RECOMMENDATIONS SYSTEM DESIGN FOR LEARNING MATTER AND EVALUATION LEARNING IN E-LEARNING

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ABSTRACT

E-Learning brings influence the happening of orthogonal transformation process of conventional education into digital form, either in content and also its the system. To increase user is more love to learn e-learning, must many innovations about e-learning either in the form of presentation or from the angle of its the content. One of form of its the innovation is system recommendation of matter at e-learning.

Recommendation system of Teaching material which will be built is to increase giving affectivity of teaching material which will be given to student. Method applied is collaborative filtering which later applied to determine recommendation of matter e-learning.

This research proposal tried to develop component collaborative filtering at group of student based on pre test, subdividing of matter presented and posttest, and existence of evaluation of usability system e-Learning.

KeyWords : E-learning, Recomendation System, Collaborative Filtering, Usability Evaluation.

INTRODUCTION

In its the applying e-Learning this time experiences expansion of either from the angle of content nor technology facet. Soekartawi[6] tells that study model of e-Learning now applies Blended e-learning(BEL). BELL is study excellence alliance done in interfaces and in virtual.

Romi SW. [ 8] , this time e-Learning is experiencing crisis, is causing applying failure of e-Learning. From a study the year 2000 done by Forrester Group to 40 big companies indicates that most of worker ( more than 68%) refuses to follow training or courses using concept e-Learning. His(its language easy to, e-Learning is thing theoretically very attractive, but simply public is not too motivate to exploit it. To overcome this problem Romi SW[ 8] gives solution by developing system e-Learning to base on motivation model of community which can overcome the low of user and doesn't motivate it user in using system e-Learning.

To increase user is more love to learn e-learning, must many innovations about e-learning either in the form of presentation or from the angle of content. One of form of its the innovation is recommendation system of matter at e-Learning. According to research of Tiffany et al[1], method used to recommend matter in this case sites cartridge applies collaborative filtering to present cartridge required by user looking for it. Recommendation system also checked by Islahudin[5]. Intention of recommendation system of teaching material built is to increase giving effectively of teaching material which will be given to student recommendation system built only based on choice popularity user to matter selected. More and more matter selected will be recommended to be selected. System recommendation groups cannot based on student ability.

This research proposal tried to develop proposal Tiffany at al[1] and proposal hervin[5] that is with component collaborative filtering at group of student based on pre test, subdividing of matter presented and posttest, and existence of evaluation of usability system e-Learning.

2 DESIGN E-LEARNING ENVIRONMENT

In designing an online learning according to Oliver(1999) there is 3 type that need to in paying attention and shall at a Learning Management System.

a. Content: what can make we to feel correctness correctness can understand and studies matter given in LMS.

b. Learning Activity: Existence of one figure which can give report whereof just activity of participant is following in study.

c. Learning Support: Other kicker also is needed at LMS, like existence of figure to perform...
3. INFORMASI FILTERING CONCEPT

Screening of information is required man to be able to do election or decision making. Screening (filtering) this information can be done by man and by using machine help. Computer has ability for processor that is quickly, but tending to light in taking decision to relate to content from information. Has many techniques which can be done in relation to screening of this information, technical is collaborative filtering and content-based filtering.

3.1 COLLABORATIVE FILTERING

Collaborative filtering is technique using others opinion to predict interest from others [1]. This technique is each other share rating between the side of one with the side of the other so that one can makes prediction based on rating. Content-based filtering recommends item based on profile which has been built from rating user of the past [1]. Has there is trying research merges both the techniques, either that is technique hybrid and also technique which remain to applies both purely applies Wight [5]. This technique it is of course aim to overcome weakness of the both the techniques.

One of approach proposed by Mark et al [5] be merge between both the techniques by using wight. Result between both the techniques is done by wight, for example if amounts rating a few, hence wights from collaborative filtering would small. This organizeable wight by user causing can arrange optimum wight for they. This technique done to do recommendation to election of news. The general formula for a prediction for an item for user $u$ is:

$$\text{prediction} = u + \sum_{i=1}^{n} \left( \frac{\text{corr}_i \cdot \text{rating}_i}{\sum_{i=1}^{n} \text{corr}_i} \right) $$

Where $u$ is the mean rating for the user in question, $\text{corr}_i$ is the Pearson’s correlation coefficient of user $i$ with the user for whom the prediction is being computed, $\text{rating}_i$ represent the rating submitted by user $i$ for the article for which the prediction is being computed, $i$ is the average rating (the average of user rating for the articles in common) for user $i$ and $n$ is the total number of user in the system that have some correlation with the user and have rated the item.

4. USABILITY EVALUATION E-LEARNING

Usability evaluation or evaluation of usage at e-learning hardly is required by know evaluation of usage in system e-learning. Some research about usability e-learning many done, like Brad Mehlenbacher et all[9] checks about making of conceptual model for usability e-learning as a mean to is applied reference for researcher hereinafter. Result from research of is a frame work conceptual model of usability e-learning applied to evaluate system e-learning [9]. At research of Maria A Rentróia-Bonito et al[10] elaborates an evaluation method usability which integrated empirically tested in system e-learning in its(the university. In its the research Develop an system prototyping e-learning must enough fulfilling requirement of tutor process and student that is supporting behavior and action. Maria A RentróiaBonito[10] expects that this contribution will provide better insight about understanding how to evaluate and increases usability system e-learning to base on student feedback and Success usage of system e-learning.

5. SOFTWARE DESIGN

To make Recommendation System Design For learning matter and Evaluation learning System E-Learning in general like at picture 1 following:

![Step by Step Software Design](picture1.png)
5.1 REQUIREMENT NALYSIS
Requirement this analysis made based on requirement of the system in field that is SMKN 1 Surabaya with stages: steps Survey and analysis.

5.2 E-LEARNING IMPLEMENTATION
At this E-learning Similar Design done some phases:
- System design
- System Making
Making of system is done by doing coding with language PHP as well as doing program testing.
- System implementation
Implementation is done with installation of system to laboratory, does training at user.

5.3 RECOMMENDATION SYSTE ARCHITECTURE MODEL AT E-LEARNING
Architecture model system recommendation at visible e-learning at picture 2 under this:

- User Profile
  At this phase that is registration user. User as to become 3 part that is admin, tutor and student. User admin which handling of all system e-learning. Functioning User Tutor as teacher preparing content from matter, the problem of pre-test and post-test. Besides user especially student chooses category matter which will be selected in process of e-learning and chooses between 3 level that is Beginner, Intermediate and Advance. Election of this important category to do process e-learning hereinafter.

- Pre-test
  At this phase pre-test done to know user determined at result of pre-test where every the problem of given by Wight that is later is summed up, every problem is presented based on choice level by user. At this knowable pre-test session that student can do problem given based on level selected.

  - Recommendation of Matter
    recommendation of Matter is given based on result of pre-test. At part of this done technique collaborative filtering by doing relationship between the problem of pretest and matter which will be taught. Every problem presented every its group relationship at matter which will be taught. In this case role of tutor to make problem and teaching matter is every its group. Flowchart from system recommendation of visible matter under this:

Picture 3. Path system recommendation at E-learning

Picture 2. Recommendation System Architecture Model At E-learning
Post-test done to know result of evaluation of usage e-Learning. Besides also applicable to know student rank in comprehending system recommendation e-learning.

5.4 USABILITY EVALUATION
Usability Evaluation is done by propagating questioners at audition, in this case that is admin, user and tutor. Like the one is done by Panagiotis Zakarias[9].

6. TESTING PROCESS IN E-LEARNING
- Scenario Testing
  Before scenario testing is done, system recommendation should have ready to be applied is good corresponded client and server. Prepares +/- 20 student as user to do registration and applies it.
- Test Plan
  Test Plan is done to know process system recommendation e-learning done by user jointly chooses level and matter wanted, causing is got unequal choice is every [by] user. Functions which in test is : registration, pretest, system recommendation, level of level and posttest.
- Result expected
  With system recommendation, student can learn effectively and efficient, where student doesn't learn all matters wanted but learning at small fish which they don't understand. This thing known from user doing pre test. Besides economizing time in learning e-learning and knows ranking student based on posttest.

By doing Usability evaluation is expected by system diffraction is received its use and earns easy to be application by all user.

7. CONCLUSION
Recommendation System Model e-learning done by user by doing registration and election of matter and level, this thing aim to do subdividing of user based on level selected.

This recommendation system aim to facilitate user can learn effectively and efficient in learning e-learning. Model from system this recommendation consisted of 3 level that is : beginner, intermediate and advance.

Usability evaluation done at user to know level of success of system recommendation e-learning built.

REFERENCE