

The Motivational Architecture of EFL Textbooks: A Self- Determination Theory Analysis of Saudi Mega Goal 1–3

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Research Article

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Abstract

The impetus and involvement of language acquisition are not shaped only by students and educators; curricular assignments that structure classroom interactions are also at play. This research, based on Self-Determination Theory (SDT), investigated the designed opportunities for autonomy, competence, and relatedness in three contemporary Saudi secondary-school English as a Foreign Language (EFL) textbooks; Mega Goal 1, Mega Goal 2, and Mega Goal 3. Using a theory-driven directed content analysis, 535 learner-oriented activity blocks were analyzed using a 25-indicator SDT codebook. An investigative computer-aided analysis identified competence-enhancing affordances in 519 (97.0%) activities, autonomy-enhancing affordances in 396 (74.0%) activities, and relatedness-enhancing affordances in 370 (69.2%) activities. There were small differences in autonomy and competence and no differences in relatedness. In qualitative terms, long-term projects consistently incorporated the three needs, Self Reflection components generally combined autonomy and competence, and pair work generally combined autonomy and relatedness. Results show that competence is pervasive along the series, whereas autonomy and relatedness seem to be more activity-dependent. The study contributes to the field of language-motivation studies in the sense of curriculum development by distinguishing between intentional motivational opportunities and the motivation or engagement of learners. The quantitative estimates are based on an exploratory computer-assisted analysis without manual intercoder reliability and should be regarded as descriptive rather than confirmed prevalence estimates.

1 Introduction

Second language learning is a process of repeated investment of attention, effort, persistence and personal resources in skills. Motivation and engagement are important for this process for students to be able to continue learning. However, recent studies have shown that motivation and engagement are not a stable learner characteristic but are context-dependent and dynamic (Alamer & Alrabai, 2023; Alamer et al., 2025; Mercer, 2019; Noels, 2023; Oga-Baldwin et al., 2023).

Hence, it is legitimate to analyze the design of the learning environment, which consists of the curricular materials that constitute the classroom activity. In this sense, the Self-Determination Theory (SDT) is particularly useful as it sheds light on the nature of motivation and the conditions that are likely to nurture more autonomous and sustainable forms of motivation. SDT identifies three basic psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2017, 2020). Autonomy is ownership, about choices.

Competency is doing the right things. That is to say, really knowing your stuff. Relatedness is the feeling of connection, of belonging with others that students feel in traditional educational environments. These needs can be met in instruction by improving the motivational quality of the learning experience by means of meaningful choice, challenge, structure and feedback, and socially meaningful participation. Too much control, unrealistic expectations, bad feedback, or social isolation can all have a negative impact on the quality of motivation. This contextual perspective is also in line with classic evidence for

reciprocal relations between teacher support and student engagement across the school year (Skinner & Belmont, 1993).

Recent SDT work has taken up the idea that autonomy, competence, and relatedness are not mutually exclusive but complementary conditions and that good instruction requires providing autonomy support and clear informational structure (Ryan & Deci, 2020; Vansteenkiste et al., 2020; Wang et al., 2024). This perspective is well suited to language education. Self-determined motivational orientations have long been associated with second-language learning (Noels et al., 2000), and SDT has been proposed as an integrative framework for formal language education (McEown & Oga-Baldwin, 2019).

In language tasks, autonomy can be supported through meaningful choice, personal relevance, and opportunities for self-expression; competence through modeling, scaffolding, practice, feedback, and visible progress; and relatedness through reciprocal communication and collaborative language use. Recent work has linked these needs and motivational orientations with classroom engagement, vocabulary learning, persistence, and achievement (Al-Hoorie et al., 2025; Alamer, 2022b; Leeming & Harris, 2022; Liu & Oga-Baldwin, 2022; Oga-Baldwin & Ryan, 2025). However, much of this literature relies on questionnaires, interviews, observations, or interventions that capture experienced motivation. Such approaches provide less direct information about the motivational opportunities embedded in the materials that organize classroom work. In many EFL settings, textbooks strongly influence topics, input, task sequencing, practice, interaction patterns, projects, reflection, and assessment.

Textbooks can therefore be analyzed as designed pedagogical environments rather than merely as containers of linguistic content. The application is significant for Saudi Arabia as the national EFL textbooks have been analyzed from various perspectives such as learning strategies, representation, cultural and social content, life skills, curriculum standards and cognitive demand. Alwehebi and Ghareeb's (2021) look at learning strategies in Saudi high-school EFL textbooks. Alqahtani's (2024) study of representation and empowerment of women in secondary-school materials. Alsuwat's (2025) investigation of higher-order thinking. National identity, culture, 21st century skills, teacher evaluation and textbook quality have been studied before (Alharbi, 2022; Alzubi et al., 2023; Al-Mutairi et al., 2023; Mohamed & Halim, 2023; Al-Rasheedi & Al-Mutairi, 2024; Alshumaimeri & Alharbi, 2024; Alenezi, 2024).

Yet, the motivational design of activities in Saudi EFL textbooks has been relatively under-researched systematically from the SDT perspective with the growing body of the evaluation literature. This current study attempts to fill in the gap by analyzing three Mega Goal Student Books in the current academic period of 1448 H/2026. The books are not assessed for their actual motivational impact on learners. Rather, it points to instructional features that may offer potential for opportunities to support autonomy, competence and relatedness. This is an important distinction: a designed affordance is an opportunity built into the task, not evidence that a psychological outcome has occurred.

The evidence of the participants is needed in the fulfillment of the learners' need, motivation, engagement and achievement that are out of the scope of this paper analysis (Khaerudin & Chik, 2021; Mustofa & Wirza, 2023; Anggraini et al., 2025). In this paper, we make three contributions. SDT-informed

language-motivation research is, in principle, about the motivational architecture of curriculum materials, not only the perceptions of learners and processes within the classroom. The approach translates autonomy, competence and relatedness into observable indicators in the design of EFL tasks, and integrates quantitative mapping with qualitative interpretation in theory. Pedagogically, it identifies common strengths and imbalances that can be exploited for informing materials development in Saudi Arabia and similar EFL contexts. The study also takes up recent attention to how policy and instructional materials create conditions for learner engagement (Parrish et al., 2025) by defining curriculum design as an environmental condition for motivation. This design-based view is especially relevant because the effects of autonomy-supportive instruction are maximized when meaningful choice is combined with sufficient structure and scaffolding (Alfares, 2025).

1.1 Research questions

RQ1. To what extent and in what forms do the three Mega Goal textbooks provide instructional affordances that potentially support learner autonomy?

RQ2. To what extent and in what forms do the textbooks provide instructional affordances that potentially support learner competence?

RQ3. To what extent and in what forms do the textbooks provide instructional affordances that potentially support learner relatedness?

RQ4. How does the distribution of autonomy-, competence-, and relatedness-supportive affordances vary across Mega Goal 1, Mega Goal 2, and Mega Goal 3, and what qualitative patterns are associated with major activity types?

RQ5. What patterns of integration, imbalance, or omission characterize the three psychological needs across the analyzed textbook activities?

2 Literature review and theoretical framework

2.1 Self-Determination Theory and language-learning motivation

SDT distinguishes between quantity of motivation and quality of motivation. For optimal and high quality motivation, the basic needs of autonomy, competence and relatedness as defined by Ryan and Deci (2017) need to be fulfilled. Independence is not anarchic. Learning and Education. Limits Defining boundaries. Will. Importance. Relevant to you. Self-advocacy action opportunities Not much to write home about Students are supported when the challenge is within reach, when students know what success looks like, when they have the resources and the practice and the feedback to get there.” Relatedness is not about learners being together or in clusters, it is about connectivity, reciprocity, belongingness and participation in something socially meaningful”. These differences are relevant for

current conceptualizations of SDT and suggest the complementary roles of autonomy support, effective structure, and relational connectedness (Vansteenkiste et al., 2020; Noels, 2023; Oga-Baldwin & Ryan, 2025).

They are also directly relevant to language education because communicative activity is simultaneously cognitive, personal, and social. A writing task may support autonomy when learners select examples or express a genuine position; grammar or vocabulary practice may support competence through modeling, staged practice, and self-checking; and speaking tasks may support relatedness when learners must listen, respond, negotiate, and produce a shared outcome. An SDT-informed textbook analysis should therefore allow multiple needs to be coded within the same activity.

Empirical research also shows that need satisfaction can be supported by environments that provide agency, competence-building resources, and socially meaningful participation (Davis, 2022; Shelton-Strong, 2022a; Cho et al., 2023). Recent systematic and meta-analytic research further links need satisfaction and self-determined motivation with engagement, grit, and achievement in language-learning contexts (Al-Hoorie et al., 2025; Alamer, Morin, et al., 2023; Alharfi & Alamer, 2025; Alamer et al., 2025).

The foundational formulation of self-determination theory established the distinction between controlled and autonomous forms of motivation (Deci & Ryan, 1985). In second-language research, SDT constructs have been psychometrically validated and linked to language anxiety, motivational profiles, grit, and achievement (Alamer, 2021; Alamer & Almulhim, 2021; Oga-Baldwin & Fryer, 2020; Shirvan & Alamer, 2024). Advising research further indicates that basic-need support can contribute to sustained language-learner well-being and flourishing (Shelton-Strong, 2022b).

2.2 Textbooks as motivational environments

Textbooks structure much of what learners are asked to do: they select topics and input, sequence language content, define practice routines, shape expected outcomes and interaction patterns, and provide projects, review activities, and prompts for reflection. These design choices can expand or constrain opportunities for need support. A tightly prescribed exercise may still support competence by providing clarity and practice while offering little autonomy. By contrast, a task that asks learners to select a topic, plan an output, and justify a position can provide stronger autonomy support. Relatedness requires more than placing learners together; it is most evident when completion depends on reciprocal exchange, coordination, or response. Comparable principles have been used in materials research on learner autonomy, including opportunities for choice, self-direction, reflection, and learner agency (Khaerudin & Chik, 2021; Mustofa & Wirza, 2023; Anggraini et al., 2025).

The push and participation in language learning are not only affected by students and teachers, but also by the curriculum tasks that shape classroom interactions. This study, based on Self-Determination Theory (SDT), investigated the opportunities for autonomy, competence and relatedness provided in three contemporary Saudi secondary-school English as a Foreign Language (EFL) textbooks, i.e. Mega

Goal 1, Mega Goal 2 and Mega Goal 3. A theory-based directed content analysis of 535 learner-oriented activity blocks was conducted using a 25-indicator SDT codebook. A computer-assisted content analysis of the data revealed competence-enhancing affordances in 519 activities (97.0%), autonomy-enhancing affordances in 396 (74.0%), and relatedness-enhancing affordances in 370 (69.2%).

Differences in autonomy and competence were small, differences in relatedness not significant. Qualitative analysis revealed that all three requirements were invariably included in long-term projects, Self Reflection segments mostly included a combination of autonomy and competence, and collaborative pair activities mostly included a combination of autonomy and relatedness. The results show that the series is rich in competence, whereas autonomy and relatedness are more dependent on the nature of the activity. The study extends the domain of language-motivation research to curriculum development, making the distinction between intentional motivational opportunities and the motivation/engagement experienced by learners. The quantitative estimates come from an exploratory computer-assisted analysis without manual intercoder reliability. Thus, they should be seen as descriptive rather than as validated prevalence estimates.

2.3 Saudi EFL textbook research and the present gap

Studies of Saudi EFL textbooks have shown the benefits of including explicit theoretical and pedagogical models in national textbooks. Alwehebi and Ghareeb (2021) found that Saudi high-school EFL textbooks showed language learning strategies implicitly and inconsistently. Alqahtani (2024) talked about women's empowerment and Saudi Vision 2030 in EFL materials for secondary schools. Alsuwat (2025) investigated higher order thinking using a modified Bloom's taxonomy framework. Other recent studies have focused on strategy content, national identity, life skills, curriculum standards, representation, higher-order thinking and teachers' perceptions of textbook quality (Alharbi, 2022; Alzubi et al., 2023; Al-Mutairi et al., 2023; Alqahtani, 2024; Al-Rasheedi & Al-Mutairi, 2024; Alshumaimeri & Alharbi, 2024; Alsuwat, 2025). To summarise, this literature demonstrates how systematic content analysis of different aspects of curriculum design can be illuminated depending on the framework used.

The motivational design of these materials is less well studied. Do the systematic tasks allow for learner choice, voice, personal relevance, scaffolding, achievable challenge, self-monitoring, reciprocal communication, shared goals and socially meaningful language use? In this way the present study reframes the question of evaluation from one of what linguistic, cultural, strategic or cognitive content appears to one of what kind of need-supportive motivational environment is built into the textbook activities. However, there has been little systematic coding of motivational need-support in Saudi EFL textbooks, despite a growing international interest in autonomy-supportive textbook features (Khaerudin & Chik, 2021; Mustofa & Wirza, 2023; Anggraini et al., 2025).

3 Methods

3.1 Research design

The study adopted a theory-driven directed content analysis approach to identify, compare, and explain motivational affordances in modern Saudi secondary-school EFL textbooks (Hsieh & Shannon, 2005; Krippendorff, 2018; Neuendorf, 2017). The analytical framework covered the Saudi secondary-school English as a Foreign Language curriculum, as exemplified by the three Mega Goal Student Books in the corpus.

Before the analysis, autonomy, competence and relatedness were defined deductively from Self Determination Theory. In these classifications, only limited inductive enhancement was allowed, where the original manual did not adequately represent the repetitive textbook manifestations. This method guaranties theoretical traceability and enables explicit coding rules, iterative refinement, and quantitative synthesis (Kuckartz & Rädiker, 2023; Boydstun, 2023).

The present study reports an exploratory computer-aided mapping of the corpus and a qualitative analysis of representative task categories. The examination was in three interlinked phases. In the beginning, signs based on Self-Determination Theory were implemented in learner-centered instructional activity segments with a conservative computer-assisted interface. Second, the derived binary need-level evidence was summarized by frequencies, percentages, textbook-level comparisons and selected indicator-level distributions.

Since the screen was not able to produce a full quantitative cross tabulation by activity type, the patterns of activity types were subjectively synthesized, not statistically tested. Third, representative tasks were interpreted to see how the stated affordances were pedagogically realized and how different psychological demands were integrated in one action. This design is appropriate for exploratory mapping, but cannot replace validated manual coding with intercoder reliability.

3.2 Corpus

The corpus comprised the three current Saudi secondary-school English Student Books supplied for the 1448H/2026 academic period: Mega Goal 1, Mega Goal 2, and Mega Goal 3. The editions identify themselves as 2025 adaptations of the MegaGoal series by McGraw-Hill Education (UK) Limited. Each Student Book contains 12 units arranged across two parts, together with Connect/Reconnect sections, Expansion sections, and reference materials. The unit topics cover a broad range of communicative domains, including global change, careers, advertising, advice, technology, travel, employment, environmental responsibility, influential people, future technology, media, consumerism, and social interaction (dos Santos, Ghazel, et al., 2025; dos Santos, O’Sullivan, et al., 2025a, b).

For consistency, the analytical corpus was restricted to learner-facing instructional material in the Student Books. Vocabulary reference lists, irregular-verb lists, audio-track lists, and the separate workbook portions embedded later in the supplied files were excluded from the principal corpus. Contextual texts, dialogues, illustrations, and task introductions were consulted when needed to interpret what an activity required. Table 1 summarizes the corpus composition, and Fig. 1 provides a schematic overview of the three-book corpus and the analyzed activity-block totals. Specifically, Table 1 shows a

three-book corpus comprising 36 units and 535 analyzed activity blocks, with 173 blocks from Mega Goal 1, 178 from Mega Goal 2, and 184 from Mega Goal 3. Figure 1 visually consolidates these corpus components and shows how the three textbook totals combine to form the complete analytical dataset.

Table 1
Corpus characteristics

Textbook	Edition/adaptation	Units	Analyzed activity blocks
Mega Goal 1	2025 adaptation	12	173
Mega Goal 2	2025 adaptation	12	178
Mega Goal 3	2025 adaptation	12	184
Total	—	36	535

Note

Activity-block counts refer to learner-facing labeled instructional sections in the supplied Student Books. Compound blocks were retained as single units in the exploratory screen and are treated as a segmentation limitation.

3.3 Unit of analysis

The primary coding unit was the learner-facing instructional activity block. In the conceptual coding manual, a task is defined as an identifiable learner-directed instruction requiring a response, action, interaction, decision, production, reflection, or practice activity. Examples include comprehension questions, vocabulary exercises, pair work, paragraph writing, discussion of personal experience, projects, choice among task options, self-reflection, and communicative problem solving. A single textbook page can therefore contain more than one analytical unit.

For the exploratory computer-assisted screen, labeled textbook blocks such as Listen and Discuss, Pair Work, Grammar, Conversation, Listening, Pronunciation, Vocabulary Building, Reading, Speaking, Writing, Form/Meaning and Function, Project, Self Reflection, Language Review, and About You were used as operational segmentation anchors. Where a labeled block contained several tightly linked sub-instructions, the block was treated as one analytical unit. This decision produced a consistent corpus for screening but may under-segment compound sections; the issue is therefore reported as a methodological limitation rather than treated as validated task-level segmentation.

3.4 SDT coding framework

The coding framework operationalized autonomy, competence, and relatedness through 25 observable indicators. Multiple indicators could be assigned to the same activity because a single language task can provide opportunities relevant to more than one psychological need. The conceptual manual specifies a three-point intensity scale (0 = absent, 1 = limited/implicit, 2 = explicit/substantive). For the

present exploratory computer-assisted screen, however, evidence was reduced to binary presence/absence for need-level mapping and for selected indicators that could be identified conservatively from lexical or structural cues. Table 2 summarizes the codebook. Figure 2 schematically summarizes the same 25-indicator SDT coding framework presented in Table 2. As detailed in Table 2, the 25 indicators comprise eight autonomy indicators (A1–A8), nine competence indicators (C1–C9), and eight relatedness indicators (R1–R8), with each indicator linked to explicit operational evidence. Figure 2 illustrates the screening and organization of these indicators into the three SDT need domains, making the structure of the coding framework transparent.

Table 2
SDT coding framework and operational definitions

Need	Code	Indicator	Operational evidence
Autonomy	A1	Meaningful choice	Learner selects topic, format, response, partner/role, example, or approach.
Autonomy	A2	Personalization	Task connects to learner experiences, interests, opinions, goals, or preferences.
Autonomy	A3	Learner voice	Learner expresses a personal position rather than reproducing a predetermined answer.
Autonomy	A4	Open-endedness	More than one legitimate response or solution is possible.
Autonomy	A5	Meaningful rationale	The purpose or relevance of the activity is made evident.
Autonomy	A6	Independent decision-making	Learner plans, organizes, prioritizes, or makes decisions.
Autonomy	A7	Self-reflection	Learner evaluates learning, progress, preference, difficulty, or strategy.
Autonomy	A8	Self-directed extension	Learner investigates, creates, explores, or extends learning beyond a fixed response.
Competence	C1	Clear task structure	Instructions and expected outcome are identifiable.
Competence	C2	Scaffolding	Models, prompts, examples, linguistic frames, or staged assistance are provided.
Competence	C3	Progressive challenge	Activities move toward greater difficulty or independence.
Competence	C4	Appropriate practice	Learners consolidate knowledge or skill through purposeful practice.
Competence	C5	Strategy support	The activity assists learners in how to perform the task.
Competence	C6	Mastery opportunity	Learners meaningfully apply previously developed knowledge or skill.
Competence	C7	Self-monitoring	Checklist, reflection, self-check, revision, or evaluation is present.
Competence	C8	Feedback opportunity	Task design permits checking, revision, comparison, or response to performance.
Competence	C9	Achievable challenge	The task requires effort beyond simple reproduction while providing support.
Relatedness	R1	Pair interaction	Meaningful learner-to-learner exchange is required.

Need	Code	Indicator	Operational evidence
Relatedness	R2	Group collaboration	Learners work jointly toward an outcome.
Relatedness	R3	Reciprocal communication	Participants must listen and respond to one another.
Relatedness	R4	Shared goal	Successful completion requires cooperation.
Relatedness	R5	Perspective taking	Learners consider another person's ideas, feelings, experiences, or position.
Relatedness	R6	Socially meaningful communication	Language is used for plausible interpersonal purposes.
Relatedness	R7	Belonging/community	Content foregrounds participation, community, relationships, or shared identity.
Relatedness	R8	Inclusive interpersonal representation	Diverse individuals are represented as legitimate participants in communicative situations.

3.5 Coding procedure and trustworthiness

The coding framework was developed by deriving indicators from SDT, adapting them to EFL task design, and specifying observable operational evidence for each indicator. For the present study, a conservative computer-assisted screen was then applied to all 535 activity blocks to detect explicit lexical and structural evidence associated with the codebook. The screen produced binary presence/absence signals at the three-need level and selected indicator-level frequencies. This procedure was designed as an exploratory mapping device, not as a substitute for human judgment about whether an affordance is absent, limited/implicit, or explicit/substantive. Accordingly, no claim is made that the reported frequencies constitute fully validated prevalence estimates.

The current dataset did not undergo manual 0–2 coding by independent human coders, nor was a chance-corrected intercoder reliability coefficient established. This is the primary methodological constraint of the quantitative aspect. To ensure future validation, an independent double-coding of a pilot sample is necessary, decision criteria must be enhanced, and a qualified second coder should analyse a significant amount of the corpus prior to calculating Krippendorff's alpha or another suitable chance-corrected coefficient. Modern recommendations advocate for explicit code definitions, coder education, independent dual coding, recorded conflict resolution, and chance-adjusted reliability instead of mere percentage agreement (O'Connor & Joffe, 2020; Kuckartz & Rädiker, 2023).

Interpretive validity was supported by theoretical traceability of each major category to SDT, explicit operational definitions, preservation of borderline cases for review, and qualitative examination of atypical or negative cases rather than their automatic exclusion. The analysis also maintains a strict distinction between textbook affordances and actual learner motivation. These procedures are

consistent with calls for robustness, auditability, and transparent measurement decisions in quantitative and mixed content-analysis designs (Boydstun, 2023; Kuckartz & Rädiker, 2023).

3.6 Data analysis and analytical workflow

For transparency, Table 3 and Fig. 3 summarize the analytical pathway from corpus definition and scope screening through activity-block segmentation, SDT screening, quantitative–qualitative synthesis, and interpretation. The workflow is intended to make corpus decisions and the exploratory status of the quantitative evidence explicit; it is not a systematic-review procedure. Table 3 further specifies the five analytical stages—corpus definition, scope screening, segmentation, coding, and synthesis/validation—together with the evidence, analytical operation, and validation status at each stage. Figure 3 provides a complementary visual representation of the screening and inclusion pathway underlying the final analytical framework.

Quantitative analysis calculated the number and percentage of activity blocks containing at least one autonomy-, competence-, or relatedness-supportive signal and summarized selected indicator-level frequencies. Textbook differences in the exploratory binary need-level screen were examined using chi-square tests of independence, with Cramér’s V as the effect-size index. These tests are used descriptively because the coding has not undergone manual intercoder validation. Qualitative analysis examined representative activities for meaningful choice, personalization, scaffolding, reciprocal exchange, collaborative production, and self-reflection. The conceptual 0–2 scale is retained for future manual validation but is not used in the present quantitative results.

Table 3
Analytical workflow and validation status

Stage	Corpus / evidence decision	Reported evidence	Analytical operation	Output / status
Corpus definition	Define the textbook corpus	Mega Goal 1–3; 3 Student Books; 36 units	Confirm edition and analytic scope	Three-book corpus established
Scope screening	Retain learner-facing instructional material	Reference lists, verb lists, audio-track lists, and embedded workbook portions excluded from principal corpus	Apply inclusion/exclusion rules to textbook components	Learner-facing instructional corpus retained
Segmentation	Define analyzable learner-directed activity blocks	MG1 = 173; MG2 = 178; MG3 = 184; total = 535	Segment using labeled activity blocks; flag compound blocks for manual review	535 analytical units used in the exploratory screen
Coding	Apply the SDT codebook	25 indicators: autonomy = 8, competence = 9, relatedness = 8	Multiple coding permitted; computer-assisted binary screening used for current mapping	Exploratory task-level screening matrix
Synthesis / validation	Summarize and interpret coded affordances	Need-level and indicator-level frequencies; textbook comparisons; representative task evidence	Percentages, χ^2 , Cramér's V, and qualitative synthesis; manual reliability validation not completed	Exploratory findings; reliability limitation stated explicitly
Note. The table summarizes the exploratory directed content-analysis workflow and distinguishes the reported screen from future manual reliability validation.				

3.7 Use of generative AI in manuscript preparation

ChatGPT (OpenAI) was used to assist with language editing, structural revision, and preparation of schematic figures for the manuscript. The author reviewed all text, interpretations, numerical results, references, and visuals and retains full responsibility for the submitted work. The tool is not listed as an author.

4 Results

Unless otherwise stated, the numerical findings in this section derive from the exploratory computer-assisted screen. They are reported as descriptive patterns and should not be interpreted as manually validated prevalence estimates.

4.1 Overall need-support profile

Across 535 activity blocks, the exploratory screen identified competence-supportive features in 519 activities (97.0%), autonomy-supportive features in 396 (74.0%), and relatedness-supportive features in 370 (69.2%). Competence was therefore nearly ubiquitous in the screen, whereas autonomy and relatedness were substantial but more selectively distributed. Because the three SDT dimensions are not mutually exclusive, a single activity could contribute to two or all three needs. Table 4 and Fig. 4 summarize the textbook-level profile. Table 4 reports the corresponding textbook-level counts, percentages, and chi-square/Cramér’s V comparisons, whereas Fig. 4 visualizes the same need-support pattern across Mega Goal 1–3.

Table 4
Exploratory need-support profile and textbook-level comparisons

SDT need	Mega Goal 1 (n = 173)	Mega Goal 2 (n = 178)	Mega Goal 3 (n = 184)	Overall (N = 535)	Textbook comparison
Autonomy	136 (78.6%)	120 (67.4%)	140 (76.1%)	396 (74.0%)	$\chi^2(2) = 6.34$; $p = .042$; $V = .109$ (small)
Competence	168 (97.1%)	167 (93.8%)	184 (100.0%)	519 (97.0%)	$\chi^2(2) = 11.92$; $p = .003$; $V = .149$ (small)
Relatedness	117 (67.6%)	121 (68.0%)	132 (71.7%)	370 (69.2%)	$\chi^2(2) = 0.88$; $p = .644$; $V = .041$ (negligible)
Note. Binary computer-assisted screening; percentages indicate activity blocks containing at least one signal in the relevant SDT dimension. The three need categories overlap. V = Cramér’s V.					

The biggest change in the series was autonomy, which ranged from 67.4% in Mega Goal 2 to 78.6% in Mega Goal 1. Competence was high across the three books (93.8%–100.0%) while relatedness was relatively stable (67.6%–71.7%). The chi-square results show small statistically detectable differences in textbooks for autonomy and competence, and no meaningful differences at the textbook level for relatedness. These tests are considered descriptive, not confirmatory inferential evidence, due to the exploratory, non-validated coding phase. As seen in Fig. 4, competence is always the dominant dimension, autonomy has the most fluctuation between books, and relatedness is relatively stable across the three textbooks.

4.2 Autonomy-supportive affordances

Autonomy appeared most clearly where learners could generate non-identical responses, personalize content, make decisions, or extend a task through research and production. The exploratory indicator screen identified open-endedness in 310 activities (57.9%), personalization in 153 (28.6%), self-directed extension in 124 (23.2%), independent decision-making in 114 (21.3%), meaningful choice in 106 (19.8%), and self-reflection in 49 (9.2%). The lower frequency of self-reflection reflects its concentration

in dedicated end-of-unit sections. Overall, autonomy in the series is better characterized as guided agency than unrestricted choice (Jeon, 2022; Alamer & Al Khateeb, 2023; Zeng & Fisher, 2024). For example, a Mega Goal 1 advertising project asks students to work in groups to select a Saudi product for international marketing, describe it, select visual material, present an advertisement, and develop it into a television commercial. The task combines content and format selection, planning, creation, comparison, and public presentation. Similar patterns occur in projects that ask learners to interview someone working in a career of interest, research organizations in their community, or design a Saudi National Day greeting card. Mega Goal 2 provides comparable opportunities through research-oriented projects; a food project, for instance, asks pairs or groups to identify local snacks and desserts, research similar items in other Arab countries, add countries of their own choice, select visual material, prepare a poster or PowerPoint presentation, and conduct a class survey. Mega Goal 3 likewise includes extended production tasks in which learners select a role model, research accomplishments, create a timeline and poster, or storyboard a documentary about a famous person. These examples illustrate guided agency: curricular goals remain fixed, but learners exercise meaningful choice over topic, evidence, organization, or presentation.

4.3 Competence-supportive affordances

The most dominant dimension was competence. The exploratory screen demonstrated clear task structure for 492 (92.0%) activities, appropriate practice for 396 (74.0%), scaffolding for 282 (52.7%), mastery opportunities for 202 (37.8%), achievable challenge for 180 (33.6%), progressive challenge for 166 (31.0%), strategy support for 146 (27.3%) and self-monitoring for 103 (19.3%). The pattern here is a sequence of modeled input, controlled/guided practice, movement toward communicative production, projects, and end-of-unit reflection. In the SDT view, structure is motivationally meaningful in as far as it enables feasible, successful action, rather than merely providing external control (Oga-Baldwin & Ryan, 2025; Nakata et al., 2025; Alfares, 2025).

The series frequently makes expected outcomes visible through numbered directions, model texts, charts, prompts, language boxes, and staged sequences. For example, project activities commonly require learners first to gather or research information, then record it in a structured organizer, then transform the notes into a poster, presentation, résumé, storyboard, or other extended product. The sequence reduces task ambiguity while preserving a progressively more independent final stage.

Writing activities also illustrate scaffolding. Mega Goal 3, for example, provides an opinion-letter model and a Writing Corner that specifies the greeting, communicative purpose, paragraph organization, reasons and examples, connectors, opinion phrases, anticipation of objections, and concluding language. This is competence-supportive not because the task is easy, but because criteria and linguistic resources needed for successful performance are made explicit.

Self Reflection sections reinforce competence through self-monitoring. At the end of units, learners identify what they liked or disliked and what they found easy or difficult, evaluate whether they can perform unit outcomes very well or need more practice, select preferred vocabulary, and are directed

toward strategies such as rereading, listening again, reviewing grammar and functions, or asking the teacher for help. This design makes progress and possible remedial action visible rather than leaving learners without a route for improvement.

4.4 Relatedness-supportive affordances

Relatedness-supportive design was common but concentrated in interactional task types. The exploratory screen identified pair interaction in 222 activities (41.5%), reciprocal communication in 198 (37.0%), socially meaningful communication in 197 (36.8%), shared-goal structures in 128 (23.9%), perspective taking in 86 (16.1%), and explicit group collaboration in 27 (5.0%). The comparatively low group-collaboration count should not be interpreted as an absence of social learning: pair work is much more frequent, while joint group production is concentrated in projects. Relatedness is therefore associated more strongly with the quality and purpose of interaction than with the simple presence of multiple learners (Davis, 2022; Shelton-Strong, 2022a; Cho et al., 2023). The selected indicator frequencies across all three needs are consolidated in Table 5 and visualized in Fig. 5. Together, Table 5 and Fig. 5 show that clear task structure (92.0%) and appropriate practice (74.0%) dominate the competence profile, open-endedness (57.9%) is the strongest autonomy indicator, and pair interaction (41.5%) is the most frequent relatedness indicator, whereas explicit group collaboration is comparatively rare (5.0%).

Relatedness is strongest when interaction has a communicative purpose. Interview tasks require one learner to ask questions and record another person's answers; discussion tasks require opinions, agreement, disagreement, or comparison; class presentations permit questions and answers; and projects require learners to share information or coordinate outputs. Mega Goal 3 includes a communication-history project in which learners work in pairs or groups to investigate methods of communication and jointly prepare a presentation. Mega Goal 2 asks learners to research new medical treatments in Saudi Arabia in pairs or groups and synthesize the information into a presentation. Such tasks go beyond co-presence by making exchange instrumental to completion.

Perspective taking is also embedded in topics that invite learners to discuss influential people, gender similarities and differences, ethical dilemmas, media, consumer choices, and community services. Nevertheless, because textbook instructions alone cannot reveal the emotional quality of classroom relationships, relatedness claims must remain at the level of designed interactional opportunity.

4.5 Integration of psychological needs

The most motivationally rich activities were those that integrated rather than isolated the three needs. Extended projects provide the clearest examples: learners often receive a meaningful topic or some degree of choice (autonomy), staged instructions, organizers, models, and an expected product (competence), and opportunities to work with peers or present to an audience (relatedness). This recurring co-occurrence is consistent with SDT's treatment of the three needs as complementary rather than competing dimensions of a supportive learning environment (Vansteenkiste et al., 2020; Wang et al., 2024).

Self Reflection sections integrate autonomy and competence by asking learners to evaluate preferences and difficulties while monitoring mastery and identifying remedial actions. Pair-work discussions frequently integrate autonomy and relatedness because learners contribute their own opinions or experiences while responding to another person. The activity-type synthesis in Table 6 therefore indicates that the series’ motivational architecture is configuration-dependent: different task families specialize in different forms of need support. Table 6 develops this pattern by comparing major activity types across all three SDT dimensions: extended projects provide the strongest recurring three-need configuration, Self Reflection primarily combines autonomy with competence, pair work/discussion/interviews frequently combine autonomy with relatedness, and controlled language practice remains competence-dominant. Figure 6 visually synthesizes these configurations and emphasizes that motivational support is activity-type dependent rather than uniformly distributed.

Table 5
Selected exploratory indicator frequencies and analytical interpretation

Need	Code / indicator	n	% of 535	Analytical interpretation
Autonomy	A1 Meaningful choice	106	19.8	Explicit choice is present but not routine across all tasks.
Autonomy	A2 Personalization	153	28.6	Personal relevance occurs regularly, especially in communicative and project work.
Autonomy	A4 Open-endedness	310	57.9	Most prevalent autonomy mechanism; many tasks permit non-identical responses.
Autonomy	A6 Independent decision-making	114	21.3	Planning and decision-making are concentrated in extended activities.
Autonomy	A7 Self-reflection	49	9.2	Low overall frequency because reflection is clustered in dedicated sections.
Autonomy	A8 Self-directed extension	124	23.2	Research and creation extend learning beyond fixed responses.
Competence	C1 Clear task structure	492	92.0	Near-universal structural support is the dominant feature of the series.
Competence	C2 Scaffolding	282	52.7	Models, prompts, and staged support are common.
Competence	C4 Appropriate practice	396	74.0	Practice opportunities are highly prevalent across skill and language work.
Competence	C6 Mastery opportunity	202	37.8	A substantial minority of tasks require meaningful application of prior learning.
Competence	C7 Self-monitoring	103	19.3	Monitoring is visible but concentrated in reflection/revision-oriented tasks.
Competence	C9 Achievable challenge	180	33.6	One third of tasks combine effortful demand with usable support.
Relatedness	R1 Pair interaction	222	41.5	Pair work is the principal structural mechanism for relatedness.
Relatedness	R2 Group collaboration	27	5.0	Explicit group-level joint production is concentrated in projects.

Note. The table reports indicators with comparatively interpretable lexical or structural signals in the exploratory screen. Frequencies should be interpreted descriptively because manual intercoder validation was not conducted.

Need	Code / indicator	n	% of 535	Analytical interpretation
Relatedness	R3 Reciprocal communication	198	37.0	Many interactional tasks require listening and responding, not mere co-presence.
Relatedness	R4 Shared goal	128	23.9	Interdependence is present but less common than simple pair exchange.
Relatedness	R5 Perspective taking	86	16.1	Perspective taking appears selectively in socially and ethically oriented topics.
Relatedness	R6 Socially meaningful communication	197	36.8	A substantial share of tasks use English for plausible interpersonal purposes.
Note. The table reports indicators with comparatively interpretable lexical or structural signals in the exploratory screen. Frequencies should be interpreted descriptively because manual intercoder validation was not conducted.				

The selected indicator-level frequencies reported in Table 5 are visualized in Fig. 5, which makes the relative prominence of the autonomy, competence, and relatedness indicators directly comparable across the full set of 535 activity blocks.

Table 6
Qualitative activity-type synthesis of SDT affordances

Activity type / design	Autonomy	Competence	Relatedness	Integrative reading
Extended projects	Topic/format choice; research and planning decisions	Staged instructions, organizers, models, expected product	Peer collaboration and/or audience presentation	Strongest recurring three-need configuration in the qualitative evidence.
Self Reflection	Preference, difficulty, and self-evaluation	Self-monitoring and remedial strategy selection	Usually limited unless reflection is shared	Primarily integrates autonomy with competence.
Pair work / discussion / interviews	Personal voice, opinions, experiences	Clear prompts or language support may structure performance	Reciprocal listening, response, comparison, or information exchange	Frequently integrates autonomy with relatedness.
Writing tasks	Open response and personal position in selected tasks	Models, Writing Corner guidance, organization and language resources	Variable; may be individual or peer-mediated	Usually competence-led, with stronger autonomy when output is open-ended.
Controlled grammar, vocabulary, pronunciation practice	Generally limited response choice	Clear structure and repeated practice	Usually limited unless converted into communicative exchange	Competence-dominant task family.
Research / presentation tasks	Choice of evidence, examples, organization, or topic in some tasks	Planning requirements and explicit final products	Audience orientation, questions, and collaborative preparation in selected tasks	Can become multi-need supportive when choice and genuine interaction are both present.

The qualitative activity-type configurations reported in Table 6 are schematically summarized in Fig. 6, which highlights the recurring need-support combinations associated with projects, reflection, interactional work, writing, controlled practice, and research/presentation tasks.

Note

This is a qualitative synthesis of patterns described in the analyzed activities; it does not represent a quantitative cross-tabulation by activity type.

5 Discussion

5.1 A competence-rich motivational architecture

The most evident pattern is the book's design of intensive competence orientation. Clear directions and practice were reasonably common. The frequencies for modeling, staged support, opportunities for mastery, and self-monitoring varied. From an SDT perspective these features are motivationally relevant as they can help make expectations, progress and successful performance more attainable. Thus, the profile in Table 4 and Fig. 4 can be utilized to classify Mega Goal 1–3 as competence-rich, not merely highly structured (Alamer, 2022b; Oga-Baldwin & Ryan, 2025; Alharfi & Alamer, 2025). This distinction is important because SDT separates informational structure from controlling pressure. Organizers, examples, prompts and language resources are often scaffolded toward a relatively open-ended final product throughout the series, and illustrate how competence support can be compatible with learner agency. The pedagogical message is not to downplay structure, but to offer transparent scaffolding that paves the way for ever more independent performance. This interpretation aligns with recent research on autonomy-supportive structure in language education (Oga-Baldwin & Nakata, 2020; Alfares, 2025; Alrabai & Alamer, 2024).

5.2 Autonomy is substantial but unevenly distributed

Autonomy-supportive opportunities were substantial but less pervasive than competence-supportive features. The series includes open-ended responses, personal opinions, projects, research, and choice, whereas many grammar, vocabulary, pronunciation, and controlled-practice activities necessarily constrain response options. This does not make controlled tasks motivationally deficient; rather, it highlights the importance of balance across a unit. Table 5 shows that open-endedness was the most common autonomy signal (57.9%), while explicit choice, independent decision-making, self-directed extension, and self-reflection were more selective. The design question is therefore whether controlled work is systematically complemented by learner voice, relevance, decision-making, and self-direction (Jeon, 2022; Zeng & Fisher, 2024; Parrish et al., 2025). Much of this balance is supplied through projects on careers, Saudi products, community services, food culture, role models, communication history, and documentary design, which connect language learning with people, places, products, experiences, and decisions of personal or local relevance. This pattern is consistent with SDT's emphasis on volition and internalization: tasks are more likely to support autonomous motivation when learners can recognize relevance and exercise meaningful agency within clear curricular boundaries. Comparable relationships between agency, need satisfaction, self-motivation, engagement, and achievement have been reported in technology-mediated language learning (Alamer & Al Khateeb, 2023; Alamer, Al Khateeb, et al., 2023; Wang & Wang, 2024). The dedicated Self Reflection sections are also important because they require learners to assess preferences and difficulties rather than simply receive an external score. Their concentration at the end of units, however, suggests an opportunity to distribute brief formative reflection more regularly throughout task sequences, consistent with self-access and advising research on metacognitive reflection and self-evaluation (Shelton-Strong & Mynard, 2021; Mynard & Shelton-Strong, 2022; Alamer, 2022a).

5.3 Relatedness depends on communicative design

Relatedness-supportive signals appeared in approximately two thirds of the activity blocks, but their qualitative realization depended heavily on speaking, pair work, interviews, discussion, project collaboration, and presentation. Table 5 illustrates why relatedness should not be reduced to physical grouping: pair interaction (41.5%), reciprocal communication (37.0%), and socially meaningful communication (36.8%) were much more common than explicit group collaboration (5.0%). The strongest cases required learners to listen, respond, negotiate, compare, interview, or jointly produce an outcome, which is consistent with SDT accounts of socially responsive learning environments (Annamalai et al., 2023; Li & Chiu, 2025).

The prevalence of pair interaction and reciprocal communication suggests that the series frequently positions English as a medium for interpersonal exchange. Explicit group collaboration and shared-goal structures, however, were less common than pair work. Curriculum developers seeking stronger relatedness support could therefore increase collaborative problem-solving, jigsaw information tasks, peer-feedback cycles, and genuinely interdependent projects in which learners hold complementary information or roles. Recent research on generative-AI and chatbot learning similarly indicates that perceived teacher support and satisfaction of basic psychological needs can shape engagement with language-learning technologies (Li et al., 2025; Li & Chiu, 2025).

5.4 Integrated need support as a design principle

The integrated pattern is important because a single total score would obscure how motivational affordances cluster by activity type. As summarized in Table 6, projects tend to combine all three needs, Self Reflection sections combine autonomy and competence, and communicative pair work combines autonomy and relatedness. Motivational design is therefore better interpreted as a configuration of choice, structure, challenge, support, and social meaning than as the accumulation of isolated features. This interpretation is consistent with reviews and meta-analytic evidence that treat the basic psychological needs as an interrelated motivational system across language-learning contexts (Al-Hoorie et al., 2025; Noels, 2023; Alamer et al., 2025; Wang et al., 2024).

The results also contribute to the literature on Saudi textbooks. National EFL materials have been studied from the perspective of strategy use, representation, identity, culture, life skills, curriculum standards, teacher evaluation and cognitive demand. In SDT analysis, this raises a complementary question: How does the design of the task position the learner motivationally? While a text may be rich in language and culturally appropriate, it may be lacking in learner voice, or have weak scaffolding or limited meaningful interaction.

A relatively simple language task can be motivation supporting, however, if it is characterized by clear progress, personal relevance and mutual communication. Therefore, the positioning of the motivational design in relation to other evaluative dimensions broadens the analytical agenda provided in the research of Saudi textbooks (Alwehebi & Ghareeb, 2021; Alharbi, 2022; Alzubi et al., 2023; Al-Mutairi et al., 2023; Alqahtani, 2024; Al-Rasheedi & Al-Mutairi, 2024; Alshumaimeri & Alharbi, 2024; Alsuwat, 2025).

5.5 Limitations and future research

The interpretation is not unlimited. First, the presence of a design affordance does not mean that learners will necessarily experience autonomy, competence, relatedness, motivation or engagement. Support for these claims must come from data from learners.

Secondly teachers could change, leave out, add to or rewrite activities in the textbook so that the real classroom experience could be very different to what is on the page.

Third, the corpus consists only of Student Books without teacher manuals or other digital sources that could provide more information about motivation. These limitations also highlight the uniqueness of curriculum design and lived motivation where learners' responses are not based on the printed task characteristics but on curricular policy, teacher enactment, and perceived support (Parrish et al., 2025; Alshumaimeri & Alharbi, 2024).

Fourth, the quantitative part is based on conservative computer-assisted screening and is not validated with independent manual 0–2 coding or intercoder reliability coefficient. Thus, published figures and textbook comparisons should be viewed as exploratory descriptive patterns and not definitive prevalence estimates. The coding manual needs to be piloted on a subset of activities, decision rules refined and a substantial proportion of the corpus double coded independently and Krippendorff's alpha or other appropriate chance corrected coefficient calculated to ensure it is fit for future use. The split into 535 blocks needs to be reconsidered in cases where labeled sections contain several independent sub-tasks (O'Connor & Joffe, 2020; Kuckartz & Rädiker, 2023; Boydston, 2023).

Fifth, the visual and representational aspects of relatedness, especially the inclusive interpersonal representation, need to be systematically analyzed not only of images but also of task instructions. The computer-supported screen is more sensitive to textual and structural cues and may therefore devalue visually realized affordances.

Sixth, the current study is limited to the Mega Goal 1–3 corpus, and it cannot be generalized to other Saudi series, educational stages, or future editions. A major limitation is that visual and representational analysis can reveal aspects of identity, inclusion, and social positioning that textual instructions might not (Alzubi et al., 2023; Alqahtani, 2024).

Future research should link textbook affordance coding with classroom observation, teacher enactment and student self-reported need satisfaction in an effort to empirically test whether designed opportunities are enacted in practice. Longitudinal work could examine whether units with more need-supportive profiles are associated with engagement or persistence.

Cross-national comparisons could examine whether the coding framework captures systematic differences in motivational architecture across EFL curricula. More rigorous tests of the pathway from need-supportive affordances to perceived need-satisfaction, autonomous motivation, engagement and achievement would be possible with multi-source designs of this type (Alrabai & Alamer, 2024; Alharfi & Alamer, 2025; Alamer et al., 2025).

6 Conclusions

The study offers a new perspective on the evaluation of EFL textbooks by conceptualizing instructional materials as designed motivational environments. Rather than questioning whether textbooks can motivate learners, it questions whether task design creates observable opportunities that are in line with support for autonomy, competence and relatedness. In the exploration mapping of Mega Goal 1–3 a competence-rich architecture is suggested, where autonomy and relatedness are more dependent on activity type. The most powerful and repeated blending of the three needs is available through extended projects, which combine meaningful choice or relevance with structured support and collaborative production. Pair work often includes learner voice and reciprocal communication and Self Reflection sections link agency with self-monitoring. These patterns show how motivational support can be built into the daily design of curriculum, instead of being an add-on intervention. Theoretically, the article delineates designed affordances from experienced motivational effects; methodologically, it operationalizes SDT in terms of textbook task design; descriptively, it combines quantitative screening with qualitative interpretation of activity types. At the same time, the quantitative results are still exploratory as the computer assisted screen was not validated by manual intercoder reliability. Thus, the framework provides a foundation for future validated content analysis and comparative work on the links between curriculum design, teacher enactment and learner-reported need satisfaction. More broadly, the study conceptualizes curriculum resources as environmental conditions that may afford opportunities for sustained engagement of the learner.

Abbreviations

EFL
English as a Foreign Language
SDT
Self-Determination Theory.

Declarations

Ethics approval and consent to participate

Not applicable. The study analyzes published instructional documents and involves no human participants or identifiable personal data.

Consent for publication

Not applicable.

Competing interests

The author declares that there are no competing interests.

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Author Contribution

Khalid Othman was solely responsible for conceptualization, methodology, investigation, data curation, formal analysis, visualization, writing of the original draft, review and editing, and project administration. The author read and approved the final manuscript and accepts responsibility for the integrity and accuracy of the work.

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Availability of data and materials

The coding manual and task-level computer-assisted screening data generated for this study are available from the corresponding author on reasonable request. Copyrighted textbook pages are not redistributed.

References

1. Alamer, A. (2021). Construct validation of Self-Determination Theory in second language scale: The bifactor exploratory structural equation modeling approach. *Frontiers in Psychology*, 12, 732016. <https://doi.org/10.3389/fpsyg.2021.732016>
2. Alamer, A. (2022a). Basic psychological need satisfaction and continued language learning during a pandemic: A structural equation modelling approach. *Journal for the Psychology of Language Learning*, 4(1), 1–16. <https://doi.org/10.52598/jpll/4/1/1>
3. Alamer, A. (2022b). Basic psychological needs, motivational orientations, effort, and vocabulary knowledge: A comprehensive model. *Studies in Second Language Acquisition*, 44(1), 164–184. <https://doi.org/10.1017/S027226312100005X>
4. Alamer, A., & Al Khateeb, A. (2023). Effects of using the WhatsApp application on language learners' motivation: A controlled investigation using structural equation modelling. *Computer Assisted Language Learning*, 36(1–2), 149–175. <https://doi.org/10.1080/09588221.2021.1903042>
5. Alamer, A., Al Khateeb, A., & Jeno, L. M. (2023). Using WhatsApp increases language students' self-motivation and achievement, and decreases learning anxiety: A self-determination theory approach.

- Journal of Computer Assisted Learning*, 39(2), 417–431. <https://doi.org/10.1111/jcal.12753>
6. Alamer, A., & Almulhim, F. (2021). The interrelation between language anxiety and self-determined motivation; a mixed methods approach. *Frontiers in Education*, 6, 618655. <https://doi.org/10.3389/feduc.2021.618655>
 7. Alamer, A., Morin, A. J. S., Alrabai, F., & Alharfi, A. (2023). Introducing the Basic Psychological Needs Frustration in Second Language Scale (BPNF-L2): Examining its factor structure and effect on L2 motivation and achievement. *Acta Psychologica*, 240, 104021. <https://doi.org/10.1016/j.actpsy.2023.104021>
 8. Alamer, A., & Alrabai, F. (2023). The causal relationship between learner motivation and language achievement: New dynamic perspective. *Applied Linguistics*, 44(1), 148–168. <https://doi.org/10.1093/applin/amac035>
 9. Alamer, A., Saeedy Robot, E., Elahi Shirvan, M., & Ryan, R. M. (2025). Self-determination theory and language learning: A multilevel meta-analysis. *Educational Psychology Review*, 37, 59. <https://doi.org/10.1007/s10648-025-10038-y>
 10. Alenezi, N. H. (2024). A content analysis-based evaluation of the grade six English textbook 'We Can': A case study of Saudi elementary schools, in Al-Mjmaah City. *King Khalid University Journal of Educational Sciences*, 11(3), 153–172. <https://doi.org/10.55534/1320-011-003-007>
 11. Alfares, N. (2025). Effectiveness of a scaffolded autonomous learning scheme in enhancing learners' motivation in EFL classes. *Learning and Motivation*, 89, 102084. <https://doi.org/10.1016/j.lmot.2024.102084>
 12. Alharbi, A. T. (2022). Mega Goals: Evaluating the textbooks for language learning strategies content. *International Journal of Early Childhood Special Education*, 14(3), 382–393. <https://doi.org/10.9756/INT-JECSE/V14I3.46>
 13. Alharfi, A., & Alamer, A. (2025). The interrelationship between basic psychological needs, intrinsic motivation, classroom engagement, and L2 academic achievement: A large-scale study of self-determination theory. *Studies in Second Language Learning and Teaching*, 16(1), 43–75. <https://doi.org/10.14746/ssllt.47709>
 14. Al-Hoorie, A. H., Oga-Baldwin, W. L. Q., Hiver, P., & Vitta, J. P. (2025). Self-determination mini-theories in second language learning: A systematic review of three decades of research. *Language Teaching Research*, 29(4), 1603–1638. <https://doi.org/10.1177/13621688221102686>
 15. Al-Mutairi, D. D., Alenzi, T. M., & Alshaya, M. A. (2023). Analyzing the content of English language book (Mega Goal 1.2) for the first-year secondary stage in the light of life skills. *Humanities and Educational Sciences Journal*, 32, 334–359. <https://doi.org/10.55074/hesj.vi32.766>
 16. Alqahtani, M. H. (2024). Women in Saudi secondary school EFL textbooks: A critical study of women's empowerment as enshrined in the Saudi Vision 2030. *Frontiers in Sociology*, 9, 1307623. <https://doi.org/10.3389/fsoc.2024.1307623>
 17. Alrabai, F., & Alamer, A. (2024). The effects of teacher motivational practice on learner L2 achievement: A self-determination theory perspective using structural equation modeling. *Language*

- Teaching Research Advance online publication*. <https://doi.org/10.1177/13621688241278625>
18. Al-Rasheedi, E. M. T., & Al-Mutairi, D. D. S. (2024). Evaluation of content of the English language textbook for 2nd year secondary stage in light of the 21st-century skills contained in the National Framework Document for General Education Curricula Standards in the Kingdom of Saudi Arabia. *Humanities and Educational Sciences Journal*, 40, 438–460. <https://doi.org/10.55074/hesj.vi40.1107>
 19. Alshumaimeri, Y., & Alharbi, T. (2024). English textbook evaluation: A Saudi EFL teacher's perspective. *Frontiers in Education*, 9, 1479735. <https://doi.org/10.3389/feduc.2024.1479735>
 20. Alsuwat, S. E. (2025). Promoting higher-order thinking in Saudi EFL textbooks: A comparative study. *English Language Teaching*, 18(10), 75. <https://doi.org/10.5539/elt.v18n10p75>
 21. Alwehebi, K. A., & Ghareeb, W. A. (2021). Strategies for second language learning in EFL textbooks of Saudi high school: A content analysis. *Journal of Language and Linguistic Studies*, 17(3), 1566–1581. <https://doi.org/10.52462/jlls.113>
 22. Alzubi, A. A. F., Al-Mwzaiji, K. N. A., & Nazim, M. (2023). Representation of national identity and culture in the Saudi EFL textbook series Mega Goal: A critical discourse analysis. *International Journal of Learning Teaching and Educational Research*, 22(6), 568–612. <https://doi.org/10.26803/ijlter.22.6.30>
 23. Anggraini, N., Gustine, G. G., Nurfaidah, S., & Musaldin, L. O. (2025). Investigating learner autonomy-supportive features in an EFL textbook and perceptions of teachers and students on the textbook role in fostering learner autonomy. *Journal on English as a Foreign Language*, 15(2), 544–571. <https://doi.org/10.23971/jefl.v15i2.9875>
 24. Annamalai, N., Eltahir, M. E., Zyoud, S. H., Soundrarajan, D., Zakarneh, B., & Al Salhi, N. R. (2023). Exploring English language learning via chatbot: A case study from a self-determination theory perspective. *Computers and Education: Artificial Intelligence*, 5, 100148. <https://doi.org/10.1016/j.caeai.2023.100148>
 25. Boydston, A. E. (2023). Quantitative content analysis: A primer and call for robustness. In J. M. Box-Steffensmeier, H. E. Brady, & D. Collier (Eds.), *The Oxford handbook of methodological pluralism in political science* (Vol. 2, pp. 3–20). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780192868282.013.54>
 26. Cho, H. J., Levesque-Bristol, C., & Yough, M. (2023). How autonomy-supportive learning environments promote Asian international students' academic adjustment: A self-determination theory perspective. *Learning Environments Research*, 26(1), 51–76. <https://doi.org/10.1007/s10984-021-09401-x>
 27. Davis, W. S. (2022). Autonomy, competence, relatedness, and beneficence: Exploring the interdependence of basic needs satisfaction in postsecondary world language education. *Journal for the Psychology of Language Learning*, 4(1), 1–19. <https://doi.org/10.52598/jpll/4/1/2>
 28. Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum. <https://doi.org/10.1007/978-1-4899-2271-7>

29. dos Santos, M., Ghazel, E., & Kozanoglou, D. (2025). *Mega Goal 1 Student Book*. McGraw-Hill Education (UK) Limited.
30. dos Santos, M., O'Sullivan, J. K., Ghazel, E., & Kozanoglou, D. (2025a). *Mega Goal 2 Student Book*. McGraw-Hill Education (UK) Limited.
31. dos Santos, M., O'Sullivan, J. K., Ghazel, E., & Kozanoglou, D. (2025b). *Mega Goal 3 Student Book*. McGraw-Hill Education (UK) Limited.
32. Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
33. Jeon, J. (2022). Exploring a self-directed interactive app for informal EFL learning: A self-determination theory perspective. *Education and Information Technologies*, 27(4), 5767–5787. <https://doi.org/10.1007/s10639-021-10839-y>
34. Khaerudin, T., & Chik, A. (2021). Evaluating supports for learner autonomy in ELT textbooks. *Journal of Asia TEFL*, 18(1), 39–56. <https://doi.org/10.18823/asiatefl.2021.18.1.3.39>
35. Krippendorff, K. (2018). *Content analysis: An introduction to its methodology* (4th ed.). SAGE.
36. Kuckartz, U., & Rädiker, S. (2023). *Qualitative content analysis: Methods, practice and software* (2nd ed.). SAGE.
37. Leeming, P., & Harris, J. (2022). Measuring foreign language students' self-determination: A Rasch validation study. *Language Learning*, 72(3), 646–694. <https://doi.org/10.1111/lang.12496>
38. Li, Y., & Chiu, T. K. F. (2025). The mediating effects of needs satisfaction on the relationship between teacher support and student engagement with generative artificial intelligence (GenAI) chatbots from a self-determination theory (SDT) perspective. *Education and Information Technologies*, 30(14), 20051–20070. <https://doi.org/10.1007/s10639-025-13574-w>
39. Li, Y., Zhou, X., & Chiu, T. K. F. (2025). Systematic review on artificial intelligence chatbots and ChatGPT for language learning and research from self-determination theory (SDT): What are the roles of teachers? *Interactive Learning Environments*, 33(3), 1850–1864. <https://doi.org/10.1080/10494820.2024.2400090>
40. Liu, M., & Oga-Baldwin, W. L. Q. (2022). Motivational profiles of learners of multiple foreign languages: A self-determination theory perspective. *System*, 106, 102762. <https://doi.org/10.1016/j.system.2022.102762>
41. McEown, M. S., & Oga-Baldwin, W. L. Q. (2019). Self-determination for all language learners: New applications for formal language education. *System*, 86, 102124. <https://doi.org/10.1016/j.system.2019.102124>
42. Mercer, S. (2019). Language learner engagement: Setting the scene. In X. Gao (Ed.), *Second handbook of English language teaching* (pp. 643–660). Springer. https://doi.org/10.1007/978-3-030-02899-2_40
43. Mohamed, K. A. A., & Halim, T. (2023). Flourishing our books green: Content analysis of an ELT textbook. *Journal of Namibian Studies: History Politics Culture*, 33, 2703–2717. <https://doi.org/10.59670/jns.v33i.651>

44. Muñoz-Restrepo, A., Ramirez, M., & Gaviria, S. (2020). Strategies to enhance or maintain motivation in learning a foreign language. *Profile: Issues in Teachers' Professional Development*, 22(1), 175–188. <https://doi.org/10.15446/profile.v22n1.73733>
45. Mustofa, M. I., & Wirza, Y. (2023). Promoting learner autonomy through EFL textbook: The textbook facilitation and the students' and teacher's perceptions. *Journal on English as a Foreign Language*, 13(1), 289–313. <https://doi.org/10.23971/jeft.v13i1.6056>
46. Mynard, J., & Shelton-Strong, S. J. (2022). Self-determination theory: A proposed framework for self-access language learning. *Journal for the Psychology of Language Learning*, 4(1), 1–14. <https://doi.org/10.52598/jpll/4/1/5>
47. Nakata, Y., Oga-Baldwin, W. L. Q., & Tsuda, A. (2025). Student perceptions of feedback and self-regulated language learning: A mixed-methods investigation. *System*, 131, 103654. <https://doi.org/10.1016/j.system.2025.103654>
48. Neuendorf, K. A. (2017). The content analysis guidebook. *SAGE Publications*. <https://doi.org/10.4135/9781071873045>. 2nd ed..
49. Noels, K. A. (2023). Self-determination theory and language learning. In R. M. Ryan (Ed.), *The Oxford handbook of self-determination theory* (pp. 619–637). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780197600047.013.31>
50. Noels, K. A., Pelletier, L. G., Clément, R., & Vallerand, R. J. (2000). Why are you learning a second language? Motivational orientations and self-determination theory. *Language Learning*, 50(1), 57–85. <https://doi.org/10.1111/0023-8333.00111>
51. O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, 19, 1–13. <https://doi.org/10.1177/1609406919899220>
52. Oga-Baldwin, W. L. Q., & Fryer, L. K. (2020). Profiles of language learning motivation: Are new and own languages different? *Learning and Individual Differences*, 79, 101852. <https://doi.org/10.1016/j.lindif.2020.101852>
53. Oga-Baldwin, W. L. Q., & Nakata, Y. (2020). How teachers promote young language learners' engagement: Lesson form and lesson quality. *Language Teaching for Young Learners*, 2(1), 101–130. <https://doi.org/10.1075/ltyl.19009.oga>
54. Oga-Baldwin, W. L. Q., Parrish, A., & Noels, K. A. (2023). Taking root: Self-determination in language education. *Journal for the Psychology of Language Learning*, 4(1), e41111. <https://doi.org/10.52598/jpll/4/1/9>
55. Oga-Baldwin, W. L. Q., & Ryan, R. M. (2025). Competence need satisfaction in language learning (and beyond): Current state of the evidence and directions for exploration. *Studies in Second Language Learning and Teaching*, 15(2), 279–299. <https://doi.org/10.14746/ssllt.48236>
56. Parrish, A. (2020). Modern foreign languages: Decision-making, motivation and 14–19 schools. *Cambridge Journal of Education*, 50(4), 469–481. <https://doi.org/10.1080/0305764X.2020.1724261>

57. Parrish, A., Noels, K. A., & Zhang, X. (2025). Self-determination across the secondary school years: How teachers and curriculum policy affect language learners' motivation. *The Language Learning Journal*, 53(2), 201–219. <https://doi.org/10.1080/09571736.2024.2352576>
58. Printer, L. (2021). Student perceptions on the motivational pull of Teaching Proficiency through Reading and Storytelling (TPRS): A self-determination theory perspective. *The Language Learning Journal*, 49(3), 288–301. <https://doi.org/10.1080/09571736.2019.1566397>
59. Printer, L. (2026). Positive emotions and intrinsic motivation: A self-determination theory perspective on using co-created stories in the language acquisition classroom. *Language Teaching Research*, 30(5), 2548–2576. <https://doi.org/10.1177/13621688231204443>
60. Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press. <https://doi.org/10.1521/978.14625/28806>
61. Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
62. Shelton-Strong, S. J. (2022a). Advising in language learning and the support of learners' basic psychological needs: A self-determination theory perspective. *Language Teaching Research*, 26(5), 963–985. <https://doi.org/10.1177/1362168820912355>
63. Shelton-Strong, S. J. (2022b). Sustaining language learner well-being and flourishing: A mixed-methods study exploring advising in language learning and basic psychological need support. *Psychology of Language and Communication*, 26(1), 415–449. <https://doi.org/10.2478/plc-2022-0020>
64. Shelton-Strong, S. J., & Mynard, J. (2021). Promoting positive feelings and motivation for language learning: The role of a confidence-building diary. *Innovation in Language Learning and Teaching*, 15(5), 458–472. <https://doi.org/10.1080/17501229.2020.1825445>
65. Shirvan, M. E., & Alamer, A. (2024). Modeling the interplay of EFL learners' basic psychological needs, grit and L2 achievement. *Journal of Multilingual and Multicultural Development*, 45(7), 2831–2847. <https://doi.org/10.1080/01434632.2022.2075002>
66. Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, 85(4), 571–581. <https://doi.org/10.1037/0022-0663.85.4.571>
67. Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion*, 44(1), 1–31. <https://doi.org/10.1007/s11031-019-09818-1>
68. Wang, X., & Wang, S. (2024). Exploring Chinese EFL learners' engagement with large language models: A self-determination theory perspective. *Learning and Motivation*, 87, 102014. <https://doi.org/10.1016/j.lmot.2024.102014>
69. Wang, Y., Wang, H., Wang, S., Wind, S. A., & Gill, C. (2024). A systematic review and meta-analysis of self-determination-theory-based interventions in the education context. *Learning and Motivation*, 87,

70. Zeng, C., & Fisher, L. (2024). Opening the ‘black box’: How out-of-class use of Duolingo impacts Chinese junior high school students’ intrinsic motivation for English. *ECNU Review of Education*, 7(2), 283–307. <https://doi.org/10.1177/20965311231171606>

Figures

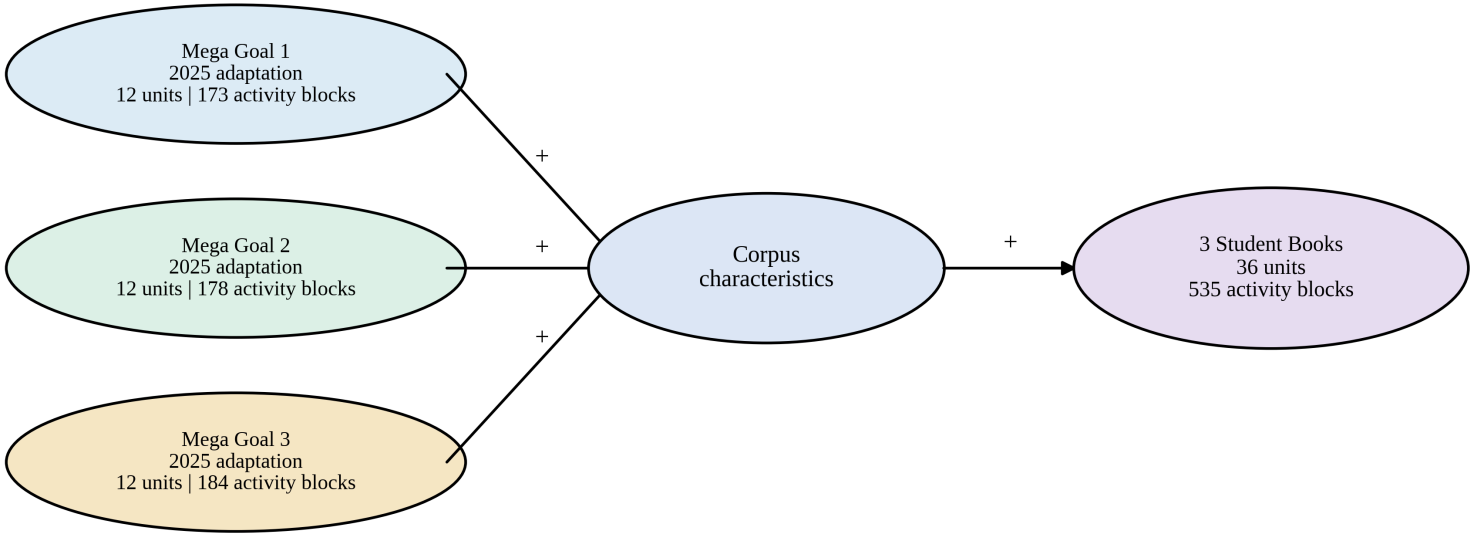


Figure 1

Schematic summary of corpus characteristics reported in Table 1.

Note. Activity-block counts refer to learner-facing labeled instructional sections in the supplied Student Books. Compound blocks were retained as single units in the exploratory screen and are treated as a segmentation limitation.

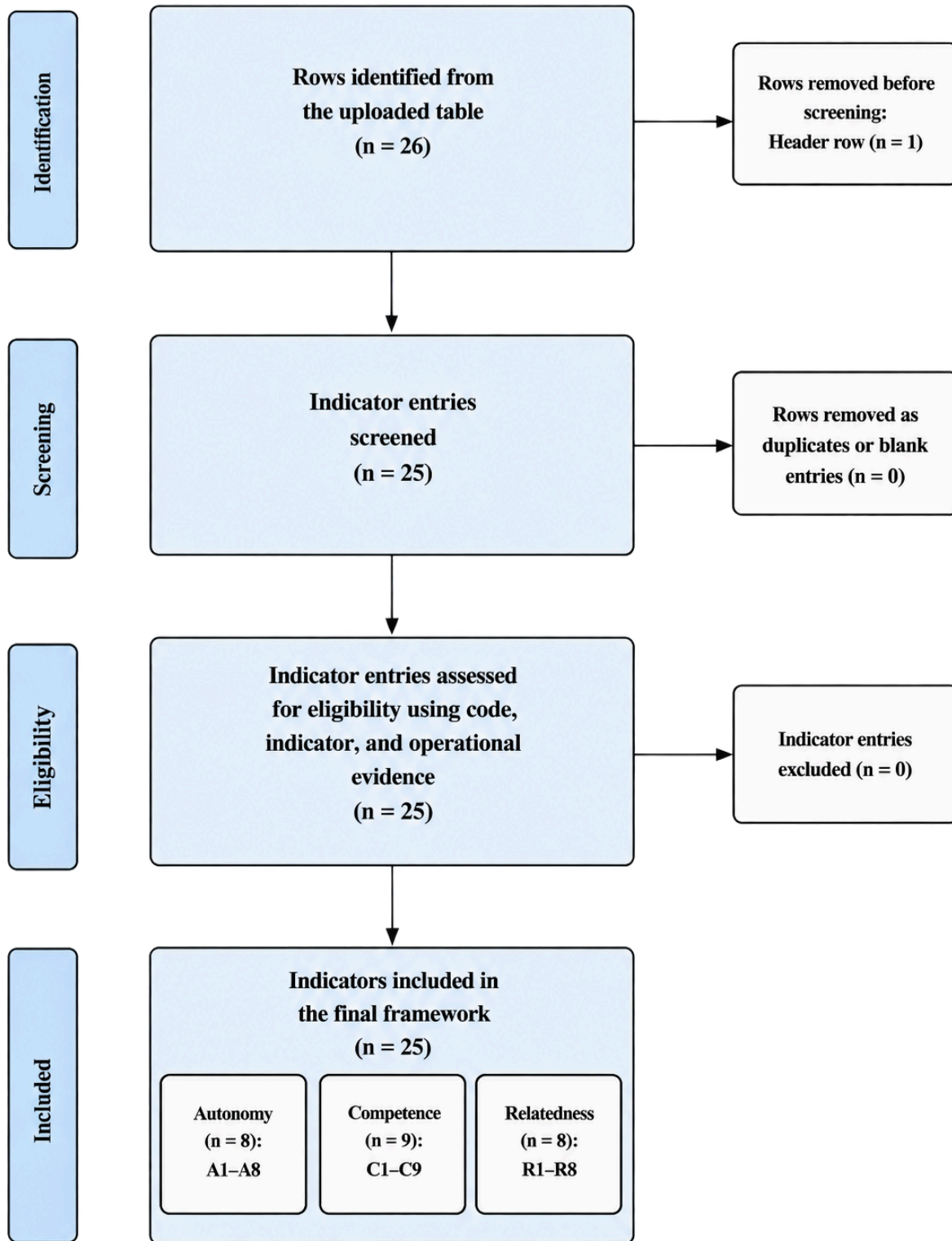


Figure 2

Schematic summary of the SDT coding framework reported in Table 2.

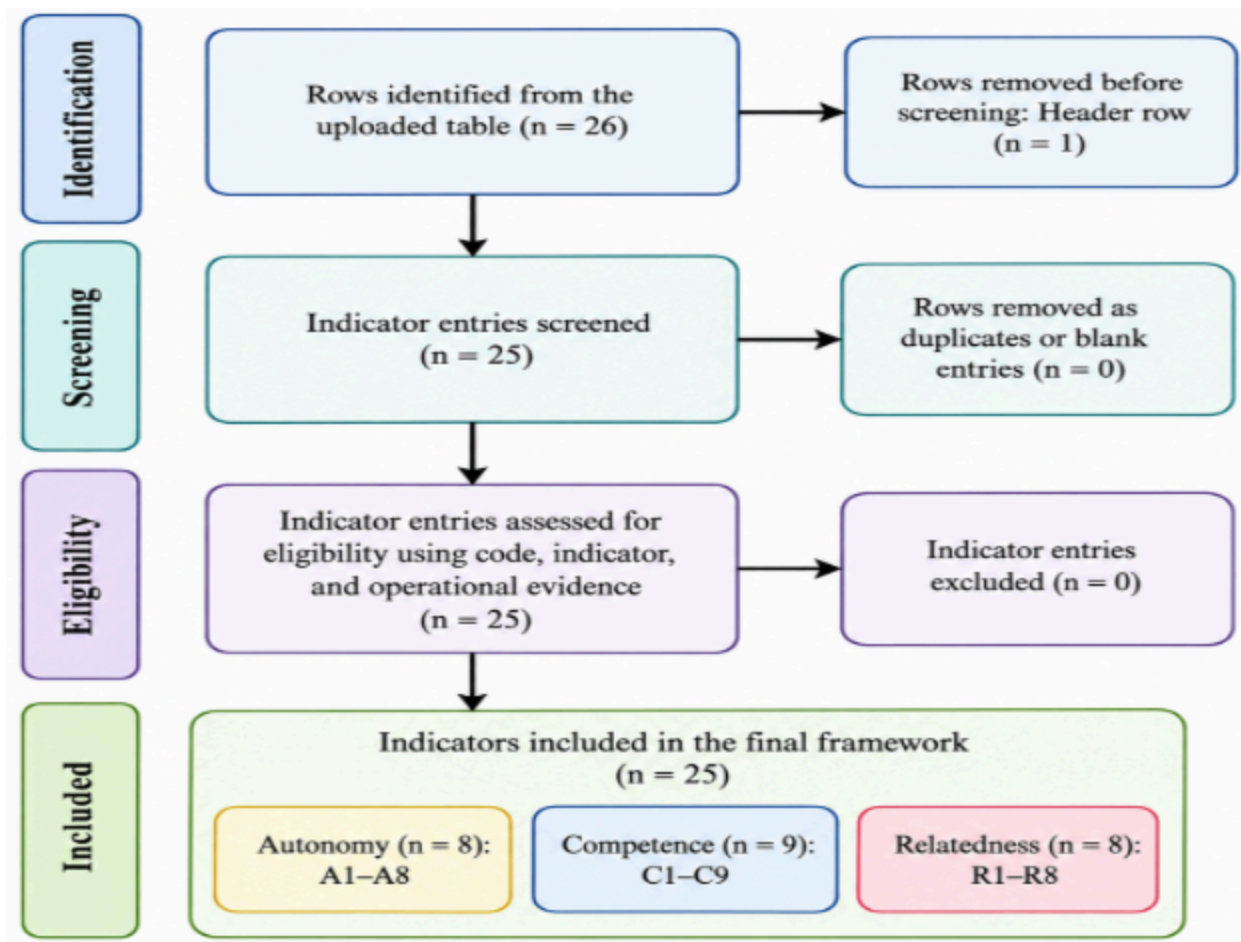


Figure 3

Corpus selection, coding, synthesis, and validation workflow.

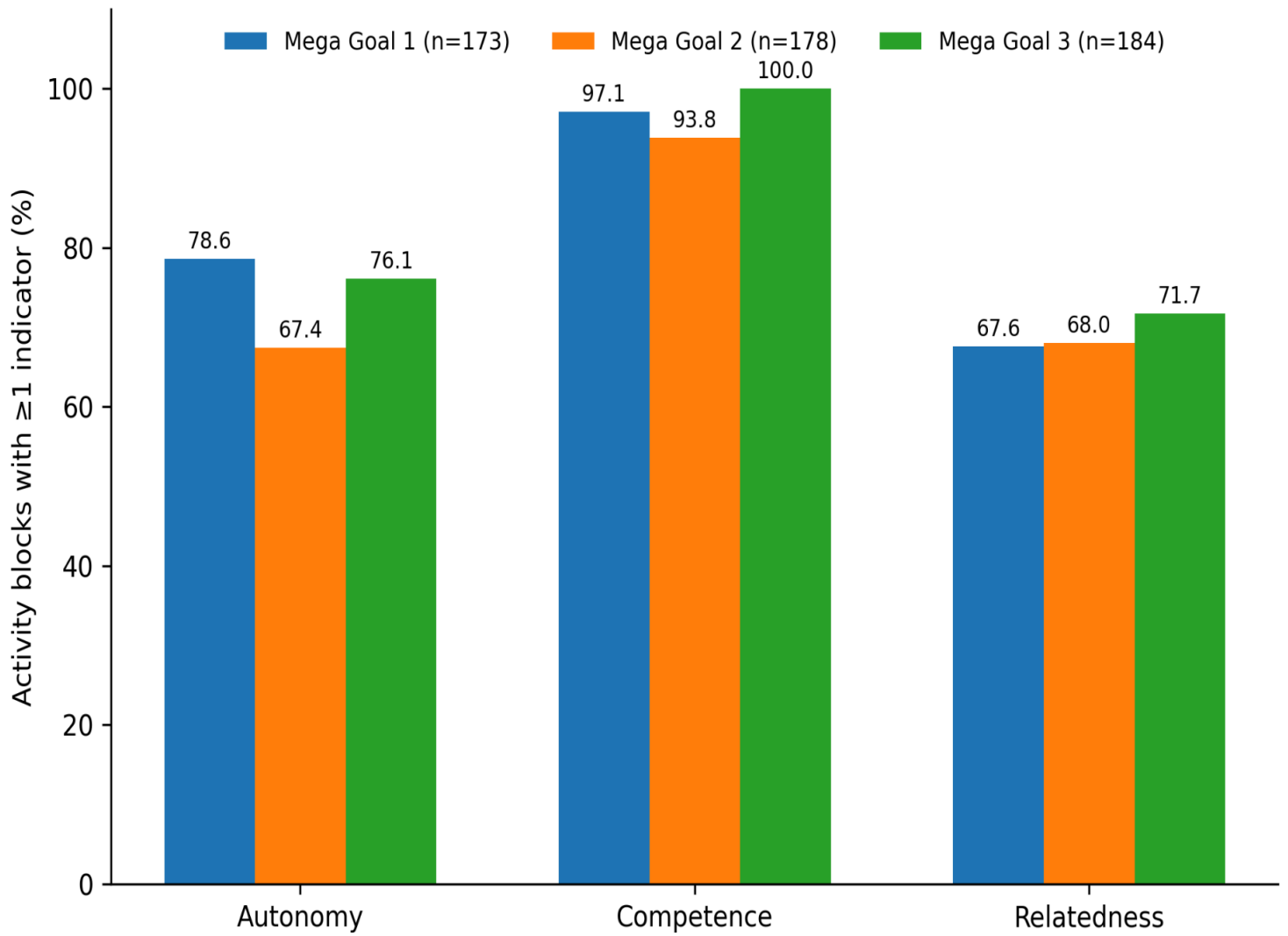


Figure 4

Exploratory SDT need-support profile across Mega Goal 1–3.

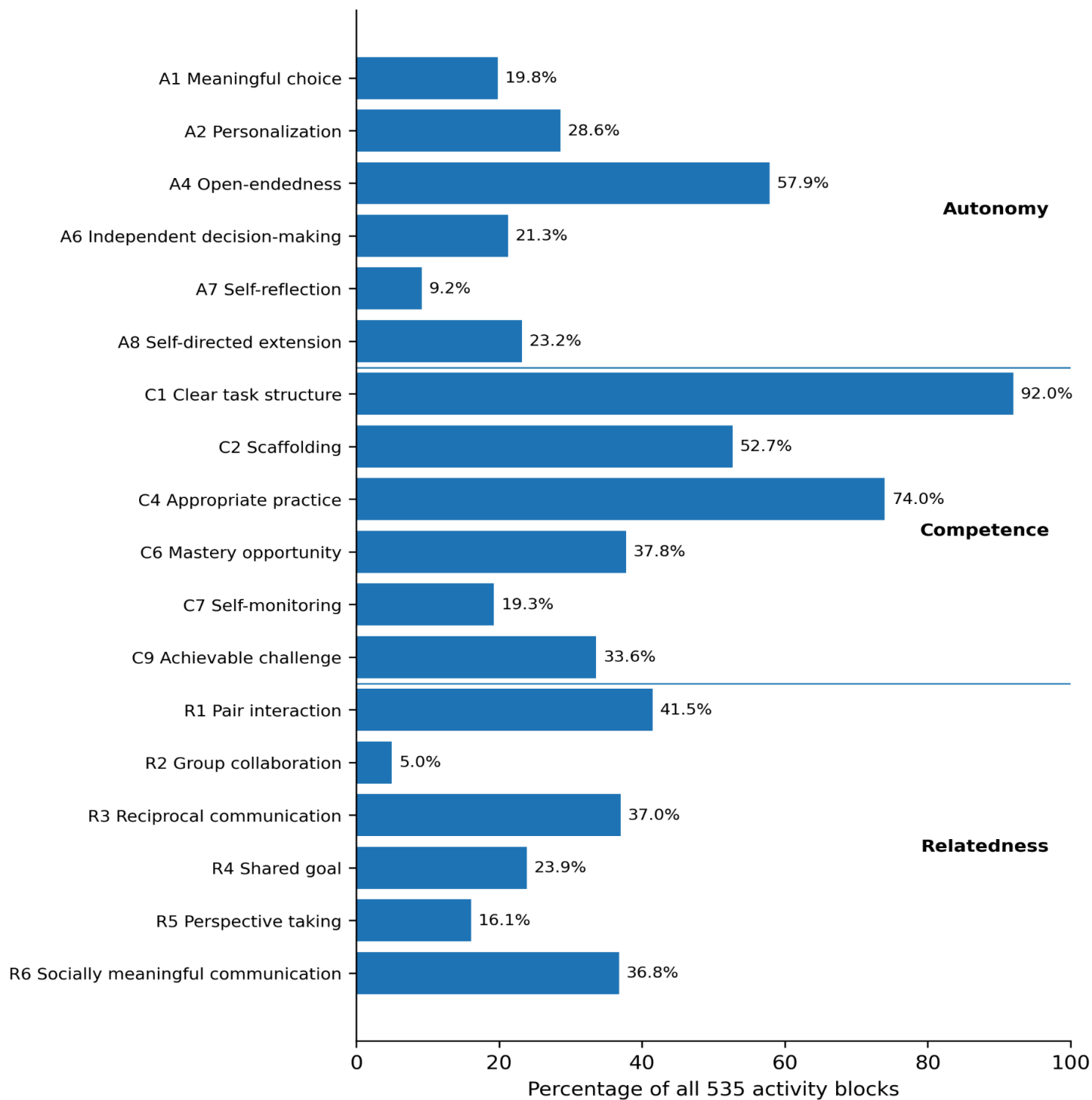


Figure 5

Selected exploratory SDT indicator frequencies across the 535 activity blocks.

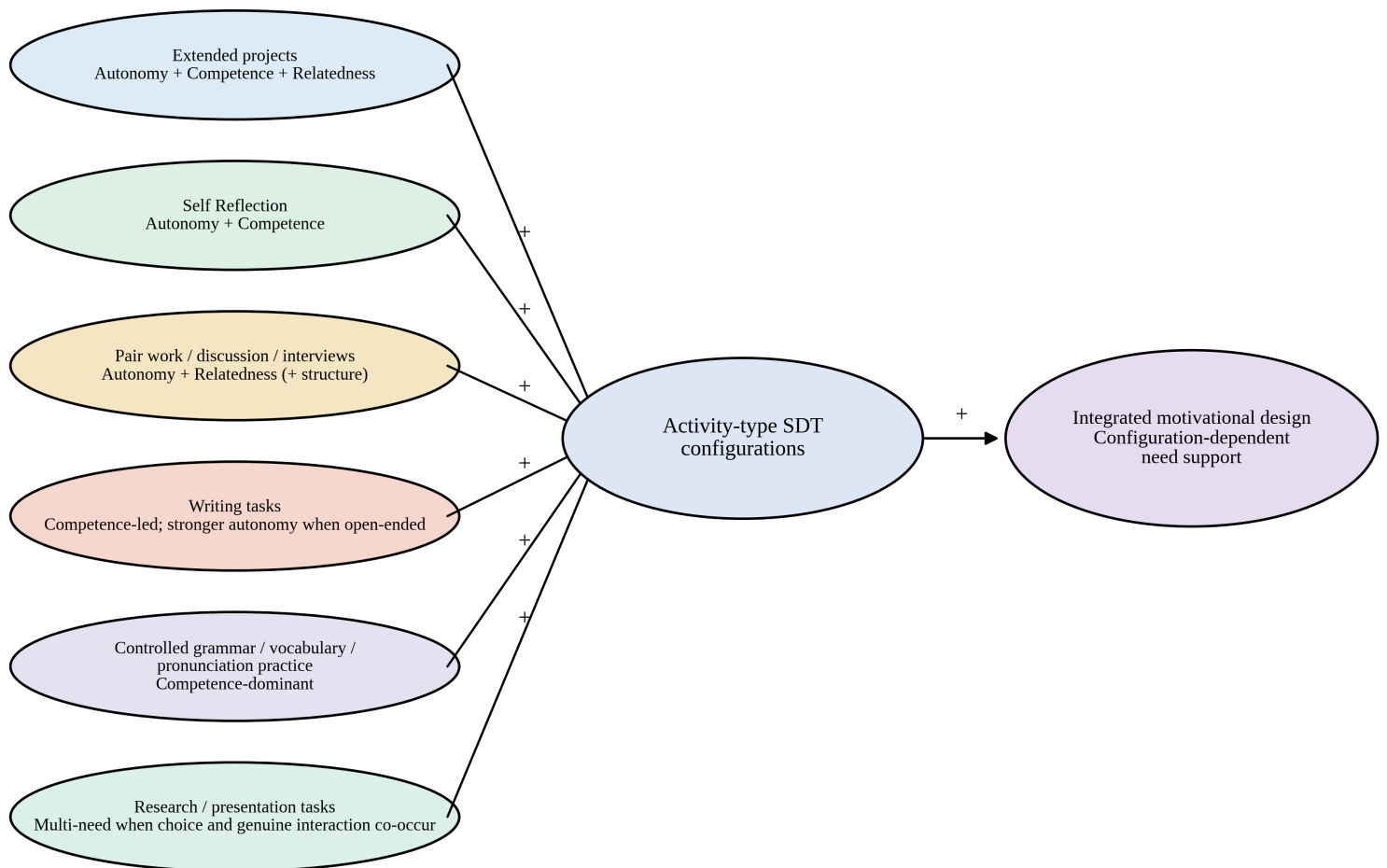


Figure 6

Schematic synthesis of activity-type SDT configurations reported in Table 6.

Note. This is a qualitative synthesis of patterns described in the analyzed activities; it does not represent a quantitative cross-tabulation by activity type.