PREPARING AND UPDATING GROUP EDUCATION PLANS USING QUESTIONNAIRE FOR COMPUTER RELATED COURSES

Yasar Guneri Sahin, Tuncay Ercan
Yasar University, Turkey
yasar.sahin@yasar.edu.tr

ABSTRACT

Course syllabuses are usually prepared by the instructors without any feedback observed and assembled from target students. More, even sometimes these syllabuses are used for many years with little alterations by the instructors. This situation affects the education negatively, because many of the students come with different backgrounds and interests on the content of the target course. In addition, knowledge level and profile of the students might change ever year according to their prior education curriculums or some others reasons. In enclosure, a good questionnaire which is prepared and applied to newly coming students to get their level of interests on the course, may be useful too much in order to make the good education plan for groups. In this paper, an assessment software assisted questionnaire is presented for Database Management Systems courses. Using the assessment software, gathered results are used to construct GEP (Group Education Plans) for classes, and they can also be used to individualize for each student for their laboratory trainings. Assessing current level of the students using computer software assists to analyze results in many aspects and to arrange the objectives according to level of the class. Finally, a new course layout which is quite relevant to students, might be created.

Keywords: *Education plan, class assessment, syllabus preparation*

INTRODUCTION

Main goal of a course is to equip the students with its contents. To provide this equipment, educators try to transfer their knowledge to students along a semester or year. During lecturing, knowledge transfer must follow a sequence, which has to be consistent and understandable in accordance with the course content and the students' profiles. In order to supply consistency, almost all the educators prepare Syllabus for their each course at the beginning of the semester. However many researches show that many teachers or educators use their old or pre-prepared syllabuses if they give the same courses with previous semester or year. This kind of syllabus implementation sometimes fails because of students' profile and many other reasons.

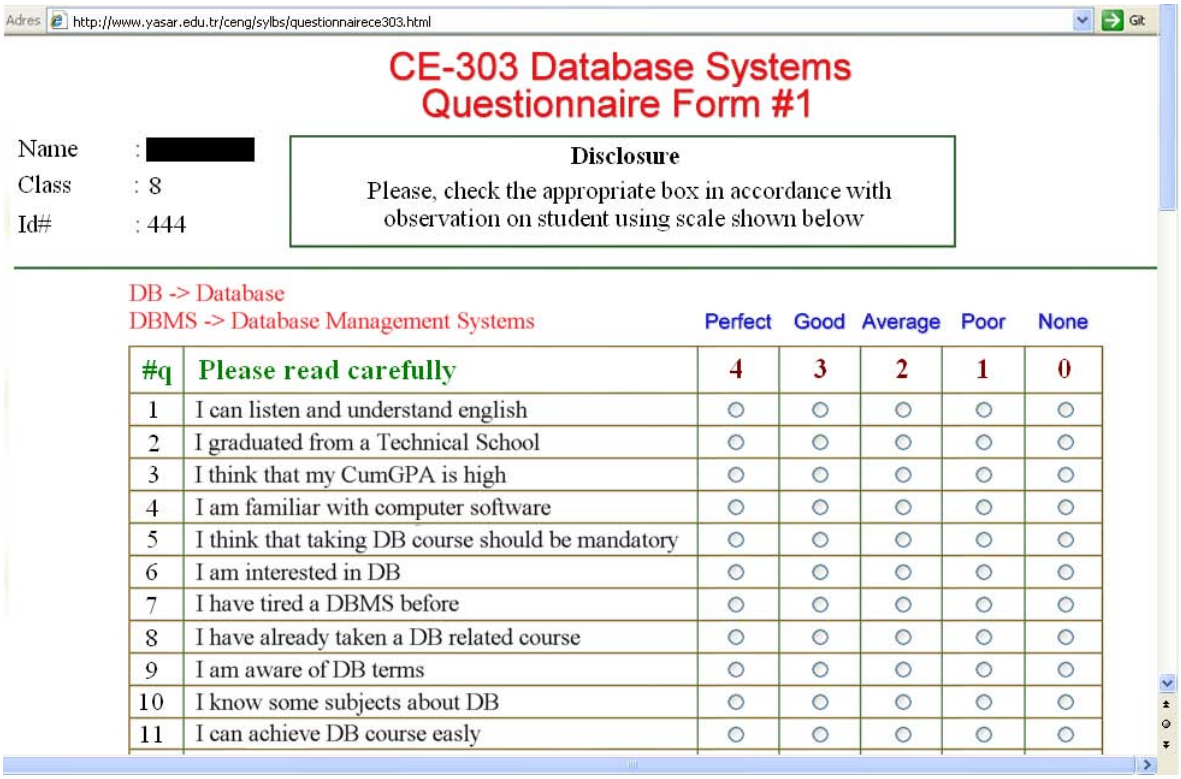
In order to prevent this possible failing, preparing and implementing individualized education plans (IEP) may seem a good solution for some cases. However, many universities and schools have classes, which have more than 30 students for each classes, application of individualized education plans is therefore very hard and needs more than one instructor in a class.

One possible way to avoid disadvantages of IEP's and support education is constructing a good group education plan according to students' profile. Although GEP is thought as a good solution for some cases, its construction is not easy as well as it seems. This paper addresses an issue of preparation of a good GEP for database systems courses.

Some researchers have investigated the syllabus and curricula problems for many years. Soderstrand (1994) in his study, focused on a new computer engineering curricula to catch current improvements in the technology and etc. Another study was assembled on new interdisciplinary syllabus on the internet to increase graduate students' interest stable on the course and to follow current contents regularly (Oliver, et al., 1994). Many other studies can be found on syllabus issue (Coleman, et al., 1998; Morse, 1999; Shinatrakool, 2000; Redmill, 2002; Crawley, 2002; Klein, 2002; Frincke, and Bishop, 2004; Al-Rawi, et al., 2006; Groth, 2004; CID&R, 2007; Zucker, 2006). Although all these studies are useful and have merit in their aspects , we would like to present different aspect of syllabus preparation and GEP.

PREPARATION OF GROUP EDUCATION PLAN

The first step of preparation of a good GEP passes through deduction of current status (their interest and experiences on the target course) of the students. For this reason a questionnaire has been applied to students. Figure 1 shows the main questionnaire form which might be applied at the beginning of the semester to the students, for computer database systems course.



Adres http://www.yasar.edu.tr/ceng/sylbs/questionnairece303.html

CE-303 Database Systems
Questionnaire Form #1

Name : [redacted]
Class : 8
Id# : 444

Disclosure

Please, check the appropriate box in accordance with observation on student using scale shown below

DB -> Database
DBMS -> Database Management Systems

#q	Please read carefully	Perfect 4	Good 3	Average 2	Poor 1	None 0
1	I can listen and understand english	○	○	○	○	○
2	I graduated from a Technical School	○	○	○	○	○
3	I think that my CumGPA is high	○	○	○	○	○
4	I am familiar with computer software	○	○	○	○	○
5	I think that taking DB course should be mandatory	○	○	○	○	○
6	I am interested in DB	○	○	○	○	○
7	I have tired a DBMS before	○	○	○	○	○
8	I have already taken a DB related course	○	○	○	○	○
9	I am aware of DB terms	○	○	○	○	○
10	I know some subjects about DB	○	○	○	○	○
11	I can achieve DB course easly	○	○	○	○	○

Figure 1: Sample main questionnaire for preparing group education plan for the course of database systems

This questionnaire is used to determine which subjects (except mandatory subjects, because these subjects must be included) might be included in the course concept and training duration of those subjects. The main questionnaire is also used to assess students' experiences and interests about the certain course. Students' abilities and awareness about the course can be assessed and evaluated by questions which are arranged beginning from basic English language skills and success levels of students to detailed topics about the course. After application of the questionnaire, all the scores are computed in accordance with 3 groups which are general interests about the course, students' general success profile and experiences about the course respectively. Next, 3 average values calculated using all the students' group results. Finally, combined values help the educators to construct their syllabuses.

Although students' experiences and general success level don't change, their interests about the course may change among the time according to course content. Hence, the syllabus should be flexible for further alterations. This situation requires that additional questionnaire should be applied to the students among the course duration. The essential

point is here that when the syllabus should be altered when GEP is considered.

Finding Correct Alteration Time

In order to understand the correct time for altering of a syllabus while educator dealing with dynamic GEP, educator can use many indicators and feed-backs which come from students. One of the good indicators is assessment result of exams. More, quizzes and home works can be used for this purpose. But, in this study we offer as a new indicator for finding correct time to alter a syllabus is usage of daily working hours of the students on the course.

Figure 2 shows an example graph of daily studying our of students (additional to lecture) gathered from computer engineering students for database systems through one semester.

In the figure, 2 kinds of line appear, one of them shows the regular workings on the course, the second one shows the irregular workings. The irregular studying holds many peeks during the semester. Almost all the peeks occur in a certain time, which is approximately 4 or 5 days before the exams. Besides working per day immediately decrease to 0 after exams and it is continuing about 3-4 days.
This a good point that shows the decreasing of interests on the course or current subject of the course. If educator would like to hold current level of daily working hours for the students at a certain average boundary (in fact, usually it is mandatory), the teacher may change the current subject with other independent subject (subjects which will be changed, should be independent than each other) according to decreases in level of working hours. If any subject is prerequisite for future one, a new subject can be inserted temporarily to the GEP. While describing the

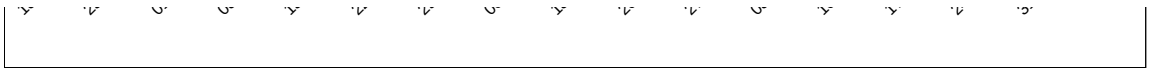


Figure 2: Daily home working hours of students for DB systems.

CONCLUSION

This study is current a research in progress, but some results showed that a noteworthy improvement in education for Computer related courses will be able to be achieved. It is detected that it is good idea to alter the current syllabus (to backward or forward) in some cases especially when the students loose their interests on the certain subject. The main difficulties in that research are observed as gathering daily working hours data from students and application of questionnaire. In order to get true results, educator must trust in the students, and they encourage the students to give correct answers to questionnaire and to give real amounts about their daily working hours. As a future work, a new detection method might be boundary for future checkpoints, firstly educator must determine a lower and upper bounds for decreases in daily working hours (DWH).

If average value of DWH for all the students exceeds the upper bound, then educator may select a new subject from future working to reinforce the students' knowledge, or if value fall down to lower bound, then educator may select a subject that might be already studied in past to bring back students' interests. This graph can be obtained with little questionnaire that asks for working hours to students and it can be used to learn current interest levels of the students.

developed to get current working status of the students, hence more realistic and reliable altering in syllabuses may be considered.

REFERENCES

Al-Rawi, A., Lansari, A. and Bouslama, F. (2006). Integrating IT Certifi'cation into an Information System Course, Information and Communication Technologies, ICTTA '06. 2nd, 459-464.

CID&R, (2007). Planning the Course Syllabus, Center for Instructional Development and Research, Retrieved 01 March 2007, From http://depts.washington.edu/cidrweb/syllabus/index.html

Coleman, J.N., Kinniment, J.D., Burns, F.P., Butler, T.J., Koelmans, A.M., (1998). Effectiveness of Computer-Aided Learning as a Direct Replacement for Lecturing in Degree-Level Electronics, IEEE TRANSACTIONS ON EDUCATION, VOL. 41(3), 177-184.

Crawley, E.F. (2002). Creating the CDIO Syllabuses, A Universal Template for Engineering Education, 32'h ASEE/IEEE Frontiers in Education Conference, November 6 - 9, Boston, USA, 8-13.

Frincke, D., Bishop, M. (2004). Back to School, Transaction on Education, JULY/AUGUST, 54-56.

Groth, D. (2004). Designing and Developing an Information System - I450/I451 Course Syllabus, Retrieved 01 March 2007, From www.informatics.indiana.edu/dgroth/Courses/I450/syllabi/i450-2002.pdf

Klein, D.H., (2002). Increasing Student Technology Skills through a Technology-Intensive Syllabus, Proceedings of the International Conference on Computers in Education (ICCE'02), 1.

Morse, L.C., (1999). Using Management Concepts in Planning for Distance Education, 29'h ASEE/IEEE Frontiers in Education Conference, November 10 - 13, San Juan, Puerto Rico, 10-13.

Oliver, C.E., RStrayer, M., Umar, V.M.,(1994). Building an Electronic Book on the Internet:"CSEP - an Interdisciplinary Syllabus for Teaching Computational Science at the Graduate Level", Frontiers in Education Conference, 430-433

Redmill, F., (2002). Strategic Perspectives on Engineering Education, IEE Soloy Place, London UK, art#25.

Shinatrakool, R., (2000). The Development of Science and Technology Education Planning in Vocational and Higher Educational Institutions, IEEE IWALT 2000, 277-278.

Soderstrand, A., (1994). The New Electrical and Computer Engineering Curricula at University of California-Davis. IEEE TRANSACTIONS ON EDUCATION, VOL. 37(2),136-146

Zucker, K.D., (2006). Syllabus Preparation, New Faculty Survival Guide, Retrieved 01 March 2007, From http://www.csun.edu/~newfac/index.html