

Student Perceptions of Teaching Techniques

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ABSTRACT

Over the past several years, there have been major changes in the ways business course content can be delivered to college students. Today professors can choose from techniques such as the use of chalk and marker boards, smart boards, computer software for problem solving, power point for lectures, and on line techniques such as WebCt for chat rooms and testing. Students also possess new technologies as they can download lectures on iPods or use their BlackBerries for classroom work. In addition, publishers have invested heavily in classroom technology designed to assist professors in teaching and students in learning.

Certainly the variety of technological advances is matched by the diversity in student learning styles. These learning styles consist of several types such as; visual, auditory, verbal, physical, logical, social, and solitary.

Thus, given the changes in technology, coupled with the awareness of different learning styles, the typical classroom environment may be characterized by a certain level of confusion as professors attempt to apply new techniques to classroom settings containing students with several different learning patterns.

Lost in the confusion, however, are the very students for whom professors, publishers, and schools are trying to help learn a variety of business concepts. It is the purpose of this paper to study student responses to a questionnaire designed to determine what classroom techniques are currently used, the techniques the students enjoy, and finally, and most important, the techniques students feel will enhance their learning.

The results of the study showed that students feel they learn best with lectures and hands on problem solving. Minorities were especially partial to hands on problem solving. Finally, students overwhelmingly did not like on line techniques.

This research will help professors implement technologies that will focus on methods that improve student learning. Finally, this study will lead to further studies that will identify other teaching techniques and technologies that can improve classroom learning.

Introduction

Over the past several years, there have been major changes in the ways business course content can be delivered to college students. Today professors can choose from techniques such as the use of chalk and marker boards, smart boards, computer software for problem solving, power point for lectures, and on-line techniques such as WebCt for chat rooms and testing. Students also possess new technologies as they can download lectures on iPods or use their BlackBerries for classroom work. Finally, publishers have invested heavily in classroom technology designed to assist professors in teaching and students in learning.

Certainly the variety of technological advances is matched by the diversity in student learning styles. Kolb identified four stages of a learning cycle as:

1. Concrete experiences
2. Observation and Reflection
3. Abstract Conceptualization
4. Testing Concepts in New Structures

For the four stages, the learning cycle is a continuous process with the concrete experience being the basis for the second step observations and reflection which then lead to a theory, and finally testing. (Kolb, 1984) The above concept was followed by the development of four dimensions of learning by Felder and Silverman. (Felder, R. M. and Silverman, R. K. 1988)

The four dimensions of learning are;

1. Visual- Verbal learners
2. Sensory- Intuitive learners
3. Active- Reflective learners
4. Sequential- Global learners

Felder and Silverman also thought it important for students to recognize their own learning preferences. However, while instructors should not cater to the various styles, Felder and Silverman felt that teachers should realize there exists dominant styles and thus teachers should design course work providing learning to the largest number of students. Recently Learning-styles-online has expanded the list of learning styles to include the following styles: (www.learning-styles-online.com)

1. Visual (spatial) - learner prefers pictures and images
2. Aural (auditory-musical) - student prefers sound and music
3. Verbal (linguistic) - the student has a preference for words
4. Physical (kinesthetic) - the student is a hands-on learner
5. Logical (mathematical) - student prefers logic and reasoning system
6. Social (interpersonal) - the student learns best by working in groups
7. Solitary (intrapersonal) - the learner prefers self study

In addition to the identification of the above learning styles, many colleges and universities have adopted “deep learning” as a campus goal.

Deep learning, as compared to surface learning, involves the critical analysis of new ideas, linking them to already known concepts and principles. This, in turn, leads to understanding and long term retention of concepts so those concepts can be used for problem solving in unfamiliar contexts. (www.engsc.ac.uk/er/theory/learning.asp)

Thus, given the changes in technology, coupled with the awareness of different learning styles, the typical classroom may be characterized by a certain level of confusion as professors attempt to apply their own teaching styles and technologies to classroom settings containing students with several different types of learning patterns. Additionally, schools are applying pressure on professors to be more accountable for their teaching while, at the same time, improving the learning levels of their students.

Lost in the confusion, however, are the very students for whom professors, publishers, and schools are trying to help learn concepts to apply to problems in an ever more complex business environment. It is the purpose of this paper to study student responses to a questionnaire designed to identify what classroom techniques are currently used, the techniques feel will enhance their learning, and the techniques students enjoy the most.

Methodology

To identify student perceptions of teaching techniques, the researchers surveyed a total of 333 business students from three teaching universities: The University of Akron, North Carolina A & T State University, and Winthrop University. We selected students from the above named schools because of the schools' emphasis on teaching. The researchers felt that because of the emphasis on teaching, professors at those schools would be more likely to use a variety of teaching techniques, and that students attending the selected schools did so because, in large part, of the schools' reputation as teaching institutions.

The researchers presented business students with a questionnaire (Exhibit 1) consisting of four parts. Part 1 asked for demographic data such as gender and whether or not a student was a member of a minority group. Part 2 consisted of 13 items related to instructor practices. Student responses were on a scale of 1 to 6 with a score of 1 showing that a practice was never or rarely used while a score of 6 meant that a teaching technique was used extensively. The 13 items were designed to cover a wide range of teaching techniques including lectures, discussions, use of power point, videos, and on-line classes. The final item of the list of 13 reflected a measure of student satisfaction with teaching methods being used. Parts 3 and 4 consisted of the same 13 items, but asked students first about methods best for their learning, and then in the last part asked about techniques most enjoyed by students.

In surveying the students, we wanted to determine what teaching methods are currently being used. In addition, we sought to discover if the methods being used differed from either the methods enjoyed or the methods the students felt most enhanced their learning. To accomplish this we first ranked the mean scores by technique for each population group. Thus, we were able to determine which teaching methods are employed by teachers and which teaching methods are most favored by students. Second, we used the two sample *t* test for differences in means to determine if there existed significant differences between techniques used by professors and those preferred by students. Finally, the same statistical tests were applied to see if there were gender or minority/non-minority differences regarding those techniques both enjoyed by students and those perceived to best improve learning.

Results

The researchers divided the results of the study into two parts. Part 1 ranks the scores for each population group by questionnaire parts. Part 2 shows whether or not statistical differences exist between population groups for each questionnaire part.

In examining the scores for all students for questionnaire parts 2, 3, and 4 (Exhibits 2, 3, and 4) we found that professors lecture using notes, chalk boards, or through the use of power point. On the other hand, even in the age of advanced technology, professors do not use on-line courses and testing.

When reviewing what students felt most contributed to learning we discovered that students feel that what professors do results in student learning. In addition, students felt that on-line courses and testing contributed the least to learning.

Finally, when evaluating scores reflecting what students enjoyed, we discovered that students enjoyed both in class problem solving and lectures. Students, however, did not enjoy on-line classes and testing or lectures using transparencies.

On the surface, the results appear to show that teaching methods used by professors are both enjoyed by students and preferred as methods enhancing learning. Yet, a puzzling discovery was that statistical differences exist between questionnaire parts 2 and 3 and parts 2 and 4. (Exhibit 9) This indicates that students may not be so pleased with the instruction techniques used by professors. A possible explanation for the apparent contradiction in results may be because of the variety of learning styles existing in any one classroom.

We next examined the scores based on gender. We discovered that the ranking of instructional techniques were similar for both genders for questionnaire parts three and four and also the same as for the population as a whole. (Exhibits 5 and 6) The application of the statistical tests for differences in means revealed no significant gender differences for either of the two parts.

Finally, the researchers reviewed the results for minorities/non-minorities. Minorities appeared to feel that hands on learning techniques such as in class problem solving enhanced their learning while non-minorities preferred lectures and discussions.(Exhibit 7) The rankings are the same for those techniques most enjoyed by both groups.(Exhibit 8) The statistical test for differences between means confirms the differences in rankings as the test revealed a significant difference between minorities and non-minorities for both parts three and four of the questionnaire.

Conclusion

In today's environment of technological advances, professors tend to use tried and true methods of lecturing using notes, chalk boards, and power point. Professors also use in class problem solving for individual as well as group exercises.

Students also seem to prefer lectures and in class problem solving as both enjoyable and most likely to contribute to learning. Surprisingly, students want little or no use of on line classes or testing.

Yet, while the rankings appear to be consistent for all population groups, statistical differences exist between the responses for parts two and three and parts two and four for all students and for minorities and non-minorities for questionnaire parts three and four. A

possible explanation for the apparent contradiction in results may be the existence of different learning styles in any given class.

In summary, this study shows that both professors and students tend to both use and like the same teaching techniques. Minorities, however, tend to prefer hands-on learning experiences, but still like lectures. Yet, contradictions exist as the test for difference in means revealed several areas of group differences. The contradictions may be explained by the large number of learning styles present in the classroom. In addition, the study results show that students prefer traditional classroom teaching techniques to the newer on-line classroom and testing methodologies. Finally, the results of this study will assist professors in designing classroom presentations. As a result of studies such as this, professors will be more aware of learning differences and will be able to use the knowledge of those differences to better deliver material to the variety of students present in the classroom.

References

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Exhibit 1

Questionnaire

Confidential Questionnaire

Following is a questionnaire examining individual learning styles. Please answer the questions with the understanding that there are no right or wrong answers. Part 1 requests personal data while parts 2, 3, and 4 consist of answers based on a 6 point scale. For each question, circle only one number. Please answer all the questions. Thank you for your participation.

Please check the appropriate items below:

Part 1: Personal Data

Sex

_____ Male _____ Female

Year in college: ___ Freshman

 ___ Sophomore

 ___ Junior

 ___ Senior

 ___ Graduate

Ethnicity

 ___ African-American

 ___ Asian-American

 ___ Hispanic

 ___ Native-American

 ___ European-American

 ___ Other

Part 2: To be answered by students.

How much course time do my instructors use the following teaching techniques?
Please circle the number most appropriate.

Lectures from notes:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

Lectures using Power Point:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

Lectures using overhead transparencies:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

Lectures using chalk or marker boards:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Discussions using Power Point:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Discussions using overhead transparencies:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures/Problem Solving using a computer with the instructor sitting or standing by the keyboard:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

WebCt or other on-line classes:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

WebCt or other on-line quizzes and tests:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

In-class individual problem solving:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

In-class group problem solving:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Videos or slides:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Other:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

PART 3: To be answered by students.

What percentage of classroom time with the following teaching techniques contributes most to my learning?
 Please circle the number most appropriate.

Lectures from notes:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures using Power Point:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures using overhead transparencies:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures using chalk or marker boards:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Discussions using Power Point:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Discussions using overhead transparencies:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures/Problem Solving using a computer with the instructor sitting or standing by the keyboard:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

WebCt or other on-line classes:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

WebCt or other on-line quizzes and tests:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

In-class individual problem solving:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

In-class group problem solving:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Videos or slides:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Other:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

PART 4: To be answered by students.

What percentage of class time do you enjoy the following teaching techniques?
 Please circle the number most appropriate.

Lectures from notes:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures using Power Point:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures using overhead transparencies:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures using chalk or marker boards:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Discussions using Power Point:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Discussions using overhead transparencies:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

Lectures/Problem Solving using a computer with the instructor sitting or standing by the keyboard:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

WebCt or other on-line classes:
 0% 1-20% 21-40% 41-60% 61-80% 81-100%
 1 2 3 4 5 6

WebCt or other on-line quizzes and tests:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

In-class individual problem solving:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

In-class group problem solving:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

Videos or slides:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

Other:

0%	1-20%	21-40%	41-60%	61-80%	81-100%
1	2	3	4	5	6

Thank you very much for your participation.

Exhibit 2

Ranking of Teaching Techniques Used

N=333

Question	mean score	rank
1	3.92	1
2	3.53	3
3	2.24	8
4	3.84	2
5	3.00	6
6	2.12	9
7	2.43	7 (tie)
8	2.00	10
9	1.84	12
10	3.16	5
11	3.35	4
12	2.43	7 (tie)
13	1.92	11

Exhibit 3

Ranking of Part 3 Scores for all Respondents

N=333

Question	mean score	rank
1	3.65	3
2	3.50	5
3	2.46	10
4	3.83	1
5	3.42	6
6	2.49	9
7	2.67	7
8	2.06	12
9	2.17	11
10	3.57	4
11	3.81	2
12	2.63	8
13	2.05	13

Exhibit 4

Ranking of Part 4 Scores for all Respondents

N=333

Question	mean score	rank
1	3.22	6
2	3.56	4
3	2.45	10
4	3.60	2
5	3.59	3
6	2.56	9
7	2.80	8
8	2.12	12
9	2.27	11
10	3.51	5
11	3.97	1
12	3.02	7
13	2.05	13

Exhibit 5

Ranking of Part 3 Scores by Gender

Males=172			Females=161		
Question	mean score	rank	mean score	rank	
1	3.57	4	3.73	3	
2	3.43	6	3.58	4	
3	2.52	10	2.39	9	
4	3.73	2	3.93	1	
5	3.45	5	3.41	6	
6	2.58	9	2.35	10	
7	2.82	7	2.48	8	
8	2.06	13	2.09	12	
9	2.09	12	2.25	11	
10	3.61	3	3.51	5	
11	3.79	1	3.79	2	
12	2.60	8	2.69	7	
13	2.10	11	1.96	13	

Exhibit 6

Ranking of Part 4 Scores by Gender

Question	Males= 172		Females=161	
	mean score	rank	mean score	rank
1	3.10	6	3.36	6
2	3.50	4	3.61	3
3	2.43	10	2.43	10
4	3.44	5	3.76	2
5	3.66	2	3.48	5
6	2.59	9	2.49	9
7	2.94	7	2.60	8
8	2.15	12	2.07	12
9	2.28	11	2.26	11
10	3.53	3	3.52	4
11	3.96	1	3.94	1
12	2.92	8	3.07	7
13	2.11	13	1.93	13

Exhibit 7

Ranking of Part 3 Scores by Minority/Non-Minority

Question	Minority=113		Non-Minority=220	
	mean score	rank	mean score	rank
1	4.13	2	3.38	5
2	3.53	5	3.47	4
3	3.11	7	2.11	10
4	4.11	3	3.69	1
5	3.53	6	3.35	3
6	3.10	8	2.15	9
7	2.64	10	2.67	7
8	2.19	13	2.03	11
9	2.50	11	2.00	12
10	3.91	4	3.37	6
11	4.20	1	3.62	2
12	3.07	9	2.40	8
13	2.32	12	1.91	13

Exhibit 8

Ranking of Part 4 Scores by Minority/Non-Minority

Question	Minority=113		Non-Minority=220	
	mean score	rank	mean score	rank
1	3.67	5	3.07	6
2	3.59	6	3.54	3
3	2.96	10	2.18	10
4	3.69	3	3.59	2
5	3.68	4	3.53	4
6	3.05	8	2.31	9
7	2.99	9	2.71	8
8	2.29	13	2.03	12
9	2.61	11	2.12	11
10	3.90	2	3.34	5
11	4.34	1	3.73	1
12	3.41	7	2.80	7
13	2.32	12	1.89	13

Exhibit 9

Results of Testing for Differences Between Parts and Population Groups

	means	variance	n	<i>t-value</i>	<i>p-value</i> (one tail)
Overall difference between Part 2					
Part 2	2.72	.47	333	-7.12	.00 *
Part 3	2.95	.62	333		
Overall difference between Part 3 and Part 4					
Part 3	2.95	.62	333	-.79	.21
Part 4	2.97	.74	333		
Overall difference between Part 2 and Part 4					
Part 2	2.72	.47	333	-6.39	.00 *
Part 4	2.97	.74	333		
Difference between Minority and Non-Minority for Part 3					
Minority	3.25	.67	113	-5.2	.00 *
Non-Minority	2.80	.52	220		
Difference between Minority and Non-Minority for Part 4					
Minority	3.24	.87	113	-4.14	.00 *
Non-Minority	2.84	.62	220		
Difference between Males and Females for Part 3					
Males	2.96	.65	172	-.25	.39
Females	2.94	.58	161		
Difference between Males and Females for Part 4					
Males	2.98	.79	172	-.18	.42
Females	2.96	.69	161		

* Indicates significance at 1% alpha level