Epistecybernetics and the Accreditation Process

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Abstract

The current trend in accreditation vis-à-vis ABET and others is for the accreditation seeking "institution" to demonstrate that its program(s) meet the (TC2K) required criteria. The institution must clearly demonstrate continuous program(s) improvement, enhanced student learning and satisfaction among others. These required demonstrations entail systematized documentation of program(s) activities and are not part of academia's regular or traditional routine. Epistecybernetics, a term aptly coined by Hensley [(1)] et al and simply defined as the governance and stewardship of knowledge provides the framework for meeting the requirement of systematized documentation of program(s) activities. The CUES (Consortium for Upgrading Educational Standards) protocol, one of the core components of the epistecybernetic system, when successfully implemented, can be a useful assessment tool for program(s) activities and enhanced student learning.

1. Introduction

Institutions, programs, accreditation agencies such as ABET and NCATE, and governing bodies such as KBR (Kansas Board of Regents) and others rely extensively on the themes of enhanced student learning, successful course delivery methods, continuous improvement, life long learning, faculty professional development and others as **criteria** for institutional and program viability assessment and determination. Also of relevance and importance is the fact that accreditation agencies and governing boards operate on the basis that it is the responsibility of the institution or program to clearly demonstrate that its activities and curricula meet the required **criteria**. Demonstration of institutional and program compliance entail systematic documentation of activities that are not part of academia's traditional or regular routines[(1)(2)(3)(4)]. Institutional and program professional standards, accreditation and governance imply **quality assurance and accountability**, administrative accountability, instructional accountability and student accountability. Students are expected to learn and acquire knowledge and become productive members of the work force and society, faculty are expected to implement instructional practices and methodologies that enhance student learning and creativity, and administration is expected to implement policies, curricula and collegial environment that facilitate faculty and student activities.

Accountability requires that academia operate via "design and planning", design and planning that is done upfront to ensure that institutional goals and objectives are attained in a manner that is cost-effective and that meets accreditation and governance criteria. A viable means of operating via "design and planning" is to adopt and implement the CUES ASSESSMENT MODEL (CUES-AM); CUES-AM is a core component of epistecybernetics. The themes of enhanced student learning, enhanced course delivery methods, continuous improvement, life long learning, faculty professional development and systematic **documentation** of knowledge are embodied in the principles and precepts of **epistecybernetics**' total system approach to knowledge and assessment of knowledge. Documentation is a very important, integral component of demonstration of compliance, quality assurance and accountability.

Epistecybernetics, a term aptly coined by Hensley et al[3][5][13] and simply defined as the governance and stewardship of knowledge, utilizes a total system approach that is critical thinking and criterion-based to achieve institutional and program goals. The CUES (Consortium for Upgrading Educational Standards) assessment model (CUES-AM), a core component of epistecybernetics relies on mastery-based learning and faculty-student partnership[3][4][5][6][7]. CUES-AM consists of the following advanced education innovations:

1. pre-test, post-test of each student to determine knowledge gain, ability to apply knowledge and student creative thinking from the different delivery systems ,
2. CUES EKE Protocol for rating of activities,
3. CUES EKE for rating of course/instructional delivery,
4. models, matrices and subject/course-specific structures of knowledge for a discipline,
5. universal register of essential knowledge, and
6. ethics and life long learning.

Goals and Objectives

The objectives of this paper are to:

1. demonstrate the viability of CUES Assessment Model (CUES-AM) as a medium for enhanced student learning, continuous improvement and assessment of students achievement,

2. disseminate the CUES Assessment Model,

3. educate interested faculty and administrators on how to adopt and implement CUES-AM in their curricula and programs for enhanced student learning and achievement assessment, and

4. initiate the development of a CUES-AM users network or "BORG", a center dedicated to facilitating the student achievement assessment and life-long learning activities of CUES-AM user faculty and administrators.

2. CUES-AM

Previously stated under introduction is that the component elements of CUES-AM are the pre-test, post-test of each student to determine knowledge gain, ability to apply knowledge and student creative thinking from the different delivery systems , CUES Protocol to determine the validity of selected essential knowledge elements for use in the professional field, CUES Protocol to determine the efficiency of different instructional modes for teaching students the essential knowledge elements (EKE) of the course/program, models, matrices and subject/course-specific structures of knowledge for a discipline, universal register of essential knowledge, and ethics and life long learning. These components are integrated and provide the basis for CUES-AM workshop.

The Concept of Pre-Test, Post-Test

The concept of **pre-test and post-test** for knowledge enhancement and assessment is not a new one but the **CUES tests are innovative** for the test items are selected from the essential knowledge elements in the appropriate SOK. For example, Peter Sisler (1997) found and registered 255 original calculus algorithms in the CUES Calculus Register. Usually, academicians teach these 255 EKE in three consecutive courses. This means that 80-90 EKE's are taught in a single course such as Cal-301, Cal. 302 and Cal 401. Students are told at the beginning of their class exactly which 87 EKE will be taught and that they are responsible for knowing their formulae, for being able to select and apply the correct formula to a situational problem. Moreover, each student must show how each of these formulae can be applied in a real world , steps in the solution can be a very effective means of enhancement and assessment of student learning. In a previous effort to set up the RET (Research Experiences for Teachers) program directed by these authors at Pittsburg State University, an informal survey of a sample of K-12 teachers in the "Four State Region" was conducted, and it was determined that approximately 30 percent of teachers used the pre-test, post-test concept in their classes. The PSU-RET program incorporated the pre-test, post-test concept as one of its criteria for the teacher-participants recruitment and program assessment. K-12 teachers recruited into the PSU-RET program were required to implement the pre-test, post-test concept in their class work. The pre-test, post-test concept is an evaluation tool and is used to determine the level of mastery of lecture material by the students. It is customary to test the students at the beginning point of a course or program and to test the students or participants at the end or near-end of the course or program. The post-test scores are compared to the pre-test scores. Increase in performance level from pre-test to post-test can be attributable to the knowledge gained from instructional delivery of course material. Pre-test, post-test data is valid documentation material. Table I below shows the data from Dr. Donovan's pre-test, post-test analyses of some of her social science classes; "these data indicate that there is a significant increase in sociological knowledge from pre-test to post-test in upper division as well as lower division courses." Worthy of note is the fact that the "writing to learn" (WL) introductory sociology class showed a higher level of

improvement (57%) compared to the 30% increase showed by the non-WL class. This presents a viable research situation; the proposed "BORG center" will consider this as one of the research problems it will study, and will try to answer the

question: "**Do writing to learn classes out-perform non-writing to learn classes?** Dr. Ibeh, one of this paper's authors served as chair of the writing to learn committee at PSU, and he is a proponent of the concept that the "WL courses" are media for "writing to learn" and "learning to write."

Table 1: Summary of Pre-Test, Post Test Results (Dr. Donovan, Appendix I)

Course Number	Soc 100	Soc 548	Soc 548	Soc 440	Soc 440	Soc 100	Soc 100(WL)
Course Name	Intro Soc.	Juven. Deliqu	Juv. Deli	Personality & Soc Stru	Personality & Soc Stru	Intro Soc.	Intro Soc.
Semester & Year	Fall 2000	Fall 2000	Spring 2000	Spring 2000	Spring 2001	Spring 2001	Spring 2001
Pre-Test Mean	30.8	12.9	10.1	10.08	15.05	29.85	28.63
Post-Test Mean	38.4	17.6	16.9	16.92	22.0	39.1	44.94
Mean Change	25%	36%	68%	68%	32%	30%	57%
Level of Significance	0.05	0.05	0.001	0.001	0.05	0.05	0.05
Degrees of Freedom	21	18	25	25	14	26	15
Obtained Value of t	-6.81	-5.95	-55.9	-11.19	-6.89	-7.14	-8.90
Critical Value of t	-1.7	-1.73	-3.45	-3.45	-1.76	-1.75	-1.71
Null Hypothesis: Test Score does not differ before and after the course.							
Research Hypothesis: Test Score is higher after the course than before.							

CUES EKE Protocol for Activities Rating

The essential knowledge element (EKE) protocol for rating of activities is one of the core elements of CUES-Assessment Model. It can be used to rate institutional and program activities such as written reports, presentations etc. Table II below shows the twelve divisions of the CUES EKE rating protocol. The 12 divisions of the EKE rating protocol or checklist are :

1. The Problem	**2. The Related Literature**
3. The Methodology	**4. The Evidence**
5. Conclusions, Recommendations & Summary	**6. Report Accouterments**
7. Ability to Conduct Research	**8. Quality of Thinking**
9. Personal Commitment to Excellence	**10. Value of the Work**
11. Quality of Research	**12. Quality of Writing.**

Divisions 1 through 6 constitute the **Core Assessment Elements** (CAE) where as divisions 7 through 12 make up the **Essential Assessment Elements** (EAE). The core elements conform to the typical chapters of a technical report, and the EAEs are value enhancement components. Based on this analysis, the participants of the 2001 summer PSU-REU/RET program (http://www.pittstate.edu/services/nsfreu/) generated a report writing format to guide prospective CUES protocol users . The CUES PROTOCOL FORMAL REPORT FORMAT as per Table III. Written reports, presentations and other activities are rated using the standards of Table II above. Each division is worth a total of 50 points, and to "write a superlative undergraduate research project requires the student to achieve between 540 – 600 points or the equivalent of 90 – 100%. A perfect undergraduate research project is rated as 600. The subdivisions are valued differentially from 1-15 points. The rater is to determine first, does the subdivision exist and is it appropriately done for this study. Then second, the rater must determine the value of each major division for its quality by considering the elements in the following manner: 0.0 – does not appear; 0.2 – only 20% of necessary elements; 0.4 – has approximately 40% of necessary elements; 0.6 has approximately 60% of necessary elements, etc; and 1.0 has 100% of necessary elements." It is customary for the PSU-CUES group to apply the pre-test, post-test concept during the training session for the CUES rating protocol. Pre-test data typically indicate that participants rate a given body of work *divergently* due to their lack of experience on the use of the protocol whereas post-test data show that ratings tend to converge as participants gain useful insight of the workings of the CUES protocol[(3)(5)]. For report writers and presenters, the CUES protocol formal report format of Table III becomes a useful guide to superlative work.

CUES EKE Protocol for Instructional Delivery and Assessment

The essential knowledge elements (EKE) protocol for rating of course and instructional delivery is another core component of CUES-AM. Course and instructional delivery assessment solicits input from the student(s); this together with the participation of students in the pre-test, post-test and EKE activities rating protocol that have been previously discussed constitute a form of quasi-empowerment, and bestows on the student a level of limited partnership with faculty. Empowerment and partnership imply responsibility for learning and understanding of the course material. Table III below show the major elements of the CUES EKE Protocol for Instructional Delivery.
The first column of Table IV has the pre-determined **Essential Knowledge Elements** (EKEs) for a particular course as per course content or outline (Rows 1 through ∞).

Table II: CUES CHECKLIST FOR UNDERGRADUATE RESEARCH PROJECTS
STANDARDS FOR RATING (Reduced Version)

Checklist I for NSF Undergraduate Research Projects	The Problem 50 points

_____ A. The Purpose Statement [5]
_____ B. The Topic/Object of Study [5]
_____ C. Explanation of the Problem [5]
_____ D. Theory Statement [10]
_____ E. Research Question(s) and Hypothesis/Hypotheses [5]
_____ F. Written Conceptual Framework (WCF) [3]
_____ G. Assumptions and Definitions [2]

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_____ H. Scope, Limitations, and Delimitations [2]
_____ I. Study Justification and Significance [5]
_____ J. Strategic Planning for the Development Stages [4]
_____ K. Outline for Other Chapter Divisions [2]
_____ L. Knowledge Stewardship [2]

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Checklist II for NSF Undergraduate Research Projects	The Related Literature 50 points

_____ A. Division for Literature Related to WCF [7]
_____ B. Chapter II Serves a Didactic Function [7]
_____ C. Theoretical Superstructure for Research Report/NSF Report [6]
_____ D. Historical Background of the Problem [5]
_____ E. Synopses Paragraphs Showed Major Schools of Thought [5]
_____ F. Relevant Citations [7]

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_____ G. Comprehensive Literature Scan [4]
_____ H. Selection of Citations Demonstrates Knowledge of Field [3]
_____ I. Critique of the Major Related Works [4]
_____ J. Concluding Summary [1]
_____ K. Knowledge Stewardship [1]

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Checklist III for NSF Undergraduate Research Projects	The Methodology 50 points

_____ A. Chapter on Methodology is Structured According to the WCF [7]
_____ B. Research Design for Each Mode of Inquiry [9]
_____ C. Object of Study Characterization Article [5]
_____ D. An Article for the Research Approach [5]
_____ E. A Research Techniques Article [3]
_____ F. An Article Describing the Measuring Instruments, Materials, and Apparatus [3]

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_____ G. Assumptions About Controlled and Uncontrolled Factors [4]
_____ H. A Pilot Study Article [2]
_____ I. An Evidence Collection and Organization Article [3]
_____ J. An Evidence Processing and Analysis Article [3]
_____ K. A Statistical Treatment Section [3]
_____ L. Pertinent Materials Related to Methodological Elements Cited and Included in the Appendices [2]
_____ M. Knowledge Stewardship [1]

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_____ * Table is to be continued.

**********Table III**********

CUES PROTOCOL FORMAL REPORT FORMAT
(CUES: CONSORTIUM FOR UPGRADING EDUCATIONAL STANDARDS)

i. Letter of Transmittal
ii. Title Page
iii. Table of Contents

1. Summary (Abstract)
--- Summary of activities with emphasis on results, impact and significance of results, validity and accuracy of results.

2. Introduction
-- Definitions, Problem Statement*, Historical Background, Objectives (purpose of study), Impact Statement & Significance of Study*, Scope, etc.

3. Literature Review
---- Briefing of 3 or 4 of the most relevant previous projects;
---- Summary of the major schools of thought
---- Summary of problem and significance of problem*
---- Author's projected contribution(s) to this field of work

4. Main Body under an appropriate heading and sub-headings.
---- Heading will reflect and complement title of study
---- Subheadings will reflect and follow SCOPE directions of introduction section.
---- Theories, Concepts, Fundamentals, Rationale, Principles & Techniques that elucidate and guide study.

5. Methodology
---- Equipment Used
---- Materials Used
---- Procedure

6. Results/Evidence
---- Data Generated -→ Tables & Graphs
---- Narrative/Physical Description of data
7. Discussion of Results
-- Analyses & Interpretation of Results/Evidence using concepts fundamentals, principles and techniques from main body of paper.
-- Precision via Standard Deviation for Repeatability, and Accuracy via Error Analysis

8. Conclusions – technical & based on results; no personal opinions.
9. Recommendations --- improvements and new pathways for study.
10. References Cited/Bibliography
11. Appendix (xes)(ces)
**********Table III**********

An **EKE** represents a concept or idea whose understanding and mastery is essential for success in a discipline. EKEs are typically determined by the expert opinion of one or more educated members of the discipline, and a course instructor is certainly eligible to develop EKEs for the courses he or she teaches. The second column has the **Total Exposures and Times**, and is *actually made up of six sub-columns*, one for in-class **lectures and presentations**, the next four for outside-of-class activities such as **C.B.I. and internet** (C.B.I = computer based instructions), **application sessions, discussion exposures** and **creative sessions,** and the final sixth column is for **total exposures** or sum of the first five. Each sub-division of the Total Exposure and Times has two sub-columns, one for the **number of exposures** or encounter with a particular EKE and the other for the **times** in minutes spent for the corresponding exposure. The final six columns of Table III has the assessment criteria labeled C1 for **USEFULNESS,** C2 for **DIFFICULTY,** C3 for **VALIDITY,** C4 for **EFFICACY,** C5 for **COMPREHENSIVENESS**, and C6 for **INTEREST**.

The student is given the form for the CUES Protocol for Instructional Delivery Assessment at the beginning of the semester, and is required to submit a completed form at the end of the semester. The completed form has the student's rating of each EKE using the six assessment criteria, C1 to C6 with the scoring scale as per Table III above. The use of software such as Microsoft Excel and SPSS simplify the otherwise tedious arithmetic tabulation of the ratings. Means, standard deviation and other useful statistical data are also easily generated. The statistical data and comments by the student provide useful feedback to the course instructor/curriculum developer as to course design, level of mastery and comprehension of course materials and areas of improvement. Rating of course materials requires the student's continuous awareness of course activities, and awareness implies attention and focus; awareness, attention and focus are conducive to mastery and learning. The PSU-CUES GROUP conducts workshops to train faculty and administrators on how to use the CUES EKE protocol, how they can design and construct the CUES EKE protocol for their classes and programs, and how to generate and interpret software generated data.

Discipline/Subject/Course-Specific Structure of Knowledge and Registry of Essential Knowledge

The work on Structure of Knowledge (SOK) and registry of essential knowledge constitutes a big part of the proposed "BORG" of CUES-AM users, a center dedicated to facilitating the student achievement assessment and life-long learning activities of CUES-AM user faculty, students and administrators. Dr. O. Hensley and a group of his graduate students, Natalya Androsova et al[3][5][13][16][19], have been working on the concepts of structure of knowledge and universal registry of essential knowledge using the epistecybernetic mode of enquiry.

Table IV: CUES EKE PROTOCOL FOR COURSE AND INSTRUCTIONAL DELIVERY								
ESSENTIAL KNOWLEDGE ELEMENTS (EKEs)	TOTAL EXPOSURES AND TIMES		**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
I								
∞								
C1 = USEFULNESS	Ability to use information in future tasks or in life. Scale of 0 (not useful) to 10 (very useful)							
C2 = DIFFICULTY	Scale of 0 (very easy to understand or accomplish) to 10 (very difficult)							
C3 = VALIDITY	Is the element valid for inclusion in this course? Scale of 0 (not valid) to 10 (very valid)							
C4 = EFFICACY	Your level of competency with this element. Scale of 0 (no competency) to 10 (very competent).							
C5=COMPREH-ENSIVENESS	Completeness of delivery with regard to this element. Scale of 0 (not complete) to 10 (very complete)							
C6 = INTEREST	Your level of personal interest with this element. Scale of 0 (no personal interest) to 10 (high level of interest)							
Total Exposures consist of in-class lectures and outside of class work.								

This system involves nine design stages namely:

i. "potential for a model of structure knowledge be created?
ii. shell creation and the general model
iii. scanning the discipline and universe of knowledge
iv. the epistecybernetic model and theory
v. prototype construction
vi. pilot testing of the prototype model
vii. field testing and modification
viii. model validation
ix. maintenance and modification of model."

Using this epistecybernetic design system, structure of knowledge for Calculus and English has been created. The calculus structure of knowledge can be accessed via the URL: http://www.geocities.com/ekes_calculus/ and the basic structure is summarized below.

1. Prerequisites for Calculus 2. Limits and Continuity 3. Derivatives
4. Applications of Derivatives 5. Integration 6. Transcendental Functions
7. Applications of Integration 8. Techniques of Integration 9. Infinite Series
10. Conic Sections, Parametrized Curves, and Polar Coordinates
11. Vectors and Analytic Geometry in Space 12. Vector-Valued Functions
13. Partial Derivatives 14. Multiple Integrals 15. Integration in Vector Fields

The CUES Calculus system allows the user to find solutions to mathematical problems by using six types of tutorial assistance. The first step in using CUES Calculus Tutors suggests that the student consult the CUES Math Register (which contains mathematical generic and situational solutions placed within a functionally ordered structure of knowledge). Holders of CUES Calculus Cards can access the CUES Mathematics Register at anytime by entering their user number. When a student cannot find a desired solution in a CUES Register or when they prefer to use Internet Services they can contact a CUES Tutor who will assist the student in finding a standard solution. Also, a user/student who wants to talk by phone to a math tutor may do so by telephoning CUES Calculus Tutors at -1 620 231-xxxx. CUES BORG also provides a CUES Calculus Chat Room and Bulletin Board where problems of interest are posted and the most parsimonious solution is submitted for Borg Validation. CUES Calculus Borg Tutors provide free information related to questions and problems submitted to the Borg for consideration.

Ethics and Life-Long Learning

Ethics is a key component of epistecybernetics and CUES-AM. The idea is to instill in CUES-AM users the need for:

(a). professionalism and integrity in ones job responsibilities,

(b). life-long learning and knowledge of code of ethics,

(c). understanding the ramifications of engineering, scientific and technological innovations on society and the environment,

(d). effective communication skills with emphases on report writing, presentations and collaborative team activities,

(e). community service and awareness, and

(f). developing the ability to handle work and career-related ethical issues.

The current plan is to include ethics instruction in CUES-AM workshops, and will consist of a series of 1 to 3, 2-hour long interactive discussions conducted by a panel of experts in the field of ethics. These ethics discussions will be conducted mainly at the end of each CUES workshop day. Ethical concepts and topics that will be discussed in this program include but not limited to:

(a). Technology and Society – "EPA Evaluation of Trihalomethanes in Drinking Water"; "***Human Health Risk Assessment***;" "Risk Assessment Methods," "Emissions Auditing," etc.,

(b). Ethics in Medicine – "Ethics of Research on Human Subjects" and the need for voluntary and informed consent of research subject ; "***Role of HMO's in Modern Medicine –*** Cost/Benefit Analysis"; "**Impact of DNA Sequencing on Society**," etc.

(c). Ethics in Business and Academia – "***The Down-side of Plagiarism***," "The Tobacco Litigations," "Dow-Corning Artificial Breast Controversy," "Bill Gates and Microsft Anti-Thrust suits," "The Enron Corporation Debacle," "The Reality and Economics of Product Recalls," and "Business Ethics in the Global Economy."

(d). The Role of Religion in Politics; the concepts of "Separation of Church and State," and "State Sponsored Religion" will be explored. The conservative right as represented by religious organizations contend that religion is part of everyday life – "the

president is sworn in by the chief justice on a bible" whereas the Anti-Defamation League (ADL) and other similar organizations express their concern on the impact of state-sponsored religion etc.

CUES-AM ethics discussion format is interactive panel-based. The assembled experts from Pittsburg State University, University of Kansas, medical School and local industries constitute a panel and initiate discussions; panel discussions is followed by question and answer session. The panel session is followed by group discussions moderated by the panel members; groups are formed based on the participants subject interest. The internet serves as a useful source for information via http://www.ask.com search engine. The URL: http://www.pittstate.edu/services/nsfreu/ethics.html has the ethics work of summer 2001 PSU/NSF-REU/RET participants.

3. Impact and Significance of CUES-AM

Dissemination of CUES-AM and the concepts of epistecybernetics (Project CUES-AMD) is an on-going project of the PSU-CUES GROUP. Workshops on CUES-AM have already been conducted at the "Best Assessment Practices IV", Rose-Hulman Institute of Technology, Terra Haute, IN, April 7 – 8, 2001[19] and "The International Society for Exploring Teaching Alternatives (ISETA)" Thirty-First Annual Conference, Indianapolis, IN, October 18 – 20, 2001. Also a CUES-AM workshop will be conducted at the ASEE 2002 Annual Conference, Montreal, Canada. These workshops provide high quality professional development opportunities to community college and university faculty and administrators. Faculty from community colleges and universities will have the opportunity to be trained to adopt and implement the CUES EKE course/instructional delivery methodology for enhanced student learning and achievement. The concept of identifying EKEs for a given activity such as report writing, presentation, assignment etc, course, curriculum or program makes understanding and mastery of course materials easier and faster, as the student has an enhanced understanding of what the course/program objectives and expectations are.

The concept of pre-test, post-test is also be a trade mark of CUES-AM workshops; work shop participants are encouraged to use this concept as a means of gauging the level of student proficiency for any given activity. CUES-AM therefore provides the instructor, program or institution a medium for documenting its continuous improvement activities and plans for quality assurance, governance and accreditation purposes. CUES-AM facilitates the potential for a program or institution to "design for success" especially in the area of "assessment of student achievement."

Project CUES-AMD will result in the establishment of a "BORG" of CUES-AM users; it will serve as a center dedicated to facilitating the student achievement assessment and life-long learning activities of CUES-AM user faculty, students and administrators. Graduate students affiliated to the PSU-CUES Group will devote their studies in the areas of *assessment of student achievement, structure of knowledge and the development of a universal registry of knowledge (UKR*) for disciplines and subject areas of CUES-AM users. The structure of knowledge for calculus (**http://www.geocities.com/ekes**

calculus/) and English already developed will serve as models for other subject areas. It is planned to make BORG's structure of knowledge work and database available for on-line college credit studies for gifted and talented high school students.

The operating themes of PROJECT CUES-AMD shall be enhanced student learning, continuous improvement, student achievement assessment and life-long learning. CUES-AM ethics program ensures that the themes of continuous improvement and life-long learning are fully integrated components of CUES-AMD agenda. Overall, CUES-AMD will result in a better prepared and more productive workforce that is society and environmentally-friendly.

4. Conclusion

This paper has demonstrated the viability of CUES Assessment Model (CUES-AM) as a medium for enhanced student learning, continuous improvement and assessment of students achievement, and especially as a tool for documenting and demonstrating institutional and program compliance for quality assurance and accountability.

CUES-AMD is an on-going project of the PSU-CUES Group with particular emphasis of educating and training interested faculty and administrators on how to adopt and implement CUES-AM in their curricula and programs for enhanced student learning and achievement assessment. CUES-AMD also strives to initiate the development of a CUES-AM users network or "BORG", a center dedicated to facilitating the student achievement assessment and life-long learning activities of CUES-AM user faculty and administrators.

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