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Developing an Experiential Learning-Based Instructional Model Oriented Toward Students' Higher Order Thinking Skills: Design-Based Research

[a]Ati Sadiah*, [b]Rendra Gumilar and [c]Lu'luil Maxnun

Affiliation:
[a,b,c]Economics Education Study Program, Universitas Siliwangi

Contact:
ati.sadiah@unsil.ac.id

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Abstract:

Strengthening Higher Order Thinking Skills (HOTS) is a central demand of 21st-century learning and Outcome-Based Education (OBE) curricula, yet university instruction is still often dominated by expository approaches. This study aims to develop an instructional model based on Experiential Learning that is oriented toward students' HOTS (analysis/C4, evaluation/C5, and creation/C6) through Design-Based Research (DBR) following the three phases of McKenney and Reeves: analysis and exploration, design and construction, and evaluation and reflection. This article reports on initial implementation cycle in the Economics Curriculum Review course with 68 Economics Education students from two classes, involving lecturers and expert validators. Data was collected through observation, interviews, questionnaires, documentation, validation sheets, and final examination (UAS) scores, and were analyzed qualitatively and with descriptive statistics. The result is a six-stage prototype (problem orientation, concrete experience, reflection, abstract conceptualization, active experimentation, and reflection) that maps activities to C4, C5, and C6 [FILL: expert validation result, for example "and was rated feasible by n validators"]. In the initial implementation, the mean UAS score was 79.66, 76.47% of students scored at least 75, and attendance was about 97,33%. These descriptive data indicate that the model could be implemented in the course, but they do not demonstrate improved HOTS or a causal effect of the model, because there was no pretest, no comparison group, and no separate C4, C5, and C6 scores. The implementation also identified stages that need strengthening in the next DBR cycle.

Keywords: experiential learning, higher order thinking skills, design-based research, instructional model, university students.

Introduction

The development of 21st-century education requires universities to produce graduates who not only master conceptual knowledge but also possess Higher Order Thinking Skills (HOTS). This ability has become one of the main goals of modern education because of its relevance in preparing students to face the challenges of work and life (Noresti & Aisyah, 2023; Yurniwati & Utomo, 2020). The World Economic Forum lists analytical thinking, creativity, and problem solving among the top skills of 2025 (Whiting, 2020); these are essential competencies that higher education graduates must have to deal with global economic and social dynamics. Therefore, university learning needs to be designed in such a way that it can facilitate the development of students' HOTS.

In the context of higher education in Indonesia, curriculum development is also increasingly emphasizing the importance of strengthening higher order thinking skills. Curricula based on Outcome-Based Education (OBE) require alignment among graduate learning outcomes, learning strategies, and the assessment system used. Learning is no longer oriented merely toward knowledge transfer but also toward developing critical, creative, and reflective thinking. In practice, however, university instruction is still often dominated by expository approaches that position the lecturer as the main source of knowledge. Students mostly receive information rather than actively engaging in exploration and problem solving. This condition means that the potential for developing students' HOTS has not been optimally realized.

The same problem is found in learning in the Economics Education study program, including in courses related to Economics Curriculum Review. Prospective teachers should not only understand theoretical concepts of curriculum and instruction but also be able to analyze, evaluate, and design solutions to real educational problems, especially in the study of school curricula. In practice, however, learning activities often still focus on conceptual understanding without learning experiences that encourage students to develop in-depth analytical, evaluative, and creative abilities. The statement that instruction is still dominated by expository approaches rather than by specific empirical findings at the research site. The Analysis and Exploration phase of this study focused on aligning the course outcomes in the RPS with HOTS demands (C4 to C6) and on reviewing the literature to determine the characteristics of the model.

The implementation of experiential learning in university instruction is still often partial and has not been developed into a systematic instructional model. Many previous studies have focused only on testing the effect of experiential learning on student learning outcomes without developing a structured

and contextual instructional design. In addition, research approaches capable of both developing and testing instructional models remain relatively limited.

In this context, the Design-Based Research DBR is a research approach for developing and studying educational interventions iteratively in real settings. This study follows the educational design research framework of McKenney & Reeves (2019), which organizes the process into three phases: analysis and exploration, design and construction, and evaluation and reflection. Its purpose is to develop instructional innovations through repeated processes of design, implementation, evaluation, and revision in real learning contexts.

Previous studies can be grouped into three strands. The first strand tests the effect of learning models on thinking skills using quasi-experimental designs, for example Sholihah et al., (2016) with senior high school students and Agustin et al., (2021) with primary school teacher education students. These studies show whether a model has an effect but say little about how the stages of the model were designed or how each stage relates to a specific cognitive process. The second strand reviews and revises experiential learning theory (Morris, 2020; Passarelli & Kolb, 2023). It clarifies the learning cycle but has not translated it into an instructional syntax aligned with C4, C5, and C6 indicators. The third strand uses DBR to develop instructional models, which provides a methodological basis. Across these strands, based on a search, we did not find a study that (a) develops an experiential learning syntax explicitly mapped to C4, C5, and C6, (b) reports its development through DBR, and (c) is conducted in an Economics Education course in higher education.

Table 1. Summary of previous studies and the position of the present study

Study	**Context**	**Design**	**Focus**	**Gap relative to this study**
Solihah et al. (2016)	Senior high school	Quasi-experimental	Experiential learning and critical thinking	Not higher education; stage design not the focus
Agustin et al. (2021)	Primary school teacher education	Quasi-experimental	RADEC model and HOTS	Not experiential learning; not economics education
Morris (2020)	Review	Systematic review	Revision of Kolb's model	No syntax mapped to C4, C5, C6
This study	Economics Education, higher education	DBR, one cycle	Six-stage experiential model mapped to C4, C5, C6	Effectiveness not yet tested

This study aims to develop an Experiential Learning-based instructional model oriented toward HOTS (C4, C5, and C6) through the DBR approach, and to report (1) the design and development process of the prototype, (2) the results of expert validation, (3) the implementation and practicality of the model in the Economics Curriculum Review course, and (4) an initial evaluation of the implementation as a basis

for refinement in the next cycle. This study does not test the effectiveness of the model in improving HOTS. This study addresses four research questions.

RQ_1 : How was the Experiential Learning-based instructional model oriented toward HOTS designed and developed through the three DBR phases?

RQ_2 : What indications emerged from the initial implementation, in the form of descriptive UAS scores and attendance, and which parts of the model need refinement?

The novelty of this study lies in three aspects. First, the model extends Kolb's four-stage cycle into a six-stage syntax by adding Problem Orientation at the beginning and Reflection (metacognitive) at the end. Second, each stage is explicitly mapped to C4, C5, or C6 together with its pedagogical rationale, rather than if experiential learning automatically develops HOTS. Third, the model is developed and documented through DBR in a course for prospective economics teachers (Economics Curriculum Review), covering the syntax, a student worksheet (LKM), and an assessment mechanism. This study does not claim that the model improves HOTS. This article reports on the first development cycle and its initial implementation.

This study is the initial part of a research roadmap that will focus on developing economics learning innovations in both higher education and senior high schools. Over the next five years, subsequent research will continue along the path of model development through the Design-Based Research approach, so that models supported by increasingly strong evidence can be produced.

Thus, this study is expected to contribute not only to the development of experiential learning theory but also to produce an innovative and applicable instructional model for improving university students' Higher Order Thinking Skills.

Literature Review

Theoretically, Higher Order Thinking Skills (HOTS) are advanced thinking abilities that involve cognitive processes more complex than merely remembering or understanding information. HOTS include the ability to analyze, evaluate, create, and connect various concepts to solve problems, make decisions, and generate new ideas (Asok et al., 2016; Hamdan et al., 2024; Somasundaram & Latha, 2021; Supeno et al., 2019). These abilities are grounded in learning taxonomies such as Bloom's taxonomy Anderson & Krathwohl (2001) , which includes the levels of analysis, evaluation, and creation (Asok et al., 2016; Somasundaram & Latha, 2021). HOTS are also described as multidimensional abilities because they encompass problem-solving, critical thinking, creative thinking, decision-making, and communication skills (Alkhatib, 2022; Supeno et al., 2019).

Higher Order Thinking Skills are very important for university graduates; among their benefits, HOTS encompass analysis, evaluation, and creation abilities that help individuals solve complex problems and make sound decisions (Liu et al., 2024; Noresti & Aisyah, 2023; Supeno et al., 2019). Graduates with HOTS can connect concepts, communicate effectively, and make decisions based on strong reasoning (Supeno et al., 2019). HOTS such as critical and reflective thinking are essential for improving graduates' competitiveness in the workplace. These abilities enable them to adapt quickly to change and to complete tasks that require deep thinking (Hermita et al., 2025; Pnevmatikos et al., 2022; Van Zile-Tamsen, 2016).

One learning approach that is conceptually relevant for developing HOTS is Experiential Learning, proposed by Kolb (1984) . Experiential learning holds that learning is a process of transforming experience through four main stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Through this cycle, students do not receive knowledge passively but actively construct understanding through meaningful learning experiences. The processes of reflection and experimentation in experiential learning can theoretically encourage the development of analysis, evaluation, and creation abilities, which are the core of HOTS.

The conceptual framework of this study links five elements. The starting problem is that the outcomes of the Economics Curriculum Review course demand analysis, evaluation, and design, whereas [FILL: initial learning condition]. Four design principles respond to this problem: (1) experience must be rich in context, involve real-world problems, and be followed by critical reflection (Morris, 2020); (2) students need a focus before entering empirical experience, which is provided by Problem Orientation; (3) cognitive demand increases progressively from C4 to C5 to C6, so that evidence from analysis becomes the basis for evaluation and evaluation criteria become the basis for creation; and (4) metacognitive reflection at the end of the cycle makes thinking processes visible (Van Zile-Tamsen, 2016) and, in DBR, has a diagnostic function for the next design revision. These principles are realized in six learning stages, which generate student activities that are expected to elicit the cognitive processes of C4 to C6.

Consistent with the orientation of DBR toward design development, this study does not formulate statistical hypotheses. It relies on the conceptual framework and design principles above, which are treated as design conjectures to be refined: if students move from evidence-based analysis (C4) to criteria-based evaluation (C5) and then to solution design (C6) within a reflective experiential cycle, the learning activities are expected to elicit the targeted cognitive processes. Testing whether the model improves HOTS requires a separate evaluation design, which is planned for later cycles.

Research Methodology

This study used a Design-Based Research (DBR) approach aimed at developing an instructional model, that is oriented toward students' Higher Order Thinking Skills (HOTS). DBR was chosen because it allows researchers to develop instructional innovations through iterative processes of design, implementation, evaluation, and revision in real learning contexts. The DBR model used in this study refers to the framework developed by Susan McKenney and Thomas C. Reeves, which consists of three main phases: analysis and exploration, design and construction, and evaluation and reflection.

Research Object and Product Scope. The object of this study is an Experiential Learning-based instructional model oriented toward HOTS. The model consists of (1) a six-stage syntax: Problem Orientation, Concrete Experience, reflection, Abstract Conceptualization, Active Experimentation, and Reflection; (2) supporting tools in the form of a student worksheet (LKM); (3) an instrument and mechanism for assessing HOTS. Components that were not designed in this study are outside its scope. The research object is distinguished from the research participants, namely students of the Economics Education Study Program, and from the implementation context, namely the Economics Curriculum Review course.

The study was conducted with students of the Economics Education study program who were enrolled in the Economics Curriculum Review course. The model was implemented in two classes (Class A and Class B) with a total of 68 students. The focus of the study was to develop an experiential learning instructional model that can facilitate the development of students' analysis, evaluation, and creation abilities as the main components of HOTS.

The research procedure followed the three DBR phases. In the first phase, analysis and exploration, the activities aimed to identify learning problems and the need to develop students' HOTS. The activities in this phase included (1) a literature analysis of experiential learning and HOTS, (2) observation of the ongoing learning process, (3) analysis of learning materials such as the semester learning plan (RPS) and teaching materials, and (4) interviews with lecturers and students about their learning experiences. The results of this phase were used to formulate the needs for developing the instructional model and to determine the characteristics of the experiential learning model to be developed.

Table 2. Activities, outputs, parties involved, and decision criteria in each DBR phase

Phase	Activities	Output	Parties involved
Analysis and Exploration	Literature analysis; observation; analysis of RPS and teaching materials; interviews	Needs analysis and characteristics of the model	Researchers; lecturers; students
Design and Construction	Designing syntax; preparing tools (LKM); developing the HOTS instrument; expert validation	Prototype ready for implementation	Researchers; expert validators
Evaluation and Reflection	Implementation in two classes; observation; HOTS-based tests and tasks; student responses	Initial evaluation and a list of refinements	Lecturer(s); students; researchers

This article reports on initial implementation cycle of the DBR process. The prototype was validated by experts and implemented once in two classes. The revisions identified in the evaluation and reflection phase have not yet been implemented and re-tested. Further cycles are planned as part of the research roadmap.

In the second phase, design and construction, the researchers designed and developed an experiential learning-based instructional model oriented toward developing students' HOTS. The activities included (1) designing the syntax of the experiential learning model, (2) preparing learning tools that support implementation of the model, (3) developing an instrument for assessing students' HOTS, and (4) validating the instructional model by experts. The result of this phase was an instructional model prototype ready to be implemented in the learning process. The experiential learning syntax used (Morris, 2020; Passarelli & Kolb, 2023) consists of concrete experience, reflective observation, abstract conceptualization, and active experimentation. In this study, the cycle was operationalized into six stages in the student worksheet (LKM) by adding Problem Orientation at the beginning and Reflection at the end (see the Design and Construction Phase in the Results section). The cycle, or steps, of experiential learning are described as follows.

Concrete Experience. Students are given the opportunity to gain direct learning experience through various learning activities such as case analysis, simulations, group discussions, or simple project activities. These activities aim to enable students to (a) explore problems in greater depth, (b) identify relevant information, and (c) develop initial understanding based on their learning experience. This direct experience becomes the basis for students to build new knowledge.

Reflective Observation. At this stage, students reflect on the learning experience they have gained. Reflection is carried out through group discussions, presentations, or brief reflective writing. Reflection activities aim to (a) analyze the learning experience, (b) identify different perspectives on the problem,

and (c) connect the experience with concepts already learned. This stage mainly encourages evaluation (C5), supported by analysis (C4).

Abstract Conceptualization. Students then develop new concepts or understanding based on their reflection on the learning experience. At this stage, students (a) formulate the concepts or principles obtained, (b) relate the learning experience to economic theory, and (c) build a more systematic framework of understanding. Lecturers help students construct concepts more scientifically.

Active Experimentation. At this stage, students try to apply the concepts they have learned in new situations. Students may be asked to (a) design solutions to a problem, (b) develop ideas or learning strategies, and (c) formulate policy recommendations or solutions to economic cases. This stage encourages students to generate new ideas and innovative solutions that reflect creation ability (C6).

Furthermore, each learning stage is designed to train students' higher order thinking skills, which include analysis, evaluation, and creation. HOTS measurement follows the top three levels of Bloom's taxonomy (Smith et al., 2005; Yunita et al., 2018): (a) analysis, with verbs such as differentiating and organizing information; (b) evaluation, with verbs such as judging and critiquing ideas; and (c) creation, with operational verbs such as designing and producing new concepts.

In the third phase, evaluation and reflection, the activities aimed to describe the implementation of the model, obtain initial indications of its practicality, and identify parts of the model to refine. The activities included (1) implementing the instructional model in classroom learning, (2) observing the implementation of the model, (3) measuring students' HOTS through HOTS-based tests and tasks, and (4) collecting students' responses to the learning. The data obtained were then analyzed to describe the implementation and to identify revisions for the next cycle.

Data were collected through five techniques: (1) observation to observe the learning process and student activities; (2) interviews to obtain information about students' learning experiences and lecturers' views on the implementation of the model; (3) a HOTS test (students' UAS scores) to measure students' higher order thinking skills, including analysis, evaluation, and creation; (4) questionnaires to determine students' responses to the learning; and (5) documentation to obtain supporting data on the learning process and learning tools. Based on these data collection techniques, the instruments used in this study were (1) a learning observation sheet, (2) an interview guide, (3) a student response questionnaire, (4) a Higher Order Thinking Skills test, and (5) an instructional model validation sheet. The instruments were first tested for feasibility through expert validation.

Data analysis in this study was conducted qualitatively and quantitatively. Qualitative analysis was used to analyze data from observations, interviews, and learning reflections through Miles et al., (2014)

(a) data reduction, (b) data display, and (c) conclusion drawing. Quantitative analysis was used to analyze (a) students' HOTS test results, (b) students' questionnaire responses, and (c) the results of the instructional model validation. The outputs of this study were assessed through the indicators in Table 3. The effectiveness of the model in improving HOTS is not an indicator in this study and will be tested in later cycles.

Table 3. Indicators of the study's outputs

Aspect	Indicator
Model feasibility	The model is rated feasible by experts based on [ISI: criteria]
Initial practicality	The model can be implemented as planned [ISI: indicator, for example all six stages carried out; student response category]
Initial implementation indication	Descriptive UAS achievement and attendance, reported as implementation data and not as evidence of HOTS improvement

Results and Discussions

Research Findings

The results of this study are based on the process of developing instruction through the three phases of Design-Based Research (DBR): *Analysis and Exploration*, *Design and Construction*, and *Evaluation and Reflection*. The use of DBR provides a relevant framework because the study is not directed merely at determining final learning outcomes but also at understanding learning needs, producing a design suited to the context, implementing it, and using the implementation results as the basis for refining the design. Thus, students' achievement in this study needs to be understood as part of a contextual and reflective process of instructional development. The implementation of the study is described below.

Analysis and Exploration **Phase**

The *Analysis and Exploration* phase served as the basis for developing the instructional design. In this phase, a literature analysis of Experiential Learning and HOTS, observation of the learning process, analysis of the RPS and teaching materials, and interviews about learning experiences were carried out. The results were used to identify the needs for developing an instructional model suited to students' characteristics and the course objectives. Table 4 summarizes the evidence collected during the Analysis and Exploration phase. Evidence from the literature and documents is distinguished from field findings so that the need for model development can be traced.

Table 4. Evidence from the Analysis and Exploration phase

Source	Type	Main finding	Implication for the model
Literature analysis	Literature-based	Literature shows that experiential learning can stimulate students' higher-order thinking skills, including analysis, evaluation, and creation.	Experiential learning as a pedagogical basis
RPS and teaching materials	Document analysis	Course outcomes require comparing, analyzing, evaluating, and designing curriculum analyses	Learning must give experiences that use concepts in real situations

The analysis of the learning outcomes of the Economics Curriculum Review course showed that students are required not only to understand basic curriculum concepts but also to compare and analyze curriculum frameworks, evaluate the curriculum in force, and design and present the results of economics curriculum analysis. These characteristics indicate that learning success cannot be achieved if students merely receive information verbally or memorize concepts. Learning experiences are needed that enable students to use concepts in real situations, examine evidence, make judgments, and produce solutions.

These needs became the pedagogical rationale for using Experiential Learning. Morris (2020) explains that concrete experience in effective Experiential Learning is not merely performing activities but an experience that is rich in context, actively involves learners, relates to real-world problems, and is followed by critical reflection.

In the context of this study, these needs were translated into direct evaluation of the economics curriculum in schools. Students did not only learn curriculum concepts from written sources but were directed to observe its implementation, analyze documents, gather information, identify problems, and offer alternative solutions. Thus, the field context functioned as a cognitive stimulus that enabled students to test their theoretical understanding against empirical conditions.

This is important because Higher Order Thinking Skills (HOTS) do not develop merely through difficult questions. HOTS require situations in which students can distinguish relevant from irrelevant information, connect facts with concepts, make judgments based on criteria, and produce new alternatives. In this study, HOTS were operationalized as analysis, evaluation, and creation abilities, with analysis shown through activities of differentiating and organizing information, evaluation through judging and critiquing ideas, and creation through designing and producing new concepts.

Thus, the *Analysis and Exploration* phase provided an important foundation: learning in the Economics Curriculum Review course requires a shift in orientation from learning that is dominated by

concept mastery toward learning that offers authentic experience, reflection, the use of theory to read reality, and creative problem solving.

***Design and Construction* Phase**

The *Design and Construction* phase produced an Experiential Learning-based instructional design oriented toward Higher Order Thinking Skills (HOTS). In this phase, the instructional syntax was designed, supporting tools were prepared, the HOTS assessment instrument was developed, and the design was validated, resulting in a prototype ready for use.

Theoretically, the design was based on the Experiential Learning cycle of *Concrete Experience*, *Reflective Observation*, *Abstract Conceptualization*, and *Active Experimentation*. In this study, these four stages were then operationalized in the student worksheet (LKM) into six activities: *Problem Orientation*, *Concrete Experience*, *Reflective Observation*, *Abstract Conceptualization*, *Active Experimentation*, and *Reflection*. Adding problem orientation at the beginning gives students a focus before entering empirical experience, while metacognitive reflection at the end enables students to reassess the thinking processes they have carried out. The relationship between this design and HOTS is presented in Table 5.

Table 5. Relationship between learning stages, pedagogical mechanisms, and HOTS

Learning stage	Student activity	Pedagogical mechanism	Targeted process
Problem Orientation	Identify the curriculum used by the school, CP, ATP, and teaching module; find initial problems	A focal problem directs attention and prompts students to break the problem into parts and relations	C4 Analysis
Concrete Experience	Observe or analyze documents; examine alignment, methods, media, and engagement	Direct contact with practice supplies evidence; comparing and organizing it requires separating relevant from irrelevant information	C4 Analysis
Reflective Observation	Identify strengths, weaknesses, and impact of implementation	Judging findings against criteria requires weighing strengths, weaknesses, and consequences	C5 Evaluation
Abstract Conceptualization	Assess practice against curriculum principles and learning theory	Theory supplies explicit criteria, shifting judgment from opinion to theory-based judgment	C5 Evaluation
Active Experimentation	Produce solutions, design learning, formulate curriculum recommendations	Integrating analysis and criteria into a new product requires generating and planning alternatives	C6 Creation
Reflection	Explain what was learned, how activities helped thinking, and difficulties faced	Reviewing one's own thinking makes the process visible and informs the next revision	Metacognitive (supporting)

Metacognitive reflection is treated as a supporting component that makes thinking processes visible and informs design revision. It is not used as a substitute for measuring C4, C5, and C6.

This mapping is consistent with Bloom's taxonomy as revised by Anderson & Krathwohl (2001). The revision organizes learning objectives by linking the knowledge dimension and cognitive processes so that the alignment among learning objectives, learning activities, and assessment can be analyzed. In this study, higher-level cognitive processes are realized in C4, C5, and C6, as established in the research procedure. The following describes how the syntax relates to the abilities that are trained.

Analysis Skills (C4)

Analysis ability begins to be trained in *Problem Orientation*. Students are asked to identify the curriculum used by the school, the structure of the learning outcomes (CP), the learning objective flow (ATP), and the teaching module, and to find initial problems in curriculum implementation. These activities do not stop at the question of "what" but encourage students to recognize the parts of a problem and the relationships among them.

The C4 process is then reinforced in the *Concrete Experience* stage. Students conduct observation or document analysis by paying attention to the alignment of the material with the CP, learning methods, learning media, student engagement, the relevance of learning to real life, and the curriculum's response to developments in science, technology, and the arts.

From a HOTS perspective, these activities are important because students practice breaking complex phenomena into more specific components, finding relationships among components, and identifying gaps between ideal and actual conditions. Thus, concrete experience provides the "raw material" for the development of analytical ability.

Evaluation Skills (C5)

Evaluation ability is trained mainly in *Reflective Observation*. Students no longer merely describe what they found but must identify strengths, weaknesses, and the impact of curriculum implementation on students' thinking skills. These activities require certain criteria so that students can determine whether practice is appropriate or not.

The C5 ability is further strengthened in *Abstract Conceptualization*. Students are asked to assess the suitability of curriculum practices against curriculum development principles, modern learning theories, and the demands of developing HOTS. At this stage, there is an important shift from "personal opinion" toward judgments that should be based on concepts or theory.

Creation Skills (C6)

The peak of the HOTS process in the instructional syntax lies in the *Active Experimentation* stage. Students are asked to produce solutions to the problems they found, design learning that better suits students' needs, and formulate recommendations on how the curriculum can be developed to support HOTS.

These activities are relevant to C6 because students do not merely choose from available answers but integrate information from observation, reflection, and theory into a new product of thinking. C6 therefore does not stand alone. Creation ability develops after students have the analytical material from C4 and the assessment criteria from C5.

***Evaluation and Reflection* Phase**

The third DBR phase is *Evaluation and Reflection*. This phase includes implementing the instruction, observing the implementation of the design, measuring HOTS through tests and tasks, and collecting students' responses. The evaluation results were then used as material for reflection and design revision. Descriptive statistics of students' final examination (UAS) scores are presented in Table 6.

Table 6. Descriptive statistics of students' UAS scores

Description	Class A	Class B	Total/mean
Number of students	36	32	68
Mean	82.31	76.69	79.66
Median	83	75	79
Mode	88	75	75
Minimum score	58	54	54
Maximum score	100	96	100
Standard deviation	11.15	10.00	10.92
Students scoring ≥75	75.0%	78.1%	76.47%
Students scoring ≥80	58.3%	34.4%	47.1%
Students scoring <70	13.9%	18.8%	16.2%

Source: Data processing results

The evaluation of 68 students showed a mean final examination (UAS) score of 79.66 with a standard deviation of 10.92. A total of 76.47% of students scored at least 75, while 47.06% scored at least 80. Only 16.18% of students scored below 70. Descriptively, these data show that most students were able to achieve relatively good final evaluation results. Thus, students showed relatively good achievement on an assessment that largely contained higher order thinking activities.

In this study of the Economics Curriculum Review course, Experiential Learning was not only used as an instructional treatment but was placed within the DBR development cycle. Thus, the focus of the

study did not stop at whether the learning produced good scores but also concerned how the design was formed, how cognitive activities were integrated, what happened when the design was implemented, and which parts needed improvement.

Student attendance during implementation was about 97%, so quantitatively, student participation in the course can be considered high. Consistent attendance supports the cyclical character of Experiential Learning because each stage is connected to the next. Students who take part in the concrete experience but do not attend the reflection, for example, may lose the link between experience and conceptualization.

However, attendance is not identical to cognitive engagement. Students may attend without necessarily performing in-depth analysis, reflection, or argumentation. Therefore, in DBR reflection, engagement indicators at the next development stage should not be limited to attendance but should also include the quality of contributions to discussions, the depth of analysis in the LKM, the quality of argumentation, and the quality of the recommendations produced.

One important characteristic of this research design is the *Reflection* stage after *Active Experimentation*. Students were asked to explain what they had learned, how the learning activities helped their thinking, and the difficulties they faced. This stage has important pedagogical value because students do not merely carry out tasks but are guided to become aware of their own thinking processes. Such awareness is related to metacognition. Studies in university learning show that students view reflective activities as a means that help them use cognitive and metacognitive skills and supports knowledge retention and transfer.

In the context of this study, metacognitive reflection can serve as a link among C4, C5, and C6. Students who can recognize why their analysis is not yet in depth or why their recommendations are not yet strong enough have a greater chance of improving their thinking strategies in subsequent learning experiences. Thus, reflection is not merely a closing activity but has a diagnostic function in DBR.

This study is consistent with the previous studies presented earlier. In general, its findings tend to be in line with various earlier studies that position Experiential Learning as a potential approach for developing higher order thinking skills. The review by Morris (2020) emphasizes the importance of contextual real experience, inquiry into real-world problems, critical reflection, conceptualization, and pragmatic experimentation. This pattern is evident in the design of the LKM in this study through school observation, reflection, linking to theory, and the preparation of recommendations.

Based on the above description, the design developed has potential for use in the Economics Curriculum Review course but still needs refinement. The fact that about 16.18% of students scored below

70 is important information that not all students can move from experience to analysis, evaluation, and creation with the same level of success.

In the next cycle, the *Problem Orientation* stage can be strengthened by providing examples of problems and more focused observation indicators. *Concrete Experience* needs to be supported by guidelines for collecting evidence so that students do not merely record descriptive information. *Reflective Observation* can be strengthened with questions such as why something happens, what evidence supports the judgment, and what the consequences are for learners. In *Abstract Conceptualization*, students need to be guided to use theory as the basis of argumentation rather than merely citing theory. Meanwhile, *Active Experimentation* can be enhanced by asking students to produce more concrete products such as improved ATP designs, teaching modules, assessments, or learning designs.

These improvements are important so that each stage has clear scaffolding and so that progression from C4 to C6 does not occur abruptly. In higher order thinking, students need analytical experience before they can give reasoned evaluations, and they need evaluation results before they can produce relevant designs.

Discussion

Overall, the results show that developing instruction based on Experiential Learning through the DBR approach produced a design with alignment among learning objectives, learning activities, and the demands of HOTS. The *Analysis and Exploration* phase produced an understanding that the Economics Curriculum Review course requires more contextual and analytical learning experiences. The *Design and Construction* phase then produced a six-stage design that links concrete experience with C4, reflection and conceptualization with C5, and active experimentation with C6. The *Evaluation and Reflection* phase showed descriptively good student achievement while also identifying parts of the design that can still be improved.

A mean UAS score of 79.66, 76.47% of students scoring at least 75, and a high attendance rate indicate supportive implementation conditions. However, these data only describe indications of successful implementation and cannot be taken as a direct causal relationship showing that the model improved HOTS. This is a limitation of the study because it did not use pretest and posttest measurements.

Thus, the findings show that the main value of using Experiential Learning lies not merely in providing experience but in transforming experience into knowledge and action through reflection, conceptualization, and experimentation. When this process is explicitly designed to be oriented toward C4, C5, and C6, learning becomes more aligned with the demands of HOTS. From a DBR perspective, these

results also confirm that the quality of the instructional model needs to be continuously developed through cycles of implementation, evaluation, reflection, and revision.

This study has several limitations. First, there was no pretest–posttest and no separate C4, C5, and C6 scores, so the study cannot show that HOTS improved or that the model caused the observed results. Second, the study was conducted in one course in one study program, with two classes (n = 68) and no comparison group, so the findings cannot be generalized. Third, only one cycle is reported, and the revisions identified have not yet been implemented and re-tested, so the model remains a prototype. For future research, (1) further DBR cycles should implement and re-test the revised prototype; (2) HOTS assessment should be designed with a rubric and separate scores for C4, C5, and C6, using a pretest–posttest or comparison design once the model is stable; and (3) indicators of cognitive engagement should be broadened, for example the quality of contributions to discussions, the depth of analysis in the LKM, the quality of argumentation, and the quality of recommendations. For practice, lecturers of curriculum courses can use the six-stage syntax and its mapping to C4 to C6 as a reference for designing activities, with scaffolding.

Conclusion

Based on the first cycle of Design-Based Research, this study produced an Experiential Learning-based instructional prototype with six stages: Problem Orientation, Concrete Experience, Reflective Observation, Abstract Conceptualization, Active Experimentation, and Reflection. The syntax explicitly maps analysis (C4), evaluation (C5), and creation (C6) activities in the Economics Curriculum Review course. In the initial implementation with 68 students, the mean UAS score was 79.66, 76.47% of students scored at least 75, and mean attendance was 97.33%. These descriptive data indicate that the model could be implemented in the course. They are not evidence that HOTS improved or that the model caused these results, because the study had no pretest, no comparison group, and no separate C4, C5, and C6 scores. The implementation also identified stages that need strengthening, which will be revised and re-tested in the next DBR cycle with a separate HOTS assessment for each dimension.

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