

Effectiveness of Competency-Based Education on Student Academic Performance

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Abstract:

Competency-Based Education (CBE) is a pedagogical approach that shifts the focus from time spent in the classroom to mastery of learning outcomes. This paradigm empowers students to progress at their own pace, fostering deeper learning and a sense of ownership over their education. Competency-Based Education (CBE) is an emerging paradigm in modern pedagogy that aims to improve educational outcomes by focusing on the acquisition and demonstration of specific competencies rather than traditional time-based learning models. CBE emphasizes student-centered learning, where learners progress at their own pace after mastering clearly defined skills and knowledge outcomes. This approach aligns academic content with real-world applications, ensuring that students develop critical thinking, problem-solving, and lifelong learning skills essential for success in a rapidly evolving global landscape. By prioritizing mastery over seat time, CBE empowers students to take ownership of their learning process, thereby increasing motivation, engagement, and academic confidence. Additionally, the integration of technology and performance-based assessments in CBE environments enables educators to track student progress more effectively and provide timely interventions. This abstract explores the ways in which Competency-Based Education enhances students' learning abilities by fostering deeper understanding, active learning, and practical skill acquisition. The shift toward competency-based models supports diverse learners, reduces learning gaps, and encourages equity in education by allowing each student to succeed at their own pace. Empirical evidence suggests that students in CBE programs perform better in terms of academic achievement, retention, and readiness for higher education or employment. As education systems worldwide grapple with the need for reform, CBE presents a promising alternative that aligns learning with the demands of the 21st century. The implementation of CBE requires institutional commitment, faculty training, and ongoing evaluation to ensure its effectiveness.

Keywords: Education, Competency based Education, Learning

Introduction:

Competency-based education (CBE) evolved around the 70s. CBE is defined as an outcome-based approach to education that incorporates modes of instructional delivery and assessment efforts designed to evaluate mastery of learning by students through their demonstration of the knowledge, attitudes, values, skills, and behaviours required for the degree sought. (Gervais, 2016). Competency is a set of

skills, abilities, knowledge that helps an individual perform a given task in real life. Every learning should go into the imbibing of skills that will help the individual perform tasks or take actions to lead a productive and joyful life. The task could be as simple as going out to buy groceries or as complex as flying a plane. Each of such tasks require a set of skills, abilities, knowledge and even attitudes to be able to perform the task at hand effectively and efficiently. Several competencies are required here to succeed, and all these competencies or skill sets should also be acquired in the process of learning or schooling, only then school education would be considered effective and fruitful. Competency-based learning or Competency based Education (CBE) is an outcome-based approach to education to ensure proficiency in learning by students through demonstration of the knowledge, skills, values and attitudes required for dealing with real life situations at the age and grade appropriate level.

Competency-Based Education (CBE) represents a genuinely student-centered approach to curriculum design, teaching methodologies, and assessment practices. This educational framework is built around the idea of empowering students through the effective implementation of CBE principles. By shifting the focus from traditional methods to a more individualized approach, CBE transforms the educational experience, fostering an environment where students take charge of their learning journey.

Competency-based education is the best approach to personalizing learning for students. While personalized learning can exist at the classroom level, competency-based education, or CBE, often emerges as a systemic approach to ensuring personalization across a state, community, school district and/or throughout a school. Competency-based education is being implemented at deeper levels in more schools every year. It is a major shift in school culture, structures, and pedagogy focused on ensuring that all students succeed and addressing the fundamental shortcomings of the traditional model. Competency based education refers to systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating that they have learned the knowledge and skills they are expected to learn as they progress through their education. In public schools, competency-based systems use state learning standards to determine academic expectations and define “competency” or “proficiency” in a given course, subject area, or grade level. The general goal of competency-based learning is to ensure that students are acquiring the knowledge and skills that are deemed to be essential to success in school, higher education, careers, and adult life. If students fail to meet expected learning standards, they typically receive additional instruction, practice time, and academic support to help them achieve competency or meet the expected standards.

Competency-based learning is more widely used at the elementary level, although more middle schools and high schools are adopting the approach. As with any educational strategy, some competency-based systems may be better designed or more effective than others. Competency-based Education is generally seen as an alternative to more traditional educational approaches in which students may or may not acquire proficiency in a given course or academic subject before they earn course credit, get promoted to the next grade level, or graduate. The goal of competency-based learning is to ensure that more students learn what they are expected to learn, the approach can also provide educators with more detailed or fine-grained information about student learning progress, which can help them more precisely identify academic strengths and weakness, as well as the specific concepts and skills students have not yet mastered. Since academic progress is often tracked and reported by learning standard in competency-based courses and schools, educators and parents often know more precisely what specific knowledge and skills students have acquired or may be struggling with.

Meaning of Competency Based Education:- Competency-based education is an approach to designing academic programs with a focus on competencies (knowledge, skills and abilities) rather than time spent in a classroom.

Competency :- Competency can be defined as an individual's capability of performing a task successfully in professional, educational, and other life contexts by using knowledge, skills and abilities.

Knowledge:- Knowledge is the conceptual and theoretical understanding of the subject. It is a visible characteristics that can be easily develop through a good competency based education.

Skills:- Skills is a measurable and observable proficiency that is learned through training or experience. It is also a visible characteristics that can be easily develop through a good competency based education.

Abilities:- Abilities is a vast underlying capacity or talent that is essential to learn and apply knowledge and skills. It is a hidden characteristics we are naturally capable to learn. It develops without formal instruction.

The characteristics of CBE were described by Schneck (1978), "Competency-based education has much in common with such approaches to learning as performance-based and is adaptive to the changing needs of students, teachers and the community".

To achieve 21st century skills and global competence, the focus should be on 4 domains Knowledge, Values, Attitude and Skills. Learners in India acquire skills and knowledge, but often lack values and attitude. Children should be able to-

- Understand and appreciate the perspectives and worldviews of others.
- Engage in open, appropriate and effective interactions across cultures.
- Take action for collective well-being and sustainable development.
- Examine local, global and intercultural issues.

This approach allows students to advance based on their ability to master a skill or competency at their own pace regardless of environment. This method is tailored to meet different learning abilities and can lead to more efficient student outcomes. The NEP 2020 calls for a 'shift from [an assessment system] that is summative and primarily tests rote memorization skills to one that is more regular and formative, is more competency-based, promotes learning development for our students, and tests higher-order skills, such as analysis, critical thinking and conceptual clarity.

According to Central Board of Secondary Education, "Competency-based education (CBE 2020-2021) is an approach to teaching, learning, and assessment that focuses on the student's demonstration of learning outcomes and attaining proficiency in particular competencies in each subject." Teaching which uses a CBE methodology works to empower students and provide them with a meaningful and positive learning experience. It places the learner at the center and actively engages them in the learning process. It emphasizes real-world applications of knowledge and skills and the authenticity of the learning experience. The Central Board of Secondary Education (CBSE) adopted Competency-Based Education (CBE) as an annual theme for teacher training during the 2020-21 academic session. This shift aligns with the National Education Policy (NEP) 2020, which emphasizes a student-centric approach that prioritizes skill development and knowledge acquisition over rote memorization.

According to the Competency-Based Education Network (C-BEN) "Competency-based education combines an intentional and transparent approach to curricular design with an academic model in which the time it takes to demonstrate competencies varies and the expectations about learning are held constant." Students acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities and experiences that align with clearly defined programmatic outcomes. Students

receive proactive guidance and support from faculty and staff. Learners earn credentials by demonstrating mastery through multiple forms of assessment, often at a personalized pace.

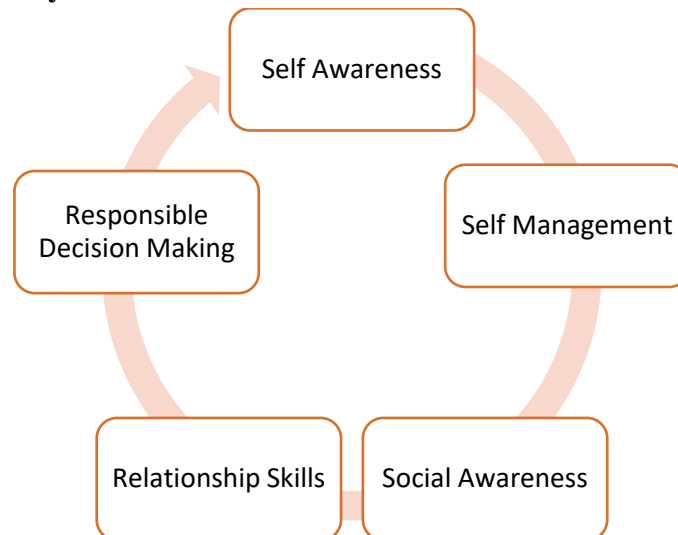
Competency-Based Education represents a transformative shift in how education is approached. By making education truly student centric, CBE empowers students to take charge of their education, actively engage with the material, and progress based on their individual mastery of content. This approach not only enhances student motivation and engagement but also fosters a more equitable and inclusive educational environment. As schools and educators continue to implement CBE principles, the potential for positive change in student learning outcomes becomes increasingly evident, paving the way for a more effective and responsive education system that truly meets the needs of all learners.

The following are the major aspects of a competency-based learning framework.

1. **Empowerment in Learning Choices:** One of the key aspects of CBE is that it empowers students to make significant decisions about their learning experiences. CBE puts students in charge of their learning. Every day, they get to choose how they learn and show what they know. This makes them feel more responsible and helps them become active learners, not just listeners.
2. **Meaningful Assessment:** Within a CBE framework, assessment is a formative tool that provides students with timely, relevant, and actionable feedback on their progress. This approach shifts the focus from grades to learning outcomes, fostering a growth mindset and empowering students to identify their strengths and areas for improvement.
3. **Individualized Support:** CBE recognizes the heterogeneity of student learning needs and provides timely, differentiated support to address individual requirements. This tailored approach ensures that students receive the necessary assistance to succeed, whether through additional resources, one-on-one mentoring, or alternative learning strategies. By addressing these diverse needs, educators can facilitate the academic growth and achievement of all students.
4. **Progress Based on Mastery:** CBE prioritizes mastery over time spent in the classroom. Students progress through the curriculum when they demonstrate a deep understanding of the material, rather than adhering to a fixed timeline. This competency-based approach fosters deeper learning by allowing students to explore concepts at their own pace, preventing them from being rushed through content.
5. **Active Learning Pathways:** CBE promotes active learning through various pathways and flexible pacing. Students are encouraged to explore different ways to engage with the content, whether through collaborative projects, independent research, or hands-on activities. This variety helps cater to diverse learning styles and preferences, ensuring that each student can find an approach that resonates with them. Additionally, varying the pace of learning allows students to dive deeper into topics that interest them, fostering a more engaging and meaningful educational experience.
6. **Equity in Education:** CBE fosters active learning by offering a variety of pathways and flexible pacing. Students are encouraged to explore different methods of engaging with the content, such as collaborative projects, independent research, or hands-on activities. This diverse approach accommodates various learning styles and preferences, ensuring that each student can find a suitable method of engagement. Furthermore, the flexibility in learning pace enables students to delve deeper into topics that pique their interest, fostering a more engaging and meaningful educational experience.
7. **Clear Learning Expectations:** CBE sets clear and consistent learning goals that include knowledge, skills, and attitudes. These expectations are clearly stated, easily understood, measurable, and

applicable to various contexts. By outlining specific learning objectives, educators can develop a focused and coherent curriculum that guides instruction and assessment. This transparency empowers students to understand what is expected of them, enabling them to take ownership of their learning and strive towards achieving their goals.

Components of Competency Based Education:-



- Self Awareness- Understanding one's own self and recognizing personal emotions
- Self Management- Ability to manage behaviors and emotions
- Social Awareness- Understanding other's feelings and perspectives
- Relationship Skills- Being able to maintain and manage relationships
- Responsible Decision Making- Being confident in taking personal and academic decisions

Principles of Competency Based Education:-

1. Equity is set before all else: Equity does not mean giving each student the same thing as everyone else. Instead, it means giving each student what they need to reach the same end goal. This is a main principle of competency based education because it purposely seeks to understand and remove bias in school leadership. Students are taught and supported based on their personal strengths and weaknesses, giving each individual the same chances for success. Thus, the predictability of achievement based on culture, social class, household income, or language is completely removed. Competency based education also helps create an inclusive culture where all students feel safe and respected.

2. Classes emphasize measurable competencies that help build skills for life: Competencies must be defined in advance and set as learning objectives for each student. Rather than just testing for head knowledge, competencies focus on the practical understanding that a student has of the subject.

3. Transparency helps students take ownership: If the student clearly understands what he needs to do in order to be proficient and move forward in the class, he'll take more ownership over his education. Then, when he hits a snag in the project or lacks the knowledge to finish it properly, he'll realize on his own that he needs help. Transparent goals and outcomes thus help students take responsibility for their learning path. This ownership, in turn, helps them become better learners now and into adulthood.

4. Students get the support they need individually: This is where teacher availability comes into the picture. In a competency based education environment, students should have a framework to understand

how long they should work on a problem before asking for help, and when in the class time they can approach the teacher. Competency based education works through bias and produces equity, as discussed above. So, as teachers work with students through their different weaknesses and help them draw on their strengths, each student is moved forward towards mastery on a unique (but equally effective) path. This personalized learning experience gives each student an equal opportunity for success.

5. Teachers assess for growth and mastery: Assessments come in many shapes and sizes. Here are three types of assessments that are especially useful for competency based education. These assessments help teachers to determine where each student is in the learning process and adjust their teaching as necessary. Formative assessments give teachers the ability to adjust in real time by clearly identifying the key areas where students need to improve.

6. Students move forward when they demonstrate mastery: By including regular assessments and data-based progress reporting, teachers understand where each individual student is in the learning process. When students demonstrate a clear understanding of the topic, prove their ability to apply that understanding, and show how they've developed important skills, it's time for them to move forward.

Competency based education models:

The report Levers and Logic Models: A Framework to Guide Research and Design of High-Quality Competency-Based Education Systems and Competency Works identified four competency based education models that should form the framework of a good system. All four of these models work together and help each other by developing clear guidelines for culture and experience, thus giving students the best possible education.

- **Student experience**

The student experience is shaped by how the learning structure is designed. This means including universal design and allowing for different paths to success. Next, must give personalized instruction, feedback, and support to each student. Students should be taught in a way that builds on their prior knowledge, and engage with the material in different ways such as through practice, dialogue, and project-based learning. Finally, assessments must demonstrate mastery of the subject, allowing all students to advance when they're fully competent.

- **Professional practice**

Teachers must have the right materials, including data and learning systems. That way, they can provide transparent feedback and improve the quality of their teaching. Teachers should also design the classroom in a way that allows for inclusion, promotes relationships, and develops mastery. All school faculty have a share in developing relationships as well. To implement a solid competency based education system, teachers must build relationships with each other, with students, and with parents in order to effectively personalize the lessons. The professional practice model of competency based education also includes constant improvement. All those involved in the students' learning and progress should regularly work to improve themselves and their teaching based on research and student data.

- **School systems**

The school systems (whether they be state, district, or other educational networks), have the responsibility to shape and sustain competency based education systems in the schools they work with. When school systems get involved in determining the framework of their schools' competency based education systems, this provides uniformity and coherence across the network. This helps teachers

to have a clear definition of what mastery looks like, which competencies are important, and the assessments they should be using, while still giving them flexibility at a local level.

- **School culture**

Tying all of these models together, school culture forms the basis for the active use of a competency based education system. Each of the above models plays an important part in developing a school culture that accepts and uses the competency based learning system for the benefit of all students. School culture should include inclusiveness, equity, empowerment, and flexibility.

Benefits of Competency-Based Education:

- Efficient and potentially lower-cost degree/credential options for students
- Greater understanding of learning outcomes throughout the academic institution
- Courses, learning resources, and assessments aligned to well-defined goals
- Motivated and engaged students
- Increased student retention and completion rates, particularly when prior learning can be applied to degree progress
- Learners' improved ability to recognize, manage, and continuously build upon their own competencies and evidence of learning
- Employers' improved ability to understand graduates' competencies and learning achievements
- Outcomes-based frameworks for continuous improvement at course, program, and institutional levels.

Benefits for students:

- **Flexible:** Competency based programs are very flexible as their structure depends on the individual learner. There is no rigid schedule in these programs, no set semesters and no classes. Instead, students guide their learning and control when and where they complete projects and assessments. CBE is also flexible in that it allows students to enter a program at any level where they are given credit for previous experience.
- **Self-paced:** The focus of CBE is on the final outcome and not the journey. This enables students to control their pacing because they are not confined by a set learning process. As soon as a student feels they can prove mastery, they can take an assessment, receive credit and start on the next material. Moving as slow or fast as they wish, students are able to complete a degree when they are ready. This is a huge benefit for independent and adult learners who may be working towards a degree around other schedules.
- **Engaging:** One of the strongest outcomes of competency based education is increased student engagement. Students are more engaged in the material because they have ownership over their learning. They are empowered because they have control over when, where and how they learn. CBE also promotes individualized learning and accommodates a variety of learning styles, making it a truly personalized experience. This experience increases engagement because content is tailored to each student and more relevant.
- **Affordable:** The cost of competency based programs varies by institution, program and student pace. Many institutions have created CBE programs precisely as a strategy to increase learning and to lower the cost of education. In many institutions, the tuition depends on how long it takes a student to complete a degree. The faster a learner progresses through the material, the less expensive the

program is. Since many CBE programs are offered online and leverage technology, operating costs are eliminated resulting in lower tuition fees.

- **Skills-based:** One of the key benefits of CBE is that learning centers on real-world skills and competency development. Programs are designed around competencies that are needed for a particular career ensuring that the material is relevant. The outcome is that students are workplace ready and have expertise in their chosen fields. For many students, CBE is a direct path to a successful career.

Characteristics of Competency Based Education:

• Learner-Centric

First and foremost, competency-based learning focuses on the learner as an individual. It provides opportunities for each individual to develop skills at their own pace, collaborate with others, collect evidence of learning, and become successful lifelong learners. Competency-based learning empowers learners to:

- Understand the competencies they need to master to achieve their goals
- Progress through learning processes without time constraints
- Explore diverse learning opportunities
- Collaborate in learning activities with communities of peers and mentors
- Create learning artifacts that represent their competencies
- Reflect on their own learning achievements
- See what they've mastered, what they still need to accomplish, and where to improve
- Develop an online academic identity, including the ability to manage competencies and portable evidence of learning from multiple sources

• Outcomes-Based

Competency-based learning starts with well-defined learning outcomes. The structure for competency-based learning comes from creating, managing, and aligning sets of competencies to learning resources, assessments, and rubrics, with analytics to track performance. Focusing on outcomes empowers faculty and academic leaders to:

- Develop robust sets of learning outcomes and competencies
- Reorient curricular design to start with learning outcomes rather than starting with time/term structures
- Build high-quality sharable resources, assessments, and rubrics designed to support learning outcomes
- Foster authentic assessment that includes demonstrated mastery of competencies
- Effectively identify risk in students' progress toward learning achievements and provide appropriate interventions
- Support transparent analysis of learning outcomes at every level of the institution
- Achieve short-term and long-term academic performance improvements focused on outcomes rather than inputs.

• Differentiated

Differentiation refers to competency-based learning practices that recognize and adjust to meet the needs of individual learners. Differentiation is multi-faceted and applies to learner support, communications a-

d interventions, as well as learning processes.

- **Prescriptive/Diagnostic:** providing different learning materials or assessments to learners based on what they've already mastered.
- **Affiliation:** learners receive different materials or delivery based on their relationship to the curriculum or program in cohorts or groups.
- **Adaptive:** content that is designed with learning alternatives and branching closely tied to the learner's specific interactions with the content.
- **Choice:** learners select from among different learning resources and pathways based on their own choices and preferences.
- **Personalized messages & notifications:** relevant, timely communications tailored to learners' individual activities and needs.
- **Appropriate interventions:** feedback, guidance, activities, or tasks designed to help individuals progress along their learning paths.

Conclusion:

Competency-based education and learning is the new mantra in education. However, while it can benefit students immensely, it is not suitable for all students. Students need to be self-directed learners in order to take advantage of and benefit from CBE. Also, if the school offers CBE, the role of teachers and educators also changes and transforms. Teachers help set the desired learning outcomes in their areas of expertise. They also create engaging learning materials, create absorbing learning experiences, and provide targeted support for students. Adopting a CBE approach can result in great benefits for schools. There will be increased student satisfaction with the learning programs and overall higher enrolment and graduation rates. Also, schools that adopt competency-based learning can attract a large number of students who are looking for flexibility in their studies and learning. Competency-based learning is student-centered education. However, making the transition to this type of learning can be challenging for schools, teachers, and administrators. However, the advantages that come along with CBE are particularly alluring. While CBE presents a promising alternative to traditional education, its effectiveness is most evident when implemented thoughtfully and supported by adequate resources. Future research should focus on long-term impacts, including student outcomes in higher education and the workforce, as well as the scalability of CBE across different educational contexts.

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