CONTENT ANALYSIS IN ACTION: INVESTIGATING CRITICAL THINKING IN ENGLISH LANGUAGE TEXTBOOKS*

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Abstract

Critical thinking is recognized as one of the most essential skills for 21st century learners. From the perspective of English language teaching, teachers, researchers, and syllabus writers think of learners' language acquisition through critical thinking as an effective language pedagogical approach. The present study examines the integration of critical thinking in *New Language Leader* textbooks by using content analysis method, aiming to raise awareness among teachers, researchers, pedagogues, and regional and national authorities about the representation of critical thinking in EFL textbooks. The findings of the study revealed that the textbooks had strengths in terms of incorporating higher order thinking skills into language tasks and activities. The textbooks were found to effectively integrate higher order thinking skills into language tasks compared to the textbooks examined in previous studies mentioned in the literature review section. However, the detailed analysis of knowledge and cognitive thinking skills revealed that procedural and metacognitive knowledge types are not properly integrated into the textbooks. Among the six thinking skills, *applying* and *creating* thinking skills are underemphasized. Based on the findings of the analysis, the study recommends that EFL teachers should take steps to address the underemphasized knowledge types and thinking skills identified in the textbooks. Specifically, teachers are encouraged to customize their language instruction and supplementary exercises to better integrate procedural and metacognitive knowledge types, as well as to emphasize applying and creating thinking processes.

Keywords: content analysis / critical thinking / reliability / validity / Bloom's Revised Taxonomy/ EFL textbooks

Introduction

Over the past years, textbook writers have focused on incorporating critical-thinking-enhanced activities into language teaching materials (Dummett, 2016; Ivory, 2021). In the aspect of developing English language teaching materials, critical thinking is not widely recognized yet among the teachers and textbook writers (Dummett, 2016; Dummett & Hughes, 2019). One of the reasons for this is that language teachers are not very autonomous in their choice of language textbooks and teaching materials. Despite this reality, language teachers need to recognize the fact that they are not merely neutral mediators. They have the potential and creativity to fully utilize prescribed textbooks and create an effective teaching and learning environment. Moreover, the ability to evaluate language teaching materials is one of the essential skills that ELT teachers should possess. Only through critical analysis can teachers explore the potential contributions of the textbooks they use, understand how the materials are developed, and make the best use of them (Mac Donough et al., 2013). As Littlejohn (2011) argued, when examining language textbooks, teachers need to critically raise issues about learner autonomy, involvement in problem solving, and emphasis on learner-centered approaches.

Thus, examining the degree of emphasis on critical thinking in language textbooks reveals its potential contribution to language learning programs (Birjandi & Alizadeh, 2013; Solihati & Hikmat, 2018; Ulum, 2016). According to previous studies on critical thinking integration in English language teaching materials, there was an unbalanced integration between

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lower order thinking skills (memory, comprehension, and application skills) and higher order thinking skills (analysis, synthesis, and evaluation skills) in language textbooks. Researchers from language textbook analyses in the EFL context concluded that higher order thinking skills were underemphasized in most language tasks and activities. For this reason, teachers should justify and supplement necessary activities that can elicit learners' thinking skills.

In fact, critical thinking has always played an implicit role in language acquisition, and language curricula and types of language tasks often reflect the strategies and demands that learners are expected to apply in order to develop their critical thinking skills. Nunan's (1999) five classifications of language tasks can be seen as a way to explicitly recognize the importance of critical thinking skills in language acquisition. Nunan's framework for the five classifications of language task types are:

- *Cognitive Tasks*: classifying, predicting, inducing, note taking, concept mapping, inferencing, discriminating, and diagramming;
- *Interpersonal Tasks*: co-operating, and role playing;
- *Linguistic Tasks*: conversational patterns, practicing, using context, summarizing, selective reading/listening, and skimming;
- *Affective Tasks*: personalizing, self-evaluating, and reflecting; and
- *Creative Tasks*: brainstorming

Cognitive tasks largely involve critical thinking skills to understand, analyze, and evaluate language input. Interpersonal tasks are also part of good critical thinking practices in terms of collaborative and flexible learning with other people. Linguistic tasks devote the ability to use language effectively and accurately in appropriate circumstances. Affective tasks engage learners personally so that they can reflect their insights and emotional attitudes in the tasks. Creative tasks are one of the higher order thinking skills, where learners can generate and formulate their own assumptions and ideas from what they have studied. Nunan's (1999) five classifications of language tasks can be related to the knowledge and cognitive dimensions of the Revised Taxonomy. It is important to recognise that each of these classifications involves different critical thinking skills, which are essential for effective language learning and use. By providing learners with a range of language tasks that engage these different critical thinking skills, learners gain abilities to understand, analyze, evaluate, communicate effectively, use language accurately and appropriately, recognize and manage emotions, and think creatively. These are all important critical thinking skills that can be developed through language learning and practice.

Critical thinking across curricula in subject-specific contexts is highly recommended for the development of learners in accordance with educational objectives (Ennis, 2018). Therefore, materials and activities used in language classrooms have become key factors in enhancing language learners' critical thinking skills (Shirkhani & Fahim, 2011). A teacher's choice of teaching methods and materials also directly affects thinking practices and training students receive (Thompson, 2011). Examining the degree of emphasis on critical thinking in ELT textbooks uncovers potential contributions of the textbooks to language learning (Birjandi & Alizadeh, 2013). Thus, textbook analysts and pedagogues of English language teaching are increasingly examining the integration of critical thinking skills in language teaching materials.

As such, textbook writers and teachers as textbook users should strive to incorporate critical thinking into their language syllabi. With the aim of discovering the embodiment of critical thinking in EFL textbooks, the following research question is formulated: "Do Myanmar University EFL textbooks employ critical thinking activities in their language tasks in accordance with the Revised Taxonomy?"

Overview of the Research Design

Research Materials

New Language Leader is a series of coursebooks published by Pearson Publishing, which is used for the present study. There are four textbooks: *New Language Leader Coursebook 1* (Cotton et al., 2019); *New Language Leader Coursebook 2* (Cotton et al., 2019); *New Language Leader Coursebook 3* (Cotton et al., 2019); and *New Language Leader Coursebook 4* (Cotton et al., 2019). When data were collected, these four textbooks are termed Textbook 1, Textbook 2, Textbook 3, and Textbook 4 respectively.

Research Method

In the present study, Bloom's Revised Taxonomy was applied to examine the critical thinking integration in EFL textbooks. Krippendorff 's (2019) content analysis research method was applied for this study.

Bloom's Revised Taxonomy or the Revise Taxonomy

In the Revised Taxonomy Anderson et al., (2001), there are two dimensions: knowledge dimension and cognitive dimension. The knowledge dimension consists of four categories, namely Factual, Conceptual, Procedural, and Metacognition. The organizing principles that differentiate between these categories are the extent to which these categories are concrete or abstract. The cognitive process dimension consists of six categories of verbs such as Remember, Understand, Apply, Analyze, Evaluate, and Create. The main defining feature used to differentiate these six categories among each other is the level of cognitive complexity. The six categories are illustrated in a pyramid structure starting with its base foundation category from Remember through Create up to the top of each category in a hierarchical order classified by their cognitive complexity. The cognitive level becomes more complex as each category becomes higher in the pyramid structure. For example, in terms of cognitive process, Understand is more complex than Remember; Apply is more complex than Understand; Analyze is more complex than Apply, etc. The two dimensions are presented in Table 1.

Table 1 The Taxonomy Table (Anderson et al., 2001, p. 28)

Knowledge Dimension	Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge						
Conceptual Knowledge						
Procedural Knowledge						
Metacognitive Knowledge						

Methodological Description of Content Analysis

Regardless of the different nature of content analysis designs governed by the research questions, objectives and nature of the data, all content analyses should be addressed by a well-founded planning. What content is being examined and for what purpose should be clarified in the planning period. Krippendorff (2019) provided six major components of a content analysis process that guide a series of steps to follow as shown in Figure 1.

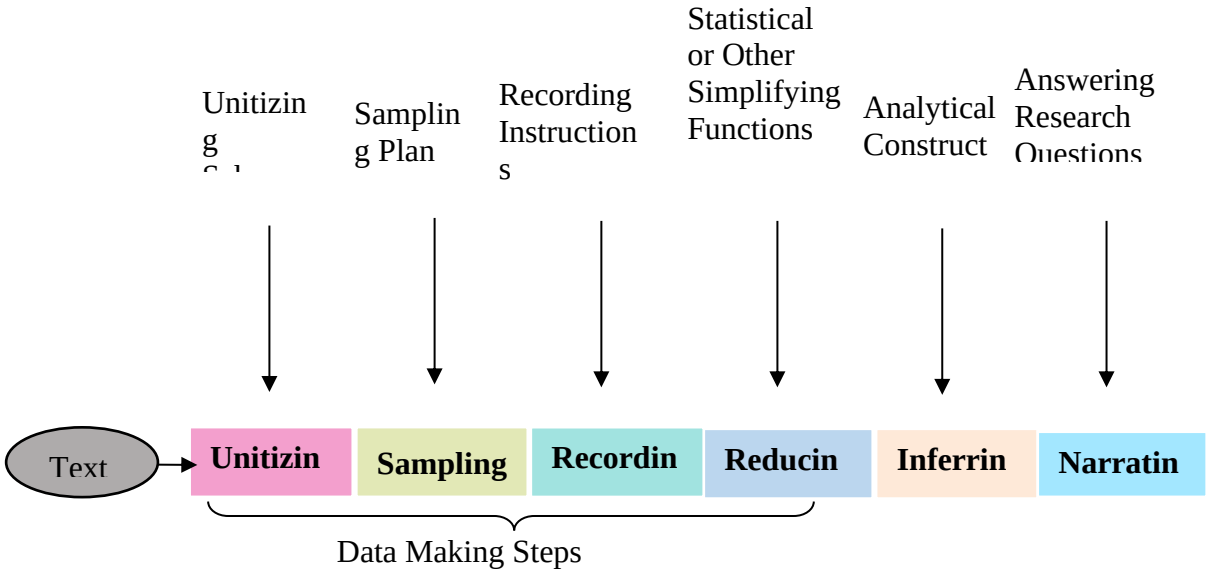

Figure 1 Design of Content Analysis (Adopted from Krippendorff, 2019)

In the present study, the researcher decided to use the human coding method because it is particularly effective in interpreting semantically complex texts. Content analysis with the human coding method always requires a document named codebook and a coding form that is a record of codes for all variables measured. The lack of a standard coding scheme in a content analysis study is a major threat to its reliability and validity of coding. In this study, recorded categories are input into Excel sheets, and descriptive statistical representations of the data were produced. The operationalization process, which involves developing measures, is a crucial step in content analysis coding. The researcher attempted to clearly identify which knowledge types and thinking processes a language task belongs to according to the Revised Taxonomy. Using reliable sources, the researcher developed codebooks and coding forms for the content analysis. It is notable that there were challenges in recording the types of thinking processes of cognitive dimension for each language task. In the Revised Taxonomy, critical thinking skills can be confusing in terms of their characteristics and properties. To distinguish between these similar cognitive processes, the coders carefully examined the definitions and examples provided in the Revised Taxonomy and consider the context and level of complexity involved in the language tasks. The coding procedures involved constructing the codebook, giving training to the second coder, practicing coding together, revising the codebook, when necessary, independently coding a number of cases, discussing the results of independent coding practice, and revising the codebook again if necessary. The second coder analyzed 13% of the whole sample to seek reliability agreement, while the researcher coded all the contents of the textbooks.

Reliability Agreement Assessment

The content analysis method is not complete without conducting the reliability assessment. Neuendorf (2017, p. 234) emphasized, "without the establishment of reliability, content analysis measures are useless". In the previous textbook content analyses, little attention was given to the ways of demonstrating reliability measures for coding data. Krippendorff's alpha was used as a standard reliability measure over other measures such as percentage agreement such as Bennett et al.'s *S* (1954), *Scott's pi* (1955), *Cohen's Kappa* (1960), *Fleiss's K* (1971), and *Cronbach's alpha* (1951) because the data was nominal (Hayes & Krippendorff, 2007). Krippendorff's *alpha* reliability agreement test is widely applied because it can be applied across different sample sizes, measurement levels, and situations involving multiple coders and missing data. In this study, the researcher applied the reliability agreement test twice for two dependent variables: the variable for types of knowledge and the variable for types of cognitive process.

To conduct Krippendorff's alpha reliability agreement test, a sub-sample of 13% from the whole sample was randomly selected to be coded independently by the second coder. The test requires the use of a computing platform, and Hayes (2005) developed a macro (KALPHA) for this purpose. The macro and SPSS are required to conduct the test. The *Kalpha macro* can be downloaded from http://afhayes.com/spss-sas-and-r-macros-and-code.html. To execute the *macro*, start *SPSS* and open a blank page. Click *File*, *Open* and *Syntax* and search for the *kalpha.sps file* (that is called macro). Open and execute the macro by clicking on *Run* and *All* in *SPSS*. A window pops up, and click *OK*, then close the window. Next, open the data and manually execute the test in the *SPSS* by clicking *File*, *New*, *Syntax* and typing in *kalpha* "judges = obs1 obs2/level=1/detail=0/boot=10000". The digit "1" indicates the data level is nominal, and analysts should include the right measurement level for the variables in the *KALPHA* command line (1 = nominal, 2 = ordinal, 3 = interval, 4 = ratio). Finally, click on *Run*, and *All* to run the test. The results showed a high-reliability agreement for the variable of types of cognitive processes ($\alpha = 0.79$), indicating strong agreement between the two coders in coding the nominal data of cognitive processes of the language tasks. The reliability agreement for the variable of types of knowledge was also acceptable ($\alpha = 0.72$), suggesting some level of agreement between the coders in coding this variable. Overall, Krippendorff's *alpha* reliability agreement test showed to be a useful tool for ensuring consistency and reliability in the coding process.

Findings and Discussion

The content analysis of four selected language textbooks yielded a total of 3153 language tasks. As shown in Table 2 and Figure 2 respectively, the percentages of the inclusion of the types of knowledge are not equally distributed. Factual knowledge is the largest percentage followed by conceptual knowledge, both constituting about 85% of the content. Procedural and metacognitive knowledge are the least focused on, constituting 15% of all content. This pattern of knowledge type integration is common across all the textbooks.

Table 2 Frequencies and Percentages of the Knowledge Types in the Four Textbooks

Knowledge Types	**Frequencies and Percentages of the Language Tasks**			
	Textbook 1	**Textbook 2**	**Textbook 3**	**Textbook 4**
Factual Knowledge	379 49%	372 50%	377 48%	398 46%
Conceptual Knowledge	310 40%	300 39%	289 38%	329 38%
Procedural Knowledge	63 8%	58 8%	89 12%	104 12%
Metacognitive Knowledge	20 3%	20 3%	14 2%	31 4%
Total	772 100%	750 100%	769 100%	862 100%

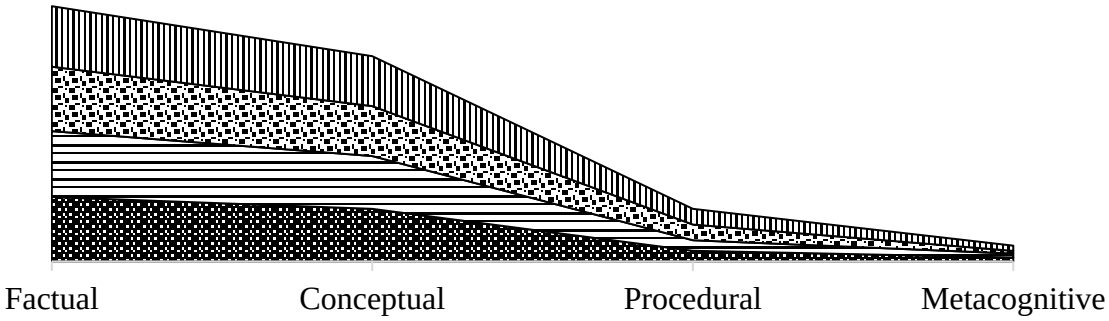

Figure 2 Patterns of Knowledge Types Inclusion in the Four Textbooks

Regardless of the levels of the textbooks, factual and conceptual knowledge types are largely integrated in the textbooks. On the other hand, procedural and metacognitive knowledge types are scarcely focused on in the textbooks. Underlying factors for this unbalanced integration of different knowledge types can be due to the fact that reading, and listening tasks are more included than writing, grammar, and vocabulary exercises. Reading and listening activities are largely presented as factual and conceptual knowledge types. Figure 3 again shows the dominant role of the two knowledge types in the textbooks. As can be seen in the overall percentages of the knowledge types in Figure 3, it can be said that the textbooks do not provide a well-rounded approach to understand and apply all effective learning experiences.

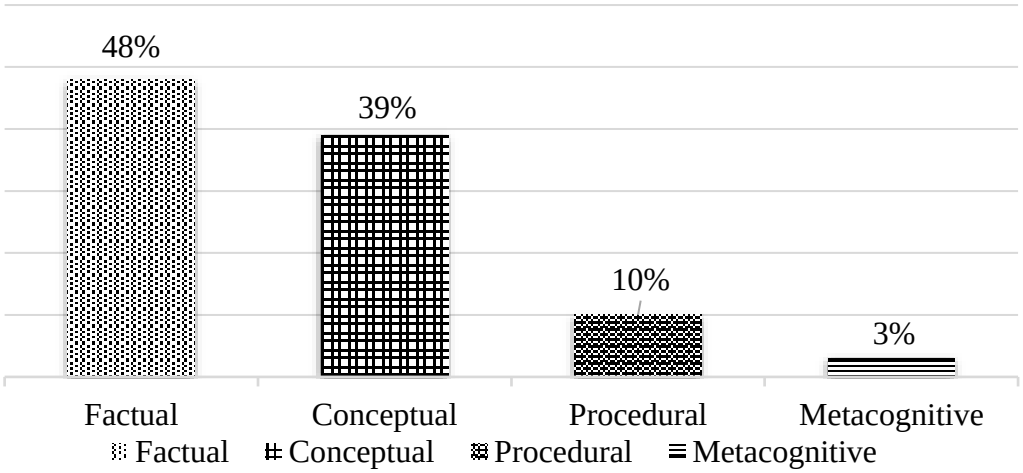

Figure 3 Overall Percentages of Knowledge Types in the Four Textbooks

The cognitive dimension of the Revised Taxonomy includes six different levels of cognitive complexity that learners engage in when processing information and demonstrating their understanding. These six levels are remembering, understanding, applying, analyzing, evaluating, and creating. Table 3 summarizes the frequencies and percentages of the six cognitive thinking skills integrated in the textbooks.

Table 3 Frequencies and Percentages of Cognitive Processes

Cognitive Processes	**Frequencies and Percentages of the Language Tasks**			
	Textbook 1	**Textbook 2**	**Textbook 3**	**Textbook 4**
Remember	61 8%	68 9%	57 7%	48 6%
Understand	278 36%	344 46%	250 33%	218 25%
Apply	28 4%	49 7%	50 7%	31 4%
Analyze	147 19%	99 13%	129 17%	190 22%
Evaluate	167 22%	151 20%	224 29%	291 34%
Create	91 12%	39 5%	59 8%	84 10%
Total	772 100%	750 100%	769 100%	862 100%

While the table shows the exact number of cognitive thinking skills integrated into the textbooks, the visual representation of the data in Figure 4 allows readers to compare thinking skills across and between textbooks. Overall, the presented data suggest that the analyzed language textbooks tend to prioritize the cognitive skill of *understand* over other thinking skills

such as application and creation. While understanding is an important skill in language learning, learners should also be encouraged to *apply* what they have learned and *create* new knowledge. According to the analysis result provided, it seems that there is no significant pattern of incorporating thinking skills in relation to the language level of the textbooks.

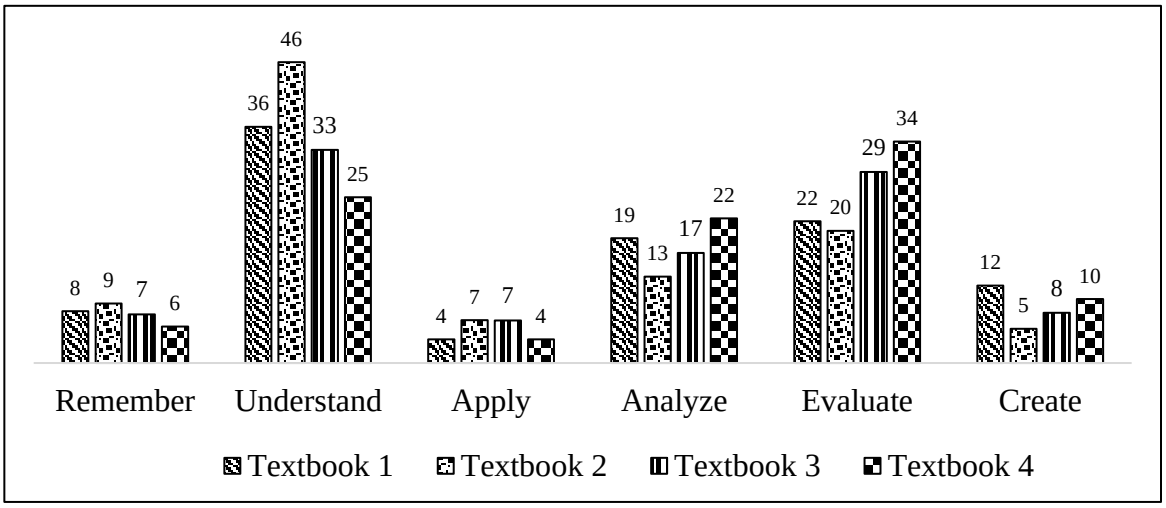

Figure 4 Frequencies and Percentages of Cognitive Processes

The six levels of thinking skills in the Revised Taxonomy can be categorized into two major groups of thinking skills: (1) lower order thinking skills composed of the three basic thinking skills such as remembering, understanding, and applying and, (2) higher order thinking skills compose of the upper three thinking processes such as analyzing, evaluating, and creating. Basic lower order thinking skills are important foundations for learning, but they are not sufficient for developing students' critical thinking abilities. Higher order thinking skills such as analysis, evaluation, and creativity are necessary for learners to engage with complex concepts and apply their knowledge in new contexts. In the previous studies as observed in Thiri Soe (2024), there is an urgent need to integrate more of the higher order thinking skills in EFL textbooks because they identified little amount of higher order thinking skills integrated in the textbooks. As a result of this present study, the textbooks analyzed in this study have a higher percentage of integration of higher order thinking skills as presented in Figure 5.

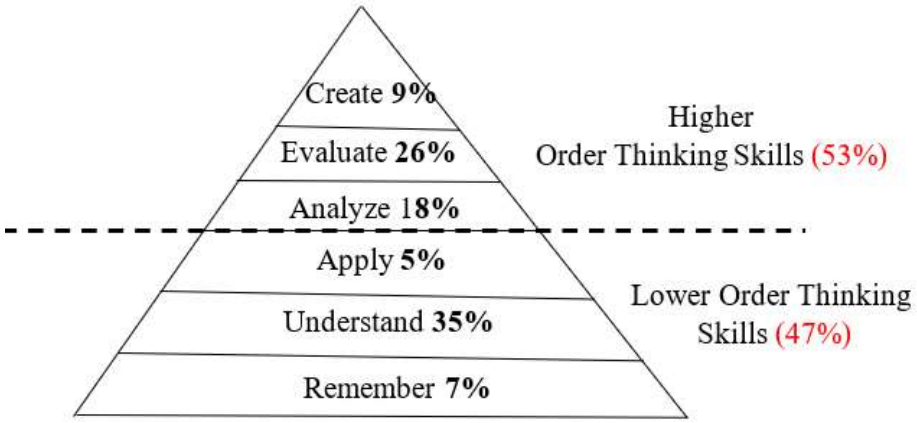

Figure 5 The Comparison of Higher and Lower Order Thinking Skills Included in the Textbooks

By examining the content of language textbooks, the study was able to identify the types of knowledge and cognitive skills that are emphasized in the textbooks. The textbooks mainly focused on factual and conceptual knowledge types, while procedural and metacognitive knowledge types were scarcely focused. All the presented information can be summarized as follows.

- There is an unbalanced integration of different knowledge types. The lack of balance in language learning materials is concerning because procedural and metacognitive knowledge types are essential for language learners to perform language learning very well. Metacognitive knowledge, in particular, is an essential learning strategy that allows learners to plan, self-monitor, and organize their learning effectively.
- Regarding the cognitive skills, it was found that while the skills of understanding, analysis, and evaluation are integrated at a relatively high rate, the skills of remembering application and creation have lower integration percentages. The cognitive skill of understanding is the most emphasized in language textbooks due to the nature of language learning, which involves interpreting language input and performing language tasks. The cognitive skills of remembering, application and creation are underemphasized in textbooks, but they are important for learners to apply acquired linguistic knowledge in new and varied contexts and generate new ideas and concepts. So, in implementing the critical thinking in these analyzed English textbooks, language tasks that promote the development of these skills are necessary.
- In a comparison between the higher and lower order thinking skills, it is found that higher order thinking skills have satisfactory percentages in the language tasks in all four textbooks.

Conclusion

The present study focused on examining the effectiveness of *New Language Leader* textbook series in integrating critical thinking skills into language tasks and activities. The findings of the study revealed that the textbooks had strengths in terms of incorporating critical thinking skills into language tasks and activities. The textbooks were found to effectively integrate higher order thinking skills into language tasks, which helped to potentially improve students' language skills and thinking skills. The implications of the study suggest that incorporating critical thinking skills into language tasks and activities in textbooks can be an effective tool for language learning and development. Additionally, this study highlighted the need for underemphasized knowledge types and thinking skills in the textbooks. It is still unclear exactly what the "proper" balance of higher-order to lower-order skills will be in foreign language learning. That is outside the scope of this study, but does need to be carefully monitored. This study seeks to find what the current balance is and makes suggestions for a more equal distribution, but future studies should examine the effect of such changes and see if that is producing the desired results. Additionally, this study emphasizes each analytical step and the necessity of making appropriate methodological decisions of content analysis research method to ensure the reliability and validity of research outcomes. Despite being a time and labour-intensive research method due to its nature of dealing with large datasets and demanding detailed interpretation of the textual data, it is a valuable research method for discovering hypotheses, patterns, and trends within messages and human communication. Overall, being a descriptive content analysis, the present study lacks the experimental rigor of a classroom intervention study.

However, content analysis is still a valuable research method that can provide insights into how critical thinking is integrated into textbooks. By analyzing the content of the currently prescribed textbooks, common themes, patterns, and trends in the way critical thinking is presented in textbooks are observed. This information can help inform further research and the development of interventions aimed at improving critical thinking skills among students. By identifying the current state of critical thinking integration in textbooks, this study can serve as a starting point for future research and innovations in the field. Therefore, while a descriptive content analysis may not be as appealing as a classroom intervention study, it still has value in contributing to the overall body of knowledge on critical thinking integration. To borrow the saying of Sipple and Sato (2022), "[K]knowing the issue at hand is the first step to solve the issue" (p. 13), by diagnosing the problems, educators and researchers can then work to develop interventions and strategies to improve critical thinking education. Therefore, the present study can be seen as an important step in the process of improving critical thinking education, by identifying areas of strength and weakness in current textbook contents.

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References

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E, Pintrich, P., Raths, J., Wittrock, M. C. (2001). Taxonomy of learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives (2nd ed.). Addison and Wesley.

Bennett, E. M., Alpert, R., & Goldstein, A. C. (1954). Communications through limited.

Birjandi, P., & Alizadeh, I. (2013). Manifestation of critical thinking skills in the English textbooks employed by language institutes in Iran. *International Journal of Research Studies in Language Learning*, *2*(1), 27-38.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*, 37–46.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge, Taylor & Francis Group.

Cotton, D., Falvey, D., & Kent, S. (2019). *New language leader coursebook 1*. Pearson.

Cotton, D., Falvey, D., & Kent, S. (2019). *New language leader coursebook 2*. Pearson.

Cotton, D., Falvey, D., & Kent, S. (2019). *New language leader coursebook 3*. Pearson.

Cotton, D., Falvey, D., Kent, S., Lebeau, I. & Rees, G. (2019). *New language leader coursebook 4*. Pearson.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrica, 16*, 297–334.

Dummett, P. (2016). How to write critical thinking activities. ELT Teacher 2 Writer.

Dummett, P., & Hughes, J. (2019). *Critical thinking in ELT: A working model for the classroom*. National Geographic Learning.

Ennis, R. H. (2018). Critical thinking across the curriculum: A vision. *Topoi*, *37*(1), 165-184.

Fleiss, J. L. (1971). Measuring nominal scale agreement among many raters. *Psychological Bulletin, 76*, 378–382.

Hayes, A. F. (2005). *Statistical methods for communication science*. Lawrence Erlbaum Associates, Inc.

Ivory, S. B. (2021). *Becoming a Critical Thinker: For Your University Studies and Beyond*. Oxford University Press.

Krippendorff, K. (2019). *Content analysis: An introduction to its methodology* (4th ed.). Sage.

Littlejohn, A. (2011). The analysis of language teaching materials: Inside the Trojan Horse. In B. Tomlinson (Ed.), Materials Development in Language Teaching (2nd ed., pp. 179-211). Cambridge University Press.

Lune, H., & Berg, B. L. (2017). *Qualitative research methods for the social sciences*. Pearson.

McDonough, J., Shaw, C. & Masuhara, H. (2013). *Materials and Methods in ELT* (3rd ed.). John Wiley & Sons.

Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. Sage.

Neuendorf, K. A. (2017). *The content analysis guidebook*. Sage.

Nunan, D. (1999). *Second language teaching and learning*. Cambridge University Press.

Scott, W. A. (1955). Reliability of content analysis: The case of nominal scale coding. *Public Opinion Quarterly, 19*, 321–325.

Shirkhani, S., & Fahim, M. (2011). Enhancing critical thinking in foreign language learners. *Procedia-Social and Behavioral Sciences*, *29*, 111-115.

Soe, T. (2024). Investigating Critical Thinking in ELT Textbooks: A Systematic Literature Review of Textbook Evaluation Studies. *Theory and Practice of Second Language Acquisition*, *1*(10), 1-29.

Solihati, N., & Hikmat, A. (2018). Critical thinking tasks manifested in Indonesian language textbooks for senior secondary students. *Sage Open*, *8*(3), 1-8.

Thomson, C. (2011). Critical thinking across the curriculum: Process over output. *International Journal of Humanities and social science*, *1*(9), 1-7.

Ulum, Ö. G. (2016). A descriptive content analysis of the extent of Bloom's taxonomy in the reading comprehension questions of the course book Q: Skills for success 4 reading and writing. *The Qualitative Report*, *21*(9), 1674-1683.