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Evaluation of Student Surveys Based on Lectures

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Abstract

The most important component of innovation and accreditation in education and training is participation of the students who are the stakeholders in the process. This participation increases the options in education and training and directs the operation of the course. Participation of the students in the course and the quality of the course direction which is provided by a faculty member can be determined using course and student surveys. For this reason, student surveys should be done regularly and these surveys must have questions about the content of the course, the laboratory work and the function of the lecturer as well the knowledge, perception and values of the professional ethics gained by the student. But more important than this surveys are the objective responses of students. In this study, to understand the relationship between survey responses and success rate, surveys were carried out in different course groups between the years 2005-2012 in the Civil Engineering Department of the Yildiz Faculty of Civil Engineering at Yildiz Technical University. Finally, the objectivity of the students was determined by evaluating the survey responses from different perspectives.

Keywords: renewal, survey, objectivity

1. INTRODUCTION

The information era is accelerating the collection of and access to information. Providing information and knowledge are needed to produce and remodel. The nature of knowledge and learning has become the fundamental basis of constructivism (Brooks ve Brooks, 1993). Constructivism is a theory about knowledge and learning, not about teaching. This theory is based on establishing knowledge from the start (Demirel, 2000). In essence, the learned knowledge should be structured and put into practice (Perkins, 1999).

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Nowadays, producing information is expected from individuals, rather than consuming resources. Individuals who are accepted by the modern world are effective participants in the process of creating meaning from information; not people who accept every piece of information that is given (Yildirim ve Simsek, 1999). Constructivist learning is a process that occurs by the learner's own abilities, motivations, beliefs, attitudes and experiences. Individuals are selective, constructive and effective in the learning process (Ulgen, 1994; Şaşan, 2002).

Constructivist views of students with the lecturer are important for correction of the deficiencies in education and training in order to provide better quality in education. The most effective methods in the stating of students' views are interviews, assessment of observations and surveys.

The survey method was used to obtain the views of the students in the Department of Civil Engineering, Faculty of Civil Engineering at Yıldız Technical University. Yıldız Technical University, which is one of the oldest institutions of higher education in our country, Turkey, was founded in 1911 initially with the name Kondüktör Mektebi Alisi. Then it took other names: Nafıa Fen Mektebi, Teknik Okul, İstanbul Devlet Mühendislik Mimarlık Akademisi and finally Yıldız Üniversitesi. The Department of Civil Engineering is one of the two oldest departments in the university, and since 1911 a large number of the students have been trained as engineers (Aköz at al. 2004).

The Department of Civil Engineering is divided into six major areas of science which are Construction, Building Materials, Hydraulics, Geotechnical, Transportation, and Construction Management. In this study, in seven different courses (based on these six major areas of the science course selected), the percentages of students passing and students' survey responses are compared to determine the objectivity of the student surveys.

2. Method

2.1. Sample of the universe

The research population consisted of 9,897 students who were in seven different courses, in different groups, in the Civil Engineering Department, Faculty of Civil Engineering at Yıldız Technical University, during the 2005-2012 academic years. The research sample was taken as the whole universe, as this universe could be reached.

2.2. Collection of Data

In the data collection phase of this study, a survey form was created with reference to the literature and expert opinion, to investigate the objectivity of students which were designed to improve the quality of 7 different lectures for students

The questionnaire used in the study has two main parts: one about the lecture and the other about the faculty member. There are 24 different questions in total. The number of students that make up the sample of 14 academic terms is 9,897. All of the students agreed to participate on a voluntary basis.

2.3. Preparation of attitude phrases

The sentences about the faculty members and courses were prepared to determine positive or negative behaviour. The first item pool has 24 sentences about behaviour with the options: definitely agreed, agreed, undecided, disagreed, or definitely disagreed, which are like a rating sample.

2.4. Analysis of Data

It is known that simple statistics are used for analysis of surveys by the frequency found and percentages. In this study, student responses were graded and averaged.

3. Results

There were 14 different academic terms, fall or spring, between 2005 and 2012. The average of the responses to the applied surveys for each academic term is given in Table 1. The general average of all responses according to this table is 78.9. This shows that generally, the decisions of students were between *agree* and undecided The highest score of 87% is given to the question "Knowledge and skills in the course of the faculty member is sufficient". The lowest score of %75 is given to the question "Lecture contributes to abilities of mine like as identifying and problem-solving". Generally, high scores are given to the faculty members who concerned about course. Students are undecided about the provision of courses. For a more detailed evaluation of the students' attitudes towards classes, the survey results were compared with the passing scores of seven different courses.

Table 1. The distribution of answers given by students

	Q. NO	Question	1	2	3	4	5	Average*	Average**
Questions about faculty member	1	The lecturer processed the course in accordance with the course description form declared at the beginning of the semester.						4.24	84.8
	2	Resources proposed by the faculty member related to the course are sufficient.						4.11	82.2
	3	The course instructor entered the lectures on a regular basis.						4.30	86.0
	4	The knowledge and skills of the lecture's instructor is sufficient.						4.35	87.0
	5	The instructor came to lectures prepared.						4.31	86.2
	6	Communication between students and faculty member was positive.						4.21	84.2
	7	The instructor told lessons in a clear and understandable manner.						4.09	81.8
	8	The instructor used board and other visual tools effectively.						4.13	82.6
	9	Instructor encouraged students to participate in the course.						3.94	78.8
	10	Instructor encouraged students to conduct research (library, internet, etc.).						3.75	75.0
	11	Instructor's assessment is fair.						3.92	78.4
	12	I would like to take the course again with the same faculty member.						3.98	79.6

Q. NO	Question	1 2 3 4 5	Average*	Average**
13	The course has enabled students to use basic science and engineering.		3.92	78.4
14	The course contributed to abilities of design and to conduct experiments, analyze and interpret.		3.93	78.6
15	The course has improved my ability to design.		3.84	76.8
16	The course has contributed to teamwork skills.		3.75	75.0
17	The course contributed to ability of problem-solving.		3.67	73.4
18	The course has improved me professionally and ethically.		3.76	75.2
19	The course has improved my ability to communicate effectively.		3.76	75.2
20	Course enabled me to learn about the global and social effects of this profession.		3.69	73.8
21	The course helped awareness of lifelong education.		3.70	74.0
22	The course provided opportunities to learn topics of contemporary professions.		3.83	76.6
23	The course provided opportunities to choose modern engineering tools and methods.		3.69	73.8
24	Course gave a chance to learn a large amount of information about application areas of the department and how to implement information in these areas.		3.81	76.2

Note: Left margin vertical label: "Question about lecture"

* Average of the student answers, which were given in 14 academic terms

** Percentage of Average of the student answers which were given in 14 academic terms

1-Definitely Disagree
2- Disagree
3-Undecided
4-Agree
5- Definitely Agree

3.1. Evaluation of Courses

Seven different courses were determined for each department between the 2005-2012 academic years and these courses are coded as "I, II, III, IV, V, VI and VII". Each term courses are opened in different groups according to student numbers. Each group is coded as a different letter (A1, B1, C1 etc.). Passing scores between 1 and 5 are converted to percentages to compare with the results of the surveys. Results of the surveys are coded by course codes A, B, C and also passing percentages are coded as AA, BB, CC etc.

3.1.1. Course I

Course I was opened by 4 different faculty members (AA, BB, CC and DD) in 7 terms between the years 2005-2012. The average score of the survey results is 79% and the average percentage of success on the course is 69%. As can be seen from Fig. 1, for group A, while the average success is 67%, the average score of the survey is 79%; for group B, while the average success is 76%, the average score of the survey is 79%; for group C while the average success is 65%, the average score of the survey is 81%; and for Group D while the average success is 56%, the average score of the survey is 83% (Table 2).
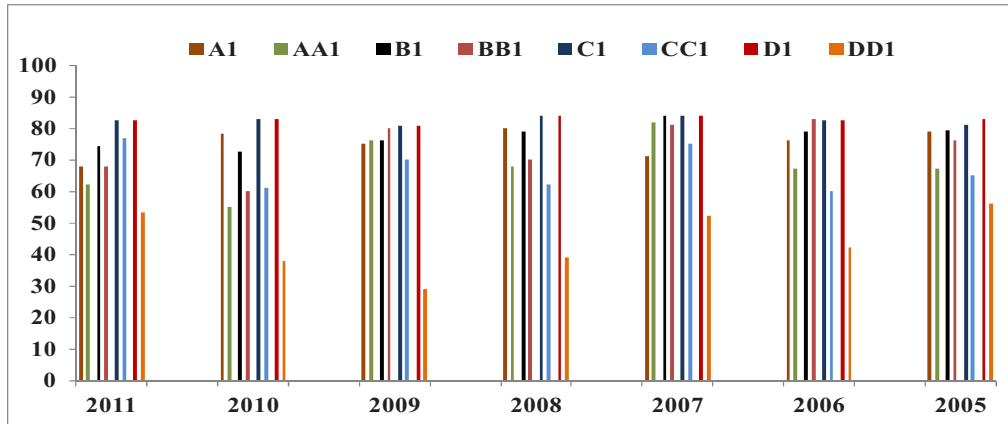

Fig. 1. Survey results and course success percentages for Course I for 7 years.

Table 2. Success percentages and average of survey results for Course I

	A%	G%	A%	G%	A%	G%	A%	G%
Terms	A1	AA1	B1	BB1	C1	CC1	D1	DD1
2011	67.8	62.0	74.2	68.0	82.4	76.7	82.4	53.4
2010	78.2	55.0	72.6	60.0	83.0	61.0	83.0	38.0
2009	75.0	76.0	76.0	80.0	80.6	70.0	80.6	29.0
2008	80.2	68.0	79.0	70.0	84.0	62.0	84.0	39.0
2007	71.0	82.0	84.0	81.0	84.0	75.0	84.0	52.0
2006	76.0	67.0	78.8	83.0	82.4	60.0	82.4	42.0
2005	79.0	67.0	79.4	76.0	81.0	65.0	83.0	56.0
A%; survey percentage, G% passing percentage				A, B, C, D group of lecturer				

Group D has the lowest success rate but it is still above the average percentage of the survey results. Group B has the highest success rate but the average score which is given in the survey is the average.

3.1.2. Course II

Course II was opened by 2 different faculty members (A2 and B2) in 6 terms between the years 2005-2012. The average score of the survey results is 77% and the success average on the course is 69%. As can be seen from Fig. 2, for group A2, while the average success is 67%, the average score of the survey is 77%; and for group B2, while the average success is 71%, the average score of the survey is 78% (Table 3).
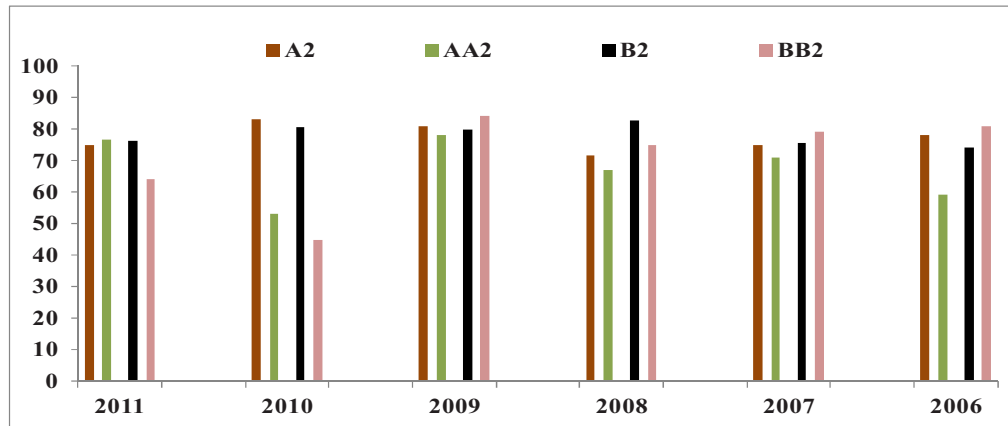

Fig. 2. Survey results and course success percentages for Course II for 6 years.

Table 3. Success percentages and average of survey results for Course II

	A%	G%	A%	G%
Terms	A2	AA2	B2	BB2
2011	75.0	76.7	76.2	64.0
2010	83.0	53.0	80.4	45.0
2009	81.0	78.0	79.8	84.0
2008	71.6	67.0	82.6	75.0
2007	75.0	71.0	75.6	79.0
2006	78.0	59.0	74.0	81.0

A%; survey percentage, G% passing percentage

A, B group of lecturer

Group A2 has a low success rate and its survey results are close to the average score, but group B2 has the highest scores for both the success rate and survey results.

3.1.3. Course III

Course III was opened by 3 different faculty members (A3, B3 and C3) in 9 terms between the years 2005-2012. The average score of the survey results is 83% and the average success on the course is 64%. As can be seen from Fig. 3, for group A3, while the average success is 52%, the average score of the survey is 71%; for group B3, while the average success is 69%, the average score of the survey is 94%; and for group C3, while the average success is 71%, the average score of the survey is 84% (Table 4).
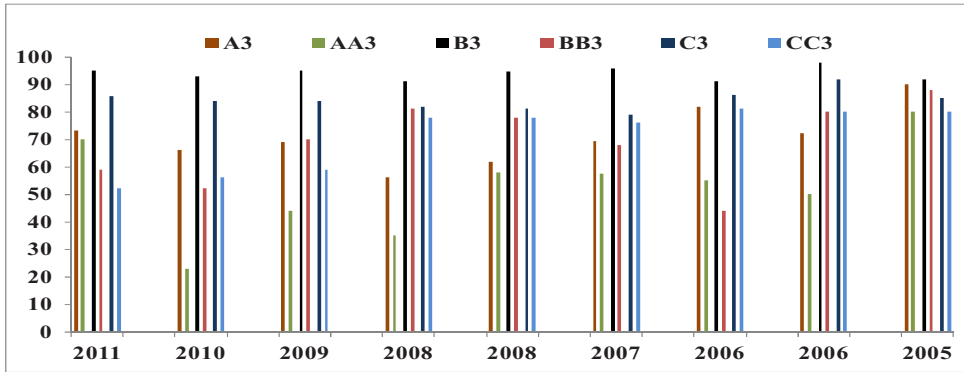

Fig. 3. Survey results and course success percentages for Course III for 9 years.

Table 4. Success percentages and average of survey results for Course III

Terms	A% A3	G% AA3	A% B3	G% BB3	A% C3	G% CC3
2011	73.2	70.0	95.2	59.0	85.6	52.0
2010	66.0	23.0	92.8	52.0	84.0	56.0
2009	69.0	44.0	95.0	70.0	84.0	59.0
2008	56.0	35.0	91.2	81.0	82.0	78.0
2008	61.8	58.0	94.6	78.0	81.2	78.0
2007	69.2	57.5	95.6	68.0	79.0	76.0
2006	82.0	55.0	91.2	44.0	86.0	81.0
2006	72.2	50.0	98.0	80.0	92.0	80.0
2005	90.0	80.0	92.0	88.0	85.0	80.0

A%; survey percentage, G% passing percentage

A, B, C: group of lecturer

A3 group has the lowest success rate and the lowest percentage of success. B3 group has the highest success rate and the highest survey success results.

3.1.4. Course IV

Course IV was opened by 4 different faculty members (A4, B4, C4 and D4) in 9 terms between the years 2005-2012. The average score of the survey results is 78% and the average success on the course is 76%. As can be seen from Fig. 4, for group A4, while the average success on the course is 73%, the average score of the survey is 75%; for group B4, while the average success is 68%, the average score of the survey is 70%; for group C4, while the average success is 82%, the average score of the survey is 88%; and for Group D4, while the average success is 80%, the average score of the survey is 78% (Table 5).
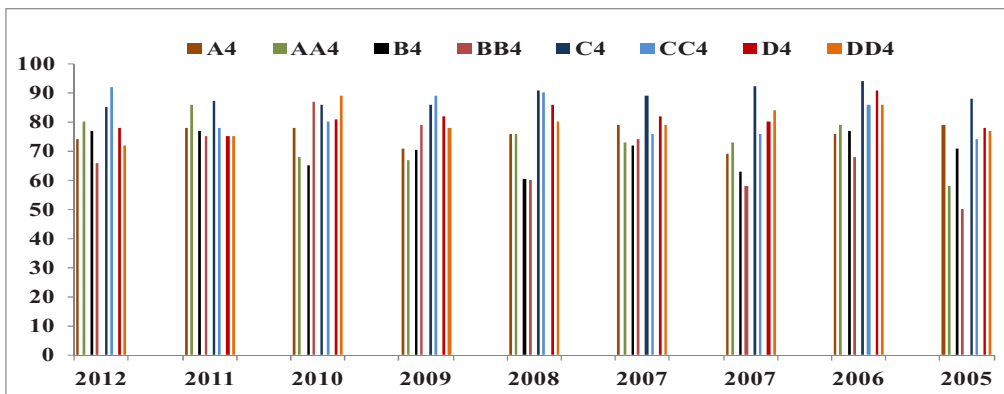

Fig. 4. Survey results and course success percentages for Course IV for 9 years.

Table 5. Success percentages and average of survey results for Course IV

Terms	A%	G%	A%	G%	A%	G%	A%	G%
	A4	AA4	B4	BB4	C4	CC4	D4	DD4
2012	74.0	80.0	77.0	66.0	85.0	92.0	78.0	72.0
2011	78.0	86.0	77.0	75.0	87.2	78.0	75.2	75.0
2010	78.0	68.0	65.0	87.0	86.0	80.0	80.8	89.0
2009	71.0	67.0	70.6	79.0	86.0	89.0	82.0	78.0
2008	76.0	76.0	60.6	60.0	91.0	90.0	86.0	80.0
2007	79.0	73.0	72.0	74.0	89.0	76.0	82.0	79.0
2007	69.0	73.0	62.8	58.0	92.2	76.0	80.0	84.0
2006	76.0	79.0	77.0	68.0	94.0	86.0	91.0	86.0
2005	79.0	58.0	71.0	50.0	88.0	74.0	78.0	77.0
A%; survey percentage, G% passing percentage				A, B, C, D : group of lecturer				

B4 group has the lowest success rate and lowest survey results while the other groups are close to the average.

3.1.5. Course V

Course V was opened by 3 different faculty members (A5, B5 and C5) in 7 terms between the years 2005-2012. The average score of the survey results is 79% and the average success on the course is 65%. As can be seen from Fig. 5, for group A5, while the average success is 59%, the average score of the survey is 75%; for group B5, while the average success is 77%, the average score of the survey is 80%; and for group C5, while the average success is 60%, the average score of the survey is 80% (Table 6).
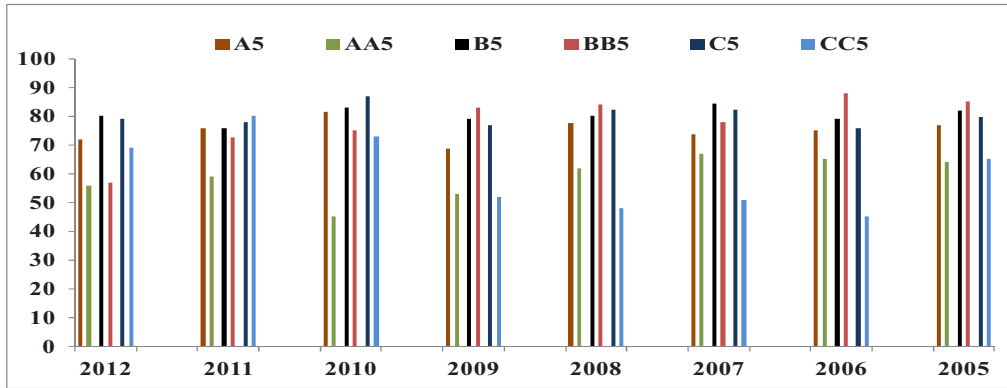

Fig. 5. Survey results and course success percentages for Course V for 8 years.

Table 6. Success percentages and average of survey results for Course V

Terms	A% A5	G% AA5	A% B5	G% BB5	A% C5	G% CC5
2012	72.0	56.0	80.0	57.0	79.0	69.0
2011	76.0	59.0	76.0	72.5	78.0	80.0
2010	81.4	45.0	83.0	75.0	86.8	73.0
2009	68.8	53.0	79.0	83.0	77.0	52.0
2008	77.6	62.0	80.0	84.0	82.2	48.0
2007	73.6	67.0	84.4	78.0	82.4	51.0
2006	75.0	65.0	79.0	88.0	76.0	45.0
2005	77.0	64.0	82.0	85.0	79.6	65.0

A%; survey percentage, G% passing percentage

A, B, C, D: group of lecturer

A5 group has the lowest success rate and the lowest score of the survey. In Group C5, the success rate is below the average but the score of the survey is higher than the average. Group B5 gave positive points for survey and also had high success rate on the course.

3.1.6. Course VI

Course VI was opened by 3 different faculty members (A6, B6 and C6) in 7 terms between the years 2005-2012. The average score of the survey results is 81% and the average success on the course is 93%. As can be seen from Fig. 6, for group A6, while the average success is 96%, the average score of the survey is 81%; for group B6, while the average success is 87%, the average score of the survey is 70%; and for group C6, while the average success is 96%, the average score of the survey is 91% (Table 7).
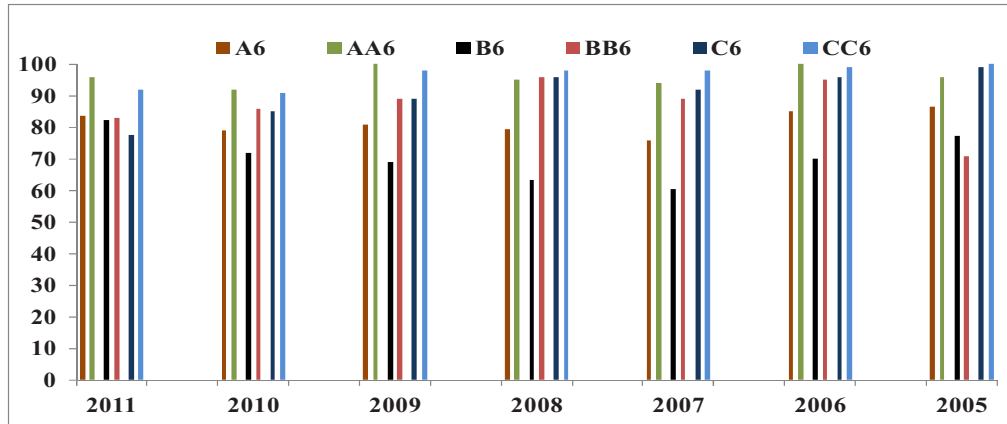

Fig. 6. Survey results and course success percentages for Course VI for 7 years.

Table 7. Success percentages and average of survey results for Course VI

	A%	G%	A%	G%	A%	G%
Terms	A6	AA6	B6	BB6	C6	CC6
2011	83.8	96.0	82.2	83.0	77.8	92.0
2010	79.0	92.0	71.8	86.0	85.0	91.0
2009	81.0	100.0	69.0	89.0	89.0	98.0
2008	79.4	95.0	63.2	96.0	95.8	98.0
2007	76.0	94.0	60.6	89.0	91.8	98.0
2006	85.0	100.0	70.0	95.0	96.0	99.0
2005	86.6	96.0	77.2	71.0	99.0	100.0

A%; survey percentage, G% passing percentage

A, B, C, D: group of lecturer

Despite the high pass rates in the course, three survey groups score low. B6 has the lowest score which belongs to a group survey.

3.1.7. Course VII

Course VII was opened by 3 different faculty members (A7, B7 and C7) in 6 terms between the years 2005-2012. The average score of the survey results is 82% and the average success on the course is 87%. As can be seen from Figure 7, for group A7, while the average success is 86%, the average score of the survey is 78%; for group B7, while the average success is 93%, the average score of the survey is 85%; and for group C7, while the average success is %92, the average score of the survey is 85% (Table 8).
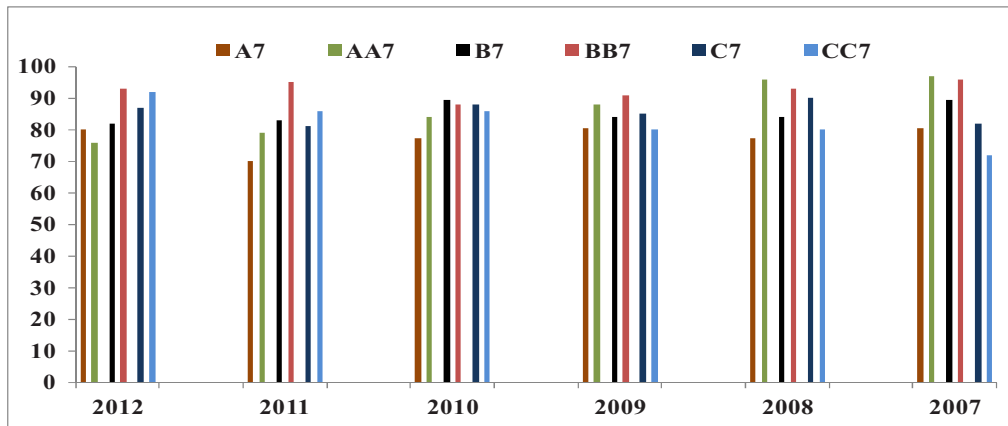

Fig. 7. Survey results and course success percentages of Course VII for 7 years.

Table 8. Success percentages and average of survey results for Course VII

	A%	G%	A%	G%	A%	G%
Terms	A7	AA7	B7	BB7	C7	CC7
2012	80.0	76.0	82.0	93.0	86.8	92.0
2011	70.2	79.0	83.0	95.0	81.2	86.0
2010	77.2	84.0	89.4	88.0	88.0	86.0
2009	80.6	88.0	84.0	91.0	85.0	80.0
2008	77.2	96.0	84.0	93.0	90.0	80.0
2007	80.6	97.0	89.4	96.0	82.0	72.0

A%; survey percentage, G% passing percentage

A, B, C, D : group of lecturer

The success percentage of the course in group C7 is lower than the percentage for the result of the surveys. Also the success percentages of the course for Groups A7 and B7 are higher than those for the survey results.

4. Conclusion and Recommendations

4.1. Conclusion

The success rate of the course and the survey results, based on an assessment of the faculty member and the course, are compared for 7 different courses and departments between the 2005-2012 academic years.

According to these results;

- Course I: The success rate of Course I is 69% and the result of the survey is 79%. The passing percentages and survey results are close together. Only Group D has a remarkably high survey percentage and low passing percentage. According to these course results, students think about the relationship between them and the faculty member of the course while they are filling in the survey.

- Course II: There are two faculty members who give this course. Despite the fact that the average of the success for 2010 is low, the survey results are close to each other. Generally the success rate and the survey results are close to each other for two faculty members.

- Course III: This course has the lowest success percentage of all course results (64%) but still, the highest survey results were achieved in this course too (94%). At the same time the survey results and success percentages are evaluated in parallel manner.

- Course IV: There were four groups in this course and the results of the survey (78%) and success percentage (76%) are close to each other. While the success percentage (80%) of group D4 is higher than the survey results (78%), other groups have higher survey results than success percentages.

- Course V: General survey results are higher than success percentages of the course. It is observed that the students didn't complete the survey due to the course grades that they achieved.

- Course VI: The course VI success results are the highest compared with the others (93%). Group B6 has the lowest survey results. It can be said that students didn't complete the surveys due to their lac of success on the course.

- Course VII: The survey results (82%) and success rates (87%) of the course are high and close to each other. The survey results are lower than the success rates so the survey results have been affected by the success rates.

    As a result,
    - Despite students participating in the survey voluntarily, the survey results are higher than the success percentages which means that the students moved away from objectivity while filling in the forms.
    - While the results about faculty members are high, the results about the courses are average. It can be concluded that the courses couldn't help students properly because most of the answers are *undecided* or *agree*.
    - Students give high scores to faculty members who they could communicate with directly.
    - According to the survey there are no problems about course content and lecture capability of the faculty members. Students' expectations of faculty members led them to do research and practice how they will use the course information in real life.

4.2. Recommendations

In constructivist education, it is important to form and reshape information. Teaching is just not enough. Students should contribute to education, not only participate in information transfer. The survey results show that students favour constructivist education. Students give higher survey results to the teacher who is concerned about their success even when their success is low. According to the results, all percentages are high but most of the students also rate favorably. Even though students completed these surveys voluntarily, the surveys should not be taken into account when these courses are organized in future.

Acknowledgement

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