Competency based Education: Towards Self-Direction

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Abstract: *As the science of learning evolves, our approach to preparing tomorrow's nursing workforce should coincide. Similarly, we must find new ways to help professionals maintain necessary competencies and obtain new competencies throughout their career. One promising approach to re-envisioning nursing education involves competency-based, time-variable instruction. The paper begins dealing with ingredients of competence. And is furthered with the key differences of traditional and competency based education (CBE). It highlights CBE in teaching and learning relating to all domains of learning. Two learning theories that blend with CBE have been elaborated. It augments the response of the participants in value clarification exercise. And advantages of CBE extrapolated from research studies are enlisted.*

Keywords: competency based education, teaching, learning, values

1. Introduction

We are in preliminary period of learning revolution. Current learning pathways have been fashioned by intense competition from organizations whose sole is to impart learning and by rapid advances in information technology. The bridge between the traditional paradigm, which relies on credit hours estimates student achievement. And the learning revolution can be established in competency based approaches.

We cannot presume that traditional approaches in nursing education are automatically the most productive ways to meet the learning needs of today's students. As the science of learning grows, so must our strategy to preparing tomorrow's nursing workforce. Identically, we must explore innovative ways to help professionals perpetuate necessary competencies and obtain new competencies throughout their career. One promising approach to envision again nursing education encompasses competency-based, time-variable instruction. Steinberg reported that CBE is an advancing field with no globally shared definition of what makes a model competency based. Gervais constructed an operational definition for CBE based on data collection from extensive search of literature and interview from key informants 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 behaviors required for the degree sought [1].
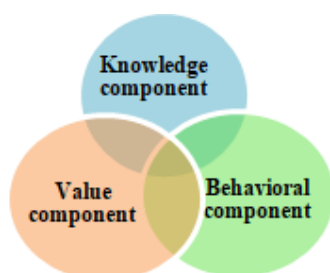
2. What is competence?

Figure 1 : Components of competence

European bodies and educational experts assert competence as set of three interrelated components such as: i) knowledge, which contains understanding part; ii) behavior that comprises of behavioral repertoire; and iii) value, which encompasses values, beliefs and attitudes (Fig.1).

Thus, a competent person implementing a task will possess amalgamation of skills, knowledge, attitudes and behaviors entailed for effective performance of the task. At another level, a competence again may be divided in three components. It is the ability of a person to display a particular behavior in something, a particular context and a particular quality. The Organization for Economic Cooperation and Development (OECD) through Program for International student assessment (PISA) has performed extensive work on defining competencies for the need of assessment. A report completed states: a competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing upon and mobilizing psychosocial resources in a particular context [2].

Working definitions of CBE [3]

- Students proceed upon demonstrated mastery: By fostering upon demonstrated mastery instead of seat time, students are occupied and stimulated and educators can handle their endeavors to where students require the most help.
- Competencies include very clear, measurable, transferable learning objectives that unfetter students: With clear, translucent learning objectives, students have higher possession over their education
- Assessment is purposeful and a positive learning experience for students: Latest systems of assessments provide students current information on their betterment and impart the opportunity to display the evidence of higher order skills, when students are determined to give assessment can be decided by students, rather than at set points in time during the academic year.
- Students accept timely, differentiated support constructed on their individual learning needs: Students earn support and flexibility they need, as per their need, to learner, thrive and master the competencies they will flourish

- Learning outcomes highlight competencies that encompass application and creation of knowledge, fortified with the construction of significant skills and nature:Personalized, competency based learning models reach each student where they are to construct the knowledge, skills and abilities they will need to flourish

Comparison of traditional and CBE [4]:
The comparison of traditional instruction and CBE in relation to the curricular concepts is highlighted in table 1.

Table 1: Comparison of traditional instruction and CBE

Curricular concept	Traditional Instruction	Competency based education
Curriculum	It begins with the parts of the whole. Strict adherence to fixed curriculum is valued.	Emphasizes big concepts, beginning with the whole and expanding into parts. Pursuit of student questions interest is valued.
Structure	Time based, semesters, credit hours	Learner centered, competency based
Teaching mode	Group learning, emphasis on knowledge	Individualized, tailored, emphasis on abilities
Learning	It is based on repetition	It is interactive, building on what student know already
Pace	Faculty paced, all students move together through content at same time, structured	Self paced, movement through content is determined by individual student's competency attainment, flexible
Assessment method	Summative, high stakes	Mastery learning, performance based
Program completion time	Finish when all required courses are passed	Finish when mastery of competencies demonstrated

The University of Wisconsin System's version of direct – assessment CBE model has furnished key differences from traditional education encompassed the following [5]:

- Academic activity and enrollments are tethered with credit hour or traditional semesters
- Enrollment model permits students to cease in and out without forfeit
- Multiple curricular pavement are obtainable, with each student's track evolved individually
- Faculty roles are unbounded
- Students support is dynamic and entwined

Ten distinguishing features of CBE [3]:

Purpose and culture	Pedagogy	Structure
1. Students desirable outcomes are planned around preparation for college, career and lifelong learning 2. Institutions envelopes the accountability to provide learning experiences	4. Students obtain timely and differentiated instruction and support 5. Research – informed pedagogical principles reinforce students staying connected with intrinsic motivation	7. Mechanisms are in place to assure uniformity in expectations of what it means to master knowledge and skills 8. Institutions value lucidity with clear expectations of what is to be learned, how students are advancing and their level of performance for mastery
with students mastery 3. Institutions nurture empowering, encompassing cultures of learning	6. Assessments are implanted in the personalized learning cycle and ranged to outcomes encircling the transfer of knowledge and skills	9. Approaches for communicating betterment assist the learning process and student success 10. Learners progress based on achievement of learning objectives through personalized learning

CBE in teaching and learning:

Competency based teaching [6]:
The most important characteristic of CBE is that it measures learning rather than time. While most Universities hold time requirements constant and let learning vary, competency based learning allows us to hold learning constant and let time vary.

Characteristics of competency based teaching

- Understand how students learn. For example: Active learners learn by doing something with information. They prefer to process information by talking about it and trying it out. On the other hand, reflective learners learn by thinking about information. They prefer to think things through and understand things before acting.
- Correlate principles of learning and teaching. Teachers are expected to blend the principles of teaching and learning while imparting CBE.
- Act as catalyst rather control teaching. Varying instruction means using different methods to deliver lessons to students. Each way of facilitating learning has its merits and helps immerse students in the learning process by tapping into their interests and abilities
- Display humility, critical thinking, respect, competency and caring at all times. This reflects the value component that a student learns from teachers particularly through observation.
- Enhance acquisition of knowledge, skills, and professional behaviors in all learning domains. Because CBE emphasize intertwining of all domains to make it holistic.
- Facilitate and expect learner accountability for learning. CBE demands student accountability as it is a significant trait to be developed among students. It helps them to take responsibility for their actions, learning, and helps improve academic performance and achievements.
- Offer timely, specific feedback on learner progress beginning with learner self assessment. This helps students to grow in the direction of the objectives to be accomplished. Feedback when provided timely and making it specific helps students to focus on their weakness and aids them in self evaluation.
- Tailor learning experiences according to needs of learners. Individual traits and characteristics determine that all individuals are not same. CBE tailors learning experience according to individual need of students.
- Anticipate increasing complexity of performance as the learner progresses throughout the program. Growth of a

student is measured cumulative progress of the performance and therefore they are expected to reach expertise level from novice.

Teaching and enhancement of CBE:

- CBE programs build from the idea that it is more important to focus on outcomes – what a student knows and can do – than on inputs like how the student learns it, where the student learns it, or how long the student takes to learn it.
- Teaching strategies need to be matched to the domain of learning (Fig.2).
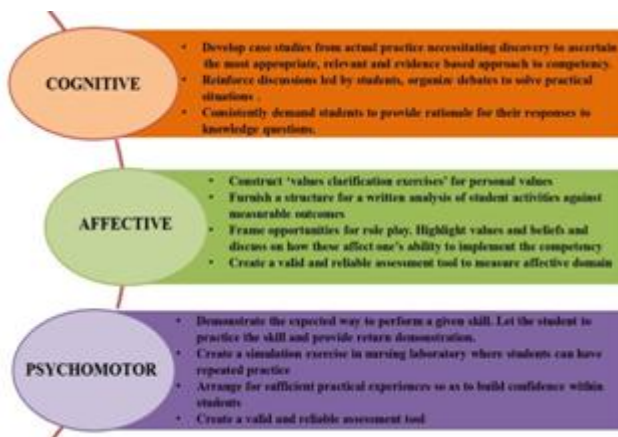
Figure 2: Teaching strategies utilized in CBE

Theories related to CBE

Pertaining to CBE in learning, a couple of theories are dealt those envelopes CBE.

Constructivism: learning theory

It is basically a theory which is based on observation and scientific study, and about how people learn. It says that people construct their own knowledge of the world, through experiencing things and reflecting on those experiences. When we encounter something new, we have to reconcile it with our previous ideas and experience, may be changing what we believe or may be discarding the new information as irrelevant. The constructivist view of learning can point towards a number of different teaching practices [7].

Four basic characteristics of constructivists learning environment (Tam, 2000) [8]:

i. Knowledge will be shared between teachers and students
ii. Teachers and students will share authority
iii. The teacher's role is one of the facilitator or guide
iv. Learning groups will consist of small numbers of heterogeneous students

Pedagogical goals of constructivist learning environment [9]:

Honebein summarizes as:
- To provide experience with knowledge construction process (student determine how they will learn)

- To provide experience in and appreciation for multiple perspectives (evaluation of alternative solution)
- To embed learning in realistic contexts (authentic tasks)
- To encourage ownership and a voice in the learning process (student centered learning)
- To embed learning in social experience (collaboration)
- To encourage the use of multiple modes of representation (video, audio)
- To encourage awareness of the knowledge construction process (reflection, metacognition)

The second theory related to CBE is given below (Fig.3):

Figure 3: Conceptual learning model

Each of the rungs of ladder is thought to influence those rungs that appear above and underneath. The first rung of this pyramid consists of traits and characteristics. This reflects the innate makeup of the individuals on which further experiences can be built. That is why different learning experiences are required to acquire different levels of knowledge, skills and abilities. The second rung of ladder contains skills, abilities and knowledge that are developed as a result of learning experiences. The third rung of ladder consists of competencies that result from integrative learning experiences. The fourth and last rung of ladder is demonstration, that is the consequences of competencies and it depicts that student is prepared for performance [10].

Learning and enhancement of CBE:

The learning activities utilized in CBE in relation to three domains of learning are furnished in Fig.4.

Figure 4: Learning activities in CBE

This paper was presented during the second national workshop. While values were dealt, value clarification exercise was given to the participants. Around 340

participants provided the responses. Participants were asked to mark their values given in the activity sheet that contained 87 values. They were instructed to order from 1 to 10 based on their priority. It was found 203 valued honesty; 178 knowledge; 148 communication;146 quality; 142 self awareness; 133 achievement; 123 self respect; 112 effectiveness; 105 team work; and 104 loyalty. When similar values were clubbed together, the responses are ranked in the order of high to low and displayed in table 3.

Table 3: Ranking order of values among the participants

Values combined	Responses	Rank
Family/Belonging/ Relationship/ Love/ Work And Life Balance/ Communication/ Personal Expression/ Influencing/ Friendship	648	I
Involvement/ Achievement/ Meaningful Work/ Responsibility/ Teamwork/ Cooperation/ Collaboration/ Harmony/ Order	622	II
Quality/ Competence/ Excellence/ Productivity/ Effectiveness/ Efficiency/ Leadership	539	III
Honesty/ Integrity/ Truth/ Loyalty/ Fairness/ Openness	532	IV
Knowledge/ Advancement/Expertise/ Mastery/ Merit/ Wisdom/ Learning/ Intellectualism	526	V
Self Awareness/ Self Realization/ Self Respect/ Respect	420	VI

An individual's value could potentially change from value community over work to valuing work over community. Personal values develop from previous work and life experiences for all humans. When people face decisions on the course of action to take, they reflect on what they learned and what they believe to be true. Thus, personal values can influence professional values, at large. Such exercises for nursing students' offer opportunity for nurse teachers to improve their teaching strategies and include the areas of weaker values. The ultimate need to utilize the values in nursing practice is to enhance quality of patient care, job satisfaction, extend the retention rate, and increase commitment to profession and institution. This values clarification exercise could educate students about the concept of values also this exercise could be utilized to determine to measure academic performance of students [11].

Competency based approach in nurse education:

Ilott and Murphy 1999 and Mc Mullan et al. 2003, identified three different approaches to competence [12]:

Attributional or generic: This approach concentrates on the general attributes of the person necessary for effective performance. These qualities typically include critical thinking, adaptability, problem solving and self confidence.

Behaviorist: This approach to competence specifies what needs to be done to fulfill the job requirements and is concerned more with what people can do rather than with what they know.

Integrated or holistic: This approach is a combination of behaviorist and attribution approaches

Pedagogical considerations:

Competence based learning places an emphasis on powerful learning environments that enable students to engage in meaningful learning processes

Most distinctive features are:

- Meaningful contexts: Students must relate new knowledge (concepts and propositions) to what they already know. These more inclusive concepts or ideas are advance organizers. The teacher will create or look for meaningful contexts in which students will in natural way experience the relevance and meaning of the competencies to be acquired.
- Multidisciplinary approach: Educative approach needs to be integrative and holistic as well
- Cooperative, interactive learning: The basic idea behind the CBE is to help learners to develop and construct their own. Cooperative learning augments group processing, individual and group accountability, promote face-to-face interaction, positive interdependence and learning social skills.
- Discovery learning : Making content available and accessible and that way of obtaining knowledge
- Reflective learning: Learner reflects on their needs, motivation, approach, progress.
- Personal learning: Information, knowledge and strategies only become meaningful for a person if they become an integral part of their own personal body of knowledge and competences

Competency based learning empower learners to:

- Comprehend the competencies required to master and accomplish their goals
- Advance through learning processes without curtailment of time
- Investigate multiple learning opportunities
- Amalgamate in learning activities with peers and mentors
- Design learning antiques that constitute their competencies
- Contemplate on their own learning procurement

Advantages of competency based approach

- Assessment of clinical practice is best suited to nursing and allows adaptability in a dynamic working environment [13].
- Performance can be more effectively measured. Competencies provide ideal foundations on which these assessments can then be made [14].
- Ultimate goal is to evaluate performance for the effective application of knowledge and skill in the practice setting [15].
- It measures skills and attributes needed to be assessed more accurately, taking account of the capacity to integrate knowledge, values, attitudes, skills in practice [16].
- Wynee and Stringer 1997 believe competencies can help in recruitment and selection, assessing performance

and potential in training and development and staff retention [14].

CBE: Research supports:

- Zaker M et al (2017)[17] conducted a quasi experimental study to evaluate CBE model on cognitive & clinical skills of nursing students at Iran. Results demonstrated cognitive and behavioural skills were significantly higher (P<0.01) in the experimental group.
- A Harerimana (2013)[18] conducted a study to explore nurse educators' perception and knowledge concerning competency based approach used. Nurse educators 90% planned group discussions, 90% used situations to integrate theory and practice; and 82.5% employed case studies
- Kadam Manisha (2017) [19] undertook a quasi experimental study on introduction of competency based learning among final year BSc nursing students at Pune. Results showed knowledge and skills were markedly improved whereas attitude did not show any difference.

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