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Mirror Image Analysis of Websites of Universities for Academic Innovation-Comparison among South East and South Asian Top-100s

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Abstract: Educational institutions of developing country are in the reverie for cyber world through the launch of website to connect and reconnect to the info-academic world. Educational institutions with tradition posting institutional information on a web never place themselves in the global picture. To place as a top ranked institution in global institutional web map demand visibility, richness of contents, and faculty strength which are known as knowledge enablers. When an institution thinks about innovation of knowledge and display contents of universities then must have to think critically in terms of innovation of these knowledge enablers.

South Asian including Indian academic institutions are emphasizing on integration to the cyber world with a dream to become player in the emerging knowledge hub. To become a knowledge hub Indian Institution must have to develop its website for greater visibility. Side by side, researchers and intellectuals must realize the significance of launching the institutional websites for integration of administration, knowledge repositories and class rooms.

This study examines and compares the state of South Asian Top-100, South East Asian Top-100. In examining the ranks of 100 Asian Universities Webo-metrics data compared the level of concordance (ranking agreements) and mirror images. The concordances and mirrors images revealed the direction of relationship of variables of knowledge enablers and finally attempts to identify the cues for innovation with the help of web site to launch the websites by South Asian Institutions.

Key Words: ***Concordance, Cyber Metrics, Innovation, Faculty Development, Research***

1. Introduction

Webs are becoming the windows for institutions and can be considered as the mirror of academic institutions. Today, it is a core marketing tool of academic institutions for window dressing of academic and intellectual outputs produced by them. The institutional web covers not only formal (e-journals, repositories) information but also informal and scholarly communication. Undoubtedly web publication is cheaper than hard publishing and possible to maintain high standards of quality of peer review processes. It could also reach much larger potential audiences by offering access to scientific knowledge to researchers and institutions located in any part of world and to the third parties (economic, industrial, political or cultural stakeholders) in their own community (Alstete, Jeffrey W.)[1]. Website of an institution promotes web publication; supports open access initiatives, electronic access to scientific publications and making availability other academic and non academic institutional contents. These are all considered as the useful indicators for ranking of websites as well as institutions. Universities rankings are the reflection of number of visits; web page design, and visibility of the universities. In practice, the web ranking of institution is the reflections of many relevant aspects, especially research results, faculty profile; university or institutional activity profiles. Web indicators used

for ranking reflects the whole picture of the activities of professors and researchers etc (Ortega. Jose Luis, Aguillo. Isidro, 2009) [2]. This ranking is known as simple web ranking.

The Webo-metrics ranking is another type of ranking that covers a larger number of contents and variables than other simple web rankings. It reflects researches focused on research results and other indicators those reflect better global quality of scholar and the researches of institution(s) worldwide. These rankings are intending to motivate institutions and scholars to have a web presence in cyber world by reflecting its contents and activities accurately. Webometrics can serve as the foundation for innovation of institutional web policy, maintenance of web volume, and the quality of their electronic publications through the websites. The ranking not only correlates well with quality of education provided and academic prestige but also some other non-academic variables. With the help of webometric ranking[3] are known as „world university ranking" or „academic ranking of World University". Webometrics ranking are prepared by many agency with different name. The aim of the ranking is to improve the presence of the academic and research institutions on the Web and to promote the open access publication of scientific results. The ranking started in 2004 and is updated every January and July. Today it provides Web indicators for more than 12,000 universities worldwide[4]. Many a time, it is used as agency based benchmarking tool that supports in the process of internal and external innovations of academic institutions. This benchmarking exercises attempts (Kempner 1993)[5] to answer the following questions- How well the academic institution are doing compared to others? How good does an institution want to be? Who is doing it the best? How do they do it? How much an institution adapt in adoption of novel content for web display? What do they do to achieve a rank? How can an institution be better than the best?

George D. Kuh, mentioned in his/her study on extent an institution"s website „is a window into its performance, this report shows that schools need to do more to inform the public about what they are doing with regard to assessing student"[6]. There are many theories on website architecture and designing for an academic institution. A research conducted by Royall & Company"s University Research Partners shows that there are many accepted theories about website architecture and content which are in conflict with the needs of students and parents – and can in fact stand in the way of helping institutions achieve their enrollment goals, and serve their prospective student populations effectively[7]. This study suggested that admissions officials work with developers for the general website to ensure easy (and obvious) access to admissions-related information. In regards to management of university"s web communication it is known that the university web communications team collaboratively supports electronic communication efforts of the health science center by utilizing the integrated marketing initiative to create a common public "face" and consistent "voice" for the institution. Staff serves with efficiency and courtesy to build online resources that are innovative and attractive, yet widely accessible and user-friendly. When planning a Web site, university Web designers consider university[8] guidelines, review other Web sites, and consult with experts and other divisions within the system; however, resources and training for the design process are lacking[9]. There are studies on web design and content inclusion relating to the academic institutions. But, there are very rare evidences on the study on webometric on academic institution with special reference to regional sub-regional context in Asia.

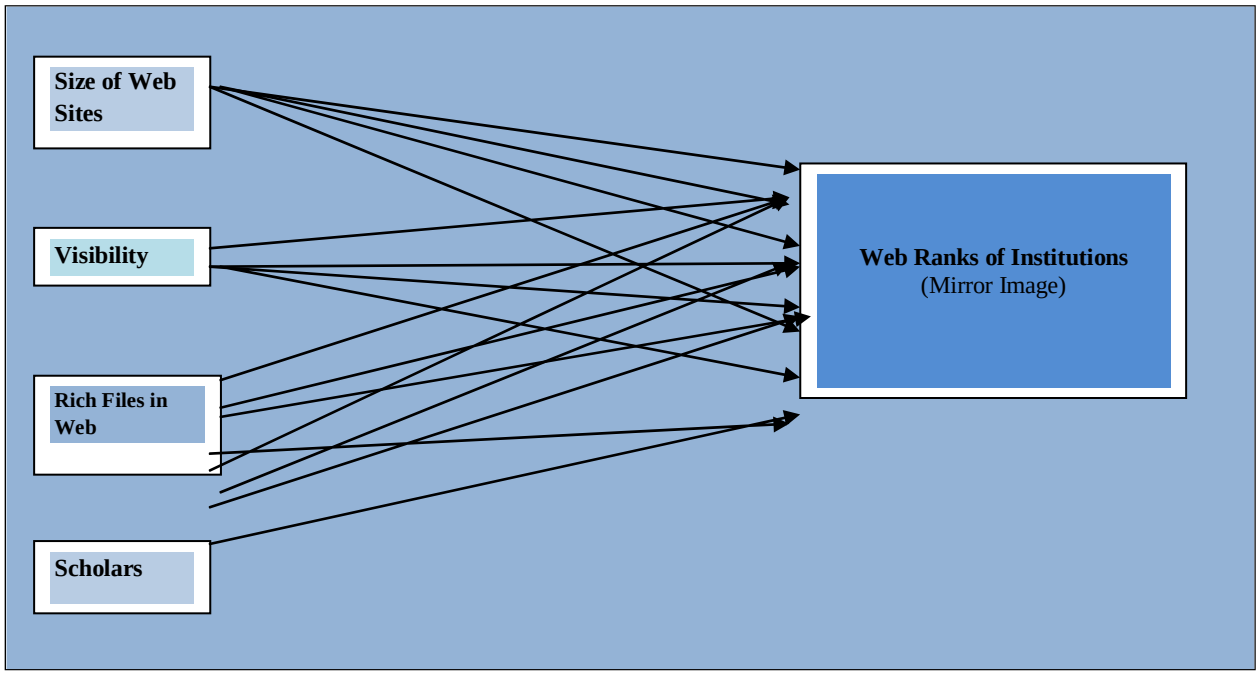
2. The Proposed Model for Exploration

Webometric Analyst is a program to conduct automatic analyses of the impact of collections of documents or web sites, or to create network diagrams of collections of web

sites[10]. Investigations of the interaction of websites via hyperlinks are one of the important fields of webometrics *(Thelwall et al., 2012)*[11]. Through the selected weight of a given dimensions of a Web metrics rank which creates mirror images. Since the rank is a number or a point that reflects the holistic dimension of an object. The images of each dimension are reflected in the web metric ranks and through which reflects its images in the global, regional, country‟s rank of webs of university. There can have sixteen possible associations (Qiao Shaojie , Peng. Jing , Hong Li, etc. all. (2010)[12] of four dimensions can create images on the overall ranks of a website of institutions. In this study the Webometric rank is a combination of four ranks of four variables that adopts (or with) different weights[13]. They are -

Visibility (External inlinks) = 50 Percent Weight
Size (Web Pages) = 20 Percent Weight
Rich Files = 15 Percent Weight
Scholars = 15 Percent Weight

Figure: Reflection/Mirror Images of Associated Dimensions



These weights must not influence the mutual associate character of rank of the variables. Thus, the possible associations create different images on the mirror since the weight of each dimension is different and can be controlled by associating and disassociating the individual dimensions by making groups at time of observation. This mirror image (figure in above) of each group of associated dimensions as the resultant of mutual interaction can be assessed numerically and statistically for this nature of the data revealed in the websites. Here, the data used in this web ranking are ordinal in nature. In the context of webometric data, the numerical reflections of all possible dimensions of paired variables also serve as reflection. The reflection is analyzed in the context of continental, regional, and country‟s webometric analysis.

3. Objectives

1. To examine the concordance among the ranked variables of webs across the each group (Top-100) of institutions of the three continental regions of Asia.
2. To examine the strength of association of webometric ranked indicators in the context of the three groups of top ranked institutions;
3. To compare the mirror images of associated ranked variables in the context off three groups of universities in Asia.

4. Hypotheses

H_{01} – *There are no concordance among the ranked variables of webs across each group (Top-100) of institutions of three continental region of Asia.*

H_{02}- *There is no significant associations between the ranked cyber-metric indicators of three groups of institutions and these associations are always positive;*

H_{03}- *There no differences among the mirror image created by the associated variables of three groups of institutions.*

5. Methodology

5.1. Data and Data Source: Ranking of Web of World Universities -2011[14] was the prime data source for this study. From the source three different groups of institutions ranks in website were downloaded. Total 300 hundred web ranks of the continent Asian were processed for analysis for this paper. For each university and institutions data collected under 4 dimensions of ranked data (Table-1) for webometrics ranks were selected.

5.2. Data analysis: For the ranked data the available statistical, non parametric tools Kendal Co-efficient of Concordance for agreement analysis; Spearman‟s Rho for associated variable mirror image calculation for one for each group were applied.

6. Results and Discussion

6.1. Concordances: Kendall‟s W is a measure of the agreement of the rankings of variables across cases (universities or institutions) selected for observation and analysis. In the table-2, the value of Kendall‟s W for three groups of universities, (they are South East Asian Universities= 0.125, South Asian Universities=0 .236, and for Asian Top-100 Universities= 0.186) are greater than and near 0 indicating little agreement ranking variables across cases. In all cases significance the significance levels (0.000<.05) indicate that at least one of the variables differs from the others in all three groups of institutions those were considered for observation. Thus, the hypothesis, H_{01} – there is no concordance among the ranked variables of webs across each group (Top-100) of institutions of three continental region of Asia is partially accepted. Alternatively concluded that the variables- World Ranks, Continental Ranks, those based on the aggregate ranks of the positional variables in table-1 of exhibit at least the rank of one variable differs each other in case of all universities. Among the three groups containing the Top -100 Web Ranks also reported that there exist observable minor disagreements among the values of concordance.

62. **Mirror Images of Web Ranks of South Asian Universities:** Observable disagreement of ranks of the variable posits further to examine the association of ranked variables among the selected groups of universities of Asia. Association of ranks of each variables for web ranks for Top-100 universities of South Asian Institutions were examined the through the Spearman"s Rho to examine the mirror images of mutually associated variables. This is nonparametric correlations table displays correlation coefficients, significance values, and number of cases with non-missing values. In the nonparametric correlations table we may see information for Kendall's tau-b and/or Spearman's rho. Both Kendall's tau-b and Spearman's rho use the ranks of the data to calculate correlation coefficients. Spearman's rho is a rank-order correlation coefficient which measures association at the ordinal level. The sign of the correlation coefficient (Spearman"s Rho of world rank & size=0.722 significant at .000<.05; world rank & visibility of webs= 0.584, sig. 0.000<.05; Rich file & World Rank= 0.768, sig.=0.000<0.05; scholar & world rank = 0.602, sig. 0.000<0.05) indicates the positive direction of the relationship. This is a nonparametric version of the Pearson correlation based on the ranks of the data rather than the actual values. In the table-3, values of the correlation coefficient range from -1 to 1. The values of the correlation coefficients are indicating the strength, with larger absolute values indicating stronger relationships.

The sign of the correlation coefficient (Spearman"s Rho of visibility ranks & size ranks =0. .589 significant at .000<.05; Rich Files ranks & size ranks= 0.599, significant at 0.000<.05; Scholar & Size Rank= 0.155, significant at 0.124.>0.05) indicated insignificant positive images. This is a nonparametric version of the Pearson correlation based on the ranks of the data rather than the actual values. In the table-3, values of the correlation coefficient range 0 to 1. The values of the correlation coefficients are indicating the strength, with larger absolute values indicating stronger relationships.

In the context of visibility of richness of files and richness of scholars the Spearman"s Rho =0.498, significant at 0.000<0.05 indicated relatively strong positive images. In the context of association between visibility and scholars Spearman"s Rho= -0.019, significant at 0.853>0.05 indicates insignificant negative images. Spearman"s Rho of rich files and scholar = 0.223, significant at 0.025> 0.05 indicated significantly week association (weak image creator) in the context of South Asian Institutes.

In the context of Web Ranks of the indicators of South Asian Institutes, association between visibility and scholars Spearman"s Rho= -0.019, significant at 0.853>0.05 indicates insignificant negative images and the association between rich files and scholar = 0.223, significant at 0.025> 0.05 indicated significantly weak image creator accepts hypothesis H_{02}- „*there is no significant associations between the ranked cyber-metric indicators and these associations'* and maybe relationship in the negative direction.

63. **Mirror Images of Web Ranks of South East Asian Universities:** In the table-4, the sign of the correlation coefficient (Spearman"s Rho of world rank & size=0.702 significant at .000<.05; world rank & visibility of webs= 0.736, sig. 0.000<.05; Rich file & World Rank= 0.711, sig.=0.000<0.05; scholar & world rank = 0.772, sig. 0.000<0.05) indicating strong positive image. The image values of the correlation coefficient range from 0 to 1. The values of the correlation coefficients are indicating the strong absolute values with significant strong mirror images of Web Ranks. The sign of the correlation coefficient (Spearman"s Rho of visibility ranks & size ranks =0.635 significant at .000<.05; Rich Files ranks & size ranks= 0.743, significant at 0.000<.05; Scholar indicating strong positive mirror image, but the Size

Rank and scholar ranks= 0.247, significant at 0.013.<0.05) indicated insignificant positive mirror images. All values of the correlation coefficient range 0 to 1.

In the context of visibility of rich files and scholars the Spearman"s Rho =0.639, significant at 0.000<0.05 indicated relatively strong positive images. In the context of association between visibility and scholars Spearman"s Rho= -0.353, significant at 0.000>0.05 indicating significant but weak mirror images. Spearman"s Rho of rich files and scholar = 0.242, significant at 0.015> 0.05 indicated significantly weak mirror image in the context of South East Asian Institutes.

In the context of Web Ranks of Cyber Metric indicators of South Asian Institutes indicated there are significantly weak image creator, and thus rejects hypothesis H_{02-} „*there is no significant associations between the ranked cyber-metric indicators and these associations* maybe relationship in the positive direction.

6.4 Mirror Images of Asian Top-100 Universities Web Ranks: In the table-5, the sign of the correlation coefficient (Spearman"s Rho of world rank & size=0.718 significant at .000<.05; world rank & visibility of webs= 0.857, sig. 0.000<.05; Rich files & World Rank= 0.737, sig=0.000<0.05; scholar & world rank = 0.538, sig. 0.000<0.05) indicating strong positive image. The image values of the correlation coefficient range from 0 to 1. The values of the correlation coefficients are indicating strong positive mirror images with larger absolute values. The sign of the correlation coefficient (Spearman"s Rho of visibility ranks & size ranks =0.573 significant at .000<.05; Rich Files ranks & Size ranks= 0.550 significant at 0.000<.05; Scholar indicating strong positive mirror image, but the Size Rank and scholar ranks= 0.344, significant at 0.000.<0.05) indicated insignificant positive mirror images. All values of the correlation coefficient range 0 to 1.

In the context of visibility of rich files and scholars the Spearman"s Rho =0.518, significant at 0.000<0.05 indicated relatively strong positive images. The association index between visibility and scholars spelt by the Spearman"s Rho= 0.252, significant at 0.011>0.05 is significant but indicating relatively weak mirror images. Spearman"s Rho of rich files and scholar = 0.263, significant at 0.008> 0.05 indicated significantly weak mirror image in the context of Asian Institutes webs ranks.

In the context of Web Ranks of webometric indicators of Asian Institutes, the analysis revealed that there are significant relationship (mirror) created through the associations among the variables. Thus, the study rejects hypothesis H_{02-} „*there is no significant associations between the ranked cyber-metric indicators and these associations* maybe relationship in the positive direction.

6.5. Comparison of Mirror Images

For comparing the mirror images of associated indicators the metrics (Table-6) of Spearman"s Rho prepared from the absolute values appeared in the table-3, 4, and 5. The levels and strength of mirror images of the Asian and South East Asian, South Asian revealing minor dis-concordances The associated variables rich files, visibility, size, world ranks of webs of institutions of Asian, South East Asian, in South Asian contexts do not reveals any significant differences in the level of mirror images. Though, the association created weak image as the procedure of data collection there can not have negative association and thus any association should not create negative image on global rank. In contradiction to logic of association revealed by the statistical images of South Asian Institutes showed (table-7) negative images may create lot of questions regarding the scholars and visibility dimension. Hence, the study has revealed the fact that in developing web for institution in South Asia, the institutions needs to consider the

factor of visibility and the scholar dimensions of web development. Images Decomposition and Contrasts (in the Table-7)-

- Size and World Ranks: South Asian image is better that the Asia‟s Aggregate Image followed by South East Asian Top 100 Institutions.
- Visibility and World Ranks: Web of 100 webs more visible than South East Asian Top 100 Websites, followed by Asian top 100.
- Rich files and World Ranks: South Asian Top 100 Webs are creating better image than the Asian top-100 webs followed by South East Asian Top-100.
- Scholars and World Ranks: South East Asian Web reveling better image in the web ranks than South Asia. Asian Aggregate Image is far lower than South East Asian Top-100 institutions.
- Visibility and Size: Asian Top-100 created lower images than that of Asia. South East Asian images in top among the three categories.
- Rich Files and Size: South East Asian Institutions created stronger image compared to aggregate continental group.
- Web ranks image of South Asian Top-100 are lowest in the case of scholars size; scholars scholastic contents posted in the webs; scholars visibility; and rich files and scholars.

7. Implications and Limitations

Considering embedded educational missions of the continent-Asia in the recent years and the positions of Asian institutions in the global education map at present this reflections analysis on various web content dimensions may serve as the foundation for perceptive conclusion in the macro-context of educational and technology integration in Asia. Secondly, the question arises for internationalization of higher education as educational institutions need to think about internationalization to survive in the competitive world. Internationalization is increasingly integrated into institutional strategies; it is becoming essential for universities to be able to define their rationales and approaches in the international effort, to assess performance according to different strategic objectives and to understand how they compare to their competitors[15]. The task is a complex one since it is not only an issue of academic programmes and partnerships but also involves key organizational aspects such as governance, operations and human resources[16]. All these are reflected in the quality of website of university. The web rank is the micro-image and the ranks of the image of the country‟s institutions may be considered as macro image.

By observing the contrast of macro images through the webometric ranked relations of South Asian educational institutions, it would be easy to conclude about need for benchmarking of higher educational institutions through the institutional web innovation. This benchmarking would be more relevant for the South Asian knowledge giant‟s (India) as well as South Asia to attempt to posit them as an educational hub. The webometric indicators analyzed here indirectly reflecting Kempner‟s questions. Contextualizing the South Asian educations and the ranks of the universities webs, it became possible to understand the future state of performance benchmarks[17] of web content development of academic institution of this region. The result reflected in the study indicates that the South Asian education would not be able make more progress unless it does not follow the benchmarked institutional web reflection practices of other regions of Asia

and also the continental average practices. In this academic milieu in Asia, the institutions of South East Asia; say the Singaporean universities are much stronger than the other South East Asian countries. At the same time the aggregate images of universities of ASEAN is better than that of South Asian Web images of universities/institutes.

8. Conclusion

No doubt, the ranked data while it was analyzed for mirror images (Spearman‟s Rho) transforms the micro-data (Ranks of institutional website) to an aggregate level. It may confuse the reader as well as the policy makers and also to web developers. In the case of South Asia, the ranked data on the web of Indian Institutes, hence, the study is revealing a macro picture of core leading country of South Asia, i.e. India in academic and educational façade. Hence, any possible level of implications of the study would have parallel influence on India and the other countries of the regions as well[18]. This study may be useful for B-schools and to even individual departments of any university those aim to stay on the scuttle of competition. The present study suggests South Asian as well as Indian institutions to take care of the aspects of scholars‟ size; scholars‟ scholastic contents posted in the webs; scholars‟ visibility; and finally rich files if they want to stand in the cue of global academic and knowledge competitions. These findings are almost similar to the earlier study made by the author on India and South Asian context[19]. Thus, it suggests web innovation for academic institutions in India and South Asia as a whole. If they really want to contribute to the aim of developing the region as an educational hub of the world, there is no time to maintain a self complacency for web development by the South Asian institutions. The institutions of India as well as South Asia must proceed by removing embedded complacency for web development of institutes and as a whole of the ICT progress in the country. Instead of self complacency South Asian institute must move more carefully by displaying a demonstrable intellectual prowess of any institutions and stock of intellectual capital of a institute substantiating to findings of the earlier work of Barman (2011).

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Webs and Data Sources

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- http://www.education-benchmarking.org/

Exhibits-

Table-1

Universities/Institutions	**Data (All Ranks)**
Top 100-Asian Universities Top 100-South East Asian Universities Top 100-South Asian Universities	World Ranks
	Continent Ranks
	Positional Variables • Size • Visibility • Rich Files • Scholars

Table-2

	South East Asian Institutions	**South Asian Institutions**	**Asian Institutions**
N	100	100	100
Kendall's W (Coefficient of Concordance)	0.125	0.236	0.186
Chi-Square	49.983	94.496	55.805
df	4	4	3
Asymp. Sig.	.000	.000	.000

Table-3
Strength of Association Ranked Cyber Metric indicators of South Asian Universities

		WORLD RANK	SIZE	VISIBILITY	RICH FILES	SCHOLAR
WORLD RANK	*Spearman's Rho*	1.000				
	Sig. (2-tailed)	.				
SIZE	*Spearman's Rho*	**.722**	1.000			
	Sig. (2-tailed)	.000	.			
VISIBILITY	*Spearman's Rho*	**.584**	**.589**	1.000		
	Sig. (2-tailed)	.000	.000	.		
RICH FILES	*Spearman's Rho*	**.768**	**.599**	**.498**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.	
SCHOLAR	*Spearman's Rho*	**.602**	**.155**	**-.019**	**.223**	1.000
	Sig. (2-tailed)	.000	.124	.853	.025	.

** Correlation is significant at the .01 level (2-tailed).

Table-4
Strength of Association of Ranked Cyber Metric indicators of South East Asian Universities

	N=100	WORLD RANK	SIZE	VISIBILITY	RICH FILES	SCHOLAR
WORLD RANK	Spearman˝s Rho	1.000				
	Sig. (2-tailed)	.				
SIZE	Spearman˝s Rho	.702	1.000			
	Sig. (2-tailed)	.000	.			
VISIBILITY	Spearman˝s Rho	.736	.635	1.000		
	Sig. (2-tailed)	.000	.000	.		
RICH FILES	Spearman˝s Rho	.711	.743	.639	1.000	
	Sig. (2-tailed)	.000	.000	.000	.	
SCHOLAR	Spearman˝s Rho	.772	.247	.353	.242	1.000
	Sig. (2-tailed)	.000	.013	.000	.015	.

* Correlation is significant at the .05 level (2-tailed).

Table-5
Strength of Association of Ranked Cyber Metric Indicators of Asian Universities

	N=100	WORLD RANK	SIZE	VISIBILITY	RICH FILES	SCHOLAR
WORLD RANK	Spearman˝s Rho	**1.000**				
	Sig. (2-tailed)	.				
SIZE	Spearman˝s Rho	.718	**1.000**			
	Sig. (2-tailed)	.000	.			
VISIBILITY	Spearman˝s Rho	.857	.573	**1.000**		
	Sig. (2-tailed)	.000	.000	.		
RICH FILES	Spearman˝s Rho	.737	**.550**	**.518**	**1.000**	
	Sig. (2-tailed)	.000	.000	.000	.	
SCHOLAR	Spearman˝s Rho	.538	.344	.252	.263	**1.000**
	Sig. (2-tailed)	.000	.000	.011	.008	.

*** Correlation is significant at the .01 level (2-tailed).*

Table-6
Metrics of Mirror Image of Asian Top 100, South East Asian and South Asian Web Ranks of Universities

		WORLD RANK	SIZE	VISIBILITY	RICH FILES	SCHOLAR
WORLD RANK	Spearman's Rho	**1.000**				
SIZE	Spearman's Rho	*0.718 (0.**722**) [.702]	**1.000**			
VISIBILITY	Spearman's Rho	*0.857 (0.**584**) [0.736]	*0.573 (0.**584**) [**0**.635]	**1.000**		

RICH FILES	Spearman's Rho	*0.737 (0.**768**) [**0**.711]	***0.550** **(0.768)** **[0.518]***	***0.518** **(0.498)** [**0**.639]	**1.000**	
SCHOLAR	Spearman's Rho	*0.538 (0.**602**) [**0**.772]	*0.344 (0.**155**) [**0**.252]	*0.252 (**-0.019**) [**0**.353]	*0.263 (0.**223**) [0.242]	**1.000**

Values in the parentheses are Spearman's Rho of Asian Web Ranks of indicators

Table-7
Metrics of Mirror Image of Asian Top 100, South East Asian and South Asian Web Ranks of Universities

Associated Variables/ Mirror images	Spearman's Rho	Interpretations	Acceptance and rejection
SIZE & WORLD RANKS	*0.718 (0.**722**) [**.**702]	*Webs of Asian Universities context, significant and strong mirror image (South Asian Context significant and strong mirror image) [South East Asian context significant and strong mirror image]	H_{03} Accepted
VISIBILITY & WORLD RANKS	*0.857 (0.**584**) [0.736]	*Webs of Asian Universities context, significant and very strong mirror image (South Asian Context significant and relatively strong mirror Image) [South East Asian context significant and strong mirror image]	H_{03} Accepted
RICH FILES & WORLD RANKS	*0.737 (0.**768**) [**0**.711]	*Webs of Asian Universities context, Significant and strong mirror image (South Asian Context Significant and strong mirror Image) [South East Asian context significant and strong mirror image]	H_{03} Accepted
SCHOLAR & WORLD RANKS	*0.538 (0.**602**) [**0**.772]	*Webs of Asian Universities context, significant and relatively strong mirror image (South Asian context significant and strong mirror Image) [South East Asian context significant and strong mirror image]	H_{03} Accepted
VISIBILITY & SIZE	*0.573 (0.**584**) [**0**.635]	*Webs of Asian Universities context, significant and relatively strong mirror image (South Asian context Significant and relatively strong mirror image) [South East Asian context significant and strong mirror image]	H_{03} Accepted
RICH FILES &SIZE	***0.550** **(0.768)** **[0.518]***	*Webs of Asian Universities Significant and relatively strong mirror image (South Asian context Significant and Strong mirror image) [South East Asian context significant and strong mirror image]	H_{03} Accepted
SCHOLAR & SIZE	*0.344 (0.**155**) [**0**.252]	*Webs of Asian Universities context Significant and weak mirror image (South Asian context Significant and weakest mirror image) [South East Asian context significant and weak mirror image]	H_{03} Accepted
RICH FILES & VISIBILITY	***0.518** **(0.498)** [**0**.639]	*Webs of Asian Universities context significant and relatively strong mirror image (South Asian context significant and weak mirror image) [South East Asian context significant and strong mirror image]	H_{03} Accepted
SCHOLAR & VISIBILITY	*0.252 (**-0.019**) [**0**.353]	*Webs of Asian Universities context significant and weak mirror image (South Asian context insignificant but negative mirror image) [South East Asian context significant and weak mirror image]	H_{03} Rejected
RICH FILES & SCHOLARS	*0.263 (0.**223**) [0.242]	*Webs of Asian Universities context, significant and weak mirror image (South Asian context significant but weak mirror Image) [South East Asian context significant and weak mirror image]	H_{03} Accepted

Figures- *Asian; [South East Asian]; (South Asian)
Values in the parentheses are Spearman's Rho of Asian Web Ranks of indicators[18]