

CUES ASSESSMENT: SUMMER PROGRAM

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THE PROBLEM

The Purpose Statement

The purpose of this paper is to describe the development of the beginning components of a knowledge management system for Center for Nano Composite Multifunctional Material (CNCMM).

Goals:

- a) To assist in developing CUES assessment model for Undergraduate Research Project and Ethics Paper for the participants of Research Exposure for Undergraduate (REU) and Research Exposure for Teacher (RET), summer CNCMM program 2005.
- b) To put online the developed CUES assessment models for CNCMM
- c) To assist in determination of the validity of the developed CUES assessment model for undergraduate research project paper and ethics paper for summer program 2005.
- d) To develop the mechanism to publish, on the internet, the submitted papers by the CNCMM innovation students

Topics/ Object of the Study

The object of this study are:

- a) CUES Checklist for Undergraduate Research Standards For Rating Papers On Science, Engineering and Technology Ethics
- b) Cues Checklist for Undergraduate Research Projects Standards For Rating
- c) Efficacy of Knowledge Standards.

Explanation to the Problem

Information technology has made remarkable progress in the past fifty years. With the development of World Wide Web (WWW) considerable scientific knowledge and information is in the internet now. However, the problem with the internet is; it is unorganized. One has to devote a considerable amount of time, two to three hours a day, searching for a particular bit of knowledge or information. Current search engine are not always successful in finding the right information, which when not found is very discouraging. Organizing the information in proper manner inside the internet is the biggest problem in the world of information management systems. Though, there is a plethora of information inside the internet, many people cannot access it . Structurally-organized information is today's outstanding need. In order, to address this issue the philosophy of Consortium of Upgrading Educational Standards (CUES) was established. the idea behind CUES is to put all the disciplinary knowledge together in a structured manner, so that person searching the specific knowledge can get it with in 30 seconds using twelve key stroke or less. Following the same CUES concept, two assessment models, one for Undergraduate Research Paper and one for Ethics Paper, were developed and were put online. Participants of RET/REU summer 2005 program were able to access the information easily with in 12 key stroke. CUES assessment model looked very useful. These models were used to write papers as well as to make peer evaluation. In order to confirm the validity of the assessment model surveys were conducted. The result of surveys will be used to make management corrects for REU/RET programs.

Theory Statement:

Professors Dr. Oliver Hensley, Dr. Christopher Ibeh and Dr. Marjorie Donovan (2001- 2004) have developed two assessment models, one for Ethics paper and another for the Undergraduate research paper. The purpose of the CUES checklists and Assessment models were to help participants to write effective research and ethics paper. The checklist are supposed to serve as guidelines while writing research and ethics paper. In order to make it more effective, these checklists were put online so that the participants can have unlimited access to knowledge standard for RET/REU papers. Same assessment checklists were used to make peer evaluation during the presentation of ethics and research paper.

Therefore the validity of the checklist is very important. In order to find the validity of the checklist students and faculty members were asked to complete R2121 3-7 forms. Usefulness, comprehensiveness, difficulty, validity, efficacy and interest on CUES assessment models were asked to evaluate.

Research Question

The main purpose of the paper is to justify the usefulness and efficiency of the structurally organized knowledge and information associated with CNCMM inside the internet and to evaluate the CUES assessment models developed for the participants of RET/REU summer program.

Assumptions and Definitions:

Through out the research, it is assumed that evaluator will fill out the feedback form seriously, without any bias.

Scope, Limitation and Delimitations:

The survey is done on a small group of student participants (17) of RET/REU programs on the two CUES checklists. Though, in survey the larger the number of participants the more accurate the survey data will be, but due to the time constraints it was limited to small number of participants.

Study Justification and Significance:

This research paper should be very helpful to those who want to put their CNCMM research, publications and lectures online. This paper will demonstrate the effectiveness of retrieving structurally organized information inside the internet and in determine the validity of the new assess checklist.

Strategic Planning for the Development Stage

The outcome of this paper CUES assessment model will be very useful to CUES assessment team as well as to the Center For Nano Composite and Multifunctional Material (CNCMM).

THE RELATED LITERATURE

Historical Background:

Dr. Oliver Hensley developed CUES philosophy. The whole idea behind CUES is to organize the knowledge in a structured manner. According to him, any person searching for knowledge should be able to access it, with in 30 seconds or less or with in 12 keystroke or less. CUES has been used in different disciplines and concept was proved successful in different instances. CUES web site was developed and different experiments are being conducted on it. Recently, the experiment was made in the field of Russian/American language. It was particularly designed for Russian people and American people. Different levels of the Russian language was developed and arranged in the structured manner. In different levels, different self assessment techniques are suggested, which provide a good exposure to people who wants to learn Russian.

Similarly, checklist for the Ethics paper and Undergraduate Research Paper was developed during summer 2005 for the participants of RET/REU program. The main objective of those checklists is to help the participants to write research papers on their respective laboratory research.

Different School of Thoughts

For most of philosophical history, “knowledge” was taken to mean a belief that was justified as true to an absolute certainty. Any less justified beliefs were mere “probable option.” Philosophers often define knowledge as a justified, belief; the branch of philosophy that deals with the nature, origin and scope of knowledge is called epistemology.

There are many of controversies among philosophers in defining knowledge. They generally argued that, "... how do we show that our beliefs are knowledge? Justification and evidence are both epistemic features of belief. They are, in other words, both qualities that indicate that the belief is true. We could try out other epistemic features in the definition of knowledge, if we wanted to. Instead of "justified true belief" or "true belief with evidence," we could say that knowledge is "rational true belief" or "warranted true belief." (Knowledge in philosophy and the problem of justification, www.wikipedia.com).

A problem with defining knowledge is known as Gettier problem. The Gitter problem is a fundamental problem in contemporary epistemology, issuing form counterexample to the defination of knowledge as justified true belief. Gitter problem gained it's name from Edmund Gitter, who wrote three-page paper called " Is Justified True Belief Knowledg?" In the paper, Gettier argues that it is not.

Although, to structure the knowledge is a big challenge in itself, CUES Universal Knowledge Register (UKR) has organized knowledge in a structural manner. The originator of CUES Dr. Oliver Hensley says the mission of CUES is to, "... provide an electronic knowledge depository for storing all of the structured- knowledge of all disciplines in one place. The complement of this mission is to facilitate the retrieval of knowledge for users from anywhere in the world. CUES program for knowledge retrieval will allow the user to select a particular Essential Knowledge Element (EKE) from within the CUES Structure of Knowledge (SOK) and retrieve that element within 30 seconds while using less than six computer key-strokes. The CUES Universal Knowledge Register is a system for storing pure knowledge. The Register stores only structured-

knowledge, but relates its EKE's to data banks, information systems, technologies etc that are stored elsewhere.”

Assessment is the process of documenting, usually in measurable terms, knowledge, skills, attitudes and beliefs. Assessment is often used in an educational context, but it applies to other fields as well. Though knowledge has been structurally arranged, assessment should be done very often in order to measure it's efficiency.

Concluding Remark

Though the definition of knowledge may be different philosophically, technically knowledge is the awareness and understanding of facts, truths or information gained in the form of experience or learning, or through deductive reasoning. Dr. Hensley defines knowledge as the acceptance of a generic solution into problem solving repertories. Therefore the knowledge is an appreciation of the possession of interconnected details which, is isolation, are of lesser value and the structure of knowledge is very important.

THE METHODOLOGY

Research Design for Each Mode of Inquiry.

The research is administered in the survey done in the CNCMM class of REU/RET summer program. The survey was conducted to find the usefulness, difficulty, comprehensiveness, validity, efficacy and interest of the CUES assessment models developed during summer. CUES assessment model for ethics paper and undergraduate research paper was developed and it was necessary to find the efficiency of the checklist.

Object Of The Study

The object of the study is to find the effectiveness of the CUES checklists. The outcome of the measurement of the effectiveness of CUES checklists will serve as a guideline to develop other assessment.

Measuring Instruments

As mentioned above the survey was done to check the validity of the CUES checklists developed for ethics paper and undergraduate research paper. The survey forms are designed in such a way that usefulness, interest, comprehensiveness, difficulty, validity, efficacy of the checklist can be measured. The six elements , usefulness, interest, comprehensiveness, difficulty, validity, efficacy, are the basic key elements in defining efficiency. However, there might be other elements or factors that might plays key role on defining efficiency, they are not considered at this stage.

Assumptions About Controlled and Uncontrolled Factors

It is assumed that the participants took the checklist seriously and filled out the survey form honestly. Survey form is very user friendly so there should not be any difficulty in completing the form.

Procedures

During the presentation of Ethics and Undergraduate research paper all participants were given an opportunity to make a peer evaluations based on the checklist provided. After doing peer evaluation all participants were asked to fill out the survey form in order to evaluate the checklist which was provided earlier. The basic elements, usefulness, interest, comprehensiveness, difficulty, validity and efficacy, were determined by checklist. Participants were asked to rank those elements from 1 to 10. 1 being the lowest and 10 being the highest.

THE EVIDENCE

Findings

Two CUES checklist were developed and uploaded in the CUES webpage. No complains were head about the availability of checklist, which gave a positive indication that the online checklist gave participants an enough exposures.

The result of the peer evaluation, of the ethics presentation, turned out to be very interesting. The average score turned out to be 196.26 points out of 260 points. The highest score was 216 and the lowest score was 173.26 and the standard deviation of the score is 10.69, which is very low. This reflects that the Ethics presentation in general was not up to the checklist standards. There are many rooms for improvement.

The result of the validity of the whole Ethics checklist turned out to be very positive one. Calculated overall mean turned out to be 7.27, which in general proves that the checklist is significant. In case of individual elements, the results are as follow:

usefulness	interest	Comprehensiveness	Difficulty	validity	efficacy
7.64	6.856	7.66	6.48	7.20	7.84

From the table it can be concluded that the efficacy of the Ethics checklist is very high and the degree of difficulty is very low. This might me one of the reasons for the lower score in the peer evaluation. This tabulated data suggest that, though the checklist is efficient, participants are finding hard time understanding it.

For the checklist undergraduate research paper, data are yet to be collected.

CONCLUSIONS, RECOMMENDATIONS AND SUMMARY

Conclusions

From the above findings, it can be concluded that the Ethics checklist is a powerful tool in writing Ethics papers. The efficiency of Ethics checklist was even higher when it was put online. Anyone can have access at anytime. But the presentations on the ethics paper were not up to the standards of the checklist. Almost everybody got low score in the peer evaluations. It was seen from the survey that the paper was very efficient but difficult. This may be the reason for everybody in the CNCMM class got very low score.

Recommendations

Finding of this paper suggest that the participants find it very hard to follow the CUES Ethics checklists. Though the efficacy of the paper is very high, it is very had to follow. This might be the probable cause of overall low score. Though from this survey it was not clear whether it was difficult to understand or difficult to attend the requirement, it is highly recommended at this point that the participants should be given enough exposure on these type of checklist before requiring them to write paper basing on the checklist. Due to the time constraints, this was not possible this summer. Though, the checklists were online and everyone can easily access it, the time was still dearth to fully comprehend the checklist.

Summary

Professors Dr. Oliver Hensley, Dr. Christopher Ibeh and Dr. Marjorie Donovan (2001- 2004) have developed two assessment models, one for Ethics paper and another for the Undergraduate research paper. The purpose of the CUES checklists and Assessment models were to help participants to write effective research and ethics paper. The checklist are supposed to serve as guidelines while writing research and ethics paper. In order to make it more effective, these checklists were put online so that the participants can have unlimited access to knowledge standard for RET/REU papers. Same assessment checklists were used to make peer evaluation during the presentation of ethics and research paper.

Since checklists were on the internet, no complains were gathered about the accessibility of the CUES checklist. This proves the power of the structured knowledge in the internet. The peer evaluation of the paper turned out to be very interesting. The average score was 196.26 out of 260 points, with a very low standard deviation of 10.69. The highest was score was 216 and the lowest score was 173.15. This proves that the overall presentation did not meet the perfect standard of the CUES Ethics checklist. Further, on the efficiency of the checklist, it was observed that though the checklist in overall is efficient, it was difficult. This might be one of the reasons for the low score in Ethics presentations.

