Developing a case-based e-book for office communication: Enhancing critical thinking and practical skills

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Abstract. This research aims to produce a product in the form of a case method-based office communication e-book that meets the requirements of validity and usability. Novelty in research emphasizes a unique, contemporary, and specific approach to training students to communicate effectively in the office, utilizing books integrated with technology and a case-based learning approach. This research is a development study utilizing a 4-D model. The instruments used to measure the feasibility and practicality of this textbook include validation sheets and student response questionnaires. The results of data analysis show that, according to the expert's assessment, both in terms of material, language, and graphics, it is highly feasible, with an average feasibility of 92.10% and an average score of 90.2% among student responses. Based on these results, this case method-based office communication e-book is feasible and can be used in classroom learning. Therefore, the implications of developing e-books in office communication emphasize the possibility for lecturers and students to learn more quickly, flexibly, and contextually, so that students can apply concepts from office communication to face the demands of a very dynamic work environment.

Introduction

The role of e-books in education has long been a topic of discussion among researchers worldwide (A. Buzzetto-More et al., 2007; Muir & Hawes, 2013; Gu et al., 2015; Makwanya & Oni, 2019). This is due to the development of digital technology; the use of ebooks is seen as a form of modernization of learning media and as part of an innovative strategy to increase the effectiveness of the teaching and learning process (Ningsih et al., 2022). Furthermore, e-books not only present a digital form of printed material but also create an interactive learning experience and potentially improve student understanding significantly. The main purpose of ebook development is to help students better understand the learning material process, thus enabling them to acquire the necessary practical skills (Alhammad & Ku, 2019). The dynamic nature of ebooks allows the integration of media such as video, audio, animation, and interactive links that encourage the active engagement of learners. This means that the learning process will be more interesting, flexible, and

tailored to the learning styles of students, thereby improving their understanding and retention of material more effectively.

The accessibility and flexibility of e-books will allow students to participate interactively in the learning process based on actual cases (Rokusek & Cooke, 2019), especially if learning media is required to be able to keep up with rapid technological developments (Williamson et al., 2020). Using ebooks also reinforces a technology-based learning approach that suits the learning style of today's digital generation (Sukendra et al., 2023). During the digital transformation era, ebooks are considered a strategic tool for supporting a more personalized, adaptive, and data-driven education (Sari & Munir, 2024). Therefore, with technological innovations increasingly developing, e-books can also be used as an alternative or choice to traditionally printed books (paper-based) for a more prospective future (Bergström & Höglund, 2020; Sumandya & Widana, 2022). In addition, using ebooks designed with a case method approach and active learning also contributes to developing students' critical and reflective mindset (D. K. Yoo & Roh, 2019; Jaya et al., 2025).

It should be emphasised that, compared to group discussion methods, project-based learning methods or others that are often used, using this case method offers a more in-depth, realistic, and applicable learning experience that makes learning more meaningful and contextual (Peel, 2020; Purnadewi & Widana, 2023). This is because group discussion methods often lack structure in the flow of discussion, causing the topic to stray and lose focus on the core issue (Nyumba et al., 2018). Additionally, the success of discussions heavily depends on the active participation of all group members, which is not always guaranteed (Rezaei, 2023). This means that if some participants in this discussion method are passive or lack understanding of the material, the discussion will become unbalanced and less effective in achieving learning objectives. Meanwhile, although the project-based learning method also emphasises practical application, it still requires relatively more time, more resources, and complex coordination to complete a project comprehensively (Cole, 2024; Widana et al., 2023).

In addition, one of the obstacles to implementing PBL is the unpreparedness of teachers and students to understand and carry out their roles effectively in the learning process (Pan et al., 2021). This means that the limitations of time and facilities in this method will become a major obstacle that needs further attention. On the other hand, in the case method, students are taught to develop critical thinking skills and find solutions to problems directly through structured real-world contexts (Klebba & Hamilton, 2007), making this method more efficient when compared to project-based learning. This is because, with a clear structure and focus on the core issue, the case method allows the learning process to proceed more directly and effectively without having to deal with the logistical and time complexities associated with project-based learning.

On the other hand, critical thinking and communication skills are essential competencies in the 21st century. Both are important in the academic process and the foundation for building human resource competitiveness (Changwong et al., 2018). Critical thinking is not formed instantly but needs to be trained systematically and continuously over time, especially in attitude and behaviour through the right learning approach, because both aspects allow a person to have critical thinking skills (Saputra et al., 2019). Hutsalo et al. (2024) emphasized the importance of educational strategies supporting these abilities, focusing on cognitive aspects, attitudes, and behaviours. Communication skills are also closely related to critical thinking because problem-solving can be facilitated through good communication skills (Larson & Miller, 2011; H. Yoo, 2021). Communication skills are essential in presenting or formulating ideas and helping individuals to organize their thoughts, thus playing an important role as a determinant of problem-solving ability. Thus, this positively relates to problem-solving (Erviyenni et al., 2023).

In addition, the case method is one learning approach that has proven effective in developing both competencies. According to Schröter & Röber (2022), the case method is a participatory, discussion-based way of learning where learners gain skills in critical thinking, communication, and group dynamics. Based on this, the method is designed to help students develop their ability to tackle real-world challenges by finding the right solutions. This approach is believed to be able to increase the effectiveness of learning because it can link theory with practice and encourage active student involvement in assessing various perspectives (Günther et al., 2019; Fauzi et al., 2023). In line with this, (Ririen & Irawati, 2023) Additionally, it was revealed that the case method learning approach can effectively train communication and critical thinking skills, which can be developed at every meeting throughout the teaching and learning process. So, the final ability trained in case method learning can help the application of students' character values and also train their rationality in facing or assessing a problem (Hamiyati et al., 2022).

Therefore, to support the improvement of students' critical thinking and good communication skills, it is necessary to use e-books in learning (Susanto et al., 2022; Evi Yupani & Widana, 2023), and in this research, especially in communication learning. This needs to be done because, so far, learning in office communication courses in the Office Administration Education Study Program at UNESA still uses conventional learning media, as a result, the learning process has been lacking in context and has not reflected the dynamics of communication in the modern workplace, which requires collaboration between problem-solving abilities and digital skills. Therefore, using ebooks in learning is one of the efforts lecturers can make to improve students' understanding of office communication concepts by emphasizing relevant and realistic scenarios for student readiness in dealing with communication issues, especially in the workplace (Asrowi et al., 2019). Therefore, it is necessary to validate the ebook product development before use so that it can meet the expectations and needs of its users (Susantini et al., 2021), because the results of the ebook evaluation, combined with the professional point of view, can be used as a strong basis for making ebooks more relevant in the context of office communication.

From several research results related to the contribution of learning methods in the classroom learning process, it can be seen that the case-based learning method, specifically implemented in Office Communication materials using e-books as learning media in this study, has shown a comprehensive novelty in the field of teaching, primarily to support the critical skills needed in Office Communication. This is in accordance with the results of research, which reveal that E-books with a case method approach can create theory and practice directly through real case studies from the environment (Kirby & Anwar, 2020), including office environments, so that students can solve problems closely related to real-life scenarios, allowing a deeper understanding of concepts taught in school. In addition, this approach also instills analytical, problem-solving, and decision-making skills that are essential for effective office communication (Aswirna & Ritonga, 2020). The hope is that e-book development, adopting a case method approach, can encourage better critical thinking and application skills that will ultimately equip people to address real-world problems holistically as they move into professional roles.

With the novelty in the use of learning approaches, a problem arises regarding how to develop office communication e-books using a case approach. So, the methods that have been applied can play a role in improving critical thinking and communication skills, especially in the office environment. Thus, the novelty of this research lies in its unique, contemporary, and specific approach to teaching students, particularly in how to communicate effectively in the office through the integration of technology in electronic books and case-directed teaching programs. Therefore, the main objective of this study is to gain a more comprehensive understanding of how e-books that use the case method approach can improve critical thinking skills in office communication courses. The implications of developing e-books in office communications place greater emphasis

on the possibility for lecturers and students to learn more quickly, flexibly, and contextually, so that students can apply concepts from office communications to face the demands of the dynamic world of work.

Method

The research method employed to address the problems in this study is the research and development method (R&D), utilizing the 4-D model. This model consists of four stages: Define, Design, Develop, and Disseminate (S. Thiagarajan et al., 1974) However, this study is limited to the development stage only, and the dissemination stage was not performed. The 4-D model in this study is considered more relevant because the characteristics possessed by the 4-D model are more focused on developing specific instructional products, in this case, in the form of a case method-based office communication e-book through expert testing and limited trials, making it suitable for studies that have not yet entered the broad implementation stage (Gorbi Irawan et al., 2018). Thus, the selection of the 4-D model provides a strong methodological basis for producing learning products that are valid, contextual, and follow the needs of this study.

The research instruments used in this study were textbook validation sheets and student response sheets. The validation sheet was used to measure the validity of the textbook developed before the limited trial. Validation consists of three components: material validation by lecturers in office communication at Universitas Negeri Surabaya (Unesa), Universitas Negeri Malang (UM), and Universitas Sebelas Maret; educational technology validation by lecturers at Unesa; and language validation by lecturers in Indonesian literature at Unesa. The data analysis technique employed in this research involves analyzing quantitative data obtained from the validation results of material experts, language experts, and graphic experts using a Likert scale. A Likert scale is used to measure attitudes, opinions, perceptions of a person or group about social events or Symptoms. The Likert scale used consists of five categories, which are used in the following table.

Table 1. Benchmarking Expert Validation Score with Likert Scale

Criteria	Score
Highly Feasible	5
Feasible	4
Decent Enough	3
Not Feasible	2
Very unfit	1

The results of validation from experts will be calculated using the formula:

$$\text{Precentage (\%)} = \frac{\text{Total Score}}{\text{Total Maximum Score}} \text{ X } 100\%$$

The results of the validation calculation for the developed textbooks are then interpreted as percentages, using the following criteria.

Table 2. Interpretation of Expert Validation Score with Likert Scale

Percentage	Interpretation Criteria
0% - 20%	Very unfit
20% - 40%	Not Feasible
40% - 60%	Decent Enough
60% - 80%	Feasible
80% - 100%	Highly Feasible

Based on the results of Table 2. The office communication e-book is said to be highly feasible if the score range is between 80% - 100%, the score range of 60% - 80% is said to be feasible, the score range of 40% - 60% is said to be decent enough, and the acquisition of a score range of 0% - 20% is said to be very unfit. While the data on student response results were analyzed using the Guttman Scale, with the following score criteria.

Table 3. Student Response Questionnaire Score Criteria with Guttman Scale

Criteria	Score
Yes	1
No	0

The results of the student response questionnaire score will be calculated using the formula:

$$\text{Precentage } (\%) = \frac{\text{Total Score}}{\text{Total Maximum Score}} \text{ X } 100\%$$

Based on the calculation of the results of the student response questionnaire that has been carried out, then the feasibility score of the developed coursebook product will be obtained with the interpretation of the questionnaire score as follows.

Table 4. Interpretation of Student Response Questionnaire Score with Guttman Scale

Percentage	Interpretation Criteria
0% - 20%	Very unfit
20% - 40%	Not Feasible
40% - 60%	Decent Enough
60% - 80%	Feasible
80% - 100%	Highly Feasible

Based on the results of Table 4. The office communication e-book is said to be highly feasible if the score range is between 80% - 100%, the score range of 60% - 80% is said to be feasible, the score range of 40% - 60% is said to be decent enough, and the acquisition of a score range of 0% - 20% is said to be very unfit.

Results and Discussion

Research on developing electronic textbooks (e-books) for office communication courses based on the case method uses a development model developed by Sivasailam Thiagarajan, namely the 4-D model, which includes Define, Design, Develop, and Disseminate. However, this research is still limited to the development stage. Define is the first stage in the 4-D development model, where the researcher determines and defines the conditions needed in developing an electronic

textbook (e-book) for office communication courses based on the case method. The activities carried out by researchers at the define stage include front-end analysis, learner analysis, task analysis, concept analysis, and specifying instructional objectives (Thiagarajan et al., 1974).

Front-end analysis aims to identify the root cause of the problem in the learning process for office communication courses, thereby informing the need for textbook development. At this stage, it was found that 1) there were still some students who ignored the lecturer's explanations and also did not have reference books, 2) when the lecturer gave the communication practice, most of the students experienced difficulties, and 3) office communication textbooks were not yet available so that during the learning process students only rely on teaching materials in the form of PPT materials prepared by teaching lecturers who refer to reference books made by other people. This indicates that lecturers should utilize their textbooks. This finding is reinforced by the results of research that have been carried out previously, which shows that there are still a few lecturers who hold lectures using homemade textbooks, even though with their own specially designed textbooks, the learning process becomes more structured according to semester learning plans and lecture units that have been prepared previously and adapted to student needs (Adebayo, 2018). Following the front-end analysis, the study proceeded with learner analysis, aiming to identify the characteristics, abilities, and knowledge of students, as well as their difficulties in participating in office communication learning activities. Based on the researcher's observations, during the office communication learning process, some students still did not pay attention to the lecturer's explanations and lacked reference books. Consequently, when the lecturer provided communication practice, these students continued to experience difficulties.

Task analysis is the next stage carried out to determine whether the assignments given by the lecturer align with the material and learning objectives. Assignments in the office communication course include individual and group assignments, as well as case studies and communication practices in each chapter. Individual assignments are intended to increase students' understanding of the material being studied. Meanwhile, group assignments in the form of practice are intended to foster a sense of responsibility, cooperation, tolerance, and good communication, as well as to help students understand the material more deeply by applying it directly in the form of communication practice. Following the task analysis, the process proceeded to concept analysis, which involves systematically compiling and designing textbook concepts to facilitate students' understanding of the material. In developing this office communications course book, all material written follows the Semester Lecture Plan. The material outlined in the textbook starts from basic communication concepts, communication patterns, office communication media, office communication ethics, listening skills in office communication, speaking skills in office communication, and effective office communication practices. The final stage in the define stage is specifying instructional objectives, which aim to formulate learning objectives following the material being studied.

The second stage in the 4-D model is Design; at this stage, the researcher makes an initial design of the textbook according to the needs that have been defined in the previous stage. This initial design is made following the results of the analysis from the definition stage, so that the content framework created can follow learning needs. The activity begins with formulating the textbook format, determining the concept of the material, creating practice questions, determining case studies according to the subject matter of each chapter, and compiling communication practice guidelines. Apart from that, the researchers also created a textbook design that was adapted to the UNESCO (United Nations Educational, Scientific and Cultural Organization) model book template, starting from the front cover to the author's biodata. The office communication textbook itself is divided into three parts, namely: first, an introduction consisting of cover/front cover, foreword, table of contents, list of figures and list of tables; both contents consist of 6 chapters,

each chapter containing a brief description, learning objectives, material, summary, student worksheets (practice questions and case studies), reading list and 1 chapter containing communication practice guidelines; and the third is a cover consisting of a glossary, index, author profile and back cover.

The third stage in the 4-D model is Develop, at this stage, there are two activities carried out to produce a development product in the form of an office communication textbook, namely expert assessment and trial of the development product (Thiagarajan et al., 1974). Textbooks that have been developed in the design stage are then assessed by material experts in the fields of office communication, language, and graphics using assessment instruments tailored to research needs. This expert assessment is intended to determine the quality and suitability of the textbooks being developed. The results of the expert assessment can be seen in Table 1.

Table 5. Recapitulation of Textbook Eligibility Results by Experts

No	Validation Type	Indicator	Percentage			Interpretation Criteria
	Material Feasibility	Feasibility of Material: Feasibility of textbook content - The suitability of the material with the semester lecture plan - Accuracy of material - Up-to-date and contextual - Adherence to laws and regulations - Skill dimension	90%	92%	91%	Highly Feasible
		Feasibility of textbook presentation - Presentation technique - Supporting presentation - Presentation of learning - Completeness of presentation	94%	92%	93%	
		Average material feasibility	92%	92%	92%	
	Language Feasibility	Feasibility of Language - Suitability with student development - Readability - Motivational ability - Straightforwardness - Coherence and orderliness of thought flow - Conformity with Indonesian language rules - Use of terms and symbols	94,29%			Highly Feasible
	Design Feasibility	Feasibility of textbook content - Textbook size - Textbook cover design - Typography of the coursebook cover - Textbook content design	90%			Highly Feasible

No	Validation Type	Indicator	Percentage	Interpretation Criteria
		• Typography of coursebook content		
	Average		92.10%	Highly Feasible

From the table above, the textbooks developed by researchers according to expert assessments in terms of material, language, and graphics are highly feasible, with an average feasibility of 92.10%. In this way, the developed textbook has met both validity and practicality, necessitating only a few minor revisions in certain parts based on input and suggestions from the evaluating experts. In the material aspect, several revisions are needed to incorporate practice questions relevant to everyday life. Meanwhile, in terms of the language aspect, there are revisions related to several spelling errors. For the graphic aspect, there are slight revisions according to expert advice regarding the use of inappropriate color combinations.

Following the revision, a limited trial of the office communication textbook was conducted across 20 undergraduate study programs. Office Administration Education, Faculty of Economics and Business, Unesa, semester 3. By the opinion of (Sadiman, et al., 2018) state that to evaluate the product being developed, 10-20 students are needed to represent the target population. This limited trial aims to see the readability of textbooks developed within a limited scope and the extent to which students respond to the practicality of office communication textbooks. At this limited trial stage, teaching lecturers provide learning materials using textbooks that have been developed. Apart from that, they also distributed revised textbooks to trial students to read and study the books, as well as providing response questionnaires. According to the results of the student response questionnaire in the limited trial, the average score for all components was 90.25% in the very practical category, which can be seen in the following recapitulation table.

Table 6. Recapitulation of Textbook Eligibility Results by Experts

No	Component	Percentage	Criteria
1	Material Feasibility	87,5%	Very Practical
2	Language Feasibility	91,25%	Very Practical
3	Design Feasibility	92%	Very Practical
Rata-Rata		90,25	Very Practical

In addition to the quantitative results of the validation test and limited trial, this study also obtained qualitative data through interviews with several students during the limited trial activities to strengthen the analysis of the results and provide a more comprehensive picture of the feasibility of office communication e-books for future learning applications. The results of interviews with students show that the presence of this office communication e-book can increase learning motivation. One student stated:

"*When I read this e-book, I feel more challenged because I do not only read communication theory, but I also have to think and discuss it with friends to solve the problems raised in the e-book*" (Interview, Student A, July 3, 2024).
Other statements from students also reinforce these findings:

"*I feel that this office communication e-book requires me to be able to think logically and convey my opinion in solving the problems presented in the e-book, so that learning can be more fun and challenging…hehe*" (Interview, Student B, July 3, 2024).

The two statements emphasize that this e-book not only supports mastery of the material but also develops communication skills. Students are not only required to understand the content of the text but also to construct arguments, defend their opinions, and engage in constructive discussions. Other students also stated that the cases presented in the e-book make learning more relevant and applicable:

"*I feel that the material in this e-book is easier to understand because each chapter has cases that are directly connected to the world of work. So, I can immediately imagine what the application will be like in the workplace*." (Interview, Student C, July 3, 2024).

The results of this study indicate that the electronic textbook (e-book) for office communication courses, developed using the case method approach, has met the criteria of feasibility and practicality, as indicated by expert assessments and limited trials conducted with 20 students, which are also supported by the results of student interviews. The experts' assessment includes aspects of content, language, design, and integration with the learning approach used. From these results, it can be concluded that this e-book is suitable for use as a learning medium. The feasibility of the content of this e-book is also supported by compliance with the standards set out in Permendiknas RI No. 2 of 2008, where textbooks must contain basic principles, learning procedures, descriptions of subject matter, and applicable and contextual learning models (Permendiknas, 2008). However, minor improvements are still made, such as revising spelling to conform to improved spelling rules, aligning color schemes to enhance visual comfort, adding practice questions, and presenting real cases relevant to everyday life.

The application of the case-based learning method serves as the primary pedagogical basis for the development of this e-book. This method requires lecturers to not only convey theory but also present authentic cases and formulate critical questions that can provoke in-depth discussions in class during the learning process (Zhao et al., 2020). The unique characteristics of the case method lie not only in the case study itself but also in the complexity of interactions that occur during the learning process, which is both cognitively and psychologically, as well as socially and behaviorally, complicated in group work dynamics (Andrews-Todd & Forsyth, 2020). Asep (2023) emphasized that the essence of the case method is a problem-solving process carried out collaboratively by group members that allows the development of various cross-domain skills. In this case, the four main domains in the case method are cognitive, psychomotor, motivational, and affective (including interpersonal and attitudes) (Sulistiyono et al., 2023), which serves as an important foothold in designing learning activities through the e-book developed.

This case method-based office communication e-book is not only designed to fulfill instructional feasibility but also to create a more meaningful and contextualized learning experience. Unlike conventional e-books, which tend to be passive and narrative, this product integrates active learning components, such as case-based questions, interactive worksheets, and contextual communication tasks, in situations that resemble the world of work. This innovation aligns with the research results of Nuryana et al. (2022), which showed that case method-based media can significantly enhance students' higher-order thinking skills and learning engagement. This is also supported by the findings of various previous studies, which confirm that the case method approach is convenient in applying to various materials because it can improve learning outcomes, both from the cognitive and affective aspects, as well as providing broader benefits to learning, namely being able to improve critical thinking skills and better communication (Thomas et al., 2001; Zhao et al., 2020; Allen & Toth-Cohen, 2019). Therefore, the implementation of this e-book is expected to contribute to the transformation of learning processes that are more adaptive, contextual, and aligned with 21st-century learning needs.

This case method-based office communication e-book is designed to fulfill instructional feasibility and create a more meaningful and contextual learning experience. By utilizing real-world cases, students are trained in concepts of concept understanding, critical thinking, communication, teamwork, and decision-making in situations that resemble the world of work. This follows the findings of various previous studies, which confirm that the case method approach is very effective in applying in various materials because it can improve learning outcomes, both from the cognitive and affective aspects, as well as providing broader benefits to learning, namely being able to improve critical thinking and better communication skills (Thomas et al., 200; Zhao et al., 2020 ; Nuryana et al., 2022). Therefore, the implementation of this e-book is expected to contribute to the transformation of learning processes that are more adaptive, contextual, and in accordance with 21st-century learning needs.

The findings of this study also provide significant practical and pedagogical implications. Practically, this e-book offers a solution to the limitations of textbooks in learning office communication, especially in the administration education study program at Unesa. With a design that contains real cases, interactive worksheets, and communication practice guides, lecturers can more easily facilitate active learning in various models, both face-to-face, online, and hybrid. Pedagogically, this product promotes a shift from lecturer-centred to student-centred learning. Students are not only recipients of material but also active subjects involved in the process of analysis, discussion, and decision-making, which are part of 21st-century skills, especially critical thinking, communication, and collaboration. This strengthens the function of e-books as textbooks and contextual learning media that can bridge theory with practice in a more applicable manner.

From a theoretical perspective, the results of this study strengthen the theoretical basis of case-based learning, which is based on constructivist views and situated learning. By presenting authentic problems relevant to the world of work, students are encouraged to build understanding through a problem-based problem-solving process. This activity is in line with the principle of Higher Order Thinking Skills in Bloom's revised taxonomy and supports the development of cognitive, affective, and psychomotor domains in an integrated manner. In addition, social interaction in case discussions activates the social learning aspect (Vygotsky, 1978), which strengthens the function of learning as a collaborative process. Thus, the development of this e-book is not only technically valid but also contributes to strengthening the theory and practice of innovative case-based learning, especially in the realm of vocational higher education.

However, this product still has some limitations. The limited trial was conducted on a relatively small and homogeneous sample and did not include a full experimental effectiveness test. Therefore, further research is recommended using a quasi-experimental design or an experiment with a control group to measure the effect of using e-books on improving communication and critical thinking skills in more depth. Overall, this research contributes not only to the development of learning media but also to encouraging the transformation of higher education towards more contextual, skill-oriented, and technology-integrated learning, especially in office communication courses.

Conclusion

The conclusion of this research is based on the results of validation from experts and student responses from limited trials, which show that the case method-based office communication e-book has met the requirements of feasibility and practicality. According to the validation results from experts, this case method-based office communication e-book is highly feasible and can be effectively utilized in the classroom learning process. However, this study has limitations, namely a small sample size and the absence of effective testing through an experimental design. Therefore,

this textbook development research can be continued by testing the effectiveness of this case method-based office communication e-book in enhancing 21st-century skills, specifically critical thinking and problem-solving, creativity, communication skills, and collaboration skills (4Cs) in the learning process of office communication courses. Additionally, further development can be achieved by integrating this e-book into the Learning Management System (LMS), allowing it to be utilized in various learning models, including both online and blended learning. The practical implications of this research are expected to help lecturers design learning media that are more contextual, engaging, and aligned with the demands of the dynamic work environment.

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