



DEVELOPING 21ST-CENTURY CRITICAL
THINKING SKILLS IN LANGUAGE LEARNERS
THROUGH ACADEMIC RESEARCH AND LIBRARY
RESOURCES

Kumush Obiddin qizi

*English education Student at
Kimyo International University in Tashkent
Tashkent, Uzbekistan*

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ABSTRACT

The ability to evaluate information, construct reasoned arguments and reflect on one's own thinking is widely recognised as a core competence of the twenty-first century. For language learners this ability is particularly important, because they must process authentic texts in a foreign language while producing coherent academic discourse. This article examines how critical thinking can be developed in language learners through two interrelated resources: academic research tasks and library-based information resources. Using a structured narrative review of theoretical and empirical literature published between 1910 and 2019, the study identifies the components of critical thinking most relevant to language learning, analyses how research tasks and library resources support them, and proposes a four-stage instructional framework (Inquire, Locate, Evaluate, Produce) for university language courses. The findings suggest that critical thinking and language proficiency develop most effectively together when learners work on authentic research tasks supported by teachers and librarians.

1. INTRODUCTION

The rapid expansion of digital information, the globalisation of higher education and the changing demands of the labour market have reshaped what universities expect their graduates to be able to do. Frameworks for twenty-first-century learning consistently place critical



thinking at the centre of the competencies that students need, alongside communication, collaboration and creativity [16]. Graduates are no longer valued simply for the knowledge they have stored; they are valued for their ability to question sources, compare competing claims, construct reasoned arguments and revise their own positions in the light of evidence.

For language learners this expectation creates a double challenge. They must read, listen to and produce complex material in a language that is still developing, and at the same time they are expected to evaluate that material rather than reproduce it. Traditional language instruction, with its emphasis on accuracy, memorisation and imitation of models, does not always give learners the opportunity to practise higher-order thinking. As a result, learners may be able to summarise an English-language article correctly yet remain unable to judge the reliability of its author, to detect an unsupported generalisation or to take a justified position of their own. This problem is especially visible in settings where teacher-centred instruction and textbook-based assessment remain common.

Critical thinking has been defined in several complementary ways. Dewey described reflective thinking as the active, persistent and careful consideration of a belief in the light of the grounds that support it and the conclusions to which it leads [7]. Ennis defined it as reasonable, reflective thinking focused on deciding what to believe or do [9]. The Delphi consensus led by Facione characterised it as purposeful, self-regulatory judgement that results in interpretation, analysis, evaluation and inference, together with an explanation of the evidential, conceptual and contextual considerations on which that judgement rests [10]. Common to these definitions is the idea that critical thinking combines cognitive skills with a disposition to use them, and that it can be taught, practised and assessed [11; 12; 15].

Two resources are especially promising for developing such thinking in language learners. The first is academic research, understood not as a specialised activity reserved for professional scholars but as a sequence of learning tasks in which students pose questions, collect and interpret evidence and present arguments. The second is the library, in both its physical and its digital forms, which provides access to scholarly sources whose authority, purpose and quality can be examined. The Framework for Information Literacy for Higher Education emphasises that authority is constructed and contextual, that research is a process of inquiry and that searching is a strategic exploration [3]. Kuhlthau's model of the information search process similarly shows that learners move through uncertainty, exploration and formulation before they reach a sense of clarity [13]. Both perspectives are closely related to the reasoning processes that critical thinking requires.

Despite this natural connection, research on critical thinking in English language teaching and research on information literacy have often developed separately. Moreover, Atkinson cautioned that critical thinking should not be treated as a culturally neutral set of techniques that can simply be transferred between educational settings [4], and this warning calls for a careful, context-sensitive approach to instruction. The present article aims to bring these strands together.



It addresses three research questions: (1) which components of critical thinking are most relevant to language learners; (2) how academic research activities and library resources can support the development of those components; and (3) what instructional framework can be derived from this analysis for university language courses.

2. METHODS

Research design. The study used a qualitative design based on a structured narrative review of the literature, followed by thematic synthesis. This design was chosen because the purpose of the article is conceptual: to clarify how established ideas from three fields (critical thinking research, applied linguistics, and library and information science) can be combined into a practical approach for language teaching. No new participant data were collected.

Sources and selection criteria. The review drew on foundational works, peer-reviewed journal articles, scholarly books and professional framework documents published between 1910 and 2019. A source was included if it (a) defined, modelled or assessed critical thinking; (b) discussed critical thinking or critical literacy in language education; (c) addressed information literacy or library-based learning in higher education; or (d) provided empirical evidence on instructional approaches for teaching critical thinking. Sources were excluded if they treated critical thinking only in a general, non-educational sense or if they were not available in English.

Analysis. The analysis proceeded in three steps. First, definitions and component skills of critical thinking were extracted from each source and compared in order to identify areas of agreement. Second, the instructional practices described or tested in the sources were coded according to the cognitive process they required of learners, using the original and revised taxonomies of educational objectives as a reference [2; 5]. Third, the coded practices were grouped into themes and checked against the language-learning context to determine how each theme could be realised through research tasks and library resources. Disagreements between sources, for example concerning the transferability of critical thinking skills, were recorded and are discussed in Section 4.

Limitations of the method. A narrative review is more interpretive than a systematic review or meta-analysis and does not claim to cover every available study. The framework proposed below should therefore be regarded as a theoretically grounded proposal that requires empirical testing in classroom settings.

3. RESULTS

3.1. Components of critical thinking relevant to language learners

The comparison of definitions showed substantial agreement on six core cognitive skills: interpretation, analysis, evaluation, inference, explanation and self-regulation [10]. For language learners these skills take specific forms. Interpretation involves understanding the meaning and intention of an authentic text; analysis involves identifying claims, evidence and rhetorical devices; evaluation involves judging the credibility of a source and the strength of an argument;



inference involves drawing justified conclusions from incomplete information; explanation involves presenting reasons in clear, well-organised English; and self-regulation involves monitoring and correcting one's own interpretation and language production.

Second, the sources agreed that skills alone are insufficient. Halpern argued that effective critical thinking depends on a disposition to engage in effortful thinking, on skills that can be applied in new contexts and on the metacognitive monitoring of one's own progress [12]. Dispositions such as inquisitiveness, open-mindedness and willingness to revise a view are therefore as important as technical skills [10]. Kuhn's developmental model adds that learners' understanding of knowledge itself changes over time, from the belief that knowledge is simply right or wrong, through the belief that all opinions are equally valid, to an evaluativist position in which judgements are weighed according to evidence and argument [14]. Language learners who treat every published text as an unquestionable authority are likely to be at the earlier stages of this development.

Third, language-focused sources emphasise that critical thinking in a foreign language also involves critical language awareness. Wallace described critical reading as attention to the choices that authors make in vocabulary, grammar and text structure and to the positions those choices construct [21]. Pennycook similarly linked language teaching to questions of context, power and interpretation [18]. Dummett and Hughes proposed that critical thinking can be integrated into English language lessons by combining thinking skills with the four language skills rather than teaching them separately [8].

3.2. Academic research tasks as a vehicle for critical thinking

The review identified academic research tasks as a natural environment for practising all six core skills. When students formulate a research question, they must decide what is worth asking and why. When they compare sources, they analyse and evaluate. When they synthesise findings, they make inferences, and when they write or present their conclusions, they must explain their reasoning. The revised taxonomy classifies these processes at the higher levels of analysing, evaluating and creating [2], which are precisely the levels that conventional language exercises seldom reach.

Empirical evidence supports the use of structured, task-based approaches. A meta-analysis of experimental and quasi-experimental studies by Abrami and colleagues reported a small-to-moderate positive average effect of instruction on critical thinking ($g^+ \approx 0.30$) and found that the strongest results occurred when dialogue, authentic problems and mentoring were combined [1]. Tsui's multi-institutional study likewise associated gains in critical thinking with discussion, collaborative work and substantial feedback on written work [19]. These findings suggest that research tasks are most effective when they are authentic, interactive and supported by regular feedback, rather than assigned as independent projects without guidance.

Vygotsky's concept of the zone of proximal development provides a theoretical explanation for the importance of such support [20]. Learners who cannot yet evaluate an academic article



independently can do so with the help of a teacher, librarian or more capable peer, and gradually internalise the questions that were first asked externally. Brookfield's technique of identifying and examining hidden assumptions offers a practical tool for this kind of guided questioning [6].

3.3. Library resources and their contribution

Library resources contribute to critical thinking in three ways. First, they provide authentic input. Scholarly articles, monographs and reference works expose learners to the academic register and to the conventions of argumentation, citation and evidence use that they are expected to master. Second, they offer variety. A catalogue or database search returns sources that differ in purpose, quality and viewpoint, so that learners must choose among them. This requirement turns searching into a decision-making process rather than a mechanical retrieval task, as the information literacy framework suggests [3]. Third, they offer human expertise: librarians can teach search strategies, explain how scholarly publishing works and help learners understand why some sources are more authoritative than others.

Kuhlthau's research shows that learners commonly experience anxiety and uncertainty in the early stages of a search and that these feelings decrease as a focus is formed [13]. For language learners, who also face linguistic uncertainty, structured guidance at this stage is particularly important. Table 1 summarises the relationship between types of library resources, critical thinking skills and suitable classroom activities identified in the review.

Table 1. Library resources, critical thinking skills and classroom activities

Library resource	Critical thinking skills developed	Example language-learning activity
Library catalogue and academic databases	Analysis, evaluation, self-regulation	Students compare the results of two different keyword searches, justify which keywords are more precise and revise their search strategy.
Peer-reviewed journal articles	Interpretation, analysis, inference	Students identify the research question, method and main claim of an article and write a short analytical summary.
Reference works and encyclopaedias	Interpretation, evaluation	Students compare how a reference work and a journal article present the same concept and discuss differences in depth and purpose.



Library resource	Critical thinking skills developed	Example language-learning activity
Newspapers, magazines and online sources	Evaluation, inference	Students apply source-evaluation criteria (author, purpose, evidence, date) to a news item and rank its reliability.
Librarian-led instruction	Self-regulation, evaluation	Students attend a workshop on search strategies and then keep a reflective log of their own research steps.
Citation lists and reference tools	Explanation, evaluation	Students trace the references of one article and judge whether its claims are adequately supported.

3.4. A four-stage framework

On the basis of the themes identified, the review proposes a four-stage framework for integrating research tasks and library resources into university language courses. The stages are Inquire, Locate, Evaluate and Produce. They are cyclical rather than strictly linear, since learners often return to an earlier stage when new information changes their understanding.

Stage 1: Inquire. Learners select a topic of personal or academic interest and transform it into a focused, answerable question. Activities include brainstorming, concept mapping and discussion of what would count as good evidence. The main skills are interpretation and self-regulation, and the main language outcome is the ability to formulate questions and to express uncertainty in English.

Stage 2: Locate. Learners develop keywords, search catalogues and databases and select a set of sources. Librarians or instructors model strategies such as using synonyms and narrowing or broadening a search. The main skills are analysis and self-regulation, and the language outcome is command of topic-specific vocabulary and collocations.

Stage 3: Evaluate. Learners read the selected sources closely and judge their authority, purpose, evidence and relevance. They apply explicit criteria, such as the intellectual standards of clarity, accuracy, precision, relevance, depth, breadth, logic and fairness proposed by Paul and Elder [17], and annotate texts with questions and counter-arguments. The main skills are analysis, evaluation and inference, and the language outcomes include critical reading and the use of hedging and evaluative language.

Stage 4: Produce. Learners synthesise their findings in an annotated bibliography, an academic essay, a poster or an oral presentation and defend their conclusions in discussion. They also reflect on how their thinking changed during the process. The main skills are



explanation, inference and self-regulation, and the language outcomes include academic writing, citation conventions and argumentative speaking.

Across the four stages, the teacher's role shifts gradually from model to coach to consultant, which reflects the principle of scaffolding described above [20].

4. DISCUSSION

The review suggests that academic research and library resources should not be regarded as optional additions to a language course but as a coherent environment in which critical thinking and language proficiency can develop together. The proposed framework differs from generic critical thinking programmes in that every stage is tied to a language outcome, so that learners are not asked to choose between improving their English and improving their thinking.

This conclusion is consistent with the view that critical thinking is best taught explicitly and in connection with subject content. In the meta-analysis by Abrami and colleagues, approaches that combined explicit teaching of thinking skills with their application to subject content produced the largest effects among the instructional models compared [1]. In the framework proposed here, the subject content is the language itself together with the topics that learners choose to research.

The cultural caution raised by Atkinson [4] should be taken seriously. If critical thinking is presented as a fixed ideal imported from another tradition, learners may regard it as foreign to their own academic culture. A more productive approach is to present critical thinking as a set of intellectual practices (questioning evidence, weighing reasons and acknowledging alternatives) that are recognisable in many scholarly traditions and that serve learners' own academic and professional goals. Teachers can invite learners to compare the conventions of argument in their first language with those of academic English, which develops critical language awareness without devaluing existing knowledge [18; 21].

Several implications for practice follow from the analysis:

(1) Collaboration between language instructors and librarians should be made routine, for example through jointly planned sessions and shared assessment criteria.

(2) Research tasks should be small, staged and supported with feedback, beginning with short annotated bibliographies before moving to longer essays.

(3) Source evaluation should be taught through explicit criteria and modelled through think-aloud demonstrations, so that learners can see how an experienced reader makes judgements [6; 17].

(4) Assessment should include not only the final product but also the process, for instance reflective logs and search records, since self-regulation is a core component of critical thinking [10; 12].

(5) Dispositions should receive attention alongside skills; the classroom climate should reward thoughtful questions and the willingness to revise opinions, not only correct answers [6; 10].



Limitations and future research. The study has several limitations. As a narrative review, it relies on the selection and interpretation of sources by the author, and the proposed framework has not yet been tested with learners. Critical thinking is also difficult to measure: standardised instruments such as the California Critical Thinking Skills Test assess general reasoning rather than the language-specific abilities discussed here. Future research should therefore use quasi-experimental or action-research designs in university language classes, combining pre- and post-tests with analysis of student work, search logs and reflective journals. Comparative studies across institutions and educational cultures would also help to determine how the framework should be adapted to different contexts.

5. CONCLUSION

This article has examined how critical thinking skills can be developed in language learners through academic research and library resources. The review identified six core cognitive skills, supported by dispositions and metacognitive monitoring, that are relevant to language learners. It showed that research tasks and library resources provide authentic opportunities to practise each of these skills, particularly when learning is scaffolded by teachers and librarians. On this basis, a four-stage framework (Inquire, Locate, Evaluate and Produce) was proposed for university language courses, linking each stage to both thinking skills and language outcomes. Its adoption requires cooperation between language teachers and librarians, carefully staged tasks, explicit evaluation criteria and attention to learners' dispositions. Empirical testing of the framework remains an important task for future research.

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