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Message from the Editor-in-Chief

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TOJQIH is confident that readers will learn and get different aspects on quality in higher education. Any views expressed in this publication are the views of the authors and are not the views of the Editor and TOJQIH.

TOJQIH thanks and appreciate the editorial board who have acted as reviewers for one or more submissions of this issue for their valuable contributions.

TOJQIH organized ICQH-2017 conference. The ICQH-2017 conference book has been published at <http://www.icqh.net/publications.php>

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A GLOBAL FALSE DICHOTOMY IN HIGHER EDUCATION: TEACHING VS. RESEARCH

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ABSTRACT

There are so many false dichotomies (e.g. nature vs. nurture, theory vs. practice, general vs. vocational, teacher vs. technology) in educational assertions especially in higher education. Forced choice between these dichotomies definitely mystify the option in favor and tend to obscure the other. The purpose this study is to display an empirical evidence for the inseparable nature of research and teaching in higher education. Neither of them can be excelled at the expense of expelling the other. In order to fulfil this purpose Times Higher Education (THE) World University Rankings 2016-17. Pearson product moment correlation was found to be significantly high and positive. In fact the correlation between Teaching and Research is always the highest one among all the other paired criteria in every different context. This finding is not sufficient but necessary evidence to assert that Teaching and Research do not alternate but reinforce each other in higher education.

Keywords: False Dichotomy, University Rankings, Quality in Higher Education

INTRODUCTION

The university is a platform of inquiry, discovery and invention i.e. production of information. Teaching is also an obligation of tertiary education to reproduce available information for society. There are so many ways to assess the amount and the quality of service provided by higher educational institutions. Times Higher Education World University Ranking is an attempt to summarize the performances of leading universities. . In the year THE-2017 report 982 universities from 80 different countries were ranked.

Table 1 displays the universities with respect to their countries.

THE is using the same criteria with the same weights (Teaching 30%, Research 30%, Citations 30%, International Outlook 7.5%, Industrial Income 2.5%) since 2012. In the year 2017 1313 institutions were evaluated and 982 were ranked. The ranking 528000 books published within the 2011-2015 period, and the citations they received are taken into consideration from the Scopus database. These include books, book chapters, and conference proceedings.

What are the universities good for?

All of these ranking criteria but especially Teaching and Research are important in universities for three main reasons. First, they comprise intellectual value for higher education. Curiosity is the inner drive for academicians. Second, they involve practical value. Information is the most important strategic commodity in the knowledge society. Third, universities attract brighter international students thru these virtues. These qualities allow universities to be world class in education and research (Murray et al., 2011). The capability of an institution for invention, innovation and entrepreneurship is determined by the best minds on the campus. The strength and the reputation of a university is driven largely by bright students and academicians perseverant in learning and teaching (Rizvi & Lingard 2010).

The university as a platform of inquiry, birthplace of sophisticated knowledge must be willing to uncover itself. Openness to public criticism is an inherent quality of science, and it requires self-criticism to begin with. What is to be aimed to criticize in this study is the irresistible attraction of false dichotomies in education in general and higher education in particular.

There are many qualities and merits expected of educational systems. However in many instances these are presented as bipolar options to the stakeholders involved in design or in assessment. Nature vs. nurture,

theory vs. practice, teacher centered vs. student centered, quality vs. quantity, public interest vs. private benefit, content vs. process, teacher vs. technology, multiple choice vs. open ended items in testing and many other false dichotomies are the evils in disguise. Forced choice between these dichotomies definitely mystify the option in favor and tend to obscure the other.

Ranking culture in higher education

The main purpose this paper is to display an empirical evidence for the inseparable nature of research and teaching in higher education. In order to fulfil this purpose Times Higher Education (THE) World University Rankings 2016-17. There are other and perhaps better rankings: Academic Ranking of World Universities (ARWU), Leiden University, Quacquarelli Symonds (QS), Scimago, U-Multirank are the ones known by the author. New rankings appear quite often, and experts are improving the present ones. International Ranking Expert Group (IREG) evaluates and certifies these ranking systems (Marginson, 2014, Pratt, 2010). Shortly there are rankings for the university ranking systems. Marginson lists eight criteria for evaluating the university rankings: These are materiality, objectivity, externality, comprehensiveness, particularity, ordinal proportionality, performance alignment and transparency (Marginson, 2014; p.48). The reasons for choosing THE-WUR in this study were so practical: timeliness, convenience and availability just before the publication opportunity. Shanghai Academic Ranking of World Universities (ARWU) has been published in 2003. European Universities' Association responded to Global University Rankings. First of the eight main conclusions in this report ends as follows:

Since the emergence of global rankings, universities have been unable to avoid national and International comparisons, and this has caused changes in the way universities function (Rauhvargers, 2011, p. 68).

Almost all of the intellectuals are against the "horse race" among the universities. They scorn the ranking criteria for being narrow and irrelevant with respect to the social and intellectual values of academia. "University Olympics" perpetuates the advantageous positions of leading universities. Universities are not as competitive as political parties to earn prestige at the expense of others. Egalitarian values still prevail in higher education. This is not to deny the existence of stratification of higher institutions. There are inter- institutional differences among the universities in every country. There are also inter-individual differences among students and researchers. These unequal competencies ends up with hierarchical structure and challenge whether we like it or not. These are the main reasons why the ranking culture sustains. It is impossible to avoid it but it is possible and desirable to obtain comparative information for the common concern may be just for curiosity (Savaş & Baykal, 2011).

Conjugate qualities: Teaching and Research

The false dichotomy is not a dilemma that implies two negative options. Conjugate qualities or entities are two polarities that may exist together in some proportions as to complement each other. Opposing them with each other and compelling a forced choice between the two is a case of false dichotomy. Research is the primary criterion of performance in academia. All academicians try to improve their ranks on the basis of research performance. Research gains the highest priority also in ranking the universities. Teaching is of secondary importance in collegial stance. However, universities are responsible to enable their students to reconstruct available knowledge; more than that to enable them to produce novel information. This is the binding force between research and teaching.

METHOD

Data is directly obtained from the web-site of Times Education World University Ranking. On the Original data matrix rows indicate the universities. Columns indicate some information relevant to the ranking.

Table1 represents a segment from the original data matrix obtained from THE-2017. Additional columns were inserted all along the analysis. Some columns which are not used in this study have been deleted.

Table 1. Data matrix for analysis

RN	Name	Country	Teachin	Researc	Citation	Incom	Outloo
1	University of Oxford	United	89,6	99,1	99,2	62,5	94,5
2	California Institute of	United States	95,5	95,7	99,8	90,8	63,4
3	Stanford University	United States	92,6	95,9	99,9	60,9	76,5
4	University of Cambridge	United	90,6	97,2	96,8	50,4	92,4
.....
979	University of Zagreb	Croatia	20,4	11,6	17,1	44,6	25,4
980	University of Zanjan	Iran	12,5	8,5	7,7	34,3	15,3
981	University of Łódź	Poland	15,9	8,3	14,1	32,3	21,5

Essential descriptive statistics have been will be given to quantify the central tendency and the dispersion characteristics of observations. Correlational inferences are made between the variables. Comparative statistical methods are employed to test the significances between the means of independent samples. These methods will be revealed when they are relevant to the findings in the next coming sections.

FINDINGS

In this section descriptive and inferential information extracted from THE-2017 World University Ranking will be presented.

Universities and their countries

Countries parade on Table 2 with respect to the number of (N) universities took place in the THE-2017 World University Ranking. There are 148 universities from the United States on the chart. This is a greater number than the sum of 50 countries that appear at the bottom of the list. There are almost 120 countries shows up in United Nation's reports. Only 80 of all countries emerge on THE-2017 rank chart. This simple figure is enough to delineate the inequality in education on the globe.

Table 2. Frequency of Universities across Countries in THE 2017 University Rankings

Country	N	Country	N	Country	N	Country	N	Country	N
United States	148	Germany	41	Finland	9	Norway	5	Algeria	1
United	91	Italy	38	Ireland	9	Romania	4	Argentina	1
Japan	69	Australia	35	Poland	9	Saudi Arabia	4	Belarus	1
China	52	India	31	Thailand	9	Ukraine	4	Bulgaria	1
		France	29	Belgium	8	Colombia	3	Costa Rica	1
		Brazil	27	Egypt	8	Jordan	3	Croatia	1
		Spain	27	New	8	Morocco	3	Georgia	1
		Canada	26	Portugal	8	United Arab	3	Ghana	1
		Taiwan	26	South	8	Cyprus	2	Iceland	1
		South Korea	25	Denmark	7	Estonia	2	Kenya	1
		Russian	24	Hungary	7	Indonesia	2	Kuwait	1
		Turkey	17	Malaysia	7	Latvia	2	Lebanon	1
		Iran	13	Mexico	7	Lithuania	2	Luxembourg	1
		Netherlands	13	Pakistan	7	Singapore	2	Macao	1
		Czech	12	Austria	6	Slovakia	2	Nigeria	1
		Sweden	11	Greece	6	Slovenia	2	Northern	1
		Chile	10	Hong	6	Tunisia	2	Oman	1
		Switzerland	10	Israel	6	Venezuela	2	Philippines	1
								Qatar	1
								Serbia	1
								Sri Lanka	1
								Uganda	1

Inequality within the 981 universities

In order to be able to make some inferences 981 universities have been subdivided to 10 bands almost equal in size (99 on the top, 81 at the bottom and 100 in each of the 8 strata in the middle). Also 981 universities have been classified with respect to their continental location on the earth. Then 981 universities have been cross-tabulated with respect to these two different classification scheme. Table 3 quantifies this picture.

Table 3: Cross-tabulation of universities with respect to rank strata vs. continents in THE 2017

Rank-Band	Africa	Asia	Western	Eastern	North	South	Oceania	Total
1-99	0	11	39	0	43	0	6	99
100-199	2	7	59	2	27	0	3	100
200-299	0	11	45	1	29	1	13	100
300-399	0	11	49	7	26	0	7	100
400-499	2	18	44	9	15	3	9	100
500-599	1	29	32	8	20	5	5	100
600-699	2	45	25	11	4	12	1	100
700-799	2	54	21	12	8	3	0	100
800-899	5	53	5	19	1	17	0	100
900-982	3	42	5	20	1	11	0	82
1-982	17	281	324	89	174	52	44	981

Contingency coefficient between vertical stratification and the geographical location was found to be significant ($C=0,472$; $p<0,001$) for this cross-tabulation. North American, Western European and Australian universities are usually on the top strata. Eastern European, Asian and South Americans are usually at the bottom African universities

Ranking is an ordinal level measurement to discriminate the subjects observed with respect to a pre-specified criterion. THE-2017 ranks the countries with respect to an “Overall” point-score obtained by assigning differential weights to point-scores for 5 criteria namely Teaching, Research, Citations, Industrial Income and International Outlook. Table 4 displays the major descriptive measures for different criteria used in rankings with respect to the strata (rank-bands).

Table 4. Means and standard deviations of ranking criteria

Strata	Statistics	Teaching	Research	Citations	Income	Outlook
1	Mean	63,2	69,1	88,6	60,5	68,4
	Std. Deviation	15,2	15,4	10,5	21,9	19,1
2	Mean	41,2	41,0	80,9	52,9	67,3
	Std. Deviation	8,2	7,5	11,4	19,3	19,1
3	Mean	34,1	31,5	71,5	52,6	59,1
	Std. Deviation	8,2	9,7	15,8	18,4	20,5
4	Mean	28,7	24,8	64,1	44,0	56,3
	Std. Deviation	7,0	7,2	12,5	14,8	19,8
5	Mean	26,6	20,9	54,4	44,5	48,9
	Std. Deviation	7,8	7,5	14,8	16,5	20,8
6	Mean	23,6	18,7	44,0	46,1	45,1
	Std. Deviation	5,9	6,0	10,8	18,7	20,9
7	Mean	21,5	14,8	28,1	40,6	37,4
	Std. Deviation	6,4	5,5	9,9	12,6	20,6
8	Mean	22,1	14,5	28,0	41,3	34,8
	Std. Deviation	5,6	5,2	10,2	14,5	17,1
9	Mean	18,4	9,1	12,8	37,2	27,8
	Std. Deviation	4,7	3,1	6,0	15,6	12,5
10	Mean	18,7	9,7	12,7	36,8	24,9
	Std. Deviation	3,9	2,2	6,8	11,7	11,1
Total	Mean	30,0	25,7	49,1	45,8	47,4
	Std. Deviation	15,2	19,0	28,2	18,0	25,0

In order to avoid error of isomorphism these quantities for different “qualities” will not be compared by statistical operations. Instead all of the means of different ranking criteria can be compared one between the different strata.

Are there significant differences between the strata of THE 2017 ranking?

One way ANOVA for independent groups is used to answer the sub-title question. The answer is “Yes”. There are significant differences between the means of “Teaching” scores obtained for 10 different strata. The same is true for all the other ranking criteria namely Research, Citations, Income and Outlook.

Table 5 summarizes these 5 findings.

Table 5. One way ANOVA findings for the mean comparisons between 10 strata

	Sum of Squares	df	Mean Square	F	Sig.
Teaching	165981,8	9	18442,4	294,0	0,000
Research	293334,8	9	32592,8	536,6	0,000
Citations	662986,1	9	73665,1	605,5	0,000
Income	50286,4	9	5587,4	20,4	0,000
Outlook	211748,9	9	23527,7	68,4	0,000

Table 6 shows the results of post-hoc test (S-N-K) made to identify the homogeneous sub-sets in Teaching.

Table 6. Homogeneous subsets (strata) for the ranking criterion: Teaching

Strat a	Rank-Band	Means for groups in homogeneous subsets						
		1	2	3	4	5	6	7
9	800-899	18,4						
10	900-982	18,7						
7	600-699	21,5	21,5					
8	700-799	22,1	22,1					
6	600-699		23,6	23,6				
5	500-599			26,6	26,6			
4	400-499				28,7			
3	300-399					34,1		
2	200-299						41,2	
1	1-99							63,2

p < 0.001

Table 6 implies that 10 strata can be reduced to 7 distinct layers in Teaching quality for 981 universities. First top three strata are really distinct groups. Last 4 strata can be combined as the lowest in Teaching.

Table 7 shows the results of post-hoc test (S-N-K) made to identify the homogeneous sub-sets in Research. Table

7. Homogeneous subsets (strata) for the ranking criterion: Research

Strat a	Rank-Band	Means for groups in homogeneous subsets						
		1	2	3	4	5	6	7
9	800-899	9,1						
10	900-982	9,7						
8	700-799		14,5					
7	600-699		14,8					
6	500-599			18,7				
5	400-499			20,9				
4	300-399				24,8			
3	200-299					31,5		
2	100-199						41,0	
1	1-99							69,1

p < 0.001

Table 7 displays a very clear distinction between 7 homogeneous subsets. Top 4 strata are all different from each other. Down below 6 strata there are three distinct levels comprised of 2 successive strata in each.

Table 8 shows the results of post-hoc test (S-N-K) made to identify the homogeneous sub-sets in Citation. Table

8. Homogeneous subsets (strata) for the ranking criterion: Citation

Strata	Rank-Band	Means for groups in homogeneous subsets							
		1	2	3	4	5	6	7	8
10	900-982	12,7							
9	800-899	12,8							
8	700-799		28,0						
7	600-699		28,1						
6	500-599			44,0					
5	400-499				54,4				
4	300-399					64,1			
3	200-299						71,5		
2	100-199							80,9	
1	1-99								88,6

p < 0.001

Table 8 shows that there are 8 homogeneous subsets. Top 6 strata are all significantly different from each other. Down below 4 strata there are two distinct levels comprised of 2 successive strata in each.

Table 9 displays post-hoc (S-N-K) results made to identify the homogeneous sub-sets in Industrial Income. Table

9. Homogeneous subsets (strata) for the ranking criterion: Industrial Income

Strata	Rank-Band	Means for groups in homogeneous subsets		
		1	2	3
10	900-982	36,8		
9	800-899	37,2		
8	700-799	40,6		
7	600-699	41,3		
6	500-599	44,0	44,0	
5	400-499	44,5	44,5	
4	300-399	46,1	46,1	
3	200-299		52,6	52,6
2	100-199		52,9	52,9
1	1-99			60,5

p < 0.001

Table 9 shows that there are only 3 relatively homogeneous subsets. Top first stratum is obviously different than all the others. Lowest 4 strata are also significantly lower than all the others. 5 strata in the middle may change their positions. Second and third strata are quite close to the top. Fourth, fifth and sixth strata are not very much different than the lowest 4 strata. The best way is to consider all of them as the mid-stratum.

Table 10 displays post-hoc (S-N-K) results made to identify the homogeneous sub-sets in Outlook.

Table 10. Homogeneous subsets (strata) for the ranking criterion: International Outlook

Strata	Rank-Band	Means for groups in homogeneous subsets							
		1	2	3	4	5	6	7	8
10	900-982	24,9							
9	800-899	27,8	27,8						
8	700-799		34,8	34,8					
7	600-699			37,4	37,4				
6	500-599				45,1	45,1			
5	400-499					48,9	48,9		
4	300-399						56,3	56,3	
3	200-299							59,1	59,1
2	100-199								67,3
1	1-99								68,4

p < 0.001

In so far as International Outlook is concerned Table 10 indicates that the highest two and the lowest strata are different than all the others at two opposite extremes. The neighboring strata however can be combined in pairs in the middle.

Is there a significant rank order pattern within the criteria across the universities?

The null-hypothesis underlying the question as the sub-title has been tested by the non-parametric Friedman analysis of variance method. Friedman test statistics Chi-Square has been found to be 1404,51 (p<0,001). Table 11. Displays the rank order pattern of ranking criteria

Table 1. Rank pattern of ranking criteria

Ranking Criteria	Mean Rank
Income	3,73
Outlook	3,63
Citations	3,65
Teaching	2,32
Research	1,67

p<0,001

Table 11 has been transformed into a radar graph in Figure 1 to facilitate the interpretations.

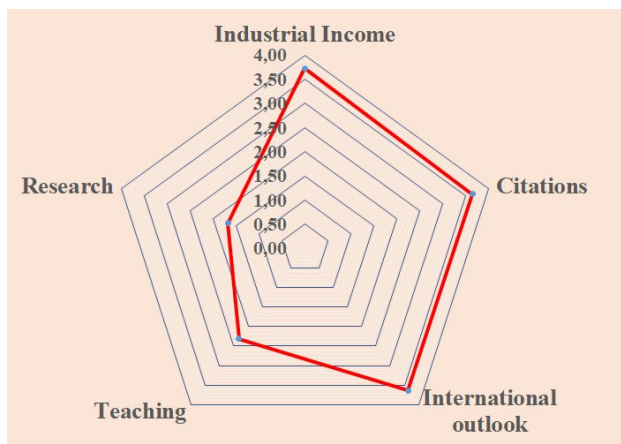


Figure 1: Within university rankings of scores on 5 criteria

Are there significant interrelations between the ranking criteria in THE-2017 university ranking? Inter-correlations between the pairs of ranking criteria have been computed with the Pearson Product Moment correlation formula and displayed on Table 12.

Table 12. Pearson correlations between 5 fundamental criteria used in THE 2017 Ranking

Criteria X	Criteria Y	1-99	100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-982	1-982
Teaching	Research	,882**	,468**	,478**	,520**	,614**	,246*	,299**	,236*	,153	,153	,906*
Teaching	Citation	,273**	-	-	-	-	-	-	-	-	-	,598*
Teaching	Income	-,035	,206*	,245*	,320**	,421**	,356**	,085	,185	,115	,043	,400*
Teaching	Outlook	-,058	-	-	-	-	-	-	-	-,123	-,124	,330*
Research	Citation	,180	-	-	-	-	-	-	-	,114	,071	,664*
Research	Income	,024	,287**	,278**	,403**	,380**	,462**	,365**	,532**	,550**	,447**	,445*
Research	Outlook	,092	-,137	-	-,028	-,071	-,165	-	-,154	,003	,074	,459*
Citation	Income	-	-	-	-	-	-	-,132	-	-,053	,148	,223*
Citation	Outlook	,160	,064	,210*	-,108	-,132	-,062	,042	,049	,169	-,096	,579*
Income	Outlook	-,033	-,231*	-,202*	-,166	-,220*	-,171	-	-,237*	,004	-,152	,104*

** p < 0.001 * p < 0.005

The degree of relationship between Research and Teaching is summarized by the Pearson product moment correlation coefficient obtained from the scores given in THE 2017 University Rankings. One should consider the causes changing the magnitude and the direction of the correlation coefficient. These factors may misguide the reader to overestimate or underestimate the findings.

Here the sample is the top 982 universities to estimate the correlation which exists in the population of all higher institutions in the world. Obviously, the accuracy of the correlation as an estimate of a population value depends upon how representative the sample is of the population. When certain biases exist in the sample the correlation may be a distorted estimate of the population value.

First of all the size of correlation is a function of the relative values of variances of scores given for Research and Teaching. Therefore, if the degree of clustering about the regression line was fairly constant over all segments of the line, then as the range and thus the variance of the Research or Teaching or both are reduced, the correlation will be reduced. Since the ranked sample of universities is circumscribed, the correlation is most probably less than it could be if the complete range of tertiary institutions were sampled. It will be safer to limit the evaluation of a correlation to the population from which the sample was drawn. Also the scores for Research is most likely correlated with some other criteria such as citations, outlook and industrial income etc. A high degree of relationship between these attributes and the Teaching would suggest that Teaching is a valid indicator of Research quality. It is found that the correlation between Research and Teaching is high for the entire sample. On the basis of this information about relevancy one may propose to promote Research on all universities to single out those universities who need to promote their instruction. However, when the sample is restricted to only a one stratum of rank list, this suggestion may not be nearly as valid as it was for the entire sample. Perhaps, the correlation is much smaller for such sub-strata, a figure which would certainly discourage using the findings for that particular purpose.

Effects of sub-sample configurations on resultant correlations

In order to interpret the correlational findings in Table XXX some specific features of correlation coefficient especially Pearson product moment formula must be remembered and considered.

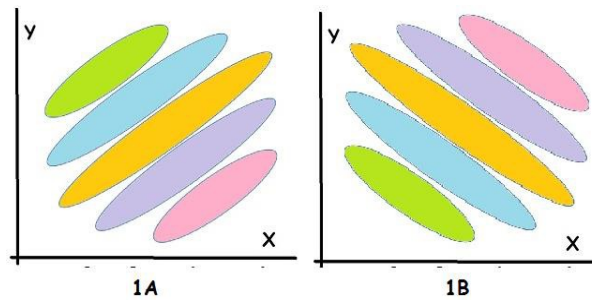


Figure 2.1 Combined group effects: How resultant R approximates to zero with significant correlations in sub-samples

1. In Figure 2.1A there are 5 different sub-samples illustrated with colored elliptic scatterplots. The correlations between X and Y for these sub-samples are all defined as to have been significantly positive ($r \gg 0$). When the samples are aligned as shown in 1A the resultant correlation R might as well approximate to zero
2. In Figure 2.1B there are 5 different sub-samples illustrated with colored elliptic scatterplots. The correlations between X and Y for these sub-samples are all defined as to have been significantly negative ($r \ll 0$). When the samples are aligned as shown in 1B the resultant correlation R might as well approximate to zero.

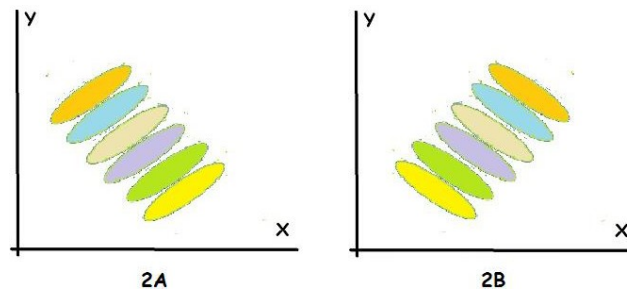


Figure 2.2. Combined group effects: How resultant R may assume significance with significant sub-sample correlations in opposite direction

3. In Figure 2.2A there are 6 different sub-samples illustrated with colored elliptic scatterplots. The correlations between X and Y for these sub-samples are all defined as to have been significantly positive ($r \gg 0$). When the samples are aligned as shown in 2A the resultant correlation R is likely to assume negative correlation significantly high in magnitude.
4. In Figure 2.2B there are 6 different sub-samples illustrated with colored elliptic scatterplots. The correlations between X and Y for these sub-samples are all defined as to have been significantly negative ($r \ll 0$). When the samples are aligned as shown in 2B the resultant correlation R is likely to assume positive correlation in significant size.

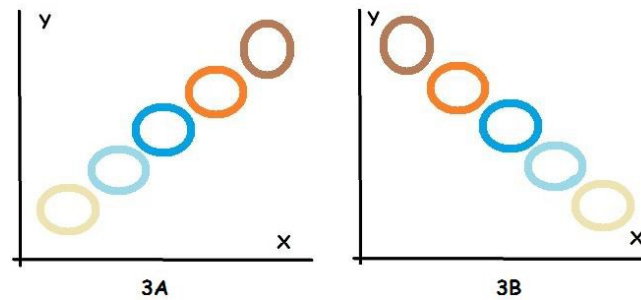


Figure 2.3. Combined group effects: How resultant R may assume significance in both directions with non-significant sub-sample correlations

5. In Figure 2.3A there are 5 different sub-samples illustrated with colored circular scatterplots. The correlations between X and Y for these sub-samples are all defined as to have been zero ($r = 0.00$). When the samples are aligned as shown in 2A the resultant correlation R is likely to assume *positive* correlation in significant size.
6. In Figure 2.3B there are 5 different sub-samples illustrated with colored circular scatterplots. The correlations between X and Y for these sub-samples are all defined as to have been zero ($r = 0.00$). When the samples are aligned as shown in 2B the resultant correlation R is likely to assume *negative* correlation in significant size.

One can generate so many other examples to demonstrate how combined group combinations might yield unpredictable resultant correlations between two variables. In Table 12 the overall correlations between the ranking criteria are all positive and high ($p < 0,001$), but within different strata they are not all alike.

CONCLUSIONS

The major purpose of this modest study is to find out evidence for two important attributes of higher education institutions: Teaching and Research. If not in the literature in daily communication among colleagues Teaching vs. research is taken for granted as a forced choice higher education. This study is a challenge against this global false dichotomy. There is no hidden agenda, no pedantic advice behind the exploration of cross-country rankings. What is beyond the scope of this study is to extract information to enlighten the university administrators. There is no intention to highlight the features of high rank universities to suggest better practices for the others. International students will find neither overt nor covert cues about the merits of top universities.

Some correlational and comparative inferences were made on the data provided by THE World University Ranking. Correlations and comparisons have been displayed for the subgroups separately as well as for the whole bunch of institutions.

The objective of this study is to analyze the Teaching and Research scores of universities in THE World University Ranking. Obviously Teaching and Research have their own unique qualitative characteristics, functions, restrictions in higher education. Quantitatively the comparative and correlational findings posed clearly that Teaching and Research are inseparable dimensions. They do not alternate but complement each other. They do not overlap each other, they are not redundant, but they do not oppose each other either.

The top 981 universities is not a representative sample of all institutions in tertiary education on the globe. However they are the institutions who set the universal standards. In a way they are the role models for the others. Besides these defensive excuses the main determinant of the sampling choice is the practical reality. A very valuable data was readily available for analysis. Much further than that whatever could have been done will always be open to public criticism.

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A PERFORMANCE STUDY FOR THE UNIVERSITIES FOUNDED BEFORE 1973, TURKEY

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ABSTRACT

In Turkey the nine universities were established up-to 1973 after the first contemporary university of country, namely Daru'l Fünun was diminished in 1933. The performance of these higher education organizations, which are classified as "A-Categorized University" in some documents, was evaluated by the Ranking System on Academic Performance which was developed for the country's special conditions as based on different criteria. This paper mentions the main principles of this performance system and summarizes the study which was made for the performance of selected universities throughout country. This study includes the nine universities (Ankara, Atatürk, Boğaziçi, Ege, Hacettepe, İstanbul, İstanbul Teknik, Karadeniz Teknik ve Orta Doğu Teknik), which were founded between 1933 and 1972. In this study, data belonging to the period of 2010 and 2014 have been considered for the related universities. The system depends on education income, education structure, education quality, number of publications and projects, the index for Entrepreneurial and Innovative University and student satisfaction. The aim is to provide a comparative study on academic performance with well-balanced and justice decision for the related universities. This study indicates that there are so many parameters acting on the performance of universities, however the enlargement rate, localization and degradation on management system are dominant.

Keywords: Academic performance, education, higher education, ranking system, university.

INTRODUCTION

In general performance appraisal can be classified into two groups as traditional and modern methods (Aggarwal and Thakur, 2013). Traditional methods are older methods for performance appraisal which concentrated only on the past performance. There are the topical traditional methods used in the past: (1) Ranking method, (2) Graphical Rating Scales, (3) Critical Incident Method and (4) Narrative Essay Method. Modern Methods were introduced to improve the conventional methods. They consider the shortcomings of the old methods such as biasness and subjectivity. The typical modern method are generally categorized into six groups: (1) Management by Objectives (MBO), (2) Behaviorally Anchored Rating Scales (BARS), (3) Humans Resource Accounting (HRA), (4) Assessment Centre, (5) 360 Degree and (6) 720 Degree. In addition to traditional and modern methods mentioned above there are some various fuzzy hybrid techniques to execute performance appraisal for individuals or organizations (Laarheven and Pedrycz, 1983).

Currently, there are some ranking systems for the world universities based on academic performances, which determined by quality and quantity of scholarly publications. These methods, which have been implemented since the first half of 2000's years, adapted to an important criteria for questioning position of universities with time. Times and QS in United Kingdom, ARWU-Jiao Tong in China, Leiden in Nederland and SCImago in Spain are some of the evaluation systems that are internationally renowned. These systems are based on reliable sources such as Scopus, Web of Science and Google Scholar. In Turkey, URAP (University Ranking by Academic Performance) ranking system developed by Middle East Technical University globally measures universities according to academic performance (URAP, 2013).

This paper, summarizes the main principles of the specific method suggested for evaluating the universities in Turkey and introduces the result of a study, which was executed on performance of older nine universities of Turkey by means of a specific assessment model recommended for higher education system. The model based on methods of ranking and graphical rating scales. It includes the studies, which were done along twelve years (Tosun, 2004, 2006, 2011, 2015, 2016 and 2017).

MODEL PRINCIPLES

In the context of this study an assessment technique, which depends to six separate parameters, was used. The parameters of this specific assessment technique are teaching income, teaching structure, teaching quality, number of publications and projects, the index for entrepreneurial and innovative university and student satisfaction. The technique provides data for well-balanced and justice decision for universities in Turkey. Summation of scores belonging to each parameter gives total score for the related university to obtain its place in the ranking system of Higher Education in the country. In addition to this the technique also provides a ranking for each parameter (Tosun, 2015). It has been developed for only state universities in Turkey.

Summation of scores belonging to each parameter gives total score for the related university to obtain its place in the ranking system of Higher Education, Turkey (Equation 1). The evaluation was based on a total score of 1000 and the score for each parameter is given below.

$$TPS = TIS + TSS + AQS + PES + PYS + EIPS \dots\dots\dots 1$$

in which;

TPS = Total Performance Score (1000 points) TIS = Teaching Income Score (100 points) TSS = Teaching Structure Score (100 points) AQS = Academic Quality Score (200 points) PES = Publication Efficiency Score (250 points) PYS = Project Yield Score (250 points) EIPS = Entrepreneur-Innovation and Preference Score (100 points).

In addition to this, the technique also ranks state universities for each parameters (Tosun, 2015). The technique provides data for well-balanced and justice decision for universities in Turkey. It has been developed for only the state universities throughout country.

DATA FOR UNIVERSITIES

In this section, the human resources (numbers of faculty and student and administrative staff) of nine state universities considered for this study are given in table 1 for average of 2010, 2011, 2012 and 2013 years. In the previous detailed study, the number of undergraduate, and graduate students were given separately for each university (Tosun, 2015). However, in this study, the evaluation was made taking into consideration the total number of students. The related values were taken from the information system of Council of Higher Education (YOK). As can be seen from Table 1, the highest number of students belongs to Istanbul University and then Ege University. Number of students for Ankara, Ataturk and Ege Universities range from 48 384 to 50 611. The lowest number of students belongs to Bogazici University. For this university, number of students for working period averages to 12 206.

Tosun (2015) evaluates number of faculty for four working years in detail. Number of professor, associate professor, assistant professor, lecturer, research assistant and expert have been given separately for each university in the related study. In this study, the number of faculty consisting of all of these is taken into account. For nine universities included in the context of this study, the total number of faculties ranges from 1 186 to 5 482 for average of four years (2010, 2011, 2012 and 2013). On average, the largest number of teaching staff (5 482) belongs to Istanbul University as being in number of students. The lowest number of teaching staff (1 186) belongs to Bogazici University (Table 1).

The staff in the university system in our country is appointed according to the Law No. 657 on the civil servants and not in accordance with the Law No. 2547 on Higher Education. In this study, total numbers of staff were taken into account for each university. This information was obtained from the Information System of YOK. However, the data for 2010 could not be reached. On average, the largest number of personnel (6 295) belongs to Istanbul University and the lowest number of administrative staff (962) belongs to Bogazici University. Istanbul University, which has the largest number of students and faculties, also has a high number of staff.

Table 1. Human sources of universities for average of four years

#	University	Established year	Province	Number of student	Number of faculty	Number of staff
1	Ankara	1946	Ankara	48 384	3 792	5 286
2	Atatürk	1957	Erzurum	49 748	2 341	2 024
3	Bogazici	1971	Istanbul	12 206	1 186	962
4	Ege	1955	Izmir	50 611	3 336	4 041
5	Hacettepe	1967	Ankara	35 004	3 795	5 978
6	Istanbul	1933	Istanbul	83 262	5 482	6 295
7	Istanbul Teknik	1944	Istanbul	27 578	2 288	1 319
8	Karadeniz Teknik	1955	Trabzon	46 776	2 068	1 888
9	Orta Dogu Teknik	1956	Ankara	25 845	2 600	1 777
Total				379 414	26 888	29 570

The unit values on publication, citation, patent, utility model and accredited project, entrepreneurship-innovation index and the preference rate for student satisfaction are considered as data of the universities to be used in determining the performance evaluation criteria. Relevant data from universities are presented in table 2. Scientific proficiency of faculties in universities are evaluated as based on publications. The total number of publications of nine universities considered in the study is 6 098 for average of four years (TUBITAK, 2013a). The highest number of publications in this area belongs to Istanbul and Hacettepe Universities. The lowest number of publications was for Bogazici and Karadeniz Teknik Universities (Table 2). The number of citations of the universities in the relevant years is also variable. Total citation number; as end of 2013, has consisted of 36 959 for four years.

Table 2. Data for evaluation criteria in 2010, 2011, 2012 ve 2013

#	University	Number of Publication	Number of Citation	Number of Patent	Number of Utility Model	Number of Accredited Project	Index for EIU **	Free quota (%)	
								2-year program	4-year program
1	Ankara	1 420	4 197	1	0	59	39.33	0.30	2.10
2	Atatürk	868	1 952	1	0	18	31.33	10.58	6.59
3	Bogazici	557	4 261	0	0	37	72.33	-	0.00
4	Ege	1 478	4 968	3	2	76	50.00	2.38	3.69
5	Hacettepe	1 770	4 328	4	1	62	53.33	2.17	1.73
6	Istanbul	2 053	4 712	1	2	32	33.33	0.00	1.10
7	ITU*	898	5 016	4	1	75	70.66	-	2.30
8	KTU*	631	1 563	0	0	23	35.00	6.21	5.53
9	ODTU*	1 179	5 962	5	1	90	84.00	0.00	4.56
Total		10 854	36 959	19	7	472	52.14	3.09***	3.06***

(*) ITU= Istanbul Teknik University KTU= Karadeniz Teknik University ODTU= Orta Dogu Teknik University

(**) Index for entrepreneur and innovative university (***) Average value

In this study, projects supported by two institutions with well-defined evaluation criteria were taken into consideration (BSTB, 2013 and TUBITAK, 2013b). The total number of accredited projects in four years is 472 for nine universities averagely. Within this scope, the largest number of projects for four years belongs to Orta Dogu Teknik University with 90 projects and the lowest number of projects belongs to Ataturk University with 18 projects (table 2). The numbers for utility model and patent are very low during the working years. The total number of patents and utility models received by nine universities was 19 and 7 for four years, respectively. Orta Dogu Teknik University is leading due to total number of patent and utility model.

In Table 2, the values of EIU for nine universities participating in the study are averagely given for three years. All universities are included in the top 50 universities. However, scores change within a wide range. Orta Dogu, Bogazici and Istanbul Teknik Universities are leading while Ataturk, Istanbul and Karadeniz Teknik Universities are at the bottom of list due index for EIU.

For the preference rate in universities, an evaluation was made about the free quota for program that were filled and vacated in the first preferences of National Center on Student Selection and Placement (OSYM). For this purpose, free quota ratios for each university on the basis for undergraduate degree are given in table 2. Istanbul and Bogazici universities in two and four-year programs has been the most preferred university with the average rates of zero percent, respectively. Bogazici and Istanbul Teknik Universities have no two-years program.

RESULTS AND DISCUSSION

Table 3 introduces the scores in each evaluation parameter and the total country score for each of nine universities at this category. One of the most important results of this study is to use the related tables for self-questioning of universities. Figure 1 shows change on scores for each parameter and general situation.

Among the nine universities evaluated within the scope of this study, the highest scores in the field of scientific publications for four years are found in the universities of Orta Dogu Teknik and Bogazici, and the lowest scores belong to Karadeniz Teknik and Ataturk Universities (table 3). The average score of the universities based on the score of country was 196.56 for the field of scientific publication. Accordingly, four universities in this category are below average and five universities have scores above average value. Bogazici and Orta Dogu Teknik Universities have the highest scores in the field of entrepreneurship-innovation and preference while Karadeniz Teknik and Ataturk have the lowest scores. The average score in this field is 84.32, which is below the score of two universities and above the score of the other seven universities (table 3).

Table 3. The average values of parameter and total scores for nine universities.

#	University	Scientific Publication Score	EIPS*	Teaching Income Score	Academic Quality Score	Teaching Structure Score	Project Yield Score	Total Score
1	Ankara	196,44	86,27	76,86	176,34	85,66	142,25	763,84
2	Atatürk	157,22	64,61	51,25	112,91	81,08	120,40	587,44
3	Boğaziçi	225,00	98,97	89,95	164,50	85,05	138,08	801,56
4	Ege	209,07	85,93	69,51	146,91	77,32	189,22	777,84
4	Hacettepe	211,64	92,99	89,21	175,22	84,26	197,36	850,70
5	İstanbul	179,41	84,51	68,13	156,44	82,79	133,97	705,27
6	İstanbul Teknik	207,96	89,65	81,39	180,88	83,38	205,02	848,30
7	Karadeniz Teknik	150,36	70,68	33,43	99,73	71,34	92,57	518,15
8	Orta Doğu Teknik	231,98	90,73	83,79	178,28	88,60	192,73	864,89
Average		196.56	84.32	71.50	154.58	82.16	156.84	746.44

(*) Entrepreneur-Innovation and Preference Score

(**) Average value on the relevant parameter for ten universities

The average score in the teaching income is 71.50. Bogazici and Hacettepe Universities, which are at top places of the list, has 89.95 and 89.21 points while Karadeniz Teknik and Ataturk Universities, which are below the average value have 33.43 and 51.25 points, respectively. In the field of teaching quality, universities offer values close to each other with exception of Karadeniz Teknik and Ataturk Universities. Istanbul Teknik University is at the top place while Karadeniz Teknik University is at bottom place. The average value of this field is 154.58, which is below the score of six universities and above the score of three universities.

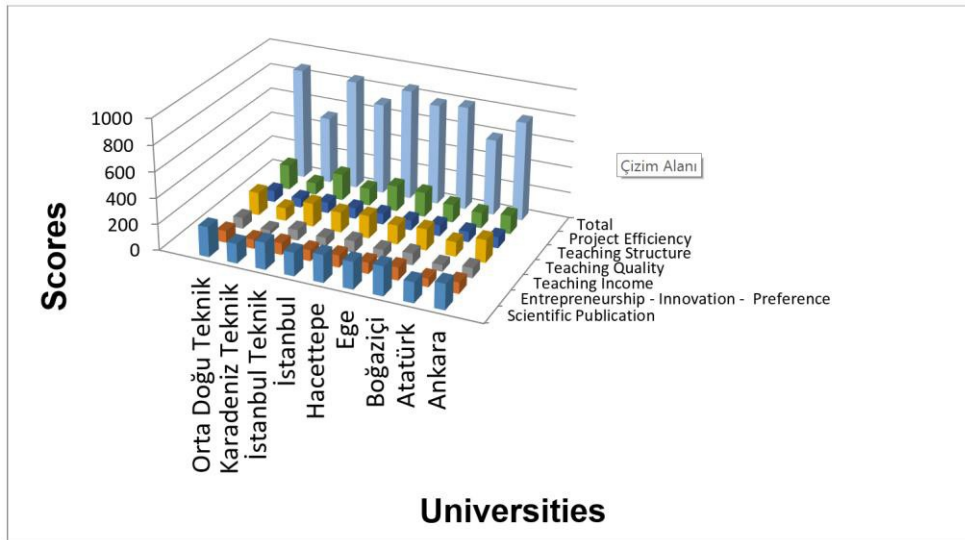


Figure 1. Change on scores for each parameter and general situation

In the field of teaching structure, score of Karadeniz Teknik and Orta Doğu Universities are 71.34 and 88.60 respectively. The score of other universities are among these two values. The average value in the relevant area is

82.16. İstanbul Teknik and Hacettepe universities are the most successful universities in project yield. These universities have 205.02 and 197.32 scores, respectively. The average score in this area was 156.84 (table 3).

The overall scores of the universities covered in this study range from 518.15 to 864.89. The lowest and highest scores belongs to the Karadeniz Teknik Orta Dogu Teknik Universities, respectively. Hacettepe and İstanbul Teknik Universities have relatively high and Ataturk and İstanbul Universities have relatively low scores. In this context, the four-years average ranking of each university in the country and category is presented in Table 4 for each parameter and general situation. In general, Orta Dogu Teknik, İstanbul Teknik and Hacettepe universities are ranked at first, second and third places, respectively. Bagazici, Ege and Ankara universities constitute the other orders respectively. The last three places from bottom to top are Karadeniz Teknik, Ataturk and İstanbul Universities.

Table 4. Country and category rankings for each parameter and general situation.

#	University	Scientific Publication Score	EIPS**	Teaching Income Score	Academic Quality Score	Teaching Structure Score	Project Yield Score	Total Score
1	Ankara	13 (6)	11 (6)	16 (5)	6 (2)	3 (2)	20 (6)	8 (6)
2	Atatürk	31 (8)	32 (9)	51 (8)	46 (8)	11 (7)	29 (8)	26 (8)
3	Boğaziçi	2 (2)	1 (1)	4 (1)	10 (5)	3 (3)	21 (7)	5 (4)
4	Ege	5 (3)	11 (7)	27 (7)	23 (7)	15 (8)	7 (4)	6 (5)
5	Hacettepe	6 (4)	5 (2)	4 (2)	7 (3)	4 (4)	4 (1)	3 (3)
6	İstanbul	17 (7)	10 (5)	21 (6)	14 (6)	8 (5)	13 (5)	9 (7)
7	İstanbul Teknik	7 (5)	7 (3)	10 (4)	4 (1)	8 (6)	5 (2)	2 (2)
8	Karadeniz Teknik	36 (9)	27 (8)	68 (9)	54 (9)	24 (9)	39 (8)	34 (9)
9	Orta Doğu Teknik	1 (1)	7 (4)	9 (3)	7 (4)	1 (1)	6 (3)	1 (1)
	Ortalama***	13	12	23	19	9	16	10

(*) Category ranking in parenthesis

(**) Entrepreneur-Innovation and Preference Score (***) Average of country ranking for each parameter

Orta Dogu Teknik University is the most productive university in the field of scientific publishing. This university is also leading in other fields especially on teaching quality. Bogazici university is ranked first in teaching income because of its low number of students and relatively high number of faculty. However its yield in other areas is relatively low. Ataturk and Karadeniz Teknik Universities have very low scores in all fields. Hacetepe University, which is in the first place in the field of project yield, has relatively low scores in other fields especially in terms of academic quality and scientific publication.

CONCLUSION

In Turkey, by the end of 2013, there were 103 state universities that have completed their foundation. Tosun (2015) performed a study for all universities In this study, the performance evaluation of nine universities, which founded before 1973, was carried out. Localization, massification, politicization and degradation in governance have been influential in the development of these universities, two of which were not established within the metropolitan area of country during their foundation. Localization has a very important influence on the development of Karadeniz Teknik and Ataturk University. These universities have grown rapidly considering local influences, and have not sufficiently taken into account the necessary criteria in their academic and scientific issues. Politization in the development of these universities was at least as effective as localization. In these universities there is the effect of degradation on governance which occasionally occurs in the formation of this situation. The Middle East Technical University, which was established in the same period, succeeded in achieving high performance with good management and intellectual understanding in accordance with universal principles.

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ATHLETE SATISFACTION SPORT ADMINISTRATION : A PENANCEA FOR ACHIEVING EFFECTIVENESS IN NIGERIAN UNIVERSITIES GAMES

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ABSTRACT

The study is on the relationship between student athlete satisfaction and sports organization effectiveness in Nigeria universities, sports in the universities is essentially for the students and by the students. This means that, the student is the prime beneficiary and also the producer of sports as entertainment in the university. But each time the issue of effectiveness in university sports organization is addressed, consideration is only centered on the programmes, facilities, leadership, coaches and coaching etc. Nothing is mentioned about the student athlete experiences. This deliberate ignorance of the student-athlete's experience leads to the need for this study, to examine the student-athlete satisfaction. To do this, the research design employed for the study was the ex-post-factor research design, which is based on information in existence and cannot be manipulated. The researcher utilize questionnaire as the tool for obtaining the data for the study. The questionnaire constitute of four parts A, B, and C put together as one and was administered to students' athletes from fourteen (14) universities randomly selected from seven (7) stratified Nigerian Universities Games Association (NUGA) zones. Five most popular sports (Football, basketball, athletic, racket game and combat sport) were used, and ten (10) athletes from the above mentioned most popular sports = $10 \times 5 = 50$ athletes from each university, = $14 \times 50 = 700$ the total number of respondents. The data collected were statistically analyzed, using descriptive, multiple and zero order correlation. The major findings Student-athlete satisfaction is highly related to sports organizational effectiveness. Both facets of outcome and processes affects the student athlete satisfaction in the sports organization. The major findings are Students-athlete satisfactions are highly related to sports organizational effectiveness, both facets of outcome and process affects the student satisfaction in the sports organization, individual satisfaction in sports organizations of Nigerian universities and its needs for continued assessment are inseparable in Nigerian university, coaches and sports administrators needed cannot produce the entertainment from sports organizations. Students-athlete satisfactions and its needs for continued assessment are inseparable in Nigerian university sorts organization.

Keywords: Athletic satisfaction, sport administration achieving effectiveness sport organization.

INTRODUCTION

One of the purposes of administration in sports organizations is to ensure efficiency and effectiveness. Effectiveness determine the extend an organization has achieved its stated goals and objectives. And efficiency determines the means or cost of reaching such stated goals and objective. Today, effectiveness, efficiency and accountability are emerging as one most important factors in the success of any organization which include sports organizations; as it considers the effectiveness and efficiency and utilization of scarce and dwindle resources, and the competitions for them become more and more intensified (Mawson and Bowler, 1989; Weese, 1997). Therefore, this paper wishes to consider athlete's satisfaction in sports administration as a means of achieving effectiveness, efficiency and accountability in sports organization. Always, when the evaluation of sports administration is considered for effectiveness and efficiency, the focus has always been on either the administrative, machineries or the resources used in the administration e.g leadership, facilities and equipment, etc, (Reimer, 1997). Factors like managerial polices, practices or leadership employed within the organization and other key characteristics of members of organization (Arnold and Feldman, 1986) have also been over flogged. Furthermore, researchers in management science, in addressing the issue of the many factors that determine sports organizational effectiveness, discussed mostly the issues of multiple constituencies (Reamer, 1997). The critical question can be asked, which of these factors should get the most considerations, whenever sports organizational effectiveness is assessed (Connolly et al, 1980; Keeley, 1984, Zammuto, 1984). It is very obvious that a critical group, the athlete, have been left out. Management experts are of the view that the different perspectives can be subsume under the notion of prime beneficiary as suggested by Blau and Scott (1960) and Challadurai (1987). In other words, although several groups can benefit from sports organization, one of these groups can be so identified as the prime beneficiary. This prime beneficiary provides the rational for the very existence of the organization. One of the significance aspects of sports management in sports organizations is to produce entertainment, through sports contests, which includes professionalism in sports (Venkateswarly, 1996, 1998). Sports have become very important aspects of human life, as many more people view attend and

participate in sports. Sports have also become a very big industry, which involve huge investment. The athlete is actually a prime beneficiary and a prime producer of the entertainment without the coach and others in sports, but the coach and others cannot produce the entertainment without the athlete (Branch, 1990, Sydner, 1990). Another important and compelling need to consider athlete satisfaction, in determining sports organization administration effectiveness is the fact that athlete satisfaction is the true measure of any athletic programme due to several reasons. First, measures of athletic performance are either deficient or contaminated by factors like luck and mistakes of the referees (Courneya and Challadurai, 1991). Secondly, athletic performance cannot be solely judged by measures of win or losses as athletic competition are zero-sum games, because, for every competition (game) there must be a loser for every winner. Thirdly, the records of wins and losses are related only to the periods of actual competitions. Whereas the total athletic experience consist of both training and competition periods that are much longer than competition periods. The purpose of this investigation is to further ascertain the relationship between athlete satisfaction and sports organizational administration effectiveness. Also, considering the facts that sports organization today have become a very big industry and a crowd puller there is need for constant evaluation and revaluation of sports organizational effectiveness to make sports a worthwhile venture. On the basis of available research evidences and the purpose of these investigation, it can be assumed that; sports organizations programmes are organized primarily for reasons that align with the overall mission of community as societal development, or the university curriculum which includes enrichment of the human quality of life and the preparation of people for the future life. Also, sports programmes are encouraged because of human potentials of developing recreational skills and interest to continue to be involve in recreational sports for fitness and productivity.

HYPOTHESIS

The variable of athlete satisfaction was to be determining by outcomes and processes, and by both individual and team considerations. Sports organizational administration effectiveness can be influenced by athlete satisfaction.

Major Hypothesis:

There is no significant correlation between athlete satisfaction and sports organizational administration effectiveness in Nigerian university.

SUB HYPOTHESIS

1. There is no significant relationship between individual outcomes and organizational effectiveness in Nigeria Universities.
2. There is no significant relationship between team outcomes and sport administration in Nigeria Universities.
3. There is no significant relationship between individual processes and organizational effectiveness in Nigeria University.
4. There is no significant relationship between team processes and organizational effectiveness in sports administration.

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURES

As earlier mentioned, efficiency effectiveness and accountability are emerging as the most important consideration in determining the effectiveness in any organization including sports organization, especially in a scarce and quest competition for resources becomes more and more intensified. Theories by professional experts like Deming Juran and Cosby serves as a basis for the model of Total Quality management (TQM), which emphasizes continues improvement and increase customer's satisfaction, which have a compelling relevance to the field of sports management (Mawson, and Bowler, 1989; Weese, 1997). Organizations are now intensifying their focus on quality and effectiveness to adapt and be flexible to satisfying their customers (Avolio, 1994; Cameron, 1994). However, such focus has been embraced to a much lesser degree in administration, especially in sports establishment, (Mathews, 1987). Athletes have earlier been regarded as prime beneficiary meaning that they are also the consumer of sports products and they are equally regarded as the prime producers of sports products.

As consumer in sports management, they are also the consumer of sports product. Therefore, sports management should aim at athlete satisfaction as emphasized by the model of Total Quality Management (TQM), So as to ensure effectiveness in sports administration.

METHOD

The design used for the study was the 'ex-post-facto'. This is so because the information required for both variables, dependant and independent variables, exist together with influence over the other, i.e, the instrument

developed to measure athlete satisfaction and organizational effectiveness were both administered on the athlete, (the independent variable).

POPULATION

The population used for this study, consist of athletes from different athletic groups representing their respective university sports organization (university athletes).The choice for this population was for the complex in deriving athlete satisfaction from sports organization.

SAMPLE AND SAMPLING TECHNIQUE

For the purpose of this study, stratified random sampling technique was used. In this technique, Nigerian Universities are divided into seven (strata) sporting zones. From each of these zones, two (2) universities were randomly selected. From each of the universities, ten (10) athletes from each of the following athletic group were randomly selected:

- i. Football
- ii. Track and field (athletics)
- iii. Basketball
- iv. Combat sports
- v. Racket games

The above sports are purposefully selected because almost all the universities in Nigeria (sports organizations), compete in these sports. Thus, a total of seven hundred (700) athletes from the above athletic groups from Nigerian Universities Games Association (NUGA) groups were selected to serve as respondents in this study. (i.e $7 \times 2 = 14$, $14 \times 10 = 140$, $140 \times 5 = 700$ athelets)

INSTRUMENTATION

As the purpose of the study is to find the relation of athlete satisfaction to sports organizational administration effectiveness; two different types of instruments (the questionnaire) was used, these includes:

1. Facts of athlete satisfaction questionnaire to measure athlete satisfaction (by Challadurai and Reimer, 1997).
2. Target population satisfaction index (TPS II), to measure organizational effectiveness (by Weese, 1997).

SCORING OF RESPONSES

The likert scale of measurement method was used in the questionnaire, which allows the following scoring system for the responses of the subjects;

Section 'A' demographic information only.

Section 'B' and 'C' was on athlete satisfaction and organizational effectiveness respectively, scored:

Strongly agreed (SA)	=	5 Points
Agreed (AG)	=	4 Point
Undecided (UD)	=	3 points
Disagreed (DA)	=	2 Points
Strongly Disagreed (SD)	=	1 Point

Descriptive statistics was used for qualitative information about different variables included in this study.

Multiple and zero order correlations between different aspects of athletes satisfaction and organizational effectiveness.

RESULT

In order to test sub-hypothesis 1-4, as earlier stated, the means, standard deviations of individual and team outcomes and individual and team processes and organizational effectiveness were computed, the results are presented in tables and analyzed according to the data collected, thus:

Table 4.2: Means and Standard Deviations of Responses to Statement on Individual and Team Outcomes, Individual and Team Process of Athlete Satisfaction and Organizational Effectiveness

S/NO	VARIABLE	NO OF STATEMENTS	MEAN	SD
1	INDIVIDUAL OUTCOMES	9	3.71	1.10
2	TEAM OUTCOMES	6	3.59	0.97
3	INDIVIDUAL PROCESSES	10	3.49	1.22
4	TEAM PROCESSES	14	3.23	1.20
5	ORGANIZATIONAL EFFECTIVENESS	15	3.08	1.08

As the responses were recorded on a 5 points scale, any variable that obtained the means of 3.5 and above was considered satisfactory or positive, examination of table 4.2 and it shows that individual outcomes and team outcomes had the mean score of more than 3.5, individual processes had a means score of about 3.5. Therefore, the responses to this outcomes and processes were considered positive and satisfactory. However, team processes and organizational effectiveness had a mean score that was less than 3.5 it was considered not positive and therefore not satisfactory. However, as the main purpose was to find out whether the individual outcomes and processes were related to organizational effectiveness, the coefficient of correlation between these variables and organizational effectiveness were computed, the result which are shown In table: 4.3

Table 4.3: Correlation Coefficients of Individual and Team Outcomes, Individual and Team Processes with Organization Effectiveness

S/NO	VARIABLE	NO OF STATEMENTS	MEAN	SD
1	INDIVIDUAL OUTCOMES ORGANIZATIONAL EFFECTIVENESS	3.71	1.10	5671
	TEAM OUTCOMES ORGANIZATIONAL EFFECTIVENESS	3.23	1.08	
2	INDIVIDUAL PROCESSES ORGANIZATIONAL EFFECTIVENESS	3.59	0.97	4999
	TEAM PROCESS ORGANIZATIONAL EFFECTIVES S	3.23	1.08	

R(688) = 0.08 < 0.5

Table: 4.3. Show significant correlation of individual and team outcomes as well as individual and team processes with organizational effectiveness. Individual outcomes explains 32%, team outcomes 25%, individual processes 39%, and team processes 44% of the variance in organizational effectiveness. Thus, individual and team processes contributed more to the variance than individual and team outcomes of the organizational effectiveness. Taking these four (4) findings together they fail to support the major hypothesis 1, as they showed significant correlation between athlete satisfaction and organizational effectiveness in Nigerian Universities Sports Organizations as further revealed in table 4.4

Table 4.4: Correlation between Athlete Satisfaction and Organizational Effectiveness.

S/NO	VARIABLE	NO OF STATEMENTS	MEAN	SD
1	ATHLETE SATISFACTION	0.64	0.20	4451
2	ORGANIZATIONAL EFFECTIVENESS	3.08	1.08	

R(688) = 08 < 0.5

DISCUSSION AND CONCLUSIONS

This study was concern primarily with the influence of the facets of athlete's satisfaction on organizational effectiveness in Nigerian universities.

1. **Athlete Satisfactions and Organizational Effectiveness:** The satisfaction of athlete in this study had two components outcomes and processes. Each one had individual, team and social components. The result of this study showed significant positive correlation of individual outcome ($r = .5671 < .05$), team outcomes ($r = .4999 < .05$), individual processes ($r = .6243 < .05$) and team processes ($r = .6649 < .05$) with organizational effectiveness.
2. **Team outcomes and Organization effectiveness:** In this study, the team outcomes athlete satisfaction included team performance, team goal attainment, team performance, improvement, team maturity and group integration. Team performances is perhaps the most desired outcome as athletes spend an inordinate amount of time in training for success in very short period of competitions of restricted duration (Chelladurai and Riemer, 1997). This is very much similar to group achievement in organizational literatures (Dawis and Iofquist, 1984; Gidron, 1983). The Most obvious measures of performance in sport is winning, as it reflects excellence. Similarly, team goal attainment is a legitimate performance indicator that constitutes one facet of athlete satisfaction (Locke and Latham, 1990). On the other hand, team maturity refers to health, fitness, ability, and mastery of skills and tactics of the sport. Athletes derive satisfaction when the team has a mastery of aspects. Group integration refers to cohesiveness of the team in achieving the goals of the team (Widmeyer et al 1985). Thus the achievement of these different facets contributes to athlete satisfaction, which in turn reflects organizational effectiveness, as the athlete is the focus of any organization.
3. **Team Social Outcomes and Organization Effectiveness:** In this, team social outcomes of athlete's satisfaction explained the degree to which every member of the group gets along and provide social

support to each other. The concepts have been considered central to several frame works in-group dynamics by several researchers (Widmeyer et al, 1985; Herzberg, 1969; Mikailachli,1969). The significant correlation of team outcomes with organizational effectiveness is thus explained by the importance of social outcomes as team outcomes.

INDIVIDUAL OUTCOMES

Individual Outcomes and Organizational Effectiveness:

In this study individual outcome of athletes' satisfactions are quite similar to the team outcomes stated above with slight differences and they contribute 32% to organizational effectiveness. They include; personal performance, personal goal attainment, personal performance improvement, personal growth, personal task role, personal immersion. Personal performance, as earlier stated, is perhaps the most desired in athlete training and competitions (Chelladurai, 1987). The obvious measure of performance remains winning. While it might be easy to measure individual performance in winning, it might present some difficulties to measure personal performance in a team situation, which are the contributions of group members. The team's performance might be disappointing, but some members of the team might be satisfied with any other aspect. The satisfaction with individual performance in a team sport is as relevant in individual sports. This facet is similar to individual task achievement in organizational literatures (Hackman and Oldman, 1980). Similarly, improvement in personal performance is an important facet of athlete satisfaction, which indicates the pursuit of excellence. Consistent improvement in personal performance is a clear-cut indication of athlete satisfaction, which thus contributes to organizational effectiveness. Personal growth involving increase understanding of the strategies and the tactics of the sport and developing psychological and social skills for success, contributes to the satisfaction of the athlete and thus, to the organizational effectiveness. Among the individual outcomes that contribute to the athlete satisfaction, belongingness, friendship and social support are important facets. The significance of belonging to an athletic team result from the prestige, status and the benefits associated with the team. Moreover, as athletes forego all the social interaction in pursuit to athletic excellence. Belonging to athletic team appears to be the only means of fore filling the social need of an individual (Chelladurai, 1979). Similarly, friendship develops affinity of an individual with team and its derived from the social role assigned to him in the team is an important factor in the satisfaction of athlete. This satisfaction derived through belongingness, friendship and social role contributes to the total satisfaction of the athlete, which in turn reflects the efficiency, and effectiveness of the sport organizations.

PROCESS

Team Process and Organizational Effectiveness:

Team processes in this study include, task processes which are designed to enhance the effectiveness of a team, and they include; strategy, selection, mobilization, deployment, practice, competition tactics, equitable treatment, ethics, team contribution, facilities/equipment, budget, ancillary support and community support. The process may be significant sources of satisfaction irrespective of the outcomes (Courneya and Chelladurai, 1991). The significant correlation between athlete satisfaction and organizational effectiveness in this study is partly attributable to the satisfaction derived by the athlete from these different aspects of task process (Kindred, 1992; Maltensen, 1991, 1993).

Individual Oriented Task Process and Organizational Effectiveness:

Although, most of the task process aimed at the team as a whole, may affect individual, athlete, the individual oriented processes reflect what happens to athletes as individual because athletes react to what the coach does both to the team as a collective and to them as individual athletes. Among these individual processes are ability utilization, which is how the coach uses the ability of the athletes (Davis and Lofquist, 1984). Training/instruction given by the coach (Chelladurai and Saleh,1990); positive feedback, personal inputs, team contribution reorganization, financial support, family support, social support and loyalty support. All these factors contribute to the satisfaction of the athletes. If these needs are not fulfillment of these needs to contribute to the satisfaction of the athlete, which partly explains the Correlation between athlete satisfaction and organizational effectiveness.

ORGANIZATIONAL EFFECTIVES

Organizational Effectiveness and satisfaction of the primary beneficiaries:

The primary beneficiaries in universities sports programmes are the student's athletes. Accountability and effectiveness of university sports programmes should reflect the satisfaction of the primary beneficiaries. This is based on the fact that in Total Quality Management (TQM), the Emphasis is on consumer satisfaction (Mawson, 1993; Weese, 1997). In this study, student athletes were used as the respondent for both athlete satisfaction and leadership profiles of sport administrators. Although, it is very difficult to empirically assess organizational effectiveness (Cameron, 1978; Ostriff and Smith 1983,) organizational effectiveness was successfully assessed

in this study by following a multiple constituency approach as suggested by Chelladurai, (1987) and Weese, (1997), in which the needs, interest and aspirations of student's athletes were considered. However, it will be interesting to find out if the satisfaction of other constituencies also affects organizational Universities sport.

CONCLUSION

From the finding of this study and in view of its limitations, the followings conclusions are made.

1. Athlete's satisfaction is highly related to sports organizational effectiveness.
2. Both the outcomes and processes affects athlete's satisfaction in the organization.
3. Individual satisfaction leads to team satisfaction in sports organizations of Nigerian, universities.
4. Coaches and sports administrators, though needed, cannot produce the entertainments from sports organizations.
5. Athlete's satisfaction and its continued assessment are inseparable in university sports organization.
6. The style of leadership may not really be an issue to bother rather the outcome and processes in the sports organization should be the main concern.

RECOMMENDATIONS

On the basis of the finding of this study the following recommendations are made for implementation and further research. University sport organization in Nigeria, has been setting pace and others follow in sports development. Therefore, this study suggests that the recommendations, made in the study should be implemented by those affected in the study.

1. Since coach's and sport administrators cannot affect organizational effectiveness on their own, special attention should now be given to the athlete's satisfactions in the consideration of a sports organizational effectiveness in Nigeria universities sport.
2. Considering the saying "the end justifies the means" sports managers should be very mindful of both the outcomes as well as the processes of athlete satisfaction in sport organizational effectiveness.
3. Scholars and managers should consider using this study finding's to assist them in their endeavors.
4. In recruiting sports managers especially by universities sports, consideration should be given to skilled managers, with the abilities of satisfying athletes needs wants (interest and expectations).

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CONSIDERING SOCIAL MEDIA AS A VIRTUAL “PANOPTICON”: MEDIA LITERACY IN HIGHER EDUCATION

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ABSTRACT

The Panopticon (the Greek word for all-seeing) is a circular prison design made by English philosopher Jeremy Bentham in 1785. The concept enables a single guard to observe a large number of prisoners from her/his tower surrounded by the cells. The prisoners cannot see the tower, because it shines bright light. Therefore, they convince themselves that they are being watched continuously in their cells, and begin to control their own behaviours. In his 1975 book “Discipline and Punish: The Birth of the Prison”, Michel Foucault uses the term panopticon as a metaphor for modern surveillance. The panoptic style of architecture has been used not only in prisons, but also in other modern institutions such as schools and hospitals. The rapid development of digital technologies in the last decades has paved the way for social media to be one of the most effective communication tools, and eventually a virtual panopticon. Thus, media literacy education has become an important agenda for any society to reduce the risks of social media. The aim of this study is to explore the relationship between social media and surveillance, and emphasize the necessity of media literacy education in higher education.

Keywords: Panopticon, Social Media, Media Literacy, Higher Education, Surveillance

INTRODUCTION

The technological advancement over the past two decades shaped society’s perception of communication more rapidly than ever before. Social media has changed the way people share information with each other. It would be no exaggeration to say that the human interaction evolved from physical to a mixture of both physical and digital. Today, it is possible to have a friend from the other side of the world effortlessly. As a result of globalization, cultural differences has begun to lose their significance and the world gets smaller every day. Admittedly, the world has become *a global village* (McLuhan, 1964) with the advancement of new technology.

The mass media has three main features: to give information to the audience, to educate them, and to influence their opinions. On the one hand, new media, or social media fosters a new culture by increasing the chances for participation and interaction in addition to the features of traditional media. According to Mason et al. (as cited in Thieman, 2008), “being an engaged and effective citizen today requires reading, writing, and mathematical skills; the ability to understand complex issues; and the ability to talk with people from different backgrounds.” (p. 345). On the other hand, the number of social media users continues to grow on a global scale and managing online privacy and safety becomes a growing problem in today’s society.

With the rise of new media, media literacy becomes an important agenda for all governments. In Turkey, for example, media literacy was included in the 7th grade curriculum as an elective course in 2007. The majority of media literacy education research focuses on K-12. And yet, college-aged learners and adults need to become media literate as well as children and adolescents. In their essay “The state of the field: Technology, social studies, and teacher education” (2006), Friedman and Hicks (as cited in Thieman, 2008) “articulated the need to research and evaluate the impact of the use of technology and technology enhanced instruction within classrooms” (p. 344).

The most distinctive feature of social networking sites is that they give people the opportunity to voice their opinions. Although media moguls are still the dominant media power all around the world, “media *audiences* and *consumers* are now also media *users* and *participants*, immersed in complex ecologies of divides, diversities, networks, communities, and literacies” (Lievrouw, 2011, p. 1). New media influence on social and

political changes cannot be denied, especially in developing countries. For example, social media had a vital role in social movements such as Arab Spring and Gezi Protests.

In return for the advantages and, of course, the disadvantages of social media, people sacrifice their privacy voluntarily. While companies use individuals' data to make profit decisions, governments supposedly use personal data to improve services for citizens. Both companies and governments exploit new media technologies to improve their surveillance systems. The aim of this research is to make an overview of media literacy education in higher education while exploring the relationship between social media and surveillance theories.

PROBLEM

The problem that prompted the need for this study emerged from the fact that college students, lecturers, and professors do not satisfactorily use social media tools in teaching and learning processes despite the possible advantages of social media. In Turkey, nearly all of college-goers has mobile phones, and most of them has access to computer and Internet technology in their schools. However, the majority of students use their mobile phones and computers for non-educational purposes, for example, they use Facebook and Instagram to post pictures, Twitter to follow celebrities and friends, and Youtube to download or watch videos.

NEW MEDIA AND MEDIA LITERACY IN HIGHER EDUCATION

Media can be defined “as technologies that communicate messages to audiences in different parts of a region, country, even the world” (Laughey, 2007, p. 1). If there is “no interaction among those co-present can take place between sender and receivers”, these media can be described as *mass* media (Luhmann, 2000, p. 2). The term mass refers to the massive amount of information transmitted by broadcast media such as television, radio, recorded music, or film. However, Lievrouw (2011) states that, over the last three decades “the proliferation and convergence of networked media and information technologies have helped generate a renaissance of new genres and modes of communication and have redefined people’s engagement with media” (p. 1).

According to Lasswell’s model of communication (1971), there are three functions for communication in any given society: “1. Surveillance of the environment, 2. Correspondence with the parts of society in responding to the environment, 3. Transmission of the social heritage from one generation to the next.” (p. 85). In addition to these three functions, social networking sites give them the opportunity to voice their opinions. New media, or social media fosters a new culture by increasing the chances for participation and interaction in addition to the features of traditional media. Moreover, educators and students of all ages and ability levels has begun to use social media tools in teaching and learning processes in recent years.

In his 1999 article “What Is Instructional Design Theory and How Is It Changing?”, Reigeluth (as cited in An & Reigeluth, 2011) stated that: “the information society needs people who can effectively manage and use ever-increasing amounts of information to solve complex problems and to make decisions in the face of uncertainty” (p. 54). The traditional factory model of education is undoubtedly in contradiction with the ever-changing demands of the information age. The factory model of education is far away from satisfying the needs of students, parents and teachers. In today’s world, students’ success depends not only on their own effort or ability, but also on the opportunities provided by their school.

Technological devices, such as computers, tablets, and smart boards are the most important opportunities that schools can offer their students in the digital age. According to the study of Aktaş and Aydın (2016), “the use of smart boards in teaching 7th grade secondary school students (in Turkey) the unit ‘electricity in our lives’ increases academic achievement and learning retention. The use of smart boards positively affects students’ academic achievement in science education.” (p. 133). Audio-visual equipment is extremely important to provide a permanent learning. In his 1991 book “Educational Technology and Education”, Çilenti (as cited in Aktaş & Aydın, 2016) claims that:

The more a planned learning activity appeals to a student’s senses, the more the event of learning is permanent. When the concept of time is fixed, people remember 10% of what they read, 20% of what they hear, 30% of

what they see, 50% of both what they hear and what they see, 70% of what they say, and 90% of both what they do and what they say. (p. 127)

Furthermore, the increase in connection speeds has allowed university libraries to provide remote access for larger files. Many users no longer need to come to physical library to access digital resources. To give some statistics, according to IES National Center for Education Statistics (as cited in Walton & Matthews, 2016), “in 2007-2008, about 4.3 million undergraduates, or 20 per cent of all undergraduates took at least one distance education course, while in 2009, The Chronicle of Higher Education estimated that 2.14 million students were taking only online courses.” (p. 56).

Turkey is one of those nations involved in large-scale distance learning efforts. According to Demiray and McIsaac (as cited in Jonassen, 2004), Anadolu University is a rapidly growing mega-university, “its distance education program enrolls over 600.000 students and it is one of the three largest distance education program in the world.” (p. 387).

THE PANOPTICON AND SURVEILLANCE SOCIETY

Surveillance, a French phrase for “watching over”, is used for identifying governments’ and private companies’ control over people’s lives. According to Lyon (2008), the term surveillance can be defined as “purposeful, routine, systematic and focused attention paid to personal details, for the sake of control, entitlement, management, influence or protection” (p. 2). According to Galič, Timan & Koops (2017), surveillance theories can be grouped into three phases chronologically. The first phase is Bentham’s Panopticon design and Foucault’s attribution of Panopticon which “has laid the foundations of surveillance theory in the form of a conceptual framework that still resonates today.” The second phase is “Post-Panoptical theories of surveillance” which includes Deleuze’s studies. And the third phase is “contemporary conceptualisations of surveillance” (p. 10-11).

The Panopticon (the Greek word for all-seeing) is a circular prison design made by English philosopher Jeremy Bentham in 1785. The concept enables a single guard to observe a large number of prisoners from her/his tower surrounded by the cells. The prisoners cannot see the tower, because it shines bright light. Therefore, they convince themselves that they are being watched continuously in their cells, and begin to control their own behaviours. In his 1975 book “Discipline and Punish: The Birth of the Prison”, Michel Foucault (1977) uses the term panopticon as a metaphor for modern surveillance (p. 182).

The panoptic style of architecture has been used not only in prisons, but also in other modern institutions such as schools and hospitals. The rapid development of digital technologies in the last decades has paved the way for social media to be one of the most effective communication tools, and eventually a virtual panopticon. Consequently, media literacy education is essential for all individuals in a knowledge-based society. Actually, it is especially essential for higher education students to promote critical thinking and raise awareness about the perils of the digital age.

CONCLUSIONS

The main purpose of this study is to enlighten the relationship between social media and surveillance. Another purpose of the research is to encourage the use of social media tools in universities as an innovative teaching method, therefore, all students will have equal access to information.

The Panopticon is a unique prison design, invented as a social control mechanism by Bentham in 1785. However, the Panopticon owes its popularity to Foucault who used it as a metaphor for modern surveillance in his 1975 book “Discipline and Punish: The Birth of the Prison”. Since now, the panoptic style of architecture has been used in prisons, schools and hospitals, but now social media is seen as a *virtual* panopticon with the rapid development of digital technologies in the last decades. In a smaller and more connected world, media literacy education has become an important issue for everyone.

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COPING WITH QUALITY ISSUES IN MANAGEMENT INFORMATION SYSTEMS' DEPARTMENTS IN TURKEY THROUGH ACCREDITATION

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ABSTRACT

Presently, there are 70 departments associated with MIS discipline, which has emerged in a short span of time. Since, it is hard to claim that MIS departments and discipline have reached certain maturity level in Turkey. MIS, by combining various disciplines is an interdisciplinary field of study that necessitates professional skills within a global and societal context. Consequently, in order to rise high-skilled graduates each MIS department applies its own practices in terms of curriculum, program outcomes, program educational objectives, students' monitoring and support which leads to inconsistencies and concerns associated with the global recognition of MIS departments in Turkey. Thus, the accreditation and evaluation of MIS departments is essential so as to achieve high levels of quality and provide harmony among different departments. Therefore, our goal will be comparing two accreditation bodies' requirements (AACSB and ABET) and find out which one is more suitable for MIS departments and how they can contribute to increase quality of education in MIS discipline.

Keywords: Accreditation, Management Information Systems, MIS, Accreditation systems

INTRODUCTION

First appearance of Management Information Systems (MIS) departments in Turkey came to exist by a decision under the authority of Turkish Higher Education Institute (Yüksek Öğretim Kurumu). After the introduction of the first department in Marmara University under the name of "Business Informatics" at 1991, Boğaziçi University established the first department utilizing the name of "Management Information Systems" at 1995. Afterwards, their numbers have proliferated by hitting the number of 17 at 2010 and the number of 38 at 2014. Currently, statistics demonstrate that 70 departments associated with MIS exist under different names such as "Management Information Systems", "Enterprise Informatics" and "Enterprise Information Management". Rapid expansion of departments prevented the field to arrive at maturity and fulfil its potential. Therefore, problems have come up regarding the inadequate number of qualified faculty members, incompatibility among program syllabuses and deprivation of conducive studies in the field (Akpınar, nd.).

MIS departments so as to develop next generation of workforce should rise graduates capable of implementing knowledge of management science, computer science, psychology, operations research, sociology and economics. As a result of dealing with globalization, mobility and the pace of the technology those graduates should have capability of thinking analytically, complying with multi-disciplinary teams and team work, communicating effectively, adapting life-long learning and staying up to date. In the way of accomplishment, each MIS department implements its own processes which brings on concerns associated with recognition of departments globally. From the perspective of quality of MIS departments, the role of accreditation standards has been a topic of interest during recent years.

Characteristics of the MIS discipline dictate globalization, mobility and handling contemporary issues, which makes accreditation a vital mechanism in order to cope with complicated challenges. In order to ensure certain level and increase program quality, accreditation is the key. Most prestigious schools are getting their programs accredited to show that they provide high quality education to their students and high quality outputs to their

constituents. One question is about what kind of accreditations are available for MIS departments and programs. Since these departments may take place in different faculties or schools such as business, administrative and economic sciences, engineering sciences or interdisciplinary schools or 4 year applied sciences vocational schools, there might be different accreditation possibilities. Two most known ones are AACSB which accredits usually business related programs and ABET which accredits engineering programs. Therefore, within the scope of this study analysing various accreditation systems in terms of their compatibility with MIS discipline is aimed. Existing accreditation practices are briefly introduced and strengths and weaknesses of these practices are reflected. The requirement of a global accreditation system adoption is justified for MIS departments in Turkey and its potential benefits are indicated. As of today there is no single MIS department, which has accreditation by either institution. So, we believe that this study will contribute immensely and will be used as a guide by MIS departments. Consequently, the aim of our study is reviewing two accreditation bodies requirements and evaluating their standards from the perspective of their compatibility with MIS departments in Turkey.

LITERATURE REVIEW

Accreditation of MIS programs is a crucial aspect for providing and maintaining the quality of education based on international benchmarks. Accreditation process encompasses assessing undergraduate and post graduate programs by means of well-structured peer review processes according to the confirmation of pre-defined criteria and standards (Memon, Demirdögen, & Chowdhry, 2009). Assessment and evaluations are conducted by professional accreditation agencies that are established for this purpose. Some accreditation bodies focus on the equivalence and accreditation of institutions, programmes or both. At this point, there is no evidence of the foundation and functioning of an accreditation body specific to MIS departments. However, MIS accreditation can be either guided by institutional or departmental accreditation of business schools’ accrediting bodies or depending on its interdisciplinary characteristics and close link with computer science and management science disciplines engineering accreditation focused bodies can lead to the recognition of MIS programmes globally. In terms of accreditation bodies two main accreditation models are briefly reviewed through literature review. Accreditation of business schools and engineering faculties were the initial research point for the study. Thus, literature review part is divided into two parts as follows:

Accreditation of Business Schools

The Association to Advance Collegiate Schools of Business (AACSB)

After the initial attempt for the AACSB had taken place in 1916, the first standard was established 1919. Since then, the standard is reviewed on a regular basis and by 2013 the latest version was introduced. AACSB’s quality strategy concentrate on the areas compromising engagement, innovation and impact (Lagrosen, 2017). In addition to subjects such as accounting, finance, business law and marketing, AACSB added on economics and industrial management to the list of subject that are anticipated to be encompassed in business programs. Over the last few decades, subjects including behavioural management, ethics, MIS and computer science were introduced (Smith, Barnes, & Vaughan, 2017). Process of AACSB accreditation starts with the eligibility assessment based on the eligibility requirements of the AACSB and after the approval of eligibility 15 standards of AACSB were utilized as an evaluation framework (AACSB as cited in Lagrosen, 2017).

Table1. Standards of AACSB (AACSB as cited in Lagrosen, 2017)

1	Mission, impact and innovation	Clear and distinctive mission Match of outcomes and mission Continuous improvement and innovation Strategies regarding the achievement of objectives
2	Intellectual contributions, impact and alignment with mission	High quality intellectual contributions Influence on theory, practice and teaching Match of contributions with mission

3	Financial strategies, allocation of resources	Allocation of resources compatible with the financial strategies Existence of financial strategies to improve financial resources
4	Student admissions, progression and career development	Support students for career development, academic achievements and course completion
5	Faculty sufficiency and deployment	Qualified faculty members Giving proper instruction to students
6	Faculty management, support	Providing processes that encourage continuous development of faculty members Documentation and communication of relevant processes
7	Professional staff sufficiency and deployment	Professional staff and services put support behind quality outcomes
8	Curricula management and assurance of learning	Curricula management Well-documented and systematic processes for identification and development of program learning goals
9	Curriculum content	Match of curriculum content with expectations and learning outcomes
10	Student faculty interactions	Existence of student-faculty and student-student interactions and support of these interactions by means of curricula
11	Degree program educational level, structure and equivalence	Program structure (design, time-to-degree etc.) is consistent with the level of the degree program Program structure supports providing high-quality outcomes
12	Teaching effectiveness	Existence of strategies associated with improving effectiveness of teaching
13	Student academic and professional engagement	Curricula support student academic and professional engagement according to program type
14	Executive education	Processes of executive education satisfy expectations and facilitates continuous improvement of programs (if applicable)
15	Faculty qualifications and engagement	Strategies regarding the maintaining qualified faculty that represent ability to contribute the intellectual capital Remarkable academic and professional commitment of faculty

Other business/management focused accreditation bodies are the Association of Collegiate Business Schools and Programs (ACBSP), International Assembly for Collegiate Business Education (IACBE) and EQUIS that is governed by the European Foundation for Management Development (EFMD) (Smith, Barnes, & Vaughan, 2017; Lagrosen, 2017). McFarlane (2013) claimed that AACSB is considered as far more excellent than its counterparts such as IACBE, ACBSP and some other Europe originated accreditation bodies. Furthermore, McFarlane (2013) pointed out that this view evolved into fundamentalism in accreditation issues which both advantages and disadvantages. One important reason behind perceptions regarding the superiority of AACSB is its marketing and branding strategies. AACSB is capable of controlling its members and manipulating them by means of influencing their cultures. Moreover, many cases demonstrated that graduates from AACSB accredited business schools were not superior to graduates from other counterparts in terms of knowledge, skills and capability in contrast to “the gold standard” image of AACSB (McFarlane, 2013).

Accreditation of engineering departments

ABET

Attempts for engineering and technology programmes' accreditation initially took place as a volunteer activity of the Accreditation Board for Engineering and Technology (ABET) in United States. While the accreditation processes can be institutional or programme based, programme accreditations in engineering education are generally based on ABET's procedure and standards (Patil & Codner, 2007). ABET accreditation system is the most broadly utilized mechanism in engineering accreditation and it aims continuous improvement of the programmes by means of using assessment outcomes as inputs for improving processes in a systematic manner (Aldowaisan & Allahverdi, 2016). ABET applies pre-defined criteria associated with; Students, Program Educational Objectives, Program Outcomes and Assessment, Professional Component, Faculty, Facilities, Institutional Support and Financial Resources, and Program (Ezeldin, 2013) and applicants are assessed based on the representation of satisfying relevant requirements. These criteria and brief explanations are illustrated in Table 2 below.

Table 2. ABET's general criteria for baccalaureate level programs (ABET, 2015)

Criterion 1	Students	<ul style="list-style-type: none"> • Evaluation of student performance • Monitoring student progress • Giving advice regarding the career path and curriculum issues • Ensuring that graduates meet the program educational objectives • Implementing procedures and proving that graduates satisfy all graduation requirements through documentation.
Criterion 2	Program Educational Objectives	<ul style="list-style-type: none"> • Setting program educational objectives consistent with the institutional mission • Documentation, systematic processes and review of these objectives
Criterion 3	Student Outcomes	<ul style="list-style-type: none"> • Outcomes which ensure graduates satisfy program educational objectives (See Table 3)
Criterion 4	Continuous Improvement	<ul style="list-style-type: none"> • Systematic evaluation and documentation of processes for the assessment of whether student outcomes are achieved. • Utilization of these results for continuous improvement.
Criterion 5	Curriculum	<ul style="list-style-type: none"> • Emphasis of subject areas associated with engineering • Guaranteeing that program curriculum and each component is compatible with the objectives
Criterion 6	Faculty	<ul style="list-style-type: none"> • Sufficient number of faculty members • Student-Faculty interaction • Student Advice • Interacting with Industrial partners and practitioners • Competence of the faculty (education, diversity of backgrounds, engineering experience, teaching effectiveness, communication, enthusiasm for providing more effective programs, engagement in professional societies).

Criterion 7	Facilities	<ul style="list-style-type: none"> • Adequacy of classrooms, offices, laboratories • Conducive learning environment • Accessibility of resources and availability • Guidance for the use of tools and equipment
Criterion 8	Institutional Support	<ul style="list-style-type: none"> • Support and leadership from institution • Sufficient resources in terms of financials, staff, services • Adequate resources for providing the ongoing professional development of a faculty • Assistance in the operation of infrastructures and facilities in terms of allocating enough resources.

According to ABET (as cited in Patil & Codner, 2007), Criterion 3 which is associated with the qualifications that engineering graduates should meet encompass the skills demonstrated in Table 3 below.

Table 3. Qualifications of engineering graduates (ABET, 2015)

1	Ability to apply knowledge of mathematics, science, and engineering
2	Ability to design and conduct experiments as well as to analyse and interpret data
3	Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4	Ability to function on multi-disciplinary teams
5	Ability to identify, formulate, and solve engineering problems
6	Understanding of professional and ethical responsibility
7	Ability to communicate effectively
8	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9	Recognition of the need for, and an ability to engage in life-long learning
10	Knowledge of contemporary issues
11	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

An important consortium regarding the accreditation of engineering programmes emerged in 1989 with the association of representatives from accreditation bodies of various countries. This association which was denominated as Washington Accord sought for the equivalence of several different accreditation models (Patil & Codner, 2007). Assessment of the engineering graduates from signatory members and encouraging mobility of graduates while providing uniformity across countries were among the major goals of the Accord (Hanrahan as cited in Kootsookos, Alam, Chowdhury, & Jollands, 2017).

Some other initiatives focus regional or local accrediting approaches. One of them is Europe generated European Federation of National Engineering (FEANI) which aims to maintain conformity among engineering programmes (Memon et al., 2009). Another initiative focusing on engineering education is the framework of the European Network for Accreditation of Engineering Education (ENAAE) which aims to enhance quality and innovation of engineering programmes by means of EUR-ACE Framework Standards and Guidelines (Arditti, 2016). In the case of Asia, the situation is a bit complicated due to the variations in accreditation strategies. In addition to Japan Accreditation Board of Engineering Education (JABEE) and Institute of Engineers Singapore which have participated in the Washington Accord previously, some accreditation attempts of Korea, Taiwan and Malaysia have been members of Washington Accord as well (Arditti, 2016). Moreover, Russia due to the efforts with regard to the construction of a national accreditation system has joined to the EUR-ACE network recently (Kardanova et al., 2016).

From the viewpoint of accreditation efforts in Turkey as a result of Anglo-Saxon structure and global recognition

Bilkent University, Bogazici University and some engineering departments of Middle East Technical University (METU) acquired accreditation label from ABET between 1994 and 1999 (Taylor, Akduman, Özkale, & Ekinci, 2017). Istanbul Technical University owing 23 programmes with ABET accreditation has the highest number of accredited programmes all over the world (itu.edu.tr). Likewise, another ABET accredited programme in Turkey is the Electrics & Electronics Engineering of Hacettepe University. Shuman, Besterfield-Sacre, & McGourty (2005) emphasised the growing importance of professional skills and claimed that growth of the information technology, corporate downsizing, outsourcing and globalization have all contributed to a paradigm shift in employment issues. Even engineering profession which had necessiated strong technical capabilities previously, should combine skills of communication, leadership, team work, understanding of contemporart issues and non-technical drivers of work environment in these days. Prados (as cited in Shuman et al., 2005) underlined the importance of project-based active learning, close industrial relationships, utilization of information technology and claimed that professionals of future should be mentors and guides instead of being “all- knowing dispensers of information” (Prados as cited in Shuman et al., 2005, p.43). Undoubtedly, these foresights regarding the paradigm shift in expectations from engineering professionals are consistent with the mission and goals of the MIS education.

FINDINGS

As a result of comparative method applied to the standards from the two main accreditation bodies, the following map emerged.

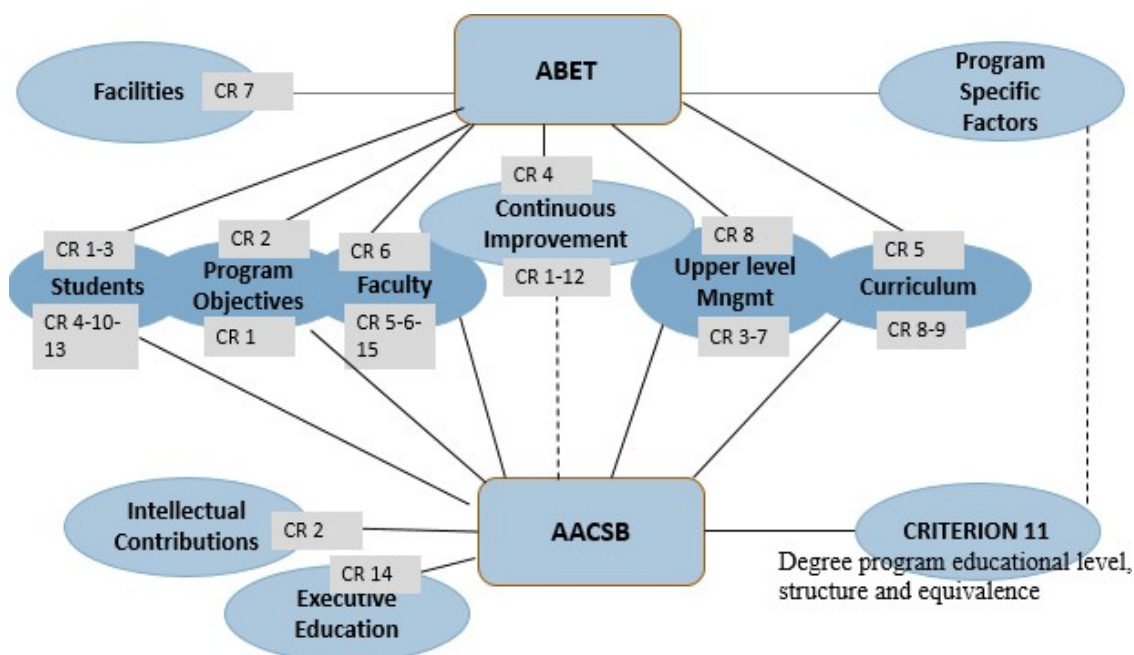


Figure 1. Overlaps and discrepancies between ABET and AACSB criteria

When the criteria of AACSB and ABET are compared, identical criteria of two bodies gather around 6 major categories comprising; Students, Program Objectives, Faculty, Continuous Improvement, Upper Level Management and Curriculum. It was discovered that the Criterion 1 and 3 of ABET which is associated with performance assessment, monitoring and assuring that graduates satisfy the program educational objectives complied with the Criterion 4, 10 and 13 of the AACSB. Thus, these similar criteria are categorized under the name of “Students”. Another emerged category is “Program Objectives” which is linked to the Criterion 2 of ABET. AACSB has also a specific criterion (Criterion 1) which requires setting clear and distinctive mission and matching this mission with outcomes. Criterion 6 of ABET is associated with the quality issues of faculty and ensures sufficient number of faculty members, existence of good student-faculty interactions and being industry focused. Concerning this matter, AACSB has 3 Criteria (Criterion 5, 6, 15) focusing on faculty issues. The category of “Upper Level Management” is associated with the support activities, leadership and deployment of

strategies regarding the allocation of resources. Both accreditation body concentrate on and demand endorsement from management in terms of staff, facilities and any other resources. Criterion 8 of ABET serves this purpose whereas Criterion 3 and 7 of AACSB comply with the “Upper Level Management” category. “Curriculum” is another concept which is emphasised by both standards. This category is closely linked with the Criterion 6 of ABET and Criterion 8 and 9 of AACSB. Partial match is observed in terms of “Continuous Improvement” between the standards. ABET has an intense focus on continuous improvement issues through a specific criterion (Criterion 4). Despite of the fact that AACSB does not possess any criterion that completely defines continuous improvement as a specific standard, this goal is embedded in the accreditation process. Criterion 1 and 12 of AACSB necessitates enhancing teaching effectiveness, matching outcomes with mission and monitoring processes so as to use outputs for progressive development.

Each accreditation body has its idiosyncratic criteria as well. In the case of ABET, Criterion 7 is concerned with facilities and encourages conducive learning environment. Resources, their availability and proper guidance should contribute to the learning process from the viewpoint of ABET quality. One distinguishing characteristic of ABET is its possession of program specific criteria. Program specific criteria are defined based on the specific requirements and needs of programs and concentrate on to provide maximum value for graduates of a particular program. In traditional sense, AACSB accredits all programs under the business schools based on the general pre-defined criteria. From the point of AACSB, intellectual contributions, executive education and degree program educational level are its characteristic standards which differentiates the body from ABET framework. However, Criterion 11 of AACSB which is dealing with the programs’ structure, equivalence and compatibility can be linked to ABET’S program specific criteria as a result of focusing on the compatibility and equivalence issues of programs. Following table demonstrates the categorization of common factors of two accreditation bodies in addition to their unique factors in detail.

Table 4. Categorization of ABET and AACSB criteria (ABET, 2015; AACSB, 2013)

C.F	ABET	AACSB
Student	CRITERION 1-3 Performance evaluation, monitoring Ensuring that graduates meet the program educational objectives	CRITERION 4-10-13 Support students, interactions Curricula support student academic and professional engagement
Program Objectives	CRITERION 2 Setting program educational objectives consistent with the institutional mission Documentation, systematic processes and review of these objectives	CRITERION 1 Clear and distinctive mission Match of outcomes and mission, CI
Faculty	CRITERION 6 Sufficient number of faculty members Student-Faculty interaction, advice Industrial partners and practitioners	CRITERION 5-6-15 Qualified faculty members Giving proper instruction to students.
Curriculum	CRITERION 5 Curriculum and each component is compatible with the objectives	CRITERION 8-9 Curricula management Match of curriculum content with learning outcomes.
Upper Level Management Support	CRITERION 8 Support and leadership Sufficient resources Assistance in the operation of infrastructures and facilities in terms of allocating enough resources.	CRITERION 3-7 Financial strategies, allocation of resources Professional staff sufficiency and deployment

U.F.	ABET	AASCB
Continuous Improvement (Partially Match)	CRITERION 4 Systematic evaluation and documentation of processes Utilization of these results for continuous improvement	CRITERION 1-12 Teaching effectiveness Existence of strategies associated with improving effectiveness of teaching
Intellectual Contributions	x	CRITERION 2 High quality intellectual contributions Match of contributions with mission
Facilities	CRITERION 7 Conductive learning environment Accessibility of resources and availability, Guidance for the use of tools and equipment.	x
Executive Education	x	CRITERION 14
Program Specific Factors	Student Outcomes: Ability to support the use, delivery, and management of information systems within an Information Systems environment Curriculum: a. Information Systems: Application development, networking, data management, security, system analysis/design b. Information Systems Environment: c. Quantitative analysis or methods, including statistics Faculty: Degree from IS (some members)	CRITERION 11 (Degree program educational level, structure and equivalence) Program structure (design, time-to-degree etc.) is consistent with the level of the degree program

CONCLUSIONS and DISCUSSION

The conclusions based on the findings of the study indicate that both accreditation bodies contribute to enhance quality by means of encouraging continuous improvement. Both accreditation frameworks are much better than no accreditation at all. Accreditation process is a development opportunity which continuously provides leadership and guidance through application of an assessment plan. Undoubtedly, there is no best practice that fits to all circumstances. Programs and institutions all over the world should meet different quality standards so as to enhance the quality of the output and support their mission. Thus, in getting accredited considering different requirements of programs and reviewing accreditation processes in terms of their compatibility with the institutional and program-based mission is crucial. This study has put effort on building up a strong foundation for the accreditation of MIS departments and has shared the findings to assist the global recognition of MIS programs.

It was discovered that AACSB may not provide detailed criteria for MIS programs and its focus is so much on business courses. Although AACSB provides accreditation for MIS programs under the Business Schools, it partly concentrates on program accreditation. MIS departments would benefit from AACSB if the curriculum is more business oriented and has more emphasis on business courses. Thus, it seems that MIS departments acquired AACSB accreditation is generally evaluated from the viewpoint of business aspects of the program. Depending on its interdisciplinary characteristics and close link with computer science and management science disciplines engineering accreditation focused bodies can lead to the recognition of MIS programmes globally.

Regarding ABET, its accreditation process is more suitable for program accreditation by allowing programs to enter into a more detailed and specific assessment process and ABET's current criteria addresses the

characteristics of MIS departments better. In addition to these, ABET provides program specific criteria while AACSB provides only general criteria and no program specific criteria at all. Moreover, since MIS programs can be located in different schools and departments and AACSB offers accreditation for only Business Schools and programs ABET may be a better option for MIS programs which are not located in Business Schools. ABET better incorporates the input for expectation needs of industry and what kind of skills graduates must have. With regard to continuous improvement, ABET has a separate criterion (Criterion 4) for continuous improvement and MIS education requires continuous improvement. Of course, CI is also part of AACSB criteria but ABET emphasis on this subject is stronger.

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DETERMINING THE MANAGEMENT INFORMATION SYSTEMS STUDENTS' LEARNER CHARACTERISTICS: SOCIAL SHY OR IDEA ORIGINATOR

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ABSTRACT

The rapid growth in the use of information and communication technologies and their smart applications in the field of education have offered new ways to educators to create more flexible and suitable learning environments. Nowadays, e-learning systems are expected to support better learner-centric instruction and enable more self-directed learning. Today's Learning Management Systems (LMS) use several methods for selecting suitable learning objects. The main difficulty with this process is the content and size of learning objects. Based on several criteria rules can be derived. One main rule composing an integrated and smart learning environment is to decide on learners' characteristics. In this study, different learning styles are discussed, and selected learning styles inventories (LSI) analyzed. LSI assesses a person's learning style, helping them identify the strategies they most and least prefer to adopt when learning new material. The most popular learning style inventories - Kolb's Learning Style Inventory and Felder-Silverman's Index of Learning Survey is then applied for evaluating the learning approaches of Management Information Systems (MIS) students at the Bachelor's Degree Level, who have mainly both business and technical skills. It is one aim of the study to find out if students who have nearly same scores from a University entrance exam have same learning styles; and which learning styles most successful students have. Depending on the results of the field study there should be developed strategies for developing more effective learning environments to be able to consider students' learning approaches when developing or improving learning environments.

Keywords: E-learning, learning styles, learning styles inventories

INTRODUCTION

In the information age, it has been recognized that teaching has shifted from an instructor-centric approach to a learner-centric approach in which knowledge is constructed by learners who are actively involved in the learning process (Vrasidas, 2000). Because, traditional methods and face to face education could not guarantee to provide the engagement of all students in the class, an alternative platform called e-learning has gained its popularity. The term of web-based education, online learning, distance education, distributed learning, virtual learning, Internet learning, and e-learning can be used interchangeably. However, this paper will use the term e-learning throughout, since it is more commonly used and its focus area is wider.

According to Carliner simple definition (1999) "e-learning is just an educational material that is presented on a computer." Ally (2004) has defined e-learning with much more detailed as "the use of Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience." Although it is hard to determine about a generic definition of e-learning, the basic concept implies that the learner and instructors are far away from each other and the learning process continues via the information and communication technologies especially on the Internet, and all the material can be accessed from

the same database. E-learning serves several advantages to its users like low cost, business responsiveness, customization, time and location independence, universality, building a community and a social network, and scalability (Cansun, 2008). Nevertheless, there may also occur potential disadvantages which include training the instructors, providing the sufficient infrastructure and technical support, struggling with the transformation process (traditional to online), and some ethical issues. One of the most challenging disadvantages seems to transfer the course material into e-learning platform which is required time and cost effort. Also, the instructors must also be trained so the adaptation process can be carried out quickly and satisfactorily. Since the traditional e-learning systems often provide the same learning materials with the identical sequences for all learners; once the system is built and the adaptation process has gone, there is no need to editing any component or innovate until the users complain about. Nowadays, with the advent of the technological development, e-learning systems have also evolved.

In the early stages of computer learning systems were designed based on a behaviorists approach which claims that observable behavior indicates whether or not the learner has learned something, and not what is going on in the learners' head (Skinner, 1974; Bechtel & Graham, 1998). In response, some educators defend the learning processes do not become only relevant for learners' behaviors. This new revolution has led the cognitivist theory (Craik, 1972; Ertmer & Newby, 1993) which have been de-emphasized the foregoing factors and have been focused on the acquisition of knowledge and the learners' mental processes. According to this theory, information is received, structured, stored and retrieved. While behaviorists deal with *what* learners do; cognitivism focus on what knowledge is and *how* it occurs (Jonassen, 1991). The last theory about learning is called constructivism which may be appropriate in dealing with ill-defined domains and may better support metacognitive and reflection skills (Alshammari, 2016). It is better to say that constructivism is considered as a part of cognitivism with its specific focus on conceptualizing the learners' mind as a processor responsible for reasoning, information retrieval, and reflection (Schunk, 1991). Constructivism theory has admitted that learner must have an active role in their learning process and they all responsible for themselves throughout their learning activities. Instructors are expected to become a guide for students, and they want to feel responsible about serving different learning materials and an effective learning environment for their students (Çelikten, 2009).

Ally (2004) has stated that the design of e-learning materials and courses can include principles from all three schools of thought. However, today's e-learning systems are expected to be more adaptive and customized. Brusilovsky (2012) has emphasized the typical structure of traditional e-learning systems and their undeserved learning environment. Traditional e-learning systems serve with the same content in the identical sequences, although it is no longer getting enough for the students' who differ in personalities, abilities, experiences, preferences, and characteristics in our technology-equipped world. Disenchantment with a one-size-fits-all approach, it is time to utilize more customized platforms which are known as "adaptive systems" in the literature. Jameson describes an adaptive system as "an interactive system that adapts its behavior to individual users by processes of user model acquisition and application that involve some form of learning, inference, or decision making." (Jameson 2009). Thanks to adaptive systems, student model can include the learning environment with their choices and selections to provide their requirements more efficiently. These systems aim to integrate learner characteristics such as learner style, skills, abilities, affective state and knowledge level to recommend more relevant instructional material and provide personalized services (Shi et al., 2013). According to Brusilovsky (1996) adaptivity is of particular importance in the field of e-learning for two main reasons. An adaptive system can guide the learner to navigate through a course by providing user-specific paths (Reason 1), and any system have this aim also must take care about different personality and different characteristics of learners (Reason 2). Many researchers have claimed (Aroyo, et al., 2006; Hauger & Köck, 2007; Essalmi et al., 2015) learning style and knowledge level are the most dominant two factors that must be integrated to e-learning systems.

While the learning style is recognized as a critical factor for an adaptive e-learning system, determining which learning style inventory should be used when designing our system is also essential. There exist several Learning Style Inventories (LSIs) in the literature, and they are all different from each other by comparison of their methods, classifications, and suggestions. For this purposes, the first aim of this study is offering a general

framework about LSIs which are the most known and popular. Then, we have tried to identify Sakarya University Management Information Systems Bachelor's Degree Level students learning styles via Kolb LSI's and Felder-Silverman ILS's separately. Our first goal in doing so is present a general framework about the learning styles of MIS students, the second goal is comparing the results attained from two different LSIs, and finally, the third goal is to give some future strategies to students, instructors and university management.

In the following section, we will briefly touch the most popular and the most used LSIs and will try to explain the differences between them. In our method part, the detailed information about the selected two LSIs and the assessment methodology of them will be presented. Findings part of our study contain the evaluations of the LSIs through the conducted surveys, and finally, in conclusions, some strategies will be offered.

LEARNING STYLE INVENTORIES (LSIs)

Learning styles are regarded as cognitive, affective and psychological behaviors. Thus there are no one-suits-all measurement methods that serve us to identify the characteristics of learners. There have been several models for defining the learning styles and also some inventories to measure the learners' characteristics, which are discussed in the below. Coffield et al. (2004) reported that it matters fundamentally which inventories will be chosen, especially when considering the learning styles for relatively mature learners. In the ongoing section, we have briefly given information about some of the inventories that are commonly used in the learning style research area and in Table 1 we have tried to summarize their similar and dissimilar features from each other.

Witkin's Group Embedded Test (GET-1971)

This approach has had its origins in Witkin's research (Witkin et al., 1962) and was based on cognitive learning style. It has had implications for e-learning is the distinction between field dependent and field independent personalities. According to the test results, while field-independent personalities approach the environment in an analytical manner and treat more global and analytical; field dependent ones create greater social orientation, and they tend to learn under conditions of intrinsic motivation such as self-study (Ally, 2004). This figure test contains 25 items and is a reliable tool (Witkin, 1971). However, some researchers argue that this LSI assesses learning ability rather than learning style (Messick, 1984); the validation of this test cannot be proven.

Dunn and Dunn's Learning Style Inventory (LSI-1974)

This inventory was based on the Dunn and Dunn Model (1974) and has claimed that 'people learn in different ways the reason why their various environmental conditions. Instead of psychological and cognitive processes the model focus on environmental factors which comprises five major categories, each of which contains several elements. The environmental category includes sound, temperature, and light and seating/furniture design. The emotional category is concerned with motivation, task persistence, and responsibility. The sociological category deals with preferences for learning alone, in a pair, in a small group or as part of a team. The psychological category refers to right/left, global/analytic and impulsive/reflective preferences. The physical category contains factors related to perception/modality preferences (visual, verbal), food and drink intake, time of day and mobility (Alshammari, 2016).

According to this model, the learning styles that ones have can be thought as a regular feature and maintains its continuity (Kılıç, 2002). This LSI contains more than 100 items and has problems arising from reliability and validity confirmation.

Kolb's Learning Style Inventory (LSI-1984)

According to Kolb two main components makeup learners' learning experience: perceiving and processing. Perceiving refers to absorbing the information in an environment where the processing deals with how the human mind can process the absorbed information in their perceiving phase. While these two processes are happening, four abilities of learners support them for their effective learning: concrete experience, reflective observation, abstract conceptualization and active participation. In addition to his theoretical assumption, Kolb (1984) has also suggested a 'learning cycle' and has tried to explain the learning process itself (Figure 1). Ally (2004) has stated that the concrete stages experience of reflective observation refers to perceiving; processing

ranges from abstract conceptualization to active experimentation.

Kolb has suggested while grouping the successive learning abilities in Figure 1, so the four type of learners exist converger (abstract/active), accommodator (concrete/active), diverger (concrete/reflective), and assimilator (abstract/reflective). Because Kolb has classified learners in linear and ordered steps, some researchers (Konak et al., 2014) criticized that this structure neglects the cultural and social perspectives of learning.

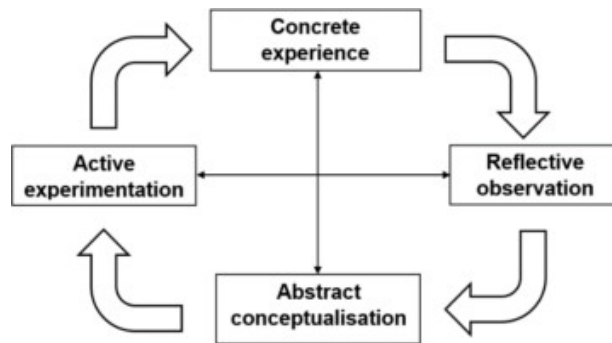


Figure 1. Kolb's Experiential Learning Cycle (Kolb, 1984)

Based on this theory, Kolb's Learning Style Inventory has been developed for identifying individuals' learning style. Kolb's LSI now in its version 3.1 (Kolb & Kolb, 2005) and proved its both reliability and validity. Kolb's LSI differs from other ones based on a comprehensive theory, Experiential Learning Theory, Figure 1, of learning and development. Although the LSI firstly conducted in the management field, it is also widely used in computer and information science, psychology, medicine, nursing, accounting, law and so other areas. It contains 12 survey questions which are infilling items instead of being multiple choice. The LSI has been translated into many languages, including, Japanese, Arabic, Spanish, etc. In this study, we have used its Turkish version which was translated and also was analyzed reliability-validity issues by Gencil (2007).

Myers-Briggs Type Indicator (MBTI-1985)

This inventory is based on Carl Jung's descriptions of individuals' preferred ways –Psychodynamic Theory– when describing the personality types. The basic assumption of this theory is that people's experiences and anticipations of the future have an impact on their personality and that personality traits are quickly influenced by the outside world (Myers and McCaulley, 1985). MBTI has dichotomized the peoples under four main group: extroversion versus introversion (the way of focusing), sensing versus intuition (the way of perceived information), thinking versus feeling (the way of making decisions) and judging versus perception (the way of dealing with outside). While combining them, 16 possible characteristics can be obtained that Kolb & Kolb (2005) indicated that they are very similar to the corresponding their Kolb's LSI. According to them MBTI's extroversion/introversion dialectical dimension refers to their active/reflective part while MBTI's feeling/thinking group has the same meaning with particular experience/abstract conceptualization. The MBTI has lengthy questionnaire with 93 items, and it suffers from some reliability and validity issues (Coffield et al., 2004), despite its usefulness in the learning area.

Felder-Silverman Index of Learning Survey (ILS-1988)

This survey based on the Felder and Silverman learning style model (Felder & Silverman, 1988) which is a hybrid one. Their model has utilized from both Dunn and Dunn (1974), Kolb (1984), and the Myers-Briggs (1985). The survey associated with the model is known as Index of Learning Survey (ILS) and contains 44 short items questionnaire with a choice between two responses to each sentence. According to the result of the survey, learners categorize in 4 main areas, and each area has two perspectives: information processing (active-reflective), input modality (visual-verbal), information understanding (sequential-global) and information perception (sensory-intuitive). Its proven reliability and validity has increased its frequency of use (Felder & Spurlin, 2005). Some researchers have also claimed that ILS has several advantages over other ones including conciseness and ease of administration (Graf, Viola, Leo, & Kinshuk, 2007). In this study, we have used the

Turkish version of the survey which is translated by Keskin Samancı & Özer Keskin (2007).

In Table 1, a brief comparison of mentioned LSIs is presented.

Table 1. Comparison of LSIs

Name of the LSI	More focuses on.	Reliability	Validity	Measurement
Dunn and Dunn's LSI	Environmental factors	No	No	104 item questionnaire
Witkin's GET	Visual memory and cognitive factors	Yes	No	25 item figure test
MBTI	Cognitive factors	No	No	93 item questionnaire
Kolb's LSI	Cognitive and sociological factors	Yes	Yes	12 infilling item
Felder-Silverman's ILS	Psychological, cognitive, and sociological factors	Yes	Yes	44 item questionnaire

However an instrument validity and reliability confirmation have critical importance for academic research, it can be seen that only two of them (Kolb's LSI and Felder Silverman's ILS) have provided this assurance. All five inventories benefit from survey technique during their methodological part. Truong (2016) has indicated that although there is no way to reveal the learners' characteristics without applying any LSI, this development has some drawbacks as for every qualitative study. The survey results completely depend on the participants' judgment, and it is done only at a point in time while the learning styles can change over time and different theories.

METHOD

In this study, we have preferred to use Kolb's LSI (version 3.1) and Felder-Silverman's ILS separately. The main reason why we have chosen these two is that they ensure their both reliability and validity. Another reason is they are some similarities between these models. For example, the sensory-intuitive dimension in the Felder-Silverman model may be related to the concrete-abstract dimension in the Kolb model (Alshammari, 2016). We have conducted these two surveys with the participation of 44 second year Bachelor's Degree MIS students, consecutively. The reason why we have chosen them is about Sakarya MIS curriculum content. In their first year, MIS students have intensely learned some general courses although when it comes after year their basic courses such as Management Information Systems, Algorithms and Introduction to Programming, System Analysis and Design, have just started. Deciding the second year undergraduate students' learning styles may guide both instructors and department management to be conscious and help them to educate more equipped students for the next years.

Kolb's LSI has twelve-point questionnaire had four choices, and every choice represents one of the abilities of the model; concrete experience, reflective observation, abstract conceptualization and active participation. Each participant had a total score for each ability range from 12-48. Next step is getting the aggregated score. It is calculated by abstract conceptualization (AC) score – concrete experience (CE) score and active experience (AE) score – reflective observation (RO) score. Finally, each person has two different aggregated score (AC-CE and AE-RO) range from -36 from +36.

If a participant gets a negative point in his/her AC-CE score, it means learning experience is a particular process. If a participant receives a positive point in his/her AE-RO score, it says the learning activity is an active process. Once the aggregated scores are evaluated, plotting them on the Learning Style Type Grid (Kolb, 1999) will be next step. For customizing the grid, in Table 2 we have presented the total norm group scores and have decided our cut point for the AC-CE scale is +0,5, and the cut point for AE-RO scale is +1,37.

Table 2. LSI Scores for Normative Groups

Total Norm Group				Cut Points	
CE	RO	AC	AE	AC-CE	AE-RO
29,0227	30,0682	29,5227	31,4318	0,5	1,37

According to these guide, the accommodator type would be defined by an AC-CE raw score $\leq 0,5$ and an AE-RO score $\geq 1,37$, the diverging type by AC-CE $\leq 0,5$ and AE-RO $\leq 1,37$, The converging type by AC-CE $\geq 0,5$ and AE-RO $\geq 1,37$ and the assimilator by AC-CE $\geq 0,5$ and AE-RO $\leq 1,37$.

The Felder-Silverman's ILS technique is more straightforward than the Kolb's. ILS contains 44 item questionnaire and categorizes the learners' into four main groups (active/reflective, sensing/intuitive, visual/verbal, sequential, global). Each dimension represents with 11 questions in which can be seen in Table 3. Each learner has his/her preferences for each dimension. These preferences are expressed with values between 0 to 11 per dimension. This range comes from the 11 questions that are posed for each dimension.

Table 3. ILS's four main groups and their belonging questions

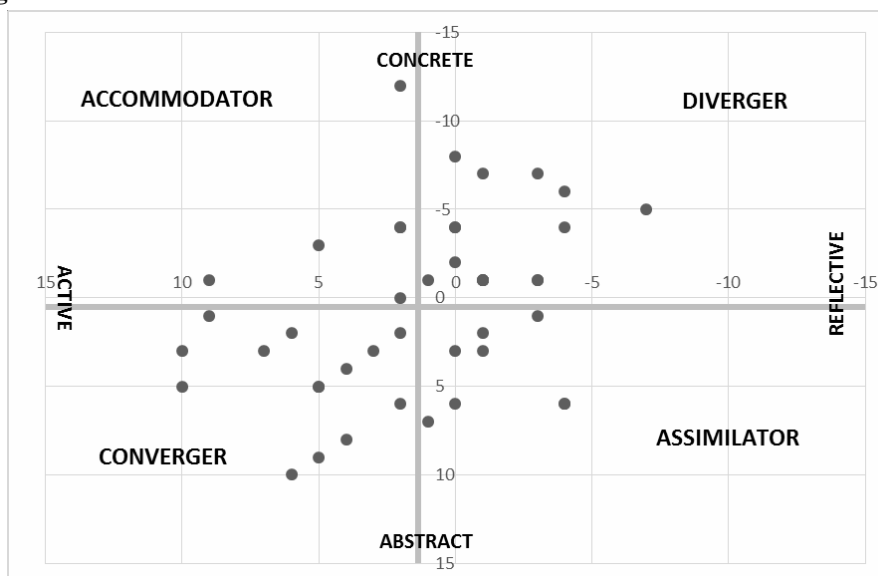
Dimension	Questions
Active (answer a) / reflective (answer b)	1,5,9,13,17,21,25,29,33,37,41
Sensory (answer a) / intuitive (answer b)	2,6,10,14,18,22,26,30,34,38,42
Visual (answer a) / verbal (answer b)	3,7,11,15,19,23,27,31,35,39,43
Sequential (answer a) / global (answer b)	4,8,12,16,20,24,28,32,36,40,44

When answering a question, for instance, with an active preference, +1 is added to the all the questions answering with the answer 'a' and 0 points for the answer 'b.' Regarding the active/reflective dimension again, if someone gets the points between 0 to 5 'a' responses for the active/passive dimension, it would represent reflective dimension, while getting 6 to 11 'a' score represents the active dimension. These two category can also be enhanced: 0 to 1 'a' score comes from the strong reflective preference while 2 or 3 'a' score means the participant shows a moderate preference for reflective and finally 4 or 5 'a' represents mild preference for reflective. On the other side, however 6 or 7 'a' mild preference, 8 or 9 'a' moderate preference and finally 10 or 11 'a' strong preference for active learning. This evaluation methodology is generally used in all of the statistical analyses for grouping participants according to Felder-Silverman's ILS (Felder & Spurlin, 2005).

FINDINGS

According to the results of the survey conducted with 44 MIS Bachelor's Degree Student, Figure 2 shows the plots the aggregated scores on AC-CE and AE-RO for respondents.

Figure 2. LSI Scores on AC-CE and AE-RO



From the participants, the dominant learning styles seem to converger and diverger among the MIS students. While the %34,1 of students have converger learning style which represents the abstract/active, the %31,8 of them have diverger learning style the combination of reflective/concrete. Both accommodator and assimilator learning styles represent a reasonable distribution of nearly %16. This percentage means the students in MIS department place in two opposite poles; converger and diverger.

In literature, some researchers have suggested the most suitable professions for each dimension of LSI. For instance, however banking, marketing, educational management areas are matched with the accommodator dimension, social working areas and psychology are suits with the divergers. While economic, engineering and computer sciences are regarded as the convergers can do their best in these areas, law, teaching, biology would be an exciting area for assimilators (Aşkar & Akkoyunlu, 1993). Since the MIS discipline is an interdisciplinary - technical, sociological and psychological- in itself, the students educated in this department are also expected to be versatile. With the help of Figure 2, we can state that the students have converger learning style represents the technical side, while divergers belong to psychological and sociological part of the department.

Kolb (1985) has found strong relationships between learning styles and preference for learning methods- assimilators preferred lectures, reading, writing, and individual work, while accommodators and especially divergers and convergers preferred partner and group work. Students with the diverger style should be evaluated as patient, careful and creative ones in the learning process and they willing to concentrating to produce new ideas and making brainstorming activities (Ekici, 2003). Convergers are called "best practices of the ideas" which means that they want to solve the problems with technical ways via deductive approach instead of communicating with the people. Feedbacks of the instructors are critically important during their learning process and working with a group increase their efficiency in their learning environment. In Table 4 more detailed information about the learning styles and their features is presented.

Table 4. Learning styles and their unique features (Aşkar & Akkoyunlu, 1993; Kolb D., 1999; Kolb & Kolb, 2005; Evin Gencel, 2007).

Learning Style	Learning Activity	Educational specialty	Best Team
Accommodator	Individual study, verbal study material	Banking, marketing, educational management	Assimilators
Diverger	Group discussion, brainstorming, problem-solving	Psychology, social sciences	Convergers
Assimilator	Individual study, theoretical information, lab cases	Law, biology, education	Accommodators
Converger	Small group working, active participation	Economy, engineering, computer sciences	Divergers

From the perspective of Felder-Silverman ILS, the learners' characteristics of MIS students are shown in the below. Since one of the surveys contains insufficient information, it is excluded from our dataset, and the rest of 43 surveys is investigated.

Table 5. Results of the Felder-Silverman's ILS by each dimension

Active/Reflective		Sensory/Intuitive		Visual/Verbal		Global/Sequential	
Strong reflective	2	Strong intuitive	0	Strong verbal	0	Strong global	0
Moderate reflective	5	Moderate intuitive	2	Moderate verbal	0	Moderate global	0
Mild reflective	16	Mild intuitive	6	Mild verbal	7	Mild global	17
Mild active	11	Mild sensory	19	Mild visual	10	Mild sequential	13
Moderate active	7	Moderate sensory	13	Moderate visual	14	Moderate sequential	8
Strong active	2	Strong sensory	3	Strong visual	12	Strong sequential	3

The most striking result of the ILS is there is none strong nor moderate verbal and global learner among the MIS students which means that they prefer to learn with visual materials and step by step in a well-structured way. In general words, MIS students differ from each other mostly in information processing step (active/reflective) and for other ones such as input modality (visual-verbal), information understanding (sequential-global) and information perception (sensory-intuitive), they seem to locate in mild or moderate levels.

Table 6 shows the number of the students categorized by both Kolb's and Felder-Silverman's questionnaire. Although most of the students are located in the diverger and converger side of the Kolb's, it was unexpectedly found that most of them tend to learn reflectively. What it means is that, while the MIS students are willing to study with groups and a project team, they are not willing to leading their friends, and they want to participate the learning process passively. It may also mean that MIS students are creative but their social perspectives are not enough for showing their innovative sides and they are called as 'creative, shy students.' According to their information processing dimension, there are more students preferred to learn with their sense and the most of them are also diverger/converger category. It means the MIS students tend to observe and interact with examples before studying theoretical concepts or procedures.

Table 6. Combining the dimensions of Kolb's LSI and Felder-Silverman's ILS

		Kolb's LSI's dimension			
		<i>Accommodator</i>	<i>Diverger</i>	<i>Assimilator</i>	<i>Converger</i>
Felder-Silverman's ILS's dimension	<i>Active</i>	5	6	3	6
	<i>Reflective</i>	2	8	4	9
Information perception	<i>Sensory</i>	7	10	5	13
	<i>Intuitive</i>	0	4	2	2
Input modality	<i>Visual</i>	7	12	5	12
	<i>Verbal</i>	0	2	2	3
Information understanding	<i>Sequential</i>	4	9	4	7
	<i>Global</i>	3	5	3	8

Input modality preferences is another dimension, and visual learners are well ahead of verbal ones. Verbal learners are mostly categorized in diverger/converger class like sensing learners which shows us the MIS students can obtain more benefit from visual learning materials like graphs, pictures, diagrams. This finding also well matches the technical side of the department. For example, in algorithm and programming course it is first thought to students how to draw a flow-chart diagram and how would it be interpreted. The information understanding dimension represents with sequential and global learners which nearly has the same number of our participants. One point about is that our diverger learners mostly want to learn with sequentially. However, convergers have more tendency to become a global learner. This is because the divergers have more detailed perspective view and they believe they can achieve their goals by learning the subject step by step so that nothing

can escape from their attention.

CONCLUSIONS

Today's Learning Management Systems (LMS) use several methods for selecting suitable learning objects. The main difficulty with this process is the content and size of learning objects. Based on several criteria, rules can be derived. One main rule composing an integrated and smart learning environment is to decide on learners' characteristics. This study is a kind of pilot one that tries to reveal the learning style of Sakarya University Bachelor's Degree MIS students. For doing that, two different Learning Style Inventory which is called Kolb's LSI and Felder-Silverman's ILS relatively was used.

When applying these two different inventories into the same group, two significant and dominant learner characteristics have emerged. The first group represents the social side of MIS department, and it consists diverger style from the Kolb and reflective/sensory/visual/sequential style from the Felder-Silverman. We call this group "Shy Socials" as their unique characteristics of their creativeness but passive learners during their learning process. To create an effective learning environment for them, instructors should encourage them to participate in the learning activity and offer them a working group materials. For instance, case studies and collaborative project task can be useful to reveal shy socials innovative side and foster them being more active during their courses. Especially for verbal lessons, the courses should be supported by some additional interesting visual images like graphs, diagrams, etc. Our second group is called "Idea Originators" and consists converger style from the Kolb and reflective/sensory/visual/global dimensions from Felder-Silverman, respectively. They are considered as more technical people than the shy socials. Idea Originators represent the technical side of the MIS. There should be offered some practical learning activity for including the Idea Originators during the learning process. Small group activities may also increase their social relations and can make possible for creating new ideas for them. Some prototyping projects or any other project techniques such as agile, SCRUM can be helpful for providing their integration to the course. Even, executive education can also enhance their information understanding perspective because they tend to get knowledge globally and any expert can gain new aspects to them.

As every research has, this study also has some limitations. Firstly, a number of the participants is inadequate. Further studies with more students can be conducted to increase our test reliability and validity. Secondly, the integration of learning styles and adaptive learning system still requires further research and experiments. Since the learning styles are stable indicators but may change over the lifetime, identifying the potential learning styles predictors is also a critical issue.

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INVESTIGATING THE UTILIZATION OF INTERACTIVE BOARD AND ITS APPLICATION IN TEACHING CHRISTIAN RELIGION KNOWLEDGE IN COLLEGES OF EDUCATION IN NORTH CENTRAL

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ABSTRACT

The paper investigated the utilization of interactive board and its application in teaching Christian Religion Knowledge in Colleges of Education in North central. Specifically the study is designed to find out the extent the teachers utilize interactive board in teaching Christian Religion Knowledge. The researchers adopted a descriptive survey design in which questionnaires were used to collect information from the respondents. The population consisted of 45 teachers of Christian Religious Knowledge in Colleges of education in North central zone. The sample for the study consists of 25 teachers of Christian Religious Knowledge in Colleges of education in North central randomly selected. The 25 teachers are made up of 15 males and 10 females. Data were obtained using a researchers structured questionnaire. The instrument was validated by three experts in Science and Technology Department of the rank of Professors from University of Jos, with reliability index of 0.67. The method used for data analysis was mean scores for the research questions and t- test analysis for the hypothesis. Results obtained showed that though interactive board is germane to effective teaching of CRK but only few of the interactive boards are found in the colleges of education, even the few that are found in the schools are hardly utilize for teaching by the lecturers. It was recommended among other things that Lecturers should always adopt the use of interactive board in the teaching of CRK for it has the potential of making teaching effective and enhancing learning.

Keywords: Utilization, Interactive board, Teaching, CRK, Colleges of Education.

INTRODUCTION

Nigerian educational sector is confronted by myriad problems. No wonder it is belief that as strategic objectives in education, improving the quality of education through the diversification of contents and methods and promoting experimentation, innovation, the diffusion and sharing of information and best practices as well as policy dialogue is key (UNESCO, 2002). To achieve the above objectives, Information and Communication Technology (ICT), which interactive board is a part, is having a revolutionary impact on educational methodology globally. However, this revolution is not widespread and need to be strengthened to reach a large percentage of the population.

The academic landscape in Nigeria includes the teaching and learning process, along with the educational programs and courses and the pedagogy or methodology of teaching; the research process, including dissemination and publication; libraries and information services; including higher education administration and management (Beebe, 2004). The integration of Information and Communication Technologies (ICTs) in higher education programs has been the topic of a good deal of debate. In Nigeria however, the relationship between the

development of ICTs penetration and use in teacher education programs and its diffusion into the programs in Schools of Education is dependent upon governmental policies.

Therefore, Information and communication technologies (ICTs) are indispensable and have been accepted as part of the contemporary world especially in the industrialized societies. In fact, cultures and societies have adjusted to meet the challenges of the knowledge age. The pervasiveness of ICT has brought about rapid changes in technology, social, political, and global economic transformation. However, the field of education has not been unaffected by the penetrating influence of information and communication technology. Unquestionably, ICTs has impacted on the quality and quantity of teaching, learning, and research in teacher education.

However, ICT provides opportunities for student teachers, academic and non-academic staff to communicate with one another more effectively during formal and informal teaching and learning (Yusuf, 2005). In the same vein, teachers need training not only in computer literacy but also in the application of various kinds of educational software in teaching and learning (Ololube, 2006). Furthermore, they need to learn how to integrate ICTs into their classroom activities and school structure. The quality of teachers is known in virtually all countries to be a key predictor of student learning (Ololube, 2005). Therefore, teacher training is crucial using ICTs, because ICTs are tools that on the one hand can facilitate teacher training and on the other hand help them to take full advantage of the potential of technology to enhance student learning (UNESCO, 2003). Correspondingly, ICTs have introduced a new era in traditional methods of teaching and offering new teaching and learning experiences to both teachers and students. Hence, Nigerian education environment should take advantage of this capability to provide easy access of information, since technologies enable the visualization of educational materials in an innovative and realistic manner.

In Nigeria, Colleges of Education offer post-secondary National Certificate in Education (NCE) training programs. The NCE is also the qualification required for teaching in junior secondary schools and technical colleges. Colleges of Education use to train teachers for junior secondary school, but now they also train primary teachers. The NCE has become the minimum qualification for primary school teaching as from 1998. Some of the colleges also offer NCE pre-primary courses in order to produce teachers for the pre-primary level of education (Moja, 2000). Looking at the very crucial role colleges of education play in the training of teachers, the need of the teachers to be competent in their method of teaching is pertinent and embracing newer method that involve interactive board which is a product of educational technology remains a desire to be fulfilled by any colleges of education in North central.

An interactive board therefore, is an instructional tool that allows computer images to be displayed onto a board using a digital projector. The instructor can then manipulate the elements on the board by using his finger as a mouse, directly on the screen. Items can be dragged, clicked and copied and the lecturer can hand write notes, which can be transformed into text and saved. They are powerful tool in the classroom adding interactivity and collaboration, allowing the integration of media content into the lecture and supporting collaborative learning. Used innovatively they create a wide range of learning opportunities. However, in many environments they are not being used to their full potential, and in many cases acting as a glorified blackboard. This concern informed the decision for the conduct of this research work, the researchers will make great efforts to investigate the utilization of interactive board and its application in teaching Christian religion knowledge in Colleges of Education in North central Nigeria.

Statement of the Problem

In our contemporary world, interactive board as a product of educational technology has a tendency to make learning to be an active classroom room activity. The activities the teachers create through the interactive board can leverage the power of the visual, kinesthetic and auditory features of the active classroom to support the engagement of diverse learners collaboratively and interactively (Turel, 2011). The ability of the interactive board to reach all kinds of students with multiple learning styles makes it to be an indispensable instructional media in the hands of the teachers to make teaching and learning more effective and pleasurable.

It is in recognition of its role and place in education that captured the interest of the researchers to investigate the utilization of interactive board and its application in teaching Christian Religion Knowledge in Colleges of Education in North central Nigeria.

Aims and Objectives

The major purpose of this study is to investigate the extent of utilization of interactive board and its application in teaching Christian Religion Knowledge (CRK) in Colleges of Education in North central Nigeria. Specifically the study is designed

1. to find out the extent the teachers utilize interactive board in teaching Christian Religion Knowledge.
2. to determine the instructional effect of using interactive board in teaching Christian Religion Knowledge.
3. to determine the motivational effect of using interactive board in teaching Christian Religion Knowledge.
4. to ascertain the factors militating the use of interactive board in teaching Christian Religion Knowledge in Colleges of Education in North central Nigeria.

Research Questions

The following research questions were raised:

1. To what extent do teachers utilize interactive board in teaching Christian Religion Knowledge in Colleges of Education in North central Nigeria?
2. To what extent does interactive board affect the teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria?
3. What are the motivational effect of using interactive board in teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria?
4. What are the factors that militate the use of interactive board in the teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria?

Hypothesis

The under listed hypothesis was tested at 0.05 level of significance:

There is no significant mean difference between the perception of male and female teachers that utilize interactive board for teaching Christian Religious Knowledge.

Significance of the Study

Interactive board have been in existence for a long time, but they are often underutilized. It is expected that, following the identification of the hindrances to maximize utilization of interactive board in college of education, effort will be made to minimize the effect of the hindrances and promote adequate utilization of this product of educational technology. Discoveries from the study will guide teachers, government, sponsoring bodies and donors on the purchase of not only printed materials but also non-print materials for schools and colleges, when the utilization of interactive board is encouraged, there will definitely be a high demand for the materials and the producers will put in more efforts in the production and even come out with more methods of applying them to teaching and learning. This may tend to expose the learner more to thinking than relying on the teacher. The research will also pave the way for research into other areas of concern and interest and will give researchers insight into this topic of investigation.

METHODOLOGY

The researchers adopted a descriptive survey design in which questionnaires were used to collect information from the respondents. The population consisted of 45 teachers of Christian Religious Knowledge in Colleges of education in North central Nigeria. The sample for the study consists of 25 teachers of Christian Religious Knowledge in Colleges of education in North central Nigeria randomly selected. The 25 teachers are made up of 15 males and 10 females. Data were obtained using a researchers structured questionnaire, which is made up of two sections, section A to elicit personal information and section B was a five point likert scale responses of items designed to elicit answers from the respondents used for the study. The average mean of 3.50 was used as the minimum scale of positive result so that mean score below 3.50 is a negative result while mean score above 3.50 indicates positive response. The instrument was validated by three experts in Science and Technology Department of the rank of Professors from University of Jos, with reliability index of 0.67. The method used for data analysis was mean scores for the research questions and t- test analysis for the hypothesis.

RESULT

Question 1:

To what extent do teachers utilize interactive board in teaching Christian Religion Knowledge in Colleges of Education in North central Nigeria?

Table 1: Mean score perception of students on teachers' utilization of interactive board in teaching Christian Religion Knowledge in Colleges of Education in North central Nigeria.

Do you utilize the Interactive Board for Teaching CRK in your school?	N	Mean	Decision
1. The department do not have enough Interactive boards for teaching CRK	25	3.2	Disagree
2. I always use Interactive Board when teaching CRK to my students	25	3.3	Disagree
3. My course content is not suitable with using Interactive Board	25	3.2	Disagree
4. I use the Interactive Board just as a presentation tool for teaching CRK	25	3.6	Agree
5. I prefer using the chalk board to the Interactive Board to teach CRK	25	3.8	Agree

From Table 1 the data show that the mean score of items 1-3 are below the mean score of 3.5 which implies that interactive board are not enough in the school, teachers do not always use interactive board when teaching CRK, that all course content are suitable for interactive board teaching method. While items 4-5 have means of 3.6 and 3.8 which is greater than the mean score. This result shows that most teachers only use interactive board as a presentation tool without creating interactivity, also most teachers prefer using chalk board despite the importance of interactive boards.

Question 2:

To what extent does interactive board affect the teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria?

Table 2: Mean score perception of the extent interactive board affect teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria.

Does the use of interactive board affect Teaching of CRK in your school?	N	Mean	Decision
1. Interactive board facilitate the classroom management for me	25	3.6	Agree
2. Interactive board helps my lessons be more interactive	25	3.5	Agree
3. My lessons have become more effective with Interactive board	25	3.7	Agree
4. Interactive board helps me to manage my instructional time effectively	25	3.6	Agree
5. Interactive board provides advantages to make course content more visual	25	3.8	Agree
6. I believe using an interactive board helps my students learning	25	3.7	Agree
7. Using an interactive board makes it easier for my students to remember what they learned in class	25	3.6	Agree
8. My students learn faster when I teach with an Interactive board	25	3.5	Agree
9. Interactive board helps my students learn in groups	25	3.4	Disagree
10. Using an interactive board helps students to learn concepts easier	25	3.6	Agree

The data in Table 2 show that the mean scores of items 1-8 and 10 are above the mean score with the range of 3.5 to 3.8 which implies that the respondents generally agreed that interactive board enhance teaching and learning of CRK but item 9 with a mean score of 3.4 has it that the respondents do not agree that interactive board encourages students to learn in groups.

Question 3:

What are the motivational effect of using interactive board in teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria?

Table 3: Mean score perception of motivational effect of using interactive board in teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria.

Does Interactive board has motivational Effect in the teaching of CRK?	N	Mean	Decision
1. I enjoy teaching with an interactive board	25	3.5	Agree
2. Because of using an interactive board, I feel myself more prepared for instruction	25	3.7	Agree
3. I notice my interactive board skills are improving day by day	25	3.6	Agree
4. Learning how to use an interactive board is essential to me	25	3.5	Agree
5. Interactive board makes my courses more enjoyable	25	3.8	Agree

Data in Table 3 show that the mean scores of the items 1-5 listed as interactive board having emotional effect in teaching have means score greater than 3.5 which is the minimum mean rating for positive response. It can then be concluded that interactive board have great emotional effect on the teachers as well as the students positively to learn CRK.

Question 4:

What are the factors that militate the use of interactive board in the teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria?

Table 4: Mean perception of the factors militating the use of interactive board in the teaching of Christian Religion Knowledge in Colleges of Education in North central Nigeria.

Do you agree on the following as problems Militating against utilization of interactive Board in teaching CRK.	MALE		FEMALE	
	N=15	Mean Dec.	N=10	Mean Dec.
1. Inadequate supply of interactive board in my department	3.7	Agree	3.6	Agree
2. Lack of required skills and competences on the part of teachers	3.5	Agree	3.6	Agree
3. Inadequate interactive board digital materials and resources to be used with the interactive board	3.7	Agree	3.5	Agree
4. Poor connection between the interactive board and computer	3.2	Disagree	3.4	Disagree
5. Virus problems, which lock programs and files	3.6	Agree	3.7	Agree
6. Low quality of speakers	3.4	Disagree	3.3	Disagree
7. Computer programs which are not updated such as multimedia programmes	3.4	Disagree	3.3	Disagree
8. Epileptic power supply	3.8	Agree	3.5	Agree
9. Technician is not always available in the classroom when there are some problems with interactive board.	3.5	Agree	3.7	Agree

10. There is no shared vision among the staff concerning how the interactive board is to be used for teaching CRK.3.6	Disagree	3.5	Agree
Cluster mean		3.54	3.52

From Table 4, items 1,2,3,5,8, and 9 have means greater than the minimum mean rating for positive response. By implication it then means that these items are the factors militating against successful utilization of interactive boards in the teaching of CRK, while items 4,7 and 10 with means below 3.5, leads to the conclusion that the items do not serve as factors that militate against utilization of interactive boards in the teaching of CRK.

Hypothesis Testing

There is no significant mean difference between the perception of male and female teachers that utilize interactive board for teaching Christian Religious Knowledge.

Table 5: t-test of non-significant difference between the mean perception of male and female teachers on the factors militating against utilization of interactive board in teaching of CRK.

Groups	N	Mean	S.D	DF	t-cal.	t-crit.	Remark
Male	15	3.54	2.112	149	1.613	1.960	Accepted
Female	10	3.52	2.115				
Total	25						

From Table 5, calculated t-value is 1.613 which is less than critical t-value of 1.960 at degree of freedom of 149; hence the null hypothesis is accepted. The study concludes that there is no significant difference between the mean perception of factors militating against utilization of interactive board in teaching of CRK in Colleges of Education in North central Nigeria.

DISCUSSION

The attitude of teachers towards the old fashion method of teaching using the chalk board has lingered for so long despite the introduction of a newer methods that educational technology avail to the disposal of the 21st century teachers. This concern informed the conduct of this research work.

From the research work, it was discovered that interactive board are not enough in the school and the teachers do not always use the few available interactive board when teaching CRK, this corroborates Walker, 2002 who noted that teachers have Interactive boards inside the classrooms, yet they are doing chalk-and-talk thing.

The results from the data obtained also deduce generally that interactive board enhance teaching and learning of CRK ,this is in line with the work of Smith, 2005 which shows that using Interactive boards helps teachers with streamlining their preparation, being more efficient in their Information and Communication Technology (ICT) integration.

It was discovered that interactive board have great positive emotional effect on the teachers as well as the students to learn CRK. This is in consonance with Yanez and Coyle, 2011 which showed that the use of interactive board can enhance the learning process and influence learning styles as well as increase teachers and students' motivation.

The research work discovered furthermore that inadequate interactive board, Lack of required skills and competences on the part of teachers, Inadequate interactive board digital materials and resources to be used with the interactive board and there is no shared vision among the staff concerning how the interactive board is to be used for teaching CRK among others as seen in Table 4 are factors that militate against the use of interactive boards in the teaching of CRK in Colleges of Education in North central Nigeria. This corroborate Jessica and Lisa, 2007who's study showed that there were still some tensions and challenges faced by teachers as they incorporated ICT into classroom literacy experiences.

Similarly, the hypothesis testing showed clearly that there is no significant difference between the mean perception of factors militating against utilization of interactive board between male and female teachers in teaching of CRK in Colleges of Education in North central Nigeria. This indicate that both male and female

teachers hold the same view as to the factors that militate against the use of interactive board. This is buttressed by the submission Kosoko-Oyedeko and Adeyinka, 2010 which showed that generally that irrespective of gender, teachers have the same perception that ICT contributes immensely to students' performance.

Summary of Findings

Interactive boards are germane to effective teaching and learning of CRK. Only few supply of interactive boards are at the disposal of lecturers of colleges of education in North central Nigeria. Interactive boards have the potential of improving the instructional strategies of lecturers to make them efficient in teaching CRK. There are myriad of factors that affect the use of interactive boards in teaching of CRK, this ranges from inadequate interactive board, Lack of required skills and competences on the part of teachers, Inadequate interactive board digital materials and resources to be used with the interactive board and there is no shared vision among the staff concerning how the interactive board is to be used for teaching CRK among others. There is no significant mean difference between the perception of male and female teachers that utilize interactive board for teaching Christian Religious Knowledge in Colleges of Education in North central Nigeria.

CONCLUSION

The perceived lack of interest by teachers informed the decision for the conduct of this research work, the researchers therefore made an attempt to investigate the utilization of interactive board and its application in teaching Christian religion knowledge in Colleges of Education in North central Nigeria. It was discovered from the study that though interactive board is germane to effective teaching of CRK but only few of the interactive boards are found in the colleges of education, even the few that are found in the schools are hardly utilize for teaching by the lecturer. The nonchalant attitude of not using the interactive board was attributed to the fact that there are factors that militate against the utilization of the interactive board for teaching CRK. From the findings, it was concluded that interactive board is effective in teaching and its utilization can make teaching more efficient and pleasurable for the teacher which can also improve the learning of CRK in Colleges of Education in North central Nigeria.

Recommendations

The following recommendations were made:

1. Lecturers should always adopt the use of interactive board in the teaching of CRK for it has the potential of making teaching effective and enhancing learning.
2. It is recommended that teachers should be train on how to use interactive board for teaching CRK
3. Government, sponsoring bodies and donors should come in and support the purchase of interactive boards in large quantity to go round the large population of teachers to teach all level of students in the Colleges for the teaching of CRK.

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