts
Section 6: Context, Constraints, and Professional Learning Needs (7 items)			
T32	Institutional guidelines/time/class sizes support instruction	Researcher-authored	Institutional support perception
T33	Curriculum prepares students for disciplinary writing	Researcher-authored	Curriculum adequacy
T34	Need for new pedagogical model	Researcher-authored	Perceived need for innovation
T35	PD in content-integrated writing/CALLA/SRL would help	Researcher-authored	Professional development need
T36	Could implement MAWM with resources/training	Researcher-authored	Implementation readiness
T37†	Students rely on AI tools bypassing cognitive engagement	Researcher-authored	AI usage observation
T38†	Need guidelines to integrate AI to assist (not replace) writing	Researcher-authored	AI guidance need

Note. † Item added following pilot study feedback. CALLA = Cognitive Academic Language Learning Approach; SRL = Self-Regulated Learning; CLIL = Content and Language Integrated Learning; SLWAI = Second Language Writing Anxiety Inventory; WSSRLQ = Writing Strategies for Self-Regulated Learning Questionnaire.

Table 2. Student Questionnaire (SQ) Part B: Item-source mapping

Item	Content (Abbreviated)	Source/Basis	Adaptation Notes
Section 1: Current English Writing Learning & Teaching (7 items)			
S1	Classes focus more on grammar/vocabulary than ideas	Researcher-authored; parallel to LQ T1	Student perception of language focus
S2	Topics connected to my major	CLIL framework (Coyle et al., 2010)	Parallel to LQ T2
S3	Teacher explains structure and rhetorical moves	Genre-based pedagogy; parallel to LQ T3	Student perception of genre instruction
S4	Tasks require information from my subject area	CLIL framework; parallel to LQ T4	Content integration experience
S5	Receive feedback on both language and content	Researcher-authored; parallel to LQ T5	Dual-focus feedback experience
S6	Tasks similar to writing in major courses	CLIL framework; parallel to LQ T6	Alignment perception
S7†	Teacher shows HOW they think while writing	CALLA modeling (Chamot & O'Malley, 1994)	think-aloud experience
Section 2: Content-Integrated Writing Orientation (7 items)			
S8	Learning through content helps understand topics	CLIL 4Cs Cognition (Coyle et al., 2010)	Parallel to LQ T7
S9	Using English for content increases motivation	CLIL motivation literature	Parallel to LQ T8
S10†	Access to English materials related to my major	Researcher-authored; parallel to LQ T9	resource access
S11	Content-integrated tasks help learn both content and English	CLIL dual-focus principle	Dual learning benefit
S12	Helps connect major ideas with English expressions	CLIL 4Cs Communication/Content	Integration benefit
S13	Focusing on content and language is challenging	Researcher-authored; parallel to LQ T11	Challenge awareness
S14	Would like to join content-integrated class	Researcher-authored; parallel to LQ T12	Intention/willingness
Section 3: Metacognitive Strategy Use (10 items)			
S15	Know when to use a particular writing strategy	MAWQ (Farahian, 2015, 2017); conditional knowledge	Adapted; simplified wording
S16	Prepare an outline or plan before writing	MAWQ; WSSRLQ planning dimension	Adapted; planning behavior
S17†	Start immediately without outline (R)	Researcher-authored	reverse-scored planning check
S18	Set clear goals for writing	MAWQ; MSLQ goal orientation (Pintrich et al., 1991)	Adapted; goal-setting
S19	Pause to check whether message is clear	MAWQ; monitoring dimension	Adapted; monitoring behavior
S20	Check whether content matches original plan	MAWQ; evaluation dimension	Adapted; self-evaluation
S21	Can judge how well I have done	MAWQ; self-judgment	Adapted; evaluation ability
S22†	Receive guided practice and feedback on strategies	CALLA Practice phase	instruction experience
S23†	Can apply strategies to different types of writing	CALLA Transfer phase;	transfer ability

		MAWQ	
S24†	Can explain which strategies I used and why	Metacognition theory (Flavell, 1979)	metacognitive articulation
Section 4: Self-Regulated Learning & Affective Factors (9 items)			
S25	Manage writing time effectively	WSSRLQ; SRL time management (L. S. Teng & Zhang, 2016)	Adapted; time management
S26	Set personal deadlines for writing parts	WSSRLQ; SRL planning	Adapted; self-imposed deadlines
S27	Actively seek help when facing difficulties	WSSRLQ; SRL help-seeking (Zimmerman, 2000)	Adapted; help-seeking behavior
S28	Use resources to solve writing problems	WSSRLQ; resource management	Adapted; resource use
S29	Reflect on strengths and weaknesses after task	WSSRLQ; SRL self-reflection phase	Adapted; reflection behavior
S30	Change approach if strategy doesn't work	WSSRLQ; SRL strategic flexibility	Adapted; strategy adjustment
S31†	Feel confident managing writing independently	MSLQ self-efficacy (Pintrich et al., 1991)	self-efficacy
S32†	Delay writing due to fear of mistakes (R)	SLWAI (Cheng, 2004); writing anxiety	anxiety indicator
S33†	Use AI tools due to lack of confidence (R)	Researcher-authored	AI reliance/anxiety link
Section 5: Assessment and Feedback Practices (4 items)			
S34†	Understand how writing is graded	Researcher-authored	assessment transparency
S35†	Feedback tells what to do next, not just errors	Feedback for learning literature	actionable feedback
S36†	Peer review helps improve drafts	Researcher-authored; parallel to LQ T30	peer review experience
S37†	Asked to think about why and what to change	Metacognition theory; parallel to LQ T31	metacognitive prompts
Section 6: Beliefs, Needs, and Context (8 items)			
S38†	Advanced vocabulary more important than logic (R)	Researcher-authored based on EFL writing literature	misconception check
S39‡	Translate word-by-word from Chinese (R)	MAWQ; L1 transfer awareness	Adapted
S40†	Current course prepares me for major writing	Researcher-authored; parallel to LQ T33	curriculum adequacy
S41†	Need a different approach to teaching writing	Researcher-authored; parallel to LQ T34	perceived need
S42‡	Aware of strategies before/during/after writing	MAWQ; metacognitive knowledge	—
S43‡	Would like to learn more strategies in class	Researcher-authored	—
S44‡	Metacognitive strategies would help complete assignments	Researcher-authored based on CALLA	—
S45†	Want clearer guidance on using AI to support writing	Researcher-authored	AI guidance need

Note. (R) = Reverse-scored item. † Item added following pilot study feedback. ‡ Item relocated from another section during pilot revision. MAWQ = Metacognitive Awareness of Writing Questionnaire (Farahian, 2015, 2017); MSLQ = Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991); WSSRLQ = Writing Strategies for Self-Regulated Learning Questionnaire (L. S. Teng & Zhang, 2016, 2018); SLWAI = Second Language Writing Anxiety Inventory (Cheng, 2004); CALLA = Cognitive Academic Language Learning Approach (Chamot & O'Malley, 1994); CLIL = Content and Language Integrated Learning (Coyle et al., 2010).

Summary of Item Sources

Lecturer Questionnaire (LQ): Of the 38 Part B items, 9 items (T13-T21) are informed by the CALLA framework phases, 6 items (T22-T27) draw on SRL theory, 6 items (T7-T12) are based on CLIL principles, and 17 items are researcher-authored to address current practices, assessment, and contextual factors relevant to the Chinese EFL context. Four items (T21, T27, T37, T38) were added following pilot study feedback.

Student Questionnaire (SQ): Of the 45 Part B items, 10 items (S15-S24) in Section 3 are primarily adapted from the MAWQ tradition with alignment to MSLQ constructs; 6 items (S25-S30) in Section 4 are adapted from the WSSRLQ; 7 items (S8-S14) are based on CLIL principles; and the remaining items are researcher-authored to capture current learning experiences, assessment perceptions, beliefs, and emerging needs. Two items (S32, S39) incorporate brief indicators informed by the SLWAI. Seventeen items were added following pilot study feedback, and four items were relocated between sections for improved logical flow.