Reflection Report

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1. CBC, CBE, and CBA as a System

CBC is a competency-based curriculum. A competency-based curriculum is a study plan that focuses on both knowledge and practical skills. It is aimed at not only providing participants and students with knowledge, but also at developing their skills to actively apply acquired knowledge in real-life situations. The curriculum involves interdisciplinary connections. During the training sessions with participants, practical activities to be conducted with students are discussed in a clear and detailed manner. In the course of working with this program, I developed skills related to specifying competency-based tasks. I conducted a training course for educators on the topic “Teaching Mathematics: Current Trends and Methodologies.” In my work, I drew on resources from the RCEC (Research Center for Examination and Certification) course held in Astana, as well as the “Competency-Based Assessment Tools for Orleu Trainers” guidelines. The outcomes of collaborative work with mathematics teachers demonstrated that the program has the potential to significantly enhance its overall effectiveness. The competency-based curriculum emphasizes the development of practical, real-life skills within each topic. For example, in a traditional mathematics lesson on percentages, students are typically taught how to calculate the percentage of a number. Although students may memorize the rule, they may not understand its relevance to real life. In contrast, the CBC (Competency-Based Curriculum) approach helps students learn how to make informed financial decisions by calculating percentage discounts when shopping, thus fostering smart consumer habits. Additionally, when learning about interest rates, students can

be taught how to compare loan options from different banks by analyzing interest percentages to determine the most favorable choice. Key features of the Competency-Based Curriculum: • Clear Learning Objectives. Students understand what to learn and which skills to develop, helping them stay focused and track progress. • Practical Learning. In a CBC model, learners do not just read about ideas or develop a theoretical understanding—they engage with the content through practical tasks and meaningful lessons that promote active involvement. • Interdisciplinary Learning. Instruction is not limited to a single subject but also integrates subjects like mathematics, science, languages, and social studies. • Active Learning. Classrooms become interactive spaces where students ask questions, join discussions, and work in groups, building critical thinking and communication. • Flexible Learning Pace. Students move forward based on their readiness, reducing stress and encouraging mastery. • Real-life Assessment. Competency-based programs go beyond traditional written exams. Assessment includes presentations, projects, portfolios, and practical tasks that demonstrate real understanding and application of concepts. Competency-Based Learning (CBL) prepares learners for real-world challenges by developing practical skills and applying knowledge meaningfully. Learners progress at their own pace and are assessed on both what they know and what they can do. Integrating CBL and Competency-Based Curriculum (CBC) principles makes learning more personalized, practical, and engaging. Competency-Based Education (CBE) supports learners in gradually mastering skills, recognizing that each student learns at a unique pace. The key question is, “What can the student do with what they’ve learned?” CBE emphasizes demonstrating skills in real-life contexts through practical tasks and real-world challenges. These activities offer opportunities to apply knowledge meaningfully and build real-world competencies. CBE empowers learners to progress when ready, develop valuable skills, and succeed both in school and beyond. At the same time, it requires careful preparation, thoughtful design, and strong support systems. Principles of Competency-Based Education: • The first principle is equity. In a competency-based system, equity means providing all learners with equal opportunities to succeed. • The second principle is a focus on skills. • The third principle is clarity. • The fourth principle is individualized support. • The fifth principle is mastery before progress. • The sixth principle is a flexible pace of learning. To ensure the effective implementation of CBE, educational institutions need to focus on three core areas: learner-centered teaching, continuous professional development of teachers, and fostering a school culture that values inclusion and growth. CBA – Competency-Based Assessment Competency-based assessment focuses on how learners apply knowledge in practice, emphasizing what they can do—not just what they know. It includes presentations, portfolios, group projects, role-plays, practical tasks, and reflections. CBA targets specific learning outcomes and evaluates real-world skills. It makes learning meaningful and relevant, helping students become capable, confident, and prepared for life beyond the classroom.

2. Curriculum Development and Learning Goals

2. Designing a Competency-Based Curriculum A curriculum is a structured plan that defines what learners should achieve. In a competency-based curriculum, objectives align with key competencies, and both learning activities and assessments are based on these goals. For example, I contributed to developing the course program titled “Teaching Mathematics: Current Trends and Methodologies.” Learning objectives were formulated based on Bloom’s taxonomy. The program includes both theoretical content and practical activities, as well as active learning strategies. These include working with key concepts, group and pair tasks, individual activities, and structured discussions. For instance, although the topic of combinatorics is taught separately in classrooms, it plays a vital role in everyday life. Similarly, effective instruction on the topic of percentages is emphasized. Today’s world is complex and constantly changing, which is why core competencies align closely with what are often called 21st-century skills: • Critical thinking – the ability to analyze, question, and evaluate information. • Communication – the skill of expressing ideas clearly through speech, writing, and digital tools. • Civic awareness – understanding one’s rights and responsibilities as a member of a community. • Creativity – the ability to generate new ideas, create opportunities to solve problems from different perspectives, and develop innovative solutions. • Growth mindset – the belief that abilities can be improved through effort and practice.

3. Assessment Quality: Validity, Reliability, and Fairness

As part of the curriculum, test items were developed in alignment with the course topics. Each topic was allocated an equal number of questions. During test administration, each participant received three questions from each of the eight topics. From my perspective, this structured approach contributed to the effectiveness of the test. By analyzing the participants' responses, we could determine their level of mastery over the curriculum content. For example, if 15 questions were prepared for one topic, five would be easy, five medium, and five complex. Easy questions typically identify one key concept, while complex ones involve two or three. All participants’ work was assessed consistently, regardless of the assessor. However, in the case of group projects, some participants did not fully address the main criteria or did not meet the pre-established evaluation criteria.

4. Grading and Standard Setting

During classroom implementation, the assessment process was aligned with the tasks based on learning objectives. Given that the worst form of grading is not grading at all, assessment plays a crucial role in mastering topics. It can either motivate or demotivate students. Assessment must be reliable. During assessment, it is important to ensure that it reflects not

only what the learner knows, but also what they are capable of doing. Grading should be based on consistency, fairness, accuracy, and trustworthiness. Example Task: In a town, three stores sell sports shoes at the same price —50,000 tenge. To increase sales, store owners have reduced the prices of goods. In the third month, which store is more profitable for the consumer to shop in? 1st 2st 3rd Aisulu 10% 10% 10% Kunsulu - 15% 15% Zhansulu - - 30% In this example, the problem can be complicated depending on the way the question is asked. For example: “Which store is the best choice in the second month, and why?” Since tasks are aligned with learning objectives, the assessment criteria must reflect them. A minimum score is given if the participant demonstrates a poor understanding of the key concept or makes calculation errors—for instance, being unable to calculate the percentage correctly.

5. Use of Rubrics

A rubric is a structured assessment tool that defines expected outcomes for a given task. It outlines evaluation criteria and describes performance levels for each criterion. Rubrics help students understand what is expected of them at different performance levels. They ensure consistent standards for all learners and also serve as a tool for providing feedback. Rubric Components: • Criteria – the key parameters or elements of the task being evaluated. • Performance levels – these levels indicate how well learners have performed on each criterion. They usually range from low to high. • Descriptors – detailed explanations of what work looks like at each level for each criterion. Example: Find the angle between lines AE and BF in a regular square pyramid SABCD where all edges are 1 unit long, and points E and F are midpoints of edges SB and SC, respectively. Criteria Basic Proficient Advanced Drawing the diagram The diagram of a Pyramid is not drawn correctly Pyramid is drawn but overlaps The diagrams of a Pyramid is drawn correctly, points are clearly marked Using formulas and identifying coordinates of points correctly Coordinates of points and formulas are incorrect Coordinates are correct, but formula has been misapplied Coordinates of points are correctly identified, formulas have been used properly Calculations Major errors in calculations Correct method, calculation errors Complete and correct solution When all the criteria are fully fulfilled, the problem will be solved correctly.

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