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Developing multidisciplinary B1-level reading exercises (Leseübungen) using a student-centered learning approach

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ABSTRACT

The standardized B1-level German proficiency examination used in Indonesian higher education requires learners to read texts that increasingly combine everyday, public, academic, and semi-disciplinary content. However, locally contextualized materials that prepare students for these reading demands remain limited, and institutional evidence from two 2023 cohorts at one Indonesian university showed that Lesen was the weakest module, with pass rates of 14.7% and 9.5%. This early-cycle design-based research study reports the development and expert validation of a prototype package of multidisciplinary B1 reading exercises (Leseübungen) designed through a student-centered learning approach. The study covered problem analysis, prototype development, expert review, and first-cycle revision; it did not include classroom implementation or learner outcome testing. The prototype consisted of pre-reading activation, while-reading comprehension, vocabulary and strategy support, post-reading reflection, and optional collaborative tasks across domains such as education, public services, health, culture, environment, and technology. Three German language education experts evaluated 15 validation indicators using a four-point relevance scale. Aiken's V values ranged from 0.67 to 1.00, with a mean of 0.86; values below 0.80 were treated as revision signals rather than evidence of established effectiveness. Qualitative feedback informed revisions to sentence naturalness, B1 readability, instruction clarity, time allocation, and visual support. The study contributes a preliminary, expert-validated design model for CEFR-aligned German reading materials and identifies priorities for subsequent classroom trials involving learners.

Keywords: design-based research, German as a foreign language, Leseübungen, B1 reading comprehension, student-centered learning

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INTRODUCTION

German language education in Indonesian higher education frequently uses CEFR B1 proficiency as a program benchmark and as preparation for further study. At B1, learners are expected to understand the main points of straightforward texts on familiar matters related to everyday life, study, work, public services, and social participation (Council of Europe, 2020). Reading at this level is therefore not merely a matter of recognizing vocabulary. It requires learners to coordinate lexical knowledge, sentence processing, discourse awareness, topic familiarity, and strategic monitoring while reading independently.

In the institutional context that motivated this study, the Lesen component has repeatedly been the most difficult part of the B1 examination. Module-level records from two 2023 cohorts

showed that only five of 34 students in Batch 1 and two of 21 students in Batch 2 passed the reading module. These figures do not by themselves explain the causes of student difficulty, but they identify reading as the most urgent skill bottleneck in the local program. The present study uses this data as a starting point for material design, not as a complete diagnostic account of students' reading problems.

The reading challenge is also linked to the nature of B1 assessment texts. Although CEFR descriptors emphasize familiar domains, B1 reading tasks often include practical and informational texts that touch on several content areas, such as education, public services, health, culture, environment, technology, and social life. In this article, multidisciplinary reading refers to B1-level reading materials distributed across such communicative and knowledge domains. It does not mean advanced disciplinary reading or specialist subject instruction. Rather, it means that learners encounter controlled texts whose topics and vocabulary patterns resemble the diverse domains they may meet in examinations and real-life German use.

Multidisciplinary reading can support vocabulary breadth and background knowledge, but it can also impose cognitive load if learners are given unfamiliar topics without scaffolding. Research on L2 reading suggests that comprehension depends on more than exposure to text; learners need explicit support for reading strategies, metacognitive monitoring, and transfer across text types (Hassan et al., 2025; Yapp et al., 2021). An example of this approach can be found in the study conducted by Hidayanto et al. (2026). Hidayanto et al. integrated structured reading strategies into a digital book for university students learning English. The materials included contextual topics, such as Javanese culture and climate change. The materials also included activities for vocabulary development, distinguishing facts from inferences, and connecting texts with readers' experiences. This example provides a design basis for combining varied topics with guidance on how to approach texts. For this reason, the design problem is not simply how to give students more texts, but how to organize reading tasks so that students learn how to approach texts across domains.

Student-centered learning provides a useful pedagogical orientation for this purpose, but it must be operationalized carefully. Student-centeredness cannot be inferred from the mere presence of group work or open-ended questions. In the present study, it is treated as a design intention realized through structured self-directed reading routines: learners are guided to set a reading goal, activate background knowledge, select strategies, check comprehension, discuss selected interpretations, and reflect on what to improve next.

The Know-Want-Learned (KWL) strategy used by Juhanaini et al. (2025) is one example of a reading routine that can be applied. Juhanaini et al. (2025) used this strategy to organize the activation of background knowledge, the identification of what learners wanted to learn, and reflection after reading. The researchers also reported that unfamiliar topics made it difficult for learners to formulate questions. Therefore, learners needed guiding questions. The study involved students with learning disabilities, so its findings cannot be directly generalized to university learners of German. Nevertheless, it illustrates the need to support active participation with guidance that responds to readers' needs. These routines are intended to support learner agency; they are not presented as evidence that agency has already improved, because the present cycle did not collect learner data.

Self-directed learning offers a concrete lens for turning student-centered learning into task design. In language learning, much vocabulary consolidation, strategy development, and reading fluency occur outside direct teacher explanation (Bonilla et al., 2021; Chan, 2011). Therefore, materials can function as a "teacher in print" by embedding prompts that help learners regulate their reading. Goal prompts, strategy prompts, self-check items, and reflection checkpoints make the learner's role more visible while still maintaining sufficient guidance for B1 learners. However, assigning independent tasks does not automatically create a supportive learning experience. In the study conducted by Sadiq (2015), the logbook and task workload were concerns raised in students' responses. Students considered these activities overly mechanical and difficult to complete within the available time. These findings suggest that guidance for self-directed learning in instructional materials should be concise, relevant, and manageable. Therefore, the

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prompts and reflection checkpoints in the present prototype are intended to support the reading process while taking students' workload into account.

Design-based research (DBR) is appropriate for this type of material development because it connects a local educational problem with theory-informed intervention design and iterative refinement (McKenney & Reeves, 2018; Yang & Lee, 2025). However, the present article reports only an early DBR cycle. It covers needs identification, prototype development, expert validation, and first revision. It does not claim classroom effectiveness, improved examination performance, learner autonomy, or scalability. Those claims require subsequent classroom implementation with students.

This study addresses three gaps. First, there remains a need for locally grounded German B1 reading materials that respond to institutional evidence of reading difficulty. Second, existing practice materials do not always make explicit how multidisciplinary domains are mapped to B1 reading descriptors and task types. Third, student-centered learning is often discussed as a broad principle rather than translated into repeatable reading routines that can be evaluated by experts. Accordingly, the study asks: (1) How can multidisciplinary B1-level Leseübungen be designed to operationalize student-centered learning as self-directed reading practice? (2) To what extent does expert judgment support the preliminary content feasibility of the resulting prototype?

METHOD

This study used an early-cycle DBR framework to develop and validate a prototype of multidisciplinary B1-level German Leseübungen (see Table 1). The cycle consisted of four linked phases: problem analysis, prototype design, expert validation, and revision. The scope of the study is intentionally limited to design and expert review. No classroom implementation, learner observation, pre-test/post-test comparison, or student interview was conducted in this cycle.

Phase 1 used module-level B1 pass data from two institutional cohorts in 2023. Batch 1 included 34 students and Batch 2 included 21 students. The available records provided pass counts for Lesen, Hören, Sprechen, and Schreiben. These data were sufficient to identify reading as the lowest-performing module, but they were not sufficient to diagnose item-level causes of difficulty. This limitation is acknowledged in the interpretation of the findings.

Phase 2 translated the problem analysis into design requirements. The prototype was required to (a) remain aligned with CEFR B1 reading expectations; (b) include multidisciplinary domains that resemble B1 communicative use; (c) provide controlled language, vocabulary support, and task sequencing; and (d) make student-centered learning visible through self-directed routines. Each Leseübung was structured around pre-reading activation, while-reading comprehension, vocabulary or discourse support, post-reading reflection, and optional collaborative extension.

Phase 3 involved expert validation. Three validators were selected because they had experience in German language education, instructional material development, and curriculum evaluation. The use of three validators is common in early-stage material development when the purpose is preliminary content review rather than full psychometric validation. However, the small panel size limits the strength of statistical inference, and the results are therefore interpreted as preliminary evidence of content feasibility.

The validation instrument consisted of 15 indicators covering grammar, vocabulary, sentence construction, visual support, thematic alignment, task alignment, instruction clarity, question wording, B1 readability, task appropriateness, learner interest, motivational potential, time allocation, student-centered learning characteristics, and DBR alignment. Validators used a four-point relevance scale. Aiken's V was computed using $V = \Sigma(r - lo)/[n(c - 1)]$, where r is the validator rating, lo is the lowest scale value, n is the number of validators, and c is the number of rating categories (Aiken, 1985).

Because there were only three validators and four rating categories, Aiken's V requires conservative interpretation. In this manuscript, values of 0.80 and above are discussed as strong expert agreement, while values from 0.60 to 0.79 are treated as moderate agreement requiring revision rather than as definitive proof of validity. Under an exact right-tail interpretation for n =

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3 and c = 4, only perfect agreement reaches a strict $p < .05$ level; therefore, the results are used primarily as a formative design tool. Qualitative comments were reviewed thematically and translated into revision decisions.

Table 1. Mapping of prototype Leseübungen domains, descriptors, and task types

Task	Topic focus	Domain	CEFR-oriented reading expectation	Main task type
1.	School and language	School/language learning	Understand main points in texts about study and language learning	Prediction; skimming; short reflection
2.	Family and celebrations	Everyday social life	Identify information in personal and social texts	Matching; detail search; peer comparison
3.	Education and training	Education/career	Follow short texts about education pathways	Scanning; cause-effect identification
4.	Work and internship	Workplace life	Understand practical workplace information	Main idea; vocabulary support; goal setting
5.	Housing and services	Public services/ daily life	Understand notices and practical instructions	Information search; procedural sequencing
6.	Shopping and consumer life	Economy/daily transactions	Identify relevant details in transactional texts	Detail search; opinion prompt
7.	Travel and transport	Mobility/public information	Understand public travel-related information	Scanning numbers; route/task interpretation
8.	Health and nutrition	Health	Understand advice and factual information on health	Key vocabulary; inference; reflection
9.	Media and communication	Digital/social communication	Understand short texts on media use	Prediction; discussion; summary
10.	Environment	Ecology/public behavior	Understand texts on environmental practices	Problem-solution mapping; cultural comparison
11.	Culture and events	Culture/civic life	Understand announcements and cultural information	Main idea; inference; peer justification
12.	Science and technology	Science/technology	Understand simplified informational texts	Glossary; comprehension ladder; self-check
13.	Youth and relationships	Social life	Understand personal-interest texts and opinions	Open-ended response; discussion
14.	Animals and society	Environment/everyday knowledge	Identify information in descriptive texts	Vocabulary support; short answer
15.	Leisure and engagement	Leisure/voluntary activity	Understand invitations and community-oriented texts	Task choice; reflection; extension

FINDINGS AND DISCUSSION

Findings

Institutional reading needs

Reading had the lowest pass rate in both cohorts. In Batch 1, five of 34 students passed Lesen (14.7%), compared with seven or eight students passing the other modules. In Batch 2, two of 21 students passed Lesen (9.5%), compared with four or five passing the other modules. Figure

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1 presents the pass counts, and Table 2 reports the corresponding percentages. Pass rates were low across all four modules, with Lesen showing the lowest performance.

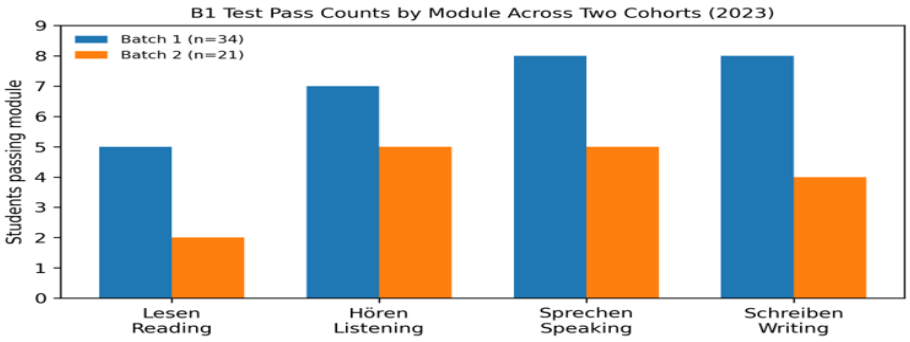


Figure 1. B1 Test Pass Counts by Module Across Two 2023 Cohorts

Table 2. B1 test pass outcomes by module across two institutional cohorts

Module	Batch 1 (n=34) pass	Batch 2 (n=21) pass	Interpretation
Lesen (Reading)	5 (14.7%)	2 (09.50%)	Lowest in both cohorts
Hören (Listening)	7 (20.6%)	5 (23.8%)	Higher than reading
Sprechen (Speaking)	8 (23.5%)	5 (23.8%)	Higher than reading
Schreiben (Writing)	8 (23.5%)	4 (19.0%)	Higher than reading

Prototype design

The prototype comprised 15 reading exercises across everyday, public, social, educational, and semi-disciplinary domains. Table 1 maps each exercise to its topic, CEFR-oriented reading expectation, and principal task type. The design combined controlled B1 language, varied topics, vocabulary and discourse support, and structured reading routines.

The exercises included prediction, strategy selection, searches for specific information, identification of main ideas, vocabulary support, comparison of interpretations, and reflection. Each exercise followed a sequence of pre-reading activation, while-reading comprehension, and post-reading reflection, with optional collaborative extensions.

Expert validation and revision decisions

Expert validation provided preliminary evidence that the prototype was suitable for refinement and classroom piloting. Aiken's V values ranged from 0.67 to 1.00, with a mean of 0.86. Nine indicators reached 0.80 or above, including grammar alignment, vocabulary selection, curriculum alignment, task alignment, task appropriateness, learner interest, motivation, SCL characteristics, and DBR alignment (See Figure 2). Six indicators fell below 0.80 and were treated as revision priorities: sentence construction, illustrations, instruction clarity, question wording, B1 readability, and time allocation (see Table 3).

The qualitative comments helped explain the numerical pattern. Validators noted that several sentences needed to sound more natural while remaining within B1 grammatical expectations. They also recommended checking vocabulary level in multidisciplinary texts, improving the clarity of instructions for unfamiliar task formats, strengthening visual support, and balancing closed comprehension items with more reflective or productive prompts. These comments were used to revise the prototype before the next planned DBR cycle.

Discussion

The low Lesen pass rates justify prioritizing reading in this development cycle, although low performance across the other modules suggests a broader language-learning challenge. Module-level records identify a local need but cannot establish its causes. Yapp et al. (2023) provide a relevant rationale for explicit strategy support: their seven-week intervention involving 801 first-year students produced gains in academic English reading comprehension that exceeded gains before the intervention. This evidence supports embedding strategy guidance in the prototype

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rather than relying on text exposure alone. Its application to German B1 reading nevertheless requires classroom evaluation.

Table 3. Expert validation results and revision decisions

Item	Indicator	Aiken's V	Interpretation	Revision decision
1.	Grammar components align with B1 list	1.00	Strong agreement	Retain
2.	Vocabulary selection fits B1 list	0.89	Strong agreement	Retain; check domain words
3.	Sentence construction is meaningful and grammatical	0.67	Revision required	Simplify and naturalize sentences
4.	Illustrations are appropriate	0.78	Revision required	Improve visual support
5.	Text themes align with curriculum	1.00	Strong agreement	Retain
6.	Exercises align with text themes	1.00	Strong agreement	Retain
7.	Instructions are accurate and clear	0.78	Revision required	Add examples and shorten instructions
8.	Wording of questions is accurate	0.78	Revision required	Clarify stems and answer prompts
9.	Readability fits B1 level	0.67	Revision required	Recheck lexical and sentence difficulty
10.	Tasks are appropriate	1.00	Strong agreement	Retain
11.	Topics match learners' interests	0.89	Strong agreement	Retain
12.	Exercises motivate learners	0.89	Strong agreement	Retain
13.	Time allocation is appropriate	0.67	Revision required	Reduce task load or split sequence
14.	Exercises support SCL characteristics	1.00	Strong agreement	Retain as design intention
15.	Exercises align with DBR approach	0.89	Strong agreement	Retain

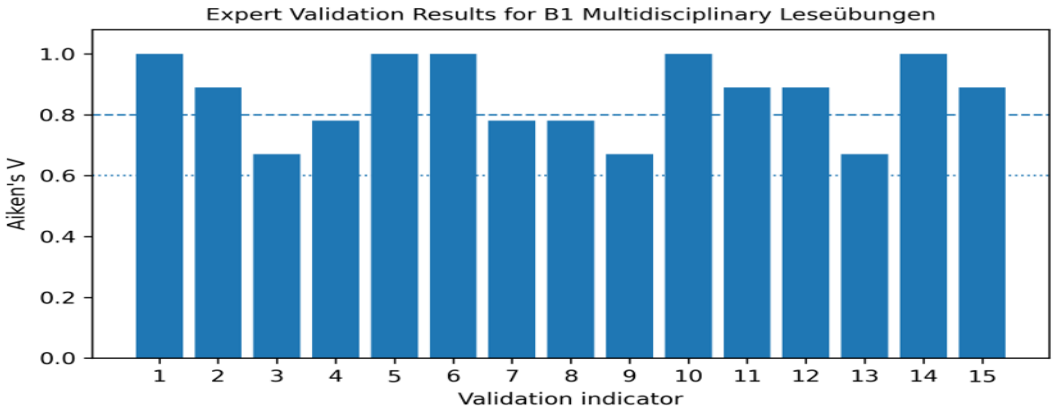


Figure 2. Aiken's V values across 15 validation indicators

Diagnostic data, such as item analysis, learner interviews, and think-aloud tasks, would help determine which reading difficulties the materials should address. Mokshein et al. (2019) provide an example of how item analysis can supplement information from examination results. The Rasch analysis by Mokshein et al. (2019) identified problematic items and mapped item difficulty against learners' ability. In the present study, pass rates do not yet provide this level of detail. Therefore, further diagnostic assessment is needed to direct material development toward students' more specific difficulties.

The sequence of pre-reading, while-reading, and post-reading activities is also supported by Al-Zyout and Al-Jamal (2023). In their quasi-experimental study of 40 female tenth-grade

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EFL learners, students receiving instruction through the Predict, Organize, Search, Summarize, and Evaluate (POSSE) strategy outperformed the comparison group on the posttest. Several activities in the present prototype correspond to these processes, including activating prior knowledge, predicting content, locating information, and evaluating understanding. This correspondence supports a connected sequence of reading activities, although the prototype was not developed or tested as a complete POSSE intervention.

Topic diversity requires support for understanding how ideas are organized. Schwartz et al. (2017) found that university learners receiving text structure strategy instruction improved their recall and use of organizational structures in English texts. Their findings support the inclusion of cause-and-effect identification, problem-and-solution mapping, and information sequencing in the prototype. These activities can direct attention to relationships between ideas alongside vocabulary knowledge. The study also observed transfer of strategy use to Spanish, but cross-language transfer should not be equated with transfer across topics or text types in the present context. Such transfer remains a question for subsequent classroom trials.

The validation pattern highlights the difference between appropriate language components and accessible texts. Grammar and vocabulary received Aiken's V values of 1.00 and 0.89, respectively, whereas sentence construction and B1 readability each received 0.67. Expert judgments therefore suggest that acceptable grammar and vocabulary alone do not ensure accessible reading materials. Natova (2021) proposed combining qualitative and quantitative assessments of text complexity, including linguistic features, text organization, and knowledge demands. This approach supports reviewing the prototype at the level of complete texts, with attention to sentence complexity, connections between ideas, and unfamiliar domain terms. Topic expansion should be accompanied by vocabulary support and activation of relevant prior knowledge. Natova's tools were developed for English and require adaptation before use with German texts.

Student-centeredness depends on the opportunities learners have to direct their reading, beyond participation in tasks. Glavind et al. (2023) found that empirical research on student-centered learning and teaching in higher education often emphasizes activation and engagement, while its relationship with agency and autonomy remains insufficiently examined. In the prototype, goal setting, strategy choice, self-checks, and reflection make learner decisions explicit. The high expert rating for SCL characteristics supports these design features but does not establish that students use them independently. Since the review focused on Western countries, implementation in Indonesian higher education should also consider learners' previous experiences and readiness to make learning decisions.

Comprehension checks and reflection connect information processing with monitoring. Goyi et al. (2021) reported associations between cognitive strategies and textual-content performance, and between metacognitive strategies and vocabulary-test performance, among 26 secondary-school learners of Malay. Their ex-post facto design supports an interpretation in terms of relationships rather than causal effects. For the present prototype, the practical implication is to make reflection actionable: prompts should ask learners to identify an unresolved difficulty, evaluate the strategy used, and select a next step. Classroom observation is needed to determine whether these prompts lead to meaningful monitoring rather than routine completion.

Within this early DBR cycle, expert validation serves as formative evidence for revision. Aiken's V summarizes expert ratings (Aiken, 1985); it does not measure classroom effectiveness. With three validators, the coefficients should be interpreted as preliminary judgments, and the mean of 0.86 should not obscure the six indicators requiring revision. Problems in sentence construction, readability, instructions, question wording, visual support, and timing could make independent use more demanding. Among these aspects, completion time and task workload require further examination. Sadiq (2015) reported that students perceived the logbook as a mechanical activity. Students also experienced difficulties completing demanding tasks within the available time. In the present study, expert judgments of time requirements indicate that several aspects need to be reviewed. These aspects include text length, the number of questions, and reflection activities considered together. Nevertheless, a more detailed comparison between expert estimates and students' actual completion time is still needed. The revisions therefore

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address conditions needed for students navigating the materials. This use of feedback is consistent with the iterative refinement of educational designs described by McKenney and Reeves (2018).

Among these aspects, completion time and task workload require further examination. Sadiq (2015) reported that students perceived the logbook as a mechanical activity. Students also experienced difficulties completing demanding tasks within the available time. In the present study, expert judgments of time requirements indicate the need to review several aspects together. These aspects include text length, the number of questions, and reflection activities. Nevertheless, a comparison between expert estimates and students' actual completion time is still needed.

A distinction between expert evaluation and testing with students can be seen in the study conducted by Hidayanto et al. (2026). The digital book developed by Hidayanto et al. was evaluated by experts before individual and small-group testing with students. The present study covers only expert evaluation and initial revision. Therefore, the findings support design improvement, while the usability of the prototype still needs to be examined through testing with students.

The resulting design offers four provisional principles: begin with local evidence of need; map varied topics and tasks to B1 reading expectations; embed strategy choice, monitoring, and reflection as explicit learner actions; and revise accessibility through expert feedback before classroom implementation. These principles can inform adaptation in similar contexts, but their usefulness must be tested locally. Future trials should examine instruction clarity, completion time, actual strategy use, and reading outcomes, alongside learner feedback.

CONCLUSION

This early-cycle DBR study developed and revised a prototype of multidisciplinary German B1 reading exercises in response to low institutional Lesen pass rates. The prototype integrates varied topics with strategy guidance, vocabulary support, comprehension checks, and reflection. Expert ratings provided preliminary support for the design, with Aiken's V values ranging from 0.67 to 1.00 and a mean of 0.86. Six indicators identified priorities for improving language accessibility, instructions, questions, visual support, and timing.

The study contributes an expert-reviewed approach to designing CEFR-aligned reading materials with explicit learner actions. Its evidence is limited to institutional module records and expert review. Subsequent classroom trials should assess task usability, strategy use, reading performance, and learner feedback before conclusions about effectiveness or learner independence are drawn.

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