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# CREDIT BASED EVALUATION SYSTEM AND CONTINUOUS AND COMPREHENSIVE EVALUATION: ISSUES AND PRACTICES

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Abstract: With 'Twinning Programs'; 'Joint Degree' initiatives; 'Study Abroad' programs; 'Mobility of Learners' and the need for offering flexible curricular choices to them, it has now become necessary to take serious relook at the system and introduce reforms. The UGC has time and again recommended for improving the quality and effectiveness of higher education in the country. An important concern voiced more strongly in recent times is the need to develop a Credit Based Evaluation System in tune with global trends and the adoption of a sound grading system for reflecting learner's performance. The curriculum under this system has been proposed to upgrade the standards of teaching via classroom lectures, laboratory techniques, seminars, field studies, assignments, projects, discussions, etc. Credit Based Evaluation is pivotal in enhancing learning opportunities, matching learner's needs and aspirations, inter institution transferability, providing flexibility for a program completion over an extended period of time, standardisation/comparability of programs across the country etc. To evaluate the students during program, CCE is employed with striking features of grading system, formative and summative evaluation, formative feedback and transparent/tangible evaluation process. Although a very empowering system, it still suffers from issues of nomenclature, content equivalence, degree of openness/ restrictedness, evaluation strategies etc.

**Keyword:** Mobility, Evaluation, restrictedness, evaluation strategies.

#### 1.INTRODUCTION:

In the traditional system of learning (still in vogue in our country), equal weight age is given to all the courses and the programmes are compartmentalised in terms of disciplines such as B.A or M.Com without allowing freedom to choose multidisciplinary combination of courses to suit the interest and needs of the students. All the courses generally have maximum marks of 100 but allocation of teaching hours in the timetable is not equal. In view of this it becomes tricky to compare different courses, e.g. the difficulty level of Sanskrit course versus Physics course and so on. UGC, NAAC, DEC and even the national knowledge commission NKC have time and again come out with recommendations for improving the quality and effectiveness of higher education provisions in the country. An important concept voiced more strongly in recent times is the need to develop a choice based credit system in tune with global trends and adoption of a sound grading system for reflecting learner performance (Manual on CBCS and Grading, University of Mumbai, 2011). UGC has asked universities and colleges to carry out academic reforms, including introduction of the semester system and choicebased credit-system, "with a switchover to continuous internal evaluation and reducing the written examination component, credit transfer, and credit accumulation," says a UGC report on 'Higher education in India - Strategies and schemes during eleventh plan period (2007-2012)'.

#### 1.1. Credit Based Evaluation System

Under this system, the curriculum in a given subject includes such ingredients as may be required to upgrade the standards of teaching, such as classroom lectures, laboratory techniques, seminars, field studies, assignments , projects, discussions, training etc. These ingredients are generally specified in terms of courses with each course having credits depending on the workload it involves. The most striking feartures highlighted by UGC are:

Enhanced learning opportunities.

Ability to match learner's scolastic needs/aspirations.

Interinstitution transferability of learners (following the completion of a semester).

Part completition of an academic programme in the institution of enrollment and part completion in a specialised(and recognised) institution.

Improvement in educational quality and excellence.

Flexibility for working learners to complete the programme over an extended period of time.

Standardisation and comparability of educational programmes across the country.

Credit system is basically an American innovation, developed in the late nineteenth century. 'Credit' defines the quantum of contents / syllabus prescribed for a course and determines the number of hours of instruction required. According to UGC, to complete a three-year degree

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programme, a student needs to acquire 120 credits and for a two-year Masters programme 90 credits need to be earned i.e. each semester the student has to acquire approximately 20-25 credits. Under this system there is provision for a student to acquire extra credits too. Extra credits may be acquired for attendance, extra courses taken and other achievements as decided by the evaluating authorities-university/colleges. However, there is no uniformity in the credit systems currently followed by some institutions.

### 1.1.1.Issue of non-uniformity: no common meaning of term 'credit' in strict terms.

In Chennai's autonomous Loyola College, a credit is a numerical expression of class hours, self-study time as well as extra-curricular work completed. A Loyola undergraduate needs to garner 140 credits over three years to get his/her bachelor's degree and 90 credits for a master's degree. For a major core course, three credits mean the student has to attend three to four hours of classes for the course and spend three hours studying for it in the library and at home. If it's an allied subject, the student gets two credits for attending three to four hours of classes and only one credit in the case of a foundation course. In addition to academic work, Loyola students must take part in ECA too. "Undergraduate students must work for 150 hours per year in any club or society for which they get three credits. In their second year, they must spend 150 hours in outreach activities, such as teaching or cleaning in the slums," says G Ramamurthy.

In Ambedkar University, Delhi, a credit is a unit of teaching or contact hour with students. It is roughly one hour of class lecture or tutorial. So, a four-credit course is a full course with four-five credit hours per week in a semester. A student needs 96 credits for his/her BA degree and 64 credits for an MA. AUD doesn't hand out credits for ECA but gives two for a four to six week internship completed by MA development studies students (Uniapply News, 2011)

According to Miss Suguna Kannan, director, post graduate studies, St. Joseph College for Women, Vishakhapatnam, each credit unit is equal to 25 hours of study of a theory course or 60-75 hours of practical work. If students attend 3 hours of theory classes per week for a period of 18 weeks (semester is normally of 18 weeks duration) and complete the course successfully they will acquire 2 credits; for 4 hours per week 3 credits and so on. For every practical of 3hrs/week they can earn 1 credit. Using this formula all courses of the study can be quantified and equivalence calculated. It is obvious from this calculation that the contents/difficulty level of a one-credit course (requiring one hour of study per week) will be less than that of a three-credit course (requiring four hours of study per week). (Kanan, 2007)

In Mysore University, in a semester pattern, a task of teaching a paper is completed in a span of 16 weeks. If a paper is taught by administering all three lectures, tutorials and practical components, one possible contribution of learning hours per week in the paper could be:

Lectures: 2 hrs/week amounting to 2 credits of learning/semester by a student in the paper.

Tutorials: 2 hours/week amounting to 1 credit of learning /semester by a student in the paper.

Practicals: 2 hours/week amounting to 1 credit of learning/semester by a student in a paper.

Conversely, if a paper in a particular semester is defined as a 4 credit paper, then a candidate is said to earn 4 credits in that semester by successfully completing the said paper within the duration of 16 weeks in that semester. so the typical LTP structure for a credit paper is of 2:1:1 type with the split up for L, T, P sessions as 2 credits for L(through 2 hrs. of lecture classes), 1 credit for T (through a session of 2 hrs of tutorial) and 1 credit for P(through a session of 2 hrs. of practical):2+1+1=4

A candidate in a Bachelor's degree course has to complete a total of 120 credits covering common papers amounting to 24 credits, additional common papers amounting to 4 credits, core papers amounting to 80 credits, support elective papers amounting to 12 credits. In a master degree course a candidate has to complete a total of 36 credits covering the concerned discipline of study covering core papers amounting to 8-10 credits, soft core/elective in the trans border discipline amounting to 4-8 credits, elective papers from the discipline amounting to 4-8 credits, one project work amounting to 4/8 credits, one self study elective in the area of project work amounting to 0-4 credits. (Choice-Based Credit System, University of Mysore.2009)

Such is the variation in the system adopted in different universities of the country which is a major hindrance in promoting student mobility within and between the institutions.

#### 1.1.2. Recommendations.

Need for using a common nomenclature.eg. Program, course for all the academic offerings of the university.

Arriving at a common meaning of the term credit in strict terms.

Extent of content equivalence expected between two or more courses before considering them for credit transfer.

Degree of openness vs. restricted entry to be exercised when considering vertical credit transfer.

Need to evolve uniform definitions of terms like certificate, diploma and degree level programs both in terms of hours of study as well as depth of content to be covered.

Role of contextual variables like learning facilities offered, teaching learning approach adopted, and evaluation strategy employed etc. in credit transfer.

## 1.2. Continuous and comprehensive evaluation: issues and practices:

UGC recommends the universities to switchover to continuous internal evaluation and reducing the written examination component (Higher education in India - Strategies and schemes during eleventh plan period, 2007-12). CCE evaluation strategy, as we all are aware of, incorporates the following features (Teachers' Manual on Formative Assessment, CBSE, 2010. Delhi, India).

CCE takes care of continual and periodicity aspect of evaluation

Continual means assessment of students in the beginning of

instruction and assessment during the instructional process (formative evaluation) done informally using multiple techniques of evaluation.

Periodicity means assessment of performance done frequently at the end of unit/term (summative).

The comprehensive component of CCE takes care of assessment of all round development of child's personality.(scholastic & co scholastic).

Assessment in scholastic areas is done informally and formally using multiple techniques of evaluation continually and periodically. Diagnostic evaluation takes place at the end of a unit/term test followed with appropriate interventions and retesting.

In CCE assessment is done through semester system of education and marks are replaced by grades.

In CCE there has been an appreciable movement in the direction of returning the marked answer scripts to the examinees in the interest of accountability and transparency in evaluation process.

Likewise in credit based evaluation, the scheme of examination is divided into two parts: internal assessment and external assessment (semester end examination). Internal assessment includes assignments, seminars, quizzes, viva, open book test, unit tests etc. Evaluation of answer books is done as per the continuous evaluation procedure of the university. The students are awarded a letter grade on a 10 point scale on the basis of his or her performance. The answer books of minor and major tests are shown to the students within a week and are returned to the head of the department accordingly as is the feature of CCE. The courses may be evaluated in terms of marks or in term of grading but the latter is generally preferred since it is more objective. At the end, marks/grades and credit points are combined for arriving at the weighted marks/grades and the final result of the student is presented as OPM (Overall Percentage of Marks) or as GPA (Grade Point Average).

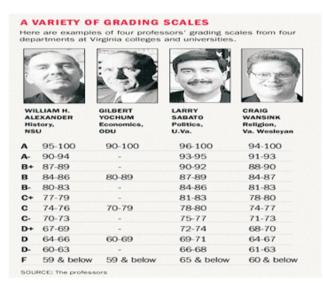
The hope of the country when CCE was introduced as a new assessment scheme was that the change would assist in reducing the burdens formally imposed on the learner by external terminal assessment and the improving the student achievement as result of frequent assessments.

#### But has this been achieved in the real sense of the term?

The study by WAEC, Accra, Ghana (1979) questioned the reliability of the continuous assessment scores and indicated that generally the continuous assessment scores were abused by some teachers. For instance, it was established that CA scores in certain subjects obtained by some students did not have any positive linear relationship with scores obtained in the external examination. In a similar study by Mukhtar(1998) with regard to teacher training colleges asserted that in a particular instance a male student who scored 15 out of 30 marks in CA in basic science obtained 62 out of 70 in the external examination, where as female students who scored 25 out of 30 in CA obtained 18 out of 70 in the external examination. Though this observation by Mukhtar could not be generalised in order to make conclusive statements, it nevertheless point to the fact of the possible abuse in the CA scheme and appeared in the WAEC finding of the reliability of CA scores. But still the studies favouring continuous assessment are more than the ones disfavouring it.

In supporting formative assessment, a great deal of reliance has been placed on Thompson (2004) who examined differences in students' of teachers with high and low engagement in the California formative assessment support system for teachers (CFASST). Results reported that students of the teacher who participated in CFASST training did see significant gains on their CAT-6 maths, reading, language, arts, spelling scores. Black and William's (1998) seminal piece is also frequently cited as evidence that formative assessment does improve student achievement. Martinez and Martinez (1992) was another study used to study used to support the conclusion that frequent assessment improves student achievement as the results of their study indicated a significant difference between the student participants who took one test per chapter and those who took three tests per chapter in a two by two experimental design used by the researchers. (Dunn & Mulvenon, 2009)

But the irony is that the most of the teachers who are supposed to use the continuous and comprehensive evaluation are found to be unaware of the concept of CCE. They need a proper formal training to handle the various activities as a part of the curriculum. However the grading and reporting of student learning have created the greatest controversy among educators (Pollio and Beck, 2000). The design and development of the assessment instrument/task (including table of test specifications) associated assessment criterion, the award of raw scores to a grade and feedback to students have an element of fuzziness and involves teacher judgements. Even though there are moderation processes in place, the ambiguities of raw scores and grades need attention. The following figure highlights the challenges associated with assignment of grades. (Alagumalai, 2006)



So we can say that there is a shift in the way we view assessment of students; evaluate students' work and the demand for examining assessment as a key component in pre service and in service teacher education becomes fundamental. There is unquestionably an urgency to

reconsider professional development of teachers / educators.

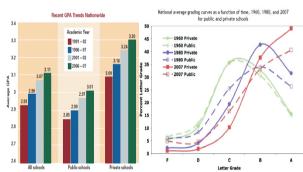
#### 1.3. The issue of inappropriate infrastructure

Another issue which is worth noticeable here is that for the successful implementation of CCE, there has to be an appropriate infrastructure, but unfortunately we still lack in this aspect too. A study based on status of infrastructure in university libraries of Karnataka, the results showed that universities are yet to establish extensive facilities required for efficient information access and there is an urgent need on the part of universities to plan, implement and develop ICT infrastructure which is posing a great challenge to quality education. (Walmiki & gowda, 2009)

#### 1.4. The issue of grade inflation

Grade inflation is the tendency of academic grades for work of comparable quality to increase over time. Universities, especially private schools are giving out more "A"s than ever, according to a study of 180 institutions by Stuart Rojstaczer, Ph.D, who has been collecting the data for the last six years.

"One thing is true in general: The more tuition you pay, the higher the average GPA". (APA, 2009.) Fig. 1 and 2 highlight the challenges associated with the assignment of grades and grade inflation.



Source: www.gradeinflation.com

Could this be happening in India at the Class XII level? Are the larger number of students with high scores that we are seeing today due to easier questions on the test, more liberal grading, or are today's students actually doing much better than their past cohorts?

Three years ago, in 2008, 8,253 students scored an aggregate of 90 per cent and above in the Class XII (CBSE) examinations. In 2011, that number has gone up two and a half times to 21,665. The rise in the number of students who have scored more than 95 per cent in aggregate in the CBSE Class XII exams is even sharper, growing five and a half times from 384 in 2008 to 2,097 in 2011. Is the graduating CBSE class of 2011 simply much brighter than their peers three years earlier? Almost certainly not, not by that scale at any rate. What we are witnessing is an extraordinary degree of grade inflation where students of comparable ability to those say three years ago, or even 10 years ago, get a much higher grade for a similar performance.

The cover story, written by Associate Editor, India

Today, Padmaparna Ghosh with reporting from bureaus across India, analyses this phenomenon of grade inflation. The story talks to policymakers, vice-chancellors, university professors, school principals, school teachers and students to trace the recent history of examinations and marking in CBSE and other boards.

Far from helping students, grade inflation actually leads to serious distortions, often compromising standards. At the top end of the spectrum it becomes difficult to distinguish the truly exceptional students from those a rung below. At the lower end of the spectrum, it gives students with more limited abilities a false sense of academic worth. In 2011, a 90 per cent aggregate mark is of less value than it was in 2008. This leads to confusion, disappointment and hysteria, all of which have been witnessed in abundance this admission season as students from across the country line up to get into one of the premier colleges of India's most reputed university, the Delhi University.

Prima facie, cut-off marks which hover between 95 and 100 per cent seem absurd. But that is the reality of getting admission into a B.Com. Honours or Economics Honours course in the top five or six colleges of Delhi University. Colleges only have a limited number of seats and if more than 2,000 students in the CBSE alone have got over 95 per cent, upward pressure on cut-offs are understandable. There seems to be some evidence that the CBSE, which was once criticised for its subjective and error-prone examination system, has made an over-correction by making exams and evaluation completely objective. For example, students are now awarded full marks in English for an answer which may have poor grammar and sloppy language as long as it contains the right "key word."

While grade inflation is a problem that needs to be addressed, policymakers also need to turn their attention to the fact that there simply aren't enough quality avenues for higher education in India. The number of students aspiring for higher education is growing rapidly. The number of good colleges remains stagnant. Many colleges and universities, particularly in provincial centres, have in fact declined over the years, putting more pressure on a select few in the major metros. This needs to change. The mushrooming of new, high quality colleges may eventually be the best antidote to this issue and the issue of grade inflation too. (Purie, 2011)

#### 2.CONCLUSION

Introduction of credit system will be of immense help to our young men and women in proving that they are as good as their counterparts from the so-called developed countries. Credit system coupled with examination reforms will go a long way in enhancing the dynamism and vibrancy of Higher Education. Curricular flexibility and learners' mobility is an issue that warrants our urgent attention and can be addressed successfully only by implementing credit based courses and credit based accumulation. The issues related to evaluation strategies like lack of appropriate infrastructure in our universities, variation in grade scales, grade inflation, untrained teachers, nomenclature, content equivalence etc need to be addressed before we proceed for sensitive standardisation and comparability of educational programmes across the country.

#### REFERENCES

Alagumalai, S. (2006). Can we trust our teachers, their tools and techniques? International Association for Educational Assessment Annual Conference (32nd 2006: Singapore). Published at Singapore examinations and Assessment Board. Available from

http://iaea.info/documents/paper\_1162a1907d.pdf Black,P., & William,D.(1998). Assessment and classroom learning. Assessment in Education, 5(1), 7-74.

CBCS: A move towards choice based credit system and continuous assessment and grading pattern.University ofMysore.(2009).Availablefromhttp://www.unimysore.ac.in/assets/downloads/dec09/English.pdf

Credit systems in higher education.(2011).Retrieved 20-04-2011 from http://www.uniapply.in/news/item/10579-credit-systems-in-higher-education

Dunn, K.E., & Mulvenon, S.W. (2009). A critical review of research on formative assessment: The limited scientific evidence of the impact of formative assessment in education. Practical Assessment, Research & Evaluation, 14(7).

Kannan,S.(2007). Credit, grading system in higher education. The Hindu: Education Plus Visakhapatnam, June,2007. Retrieved from http://www.hindu.com/edu/2007/06/11/stories/2007061150660300.htm

Martinez, J.G.R., & Martinez, N.C. (1992). Re examining repeated testing and teacher effects in remedial mathematics course. British Journal of Educational Psychology, 62,356-363

Mukhtar,M.I.(1998). The relationship between teacher assessment and external examinations in basic science and basic mathematics in selected teacher training colleges in Ghana. An unpublished B.Ed. (science) project work, University of Cape Coast.1998

Pollio,H.R., & Beck,H.P.(2000). When the tail wags the dog: perceptions of learning and grade orientation in and by contemporary college students and faculty. The Journal of Higher Education, 71(2):84-102

Purie, A. (2011). Mushrooming of new colleges may be the best antidote to grade inflation: Editor's Note News. India Today. July 4, 2011. Retrieved from http://indiatoday.intoday.in/story/india-today-group-editor-in-chief-aroon-purie-on-students-scoring-95-percent-marks-in-class-12-cbsedelhi-university-admissions-and-grade-inflation/1/142594.html

Satya.(2000). Education in India: Long term trends in grade inflation in U.S Universities. Retrieved from

http://prayatna.typepad.com/education/2011/07/long-term-trends-ingrade-inflation-in-us-universities.html

Teachers'ManualonFormativeAssessment.CBSE,2010.Del hi,Iindia.Retrievedfromhttp://www.cbse.nic.in/cce/cce-manual/CBSE-FA-class-ix520(science)520final.pdf

The West African Examinations Council. 'Report of the Ad Hoc Committee on Methods of Examining', March, 1979.

Thompson,M.,Paek,P.,Goe,L., & Ponte,E.(2004). Study of the impact of the California F.A and support system for teachers: Report 3, relationship of BTSA/CFASST engagement and student achievement (CFASST Rep.No.3, ETSRR-04-32).

Walmiki, R.H., & Ramakrishnagowda.K.C.(2009).ICT infrastructure in University libraries of Karnataka.Annals of

Library and Information Studies, 56(4):227-235

Welukar.et.al. (2011).Manual on semester based, credit and grading system implemented in University of Mumbai. Printed at Mumbai University Press, M.J.Phule Bhavan, Vidyanagri, Santacruz(East),Mumbai400.Retrievedfrom http://www.mu.ac.in/2\_Manual\_SCGS\_Science\_09-06-2011.pdf

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