

Inductive Teaching: A Student-Centered Approach to Meaningful Learning

Mohammad Awad AlAfnan

Correspondence: Mohammad Awad AlAfnan, Liberal Arts Department, American University of the Middle East, Eqilah, Kuwait.

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Abstract

Inductive teaching has emerged as a student-centered instructional approach that promotes meaningful learning by engaging learners in inquiry, exploration, and knowledge construction. Rather than presenting concepts directly, inductive teaching encourages students to develop understanding through observation, analysis, reflection, and application. Situated within the national educational context of Jordan, this study examines the extent to which official Jordanian curriculum documents support the principles of inductive teaching and foster meaningful learning through the lens of the AlAfnan Taxonomy. A qualitative document analysis was conducted on curriculum documents published by the National Center for Curriculum Development and Evaluation in Jordan, including curriculum frameworks, subject syllabi, learning standards, teacher guides, and assessment guidelines. The documents were purposively selected because they represent the intended national curriculum and define pedagogical expectations for classroom teaching and learning. The data were analyzed using thematic analysis, with the AlAfnan Taxonomy as the analytical framework. The findings indicate that Jordan's national curriculum documents strongly support inductive teaching through their emphasis on student-centered learning, inquiry and discovery, meaningful learning, authentic assessment, and the progressive development of cognitive competencies. The curriculum aligns substantially with the six cognitive domains of the AlAfnan Taxonomy: knowledge and comprehension, synthesis and evaluation, ethical and moral reasoning, application and strategic thinking, creativity and innovation, and lifelong learning and adaptability. These findings suggest that the Jordanian curriculum extends beyond knowledge acquisition to foster critical thinking, ethical decision-making, strategic problem-solving, creativity, and continuous learning. The study concludes that Jordan's official curriculum documents provide a strong foundation for implementing inductive teaching and promoting holistic cognitive development. The findings offer practical implications for curriculum developers, educators, and policymakers in Jordan seeking to design learner-centered curricula that prepare students for the intellectual, ethical, and professional demands of the twenty-first century.

Keywords: inductive teaching, student-centered learning, meaningful learning, curriculum document analysis, AlAfnan Taxonomy

1. Introduction

Education has increasingly shifted from teacher-centered instruction to learner-centered approaches that actively engage students in constructing knowledge rather than passively receiving information (Doyle & Zakrajsek, 2023). This shift reflects the growing recognition that meaningful learning occurs when learners actively explore ideas, identify patterns, analyze evidence, and develop concepts through their own reasoning. As a result, instructional approaches that encourage inquiry, discovery, and critical thinking have become central to curriculum development and classroom practice (Angwaomaodoko, 2024). Inductive teaching is one such learner-centered approach (Gorbunova et al., 2023). Rather than presenting rules, principles, or theories at the beginning of instruction, inductive teaching begins with specific examples, observations, problems, or experiences. Students are guided to examine evidence, identify relationships, and formulate generalizations, while the teacher serves as a facilitator who supports exploration and reflection. This process encourages active participation, deep understanding, and the development of higher-order thinking skills. By allowing students to construct knowledge from concrete experiences, inductive teaching promotes greater engagement and long-term retention of learning (Farooq et al., 2026).

The emphasis on meaningful learning has become particularly important in contemporary education systems. Meaningful learning extends beyond memorization by enabling learners to connect new knowledge with prior experiences, apply concepts to unfamiliar situations, and develop transferable skills. Student-centered instructional strategies, including inductive teaching, provide opportunities for learners to engage in analysis, interpretation, and problem-solving, thereby

fostering conceptual understanding and lifelong learning (Ahmed & Mikail, 2023). Despite the growing emphasis on student-centered education, the successful implementation of inductive teaching depends largely on curriculum design. Curriculum documents provide the intended direction for teaching and learning by specifying learning objectives, instructional approaches, classroom activities, and assessment practices (Boettcher & Conrad, 2021). These documents influence how teachers organize learning experiences and determine the extent to which inquiry, discovery, and critical thinking are embedded within classroom instruction. Consequently, examining curriculum documents offers valuable insights into the degree to which educational systems support inductive teaching and meaningful learning (Vinnervik, 2023).

Although numerous studies have explored inductive teaching as an instructional strategy, relatively few have investigated how curriculum documents explicitly incorporate its principles (i.e., Fry et al., 2025; Gorbunova et al., 2023; Szabó et al., 2025). An analysis of curriculum documents can reveal whether curriculum objectives, learning outcomes, instructional recommendations, and assessment guidelines encourage students to discover concepts, construct knowledge, and engage in meaningful learning. Such an examination also helps identify opportunities for strengthening curriculum design to better support student-centered pedagogy (Bhardwaj et al., 2025). This study therefore adopts a qualitative document analysis of curriculum documents to examine the extent to which they reflect the principles of inductive teaching and promote meaningful learning. Drawing on relevant educational literature and the AIAfnan Taxonomy (AIAfnan, 2024) as an analytical framework, the study explores how curriculum documents encourage inquiry, concept formation, critical thinking, and knowledge construction. The findings are expected to contribute to curriculum development by providing insights into the alignment between curriculum design and inductive teaching principles, while offering practical implications for educators, curriculum developers, and policymakers seeking to foster meaningful learning experiences.

2. Literature Review

Inductive teaching is a student-centered instructional approach in which learners construct general principles, concepts, or rules from specific examples, observations, and experiences (Sulemanowski, 2022). Unlike deductive teaching, where teachers present theories before asking students to apply them, inductive teaching begins with concrete cases that encourage students to identify patterns, make comparisons, and develop conceptual understanding independently (Afriati et al., 2025). This approach positions learners as active participants in the learning process while teachers facilitate inquiry, discussion, and reflection. The theoretical foundation of inductive teaching is rooted in constructivist learning theory, which argues that knowledge is actively constructed through interaction with ideas, experiences, and the learning environment rather than transmitted directly from teacher to student (MacLeod et al., 2022). Learners are encouraged to investigate evidence, ask questions, formulate hypotheses, and refine their understanding through exploration. Consequently, inductive teaching supports deeper cognitive processing and promotes meaningful engagement with learning content (Morris, 2025).

Inductive teaching has been widely associated with inquiry-based learning, problem-based learning, discovery learning, and experiential learning (Joseph et al., 2022). Although these instructional approaches differ in implementation, they share common principles of active participation, knowledge construction, and learner autonomy. Rather than emphasizing memorization, inductive teaching develops students' analytical, critical, and creative thinking abilities by encouraging them to discover relationships among concepts and apply their knowledge to new situations. Student-centered learning has become a fundamental principle of contemporary education. It shifts the focus of instruction from teaching to learning by recognizing students as active participants in constructing knowledge. In student-centered classrooms, learners engage in collaboration, discussion, problem-solving, and reflection while teachers create learning environments that encourage exploration and independent thinking (Mat & Jamaludin, 2024).

Research consistently demonstrates that student-centered approaches increase motivation, engagement, conceptual understanding, and knowledge retention (Dada et al., 2023; Hoidn & Reusser, 2024; Wang, 2023). These approaches also foster self-regulated learning, communication skills, and collaborative problem-solving. Inductive teaching naturally aligns with student-centered learning because students actively examine information before developing explanations or conclusions. Through guided inquiry, learners assume greater responsibility for their learning while teachers facilitate rather than dominate classroom instruction (Lee et al., 2023). Modern curriculum reforms increasingly emphasize student-centered pedagogies as essential for preparing learners to address complex challenges in rapidly changing societies. Consequently, curriculum documents often encourage instructional strategies that promote inquiry, collaboration, and higher-order thinking rather than rote memorization (Wijesekera & Hameed, 2025).

Meaningful learning refers to the process through which learners integrate new knowledge with their existing cognitive structures, enabling them to understand concepts deeply and apply them in different contexts (Bryce & Blown, 2024). It differs from rote learning, which focuses primarily on memorization without establishing meaningful conceptual connections. Meaningful learning requires learners to actively engage with ideas, analyze information, and reflect upon

their understanding. Learning becomes meaningful when students recognize relationships among concepts, solve authentic problems, and transfer knowledge to unfamiliar situations (Chabeli et al., 2021). Such learning supports long-term retention because concepts are connected to prior knowledge and personal experiences rather than remembered as isolated facts.

Inductive teaching contributes significantly to meaningful learning by encouraging learners to construct knowledge through observation, analysis, and reasoning. Instead of simply receiving information, students participate in the discovery process, making learning more engaging and intellectually stimulating (Normatovna, 2026). This process strengthens conceptual understanding while promoting independent thinking and lifelong learning. Curriculum documents represent the intended curriculum by outlining educational goals, learning outcomes, instructional recommendations, and assessment expectations. They provide teachers with a framework for planning classroom instruction while ensuring consistency across educational settings. Curriculum documents therefore play a significant role in determining how teaching and learning are implemented in practice (Zeng, 2026).

The design of curriculum documents reflects educational priorities and pedagogical philosophies. Curricula that emphasize inquiry, investigation, collaboration, authentic assessment, and higher-order thinking are more likely to support inductive teaching than curricula focused primarily on content transmission and factual recall (Liu & Sihes, 2025). Consequently, analyzing curriculum documents provides valuable insights into the extent to which educational systems encourage student-centered learning and meaningful knowledge construction. Document analysis has become an established qualitative research method for examining curriculum content because it enables researchers to identify themes, instructional expectations, and educational values embedded within official policy documents. Through systematic analysis, researchers can determine whether curriculum objectives and learning activities align with contemporary educational theories and instructional approaches (Bull, 2025). The AIAfnan Taxonomy (AIAfnan, 2024, 2025a, 2025b) provides a structured framework for developing higher-order thinking through progressive cognitive processes. Rather than emphasizing memorization alone, the taxonomy encourages learners to observe, analyze, interpret, evaluate, and generate new ideas. These cognitive processes closely correspond with the principles of inductive teaching, where learners begin with specific observations and gradually construct broader concepts and generalizations.

Within an inductive classroom, students are expected to examine evidence, recognize patterns, compare alternatives, formulate explanations, justify conclusions, and apply newly developed concepts to unfamiliar contexts (Choi et al., 2026). These learning processes reflect the progression of cognitive development described by the AIAfnan Taxonomy and support meaningful learning by encouraging learners to actively construct understanding rather than reproduce information. Integrating the AIAfnan Taxonomy into curriculum analysis provides a useful analytical lens for evaluating whether curriculum documents promote inquiry, reasoning, conceptual understanding, and higher-order thinking. It also offers educators and curriculum developers a framework for designing instructional activities that foster active learning and meaningful knowledge construction.

Although extensive literature supports the educational benefits of inductive teaching, student-centered learning, and meaningful learning (Kerimbayev et al., 2023; Tang, 2023; Woods & Copur-Gencturk, 2024), limited research has examined how these principles are represented within curriculum documents. Most existing studies focus on classroom implementation, instructional effectiveness, or student achievement, while comparatively little attention has been given to the intended curriculum that guides instructional practice. This study addresses this gap by analyzing curriculum documents to determine how they support inductive teaching and meaningful learning. Using the AIAfnan Taxonomy as an analytical framework, the study explores the extent to which curriculum objectives, instructional guidance, and assessment expectations encourage inquiry, concept formation, higher-order thinking, and active knowledge construction.

3. Methodology

This study adopted a qualitative research design using document analysis to examine how inductive teaching is represented within official curriculum documents and how these documents support meaningful learning. Document analysis is an established qualitative research method that enables researchers to systematically examine written materials to identify patterns, themes, and underlying educational philosophies (Ghand, 2025). In curriculum research, official curriculum documents represent the *intended curriculum*, reflecting the educational goals, pedagogical principles, learning outcomes, and assessment expectations established by educational authorities. Examining these documents provides valuable insights into how teaching and learning are envisioned before classroom implementation.

The data for this study were collected from official curriculum documents published by the National Center for Curriculum Development and Evaluation¹-Jordan. These documents were retrieved from the official websites (<https://www.nccd.gov.jo/Default/AR>), where national curriculum frameworks and supporting instructional documents

¹ The Website of the National Center for Curriculum Development and Evaluation-Jordan: <https://www.nccd.gov.jo/Default/AR>

are publicly available. The analysis focused on the most recent curriculum documents currently implemented in schools to ensure that the findings reflected contemporary educational policies and instructional expectations in Jordan.

The curriculum documents were selected through purposive sampling because they directly inform classroom teaching and learning. Specifically, the study included curriculum frameworks, subject syllabi, learning standards, teacher guides, instructional guidelines, and assessment documents. These documents were chosen because they define curriculum objectives, recommend teaching approaches, specify expected learning outcomes, and describe assessment practices. Together, they provide a comprehensive representation of the intended curriculum and reveal the pedagogical approaches that teachers are expected to adopt (see Table 1).

Table 1. Sources of Data

Document Type	Purpose of Analysis
Curriculum framework	Examine the educational philosophy and curriculum goals
Subject syllabus	Analyze curriculum content and learning progression
Learning standards	Identify expected knowledge, skills, and competencies
Teacher guides	Examine recommended instructional approaches
Assessment guidelines	Identify assessment practices supporting meaningful learning

The curriculum documents were analyzed from a pedagogical perspective to determine the extent to which they incorporate the principles of inductive teaching as a student-centered instructional approach. Rather than evaluating curriculum content alone, the analysis focused on identifying instructional expectations embedded within the documents. Particular attention was given to curriculum objectives, recommended classroom activities, learning experiences, instructional strategies, and assessment methods that encourage learners to observe, investigate, analyze, infer, evaluate, and construct knowledge.

The analysis was guided by the principles of inductive teaching and interpreted through the AIAfnan Taxonomy (AIAfnan, 2024, 2025a, 2025b), which served as the primary analytical framework for examining how curriculum expectations support meaningful learning and the development of cognitive competencies. The selection of this taxonomy was based on its relevance to the study's objective of investigating whether official curriculum documents promote learning beyond factual recall toward inquiry, conceptual understanding, critical thinking, ethical reasoning, strategic application, creativity, and lifelong learning. Specifically, its six cognitive domains- knowledge and comprehension, synthesis and evaluation, ethical and moral reasoning, application and strategic thinking, creativity and innovation, and lifelong learning and adaptability- provided a structured basis for examining the breadth of cognitive competencies reflected in Jordan's national curriculum documents. These domains were considered particularly relevant to the study because inductive teaching involves learners in examining specific examples, identifying patterns, constructing explanations, evaluating evidence, and applying the resulting understanding to new situations.

The choice of the AIAfnan Taxonomy was also informed by its conceptual relevance to the study's emphasis on meaningful learning and holistic cognitive development. Although established frameworks, particularly Revised Bloom's Taxonomy (Anderson & Krathwohl, 2001), offer widely recognized approaches to classifying educational objectives, the present study selected the AIAfnan Taxonomy because its six domains provide an explicit analytical structure for examining ethical and moral reasoning, creativity and innovation, and lifelong learning and adaptability alongside foundational knowledge, evaluation, and strategic application. Revised Bloom's Taxonomy organizes cognitive processes into remembering, understanding, applying, analyzing, evaluating, and creating, while distinguishing these processes from dimensions of knowledge. It therefore offers a valuable complementary perspective for interpreting curriculum objectives and learning outcomes. The AIAfnan Taxonomy was not selected on the assumption that it is universally superior to established taxonomies; rather, it was chosen because its domains aligned with the particular analytical scope and research questions of this study.

To minimize over-reliance on a single theoretical model, the taxonomy was used as an interpretive framework rather than as a predetermined template for confirming the presence of inductive teaching. The analysis began with repeated readings of the curriculum documents and the identification and coding of relevant statements concerning learning objectives, instructional recommendations, learning activities, and assessment practices. The initial codes were developed from the documents' content, including references to student participation, inquiry, discovery, conceptual understanding, knowledge construction, problem-solving, and authentic assessment. These codes were subsequently organized into broader themes and interpreted in relation to both the principles of inductive teaching and the six domains of the AIAfnan Taxonomy. This approach enabled the analysis to remain grounded in the documentary evidence rather than assigning curriculum statements to taxonomy categories without contextual justification. The taxonomy therefore provided an organizing and interpretive structure, while the curriculum documents remained the primary source of evidence for the findings.

Furthermore, the analysis distinguished between the presence of cognitive competencies in curriculum documents and the explicit incorporation of inductive teaching as an instructional approach. References to analysis, application, creativity, or evaluation were not automatically treated as evidence of inductive teaching unless their context indicated opportunities for learners to investigate, identify relationships, construct understanding, or develop conclusions from evidence. This distinction was important for avoiding conceptual overlap between cognitive outcomes and instructional methods. Accordingly, the AIAfnan Taxonomy supported the systematic interpretation of the findings without replacing the independent examination of the curriculum's pedagogical principles. The analysis ultimately sought to establish the extent to which Jordan's national curriculum documents support inductive teaching and meaningful learning, rather than to validate the taxonomy itself.

The curriculum documents were coded by a single researcher. The coding process involved repeated readings of the documents, identifying relevant statements, assigning initial codes, and organizing related codes into broader analytical themes. Because a single coder conducted the analysis, inter-coder agreement was not calculated. Instead, analytical consistency was supported through repeated examination of the documents, systematic application of the coding framework, comparison of emerging themes across documents, and maintenance of records documenting the development of codes and themes. The resulting themes were interpreted in relation to the principles of inductive teaching and the AIAfnan Taxonomy. This procedure was intended to promote transparency and consistency in the interpretation of the documentary evidence.

To enhance methodological transparency and facilitate replication, the selected documents were organized into a corpus inventory. The inventory records each document's official title, subject area, grade level (s) covered, document type, and publication year, where available. This classification establishes the scope of the documentary evidence and enables readers to identify the educational levels and subject areas represented in the analysis. Only official curriculum documents relevant to the study's objectives were included.

The analysis proceeded through several stages. Initially, each document was read repeatedly to establish familiarity with its structure, educational objectives, learning outcomes, and instructional recommendations. Relevant statements relating to student-centered learning, teaching strategies, inquiry-based learning, knowledge construction, higher-order thinking, meaningful learning, and assessment practices were highlighted and assigned initial codes. These codes were subsequently compared across the selected documents and organized into broader themes reflecting the pedagogical principles of inductive teaching.

The emerging themes were interpreted through the AIAfnan Taxonomy, which provided an analytical framework for examining the cognitive competencies the curriculum promoted. Particular attention was given to the extent to which curriculum documents encouraged students to move beyond factual recall toward inquiry, conceptual understanding, critical thinking, ethical and moral reasoning, strategic application, creativity, and lifelong learning. The analysis also distinguished between the presence of cognitive learning objectives and explicit pedagogical opportunities for learners to investigate evidence, identify patterns, construct explanations, and apply knowledge. This procedure enabled a systematic examination of the relationship between Jordan's intended curriculum, inductive teaching, and meaningful learning.

The coding process focused on identifying curriculum features that reflected the principles of inductive teaching, including observation, inquiry, concept formation, collaborative learning, knowledge construction, authentic learning, and meaningful assessment. The codes were then grouped into broader themes representing the curriculum's dominant pedagogical characteristics. These themes were then interpreted using the principles of inductive teaching and the AIAfnan Taxonomy to determine how the curriculum supports meaningful learning and progressively develops learners' cognitive abilities (see Table 2).

Table 2. Coding Framework

Analytical Theme	Indicators Identified in Curriculum Documents
Student-centered learning	Active participation, collaboration, learner autonomy
Inquiry and discovery	Investigation, questioning, exploration, experimentation
Meaningful learning	Prior knowledge, conceptual understanding, authentic application
Higher-order thinking	Analysis, interpretation, evaluation, creativity
Authentic assessment	Projects, investigations, presentations, performance tasks

The credibility of the analysis was strengthened through a systematic and transparent analytical process. Each curriculum document was reviewed repeatedly to ensure familiarity with its content and consistency in coding. Themes were derived directly from the curriculum documents and continually compared with the theoretical principles of inductive teaching and meaningful learning. Maintaining detailed coding records and documenting the progression from initial codes to final themes enhanced the dependability and confirmability of the findings.

The study relied exclusively on publicly available curriculum documents and did not involve human participants, personal information, or confidential data. Consequently, ethical approval was not required. All curriculum documents and supporting scholarly literature were appropriately acknowledged and cited in accordance with accepted standards of academic integrity and research ethics.

4. Scope of Analysis and Interpretation

This study examines the intended curriculum as represented in official curriculum documents published by the National Center for Curriculum Development and Evaluation in Jordan. Accordingly, the unit of analysis is the content of the documents, including their stated learning objectives, instructional recommendations, expected learning outcomes, and assessment guidelines. The study does not examine actual classroom implementation, observe teachers' instructional practices, assess students' learning outcomes, or measure the effectiveness of inductive teaching. References to inquiry, student engagement, higher-order thinking, meaningful learning, and cognitive development are therefore interpreted as curriculum expectations or intended pedagogical outcomes rather than evidence of demonstrated classroom practices or student achievement. Similarly, the identification of assessment activities indicates what the curriculum recommends or anticipates, not whether these activities are implemented or produce the intended outcomes in practice. This distinction guides the interpretation of the findings and limits the conclusions to what can reasonably be established through qualitative analysis of the documentary evidence.

5. Findings and Discussion

This study examined the extent to which official curriculum documents in Jordan reflect the principles of inductive teaching as a student-centered approach to meaningful learning. The analysis identified several curriculum features consistent with inductive teaching, including an emphasis on learner participation, inquiry and discovery, conceptual understanding, higher-order thinking, and assessment through application. Although the documents did not consistently use the term inductive teaching, they reflected related pedagogical principles in the stated learning outcomes, instructional recommendations, and assessment guidelines. These findings indicate that the intended curriculum provides guidance consistent with several characteristics of inductive teaching. However, because the study was based exclusively on document analysis, these findings should not be interpreted as evidence that the recommended approaches are consistently implemented in classrooms or that they produce measurable improvements in student learning (see Table 3).

Table 3. Major Themes Emerging from the Curriculum Documents

Theme	Curriculum Focus	Contribution to Inductive Teaching
Student-centered learning	Active learner participation and collaboration	Encourages learners to construct knowledge independently
Inquiry and discovery	Investigation, questioning, and exploration	Promotes concept formation through evidence
Meaningful learning	Real-life application and conceptual understanding	Connects new knowledge with prior experiences
Higher-order thinking	Analysis, reasoning, evaluation, and creativity	Develops advanced cognitive abilities
Authentic assessment	Performance tasks and project-based assessment	Evaluates understanding through application

One of the most significant findings is the curriculum's strong emphasis on student-centered learning. Across the analyzed documents, learning outcomes consistently encourage learners to participate actively in classroom discussions, collaborative activities, investigations, and problem-solving tasks. Rather than positioning students as passive recipients of information, the curriculum encourages them to become active participants in constructing their own understanding. This orientation reflects the central philosophy of inductive teaching. In an inductive classroom, students begin with observations, examples, or experiences and gradually develop broader concepts and principles. The teacher facilitates learning by posing questions, organizing experiences, and guiding reflection rather than directly presenting conclusions. Such instructional practices encourage learners to think independently, justify their reasoning, and refine their understanding through discussion and feedback.

The curriculum documents further indicate that learning is viewed as an interactive process involving collaboration among learners. Group investigations, classroom discussions, and cooperative learning activities provide opportunities for students to exchange ideas, challenge assumptions, and negotiate meaning. These experiences not only strengthen conceptual understanding but also foster communication, teamwork, and learner autonomy, all of which are fundamental characteristics of student-centered education (AlAfnan et al., 2026b). A second major finding concerns the curriculum's emphasis on inquiry and discovery. The documents encourage learners to observe, investigate, question, experiment, and draw conclusions based on evidence. These instructional expectations closely align with the inductive teaching process, in which knowledge is developed from specific observations rather than transmitted through direct explanation.

Inquiry-based learning encourages learners to become active investigators who seek explanations for phenomena instead of memorizing predetermined answers. Throughout the curriculum, students are expected to collect information, compare ideas, identify patterns, formulate explanations, and communicate their findings. These learning experiences promote intellectual curiosity and encourage learners to develop confidence in their ability to solve problems independently. The emphasis on inquiry also supports the development of scientific reasoning and analytical thinking across subject areas. Whether students are analyzing literary texts, interpreting historical events, conducting scientific investigations, or solving mathematical problems, the curriculum consistently encourages learners to use evidence to construct explanations. Such

practices strengthen conceptual understanding because learners discover relationships among ideas through systematic exploration rather than passive instruction.

Inquiry-based learning prepares students to address authentic problems encountered beyond the classroom. Modern societies require individuals who can gather information, evaluate evidence, and make informed decisions. The curriculum's emphasis on investigation and discovery therefore contributes not only to academic achievement but also to the development of lifelong learning skills. The findings demonstrate that the curriculum promotes meaningful learning by encouraging learners to connect new knowledge with prior experiences and authentic contexts. Rather than emphasizing isolated facts, the curriculum focuses on conceptual understanding, application, and reflection. Learning objectives frequently require students to explain concepts, apply knowledge to unfamiliar situations, and relate classroom learning to everyday life. Meaningful learning is achieved when learners actively organize and integrate new information into their existing knowledge structures. The curriculum supports this process by encouraging learners to analyze relationships among concepts, recognize patterns, and solve practical problems. Such activities help students develop a deeper understanding while improving long-term retention of knowledge.

Inductive teaching naturally complements meaningful learning because both approaches emphasize active cognitive engagement. Learners are not expected merely to remember information; instead, they construct understanding by examining evidence and generating explanations. This active involvement strengthens conceptual learning and enables students to transfer knowledge to new contexts. Consequently, the curriculum's focus on conceptual understanding represents an important shift away from traditional instructional models based primarily on memorization and repetition. The integration of authentic learning contexts further enhances meaningful learning. Many curriculum objectives encourage learners to investigate real-world issues, evaluate alternative solutions, and reflect on the social relevance of their learning. These experiences help students appreciate the practical value of knowledge while increasing motivation and engagement. The analysis of the curriculum documents reveals a comprehensive emphasis on the cognitive competencies outlined in the AIAfnan Taxonomy. Rather than focusing solely on higher-order thinking, the curriculum promotes a balanced progression of cognitive development that begins with knowledge acquisition and comprehension and extends to synthesis, evaluation, ethical reasoning, strategic application, creativity, and lifelong learning. This progression reflects the philosophy of inductive teaching, where learners construct understanding through observation, inquiry, reflection, and application instead of passively receiving information.

At the foundational level, the curriculum demonstrates a strong emphasis on 'knowledge and comprehension' by requiring learners to acquire essential concepts, explain ideas, interpret information, and demonstrate conceptual understanding. Learning objectives encourage students to understand relationships among concepts rather than memorize isolated facts, providing the cognitive foundation necessary for more advanced reasoning. Within an inductive teaching environment, learners first engage with examples, experiences, and evidence before constructing broader concepts, thereby promoting meaningful comprehension rather than rote learning. The curriculum further encourages 'synthesis and evaluation' by engaging learners in activities that require comparing information, integrating ideas from multiple sources, evaluating evidence, and drawing reasoned conclusions. Students are expected to justify their decisions, analyze alternative perspectives, and formulate evidence-based arguments. These expectations demonstrate that curriculum developers value analytical judgment and reflective thinking as essential components of meaningful learning. Through inductive learning experiences, students move beyond understanding individual concepts to synthesizing knowledge and critically evaluating its validity and application.

Another significant finding is the curriculum's integration of 'ethical and moral reasoning'. The curriculum encourages learners to consider the ethical implications of decisions, demonstrate responsible behavior, respect diverse perspectives, and apply values when addressing authentic issues. Rather than treating knowledge as value-neutral, the curriculum recognizes that meaningful learning also involves developing ethical awareness and responsible citizenship. This dimension aligns with student-centered education by encouraging learners to reflect upon the consequences of their decisions and to exercise sound moral judgment when solving real-world problems. The curriculum also reflects the domain of 'application and strategic thinking' by emphasizing the transfer of knowledge to authentic situations. Learning activities require students to apply concepts in unfamiliar contexts, solve practical problems, develop strategies, and make informed decisions. These expectations are highly consistent with inductive teaching, where learners apply principles they have discovered through investigation and inquiry. Strategic thinking enables students to use knowledge purposefully, select appropriate approaches to solving problems, and adapt their reasoning to different contexts, thereby strengthening both conceptual understanding and practical competence.

A further characteristic of the curriculum is its emphasis on 'creativity and innovation'. The curriculum encourages learners to generate original ideas, design solutions, explore multiple possibilities, and engage in creative problem-solving. Such expectations move beyond conventional knowledge acquisition by promoting imagination, flexibility, and innovation. Within an inductive teaching framework, creativity naturally emerges as learners investigate problems, identify patterns, and develop original explanations based on evidence. This creative dimension prepares learners to

respond effectively to new challenges in rapidly changing educational and professional environments. The curriculum demonstrates a commitment to ‘lifelong learning and adaptability’, recognizing that education should prepare learners for continuous personal and professional development. Learning outcomes encourage self-directed learning, reflective practice, adaptability, and the ability to acquire new knowledge throughout life. Students are expected to monitor their own learning, respond constructively to feedback, and adjust their understanding when confronted with new information or changing circumstances. These characteristics reflect the ultimate goal of inductive teaching: to develop independent learners who can continuously construct and reconstruct knowledge.

Table 4. Alignment between Curriculum Expectations, the AIAfnan Cognitive Domains, and Illustrative Documentary Evidence

AIAfnan cognitive domain	Illustrative excerpt from curriculum documents	Interpretation
Knowledge and comprehension	“Identify key ideas and supporting details in an oral presentation or conversation” (Grade 7 English Language Curriculum Framework).	This expectation emphasizes learners’ ability to comprehend spoken information by identifying central ideas and distinguishing them from supporting details.
Synthesis and evaluation	“Distinguish facts from opinions and make inferences” (English Language Curriculum Framework).	This expectation involves differentiating between types of information and drawing conclusions from available evidence, reflecting analytical and evaluative thinking.
Ethical and moral reasoning	“Show appreciation of other’s ideas through facial expressions, gestures and words” (Grade 7 English Language Curriculum Framework).	This expectation emphasizes respectful communication and consideration of others’ perspectives. Although it is consistent with aspects of ethical reasoning, it does not independently establish the development of moral reasoning.
Application and strategic thinking	“Use resources (e.g., dictionaries, online search engines) to help construct meaning” (English Language Curriculum Framework).	This expectation highlights learners’ use of appropriate resources and strategies to construct meaning, reflecting the application of learning tools to support understanding.
Creativity and innovation	“Write short, simple biographies about real or imaginary people” (Grade 9 English Language Teacher’s Book, Semester 1).	The inclusion of imaginary people creates scope for imaginative composition and the development of ideas. This expectation is consistent with creative expression, although the excerpt does not explicitly specify originality or innovative problem-solving.
Lifelong learning and adaptability	“Make suggestions for the improvement of his/her own and peers’ presentations” (Grade 7 English Language Curriculum Framework).	This expectation emphasizes feedback, reflection, and revision. These processes can support self-improvement and the development of habits associated with continued learning.

Table 4 illustrates how selected learning outcomes and performance indicators in Jordan’s curriculum documents relate to the six cognitive domains of the AIAfnan Taxonomy. The documentary evidence provides concrete examples of the cognitive competencies embedded in curriculum expectations and strengthens the connection between the analytical framework and the reported findings.

At the foundational level, the requirement to identify key ideas and supporting details illustrates the emphasis on knowledge and comprehension. Rather than relying solely on information recall, this expectation requires learners to identify relevant information and demonstrate understanding of the content. The instruction to distinguish facts from opinions and make inferences shows more advanced cognitive engagement. Learners must interpret information, differentiate between forms of evidence, and draw conclusions, supporting the domains of synthesis and evaluation.

The curriculum’s emphasis on appreciating others’ ideas indicates the interpersonal and ethical dimensions of learning. Although respectful communication does not, by itself, demonstrate fully developed ethical and moral reasoning, it suggests that curriculum expectations extend beyond academic knowledge to include appropriate engagement with others. Similarly, the recommendation that learners use resources to construct meaning reflects application and strategic thinking because students are expected to select and use appropriate tools to support comprehension. The expectation that learners suggest improvements to their own and their peers’ presentations also indicates opportunities for reflection, constructive feedback, and continuous improvement, which are relevant to lifelong learning and adaptability.

The relationship between curriculum expectations and creativity and innovation requires separate documentary evidence demonstrating that learners are expected to generate original ideas, develop alternative solutions, or produce creative work. Identify such evidence directly in the curriculum documents rather than inferring it from general references to learning or problem-solving. More broadly, interpret the excerpts in relation to their instructional context because the presence of a cognitive outcome does not automatically establish the use of inductive teaching. Stronger evidence of inductive teaching occurs when curriculum expectations require learners to examine examples, investigate questions,

identify patterns, construct explanations, or draw conclusions from evidence.

Taken together, these illustrative excerpts show how curriculum documents can be examined systematically for evidence of cognitive development and student-centered learning. They also demonstrate the importance of distinguishing between explicit documentary evidence and the researcher's interpretation of that evidence. The findings therefore support a cautious conclusion that Jordan's curriculum includes learning expectations relevant to several domains of the AIAfnan Taxonomy, while the extent to which these expectations collectively promote inductive teaching must be established through analysis of the complete corpus.

The analysis indicates that the curriculum documents provide a strong foundation for implementing inductive teaching as a student-centered approach to meaningful learning. By integrating the six cognitive domains of the AIAfnan Taxonomy, the curriculum supports learners in developing not only conceptual understanding but also critical judgment, ethical responsibility, strategic problem-solving, creativity, and the capacity for continuous learning. This comprehensive alignment shows how curriculum design can prepare learners for the intellectual, ethical, and practical demands of the twenty-first century while fostering meaningful, reflective, and lifelong learning.

6. Conclusion

This study examined how official curriculum documents in Jordan represent inductive teaching as a student-centered approach to meaningful learning. The findings indicate that the analyzed documents include learning objectives, instructional recommendations, and assessment expectations consistent with inquiry, conceptual understanding, learner participation, and higher-order thinking. The analysis also identified alignment between curriculum expectations and the six cognitive domains of the AIAfnan Taxonomy: knowledge and comprehension, synthesis and evaluation, ethical and moral reasoning, application and strategic thinking, creativity and innovation, and lifelong learning and adaptability. Collectively, these findings suggest that the intended curriculum encompasses a broad range of cognitive competencies beyond factual knowledge acquisition. Nevertheless, the study establishes the presence of these expectations in curriculum documents rather than their implementation in classroom practice or their effects on student achievement. Future research using classroom observations, teacher interviews, and student-learning data could investigate the extent to which these curriculum expectations are translated into instructional practice and meaningful learning outcomes.

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Data sharing statement

No additional data are available.

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