Open University Malaysia

Research Needs Assessment Study

Research Inclination Among OUM Academics

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Presentation Outline

1   Objectives of the Study

2   Research Methodology

3   Key Findings

4   Recommendations for way forward

Objectives of Study

#1 To study OUM academics' needs in conducting research	#2 To determine differences in research inclination among the 3 Academic Clusters
#3 To ascertain factors which influence research inclination among OUM academics	#4 To suggest way forward for improving OUM's research capacity among academics

Research Methodology

Research design – survey research using mixed-method typology via a questionnaire with both closed-ended and open-ended response questions

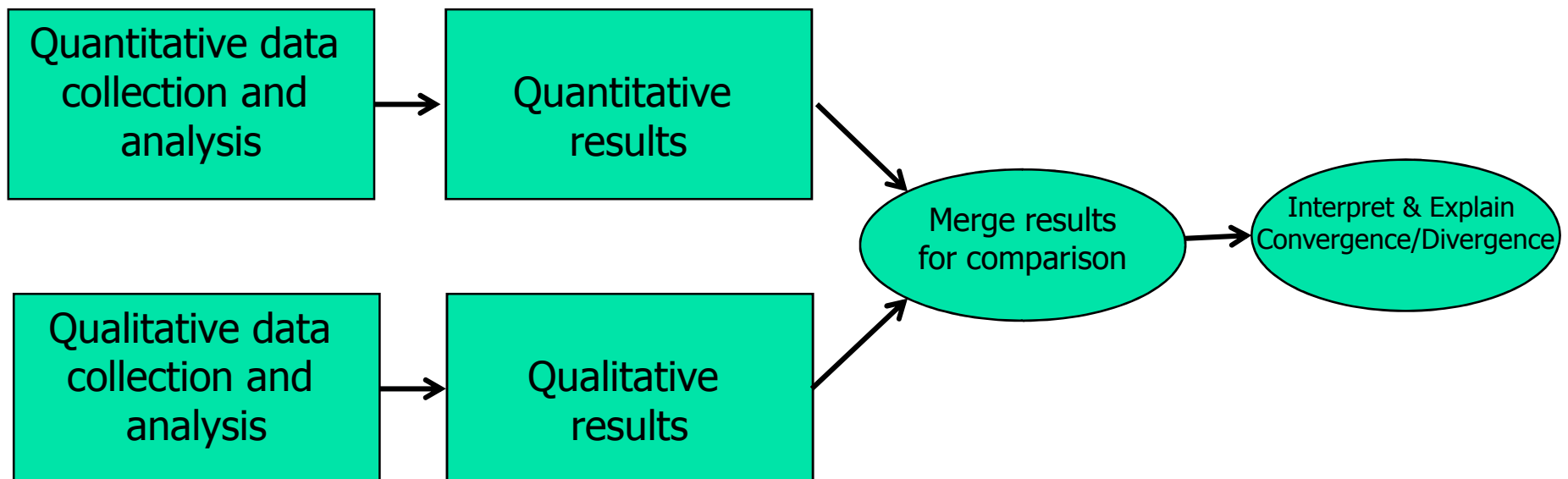Web-based research via Survey Monkey to all academics in OUM including top level management

Mixed method research design with higher weightage on quantitative indicators while qualitative indicators support quantitative findings

Data analysis via SPSS Statistics, SPSS AMOS and SPSS Text Analytics for Surveys

Research Methodology

- Convergent parallel mixed-method design (after Creswell, 2015)

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┌─────────────────┐     ┌─────────────────┐
│ Quantitative data│     │                 │
│ collection and   │ ──▶ │ Quantitative    │
│ analysis         │     │ results         │
└─────────────────┘     └─────────────────┘
                                              ╲
                                               ╲     ⬭ Merge results ⬭     ⬭ Interpret & Explain ⬭
                                                ▶   for comparison    ──▶  Convergence/Divergence
                                               ╱
┌─────────────────┐     ┌─────────────────┐   ╱
│ Qualitative data │     │                 │
│ collection and   │ ──▶ │ Qualitative     │
│ analysis         │     │ results         │
└─────────────────┘     └─────────────────┘
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Steps: Convergent Parallel Design

Step 1

Design the Quantitative Strand
- Collect the Quantitative Data via closed-ended questions in questionnaire

and

Design the Qualitative Strand
- Collect the Qualitative Data via open-ended response questions in questionnaire

Step 2

Analyse the Quantitative Data:
- Analyse the quantitative data using descriptive statistics, reliability analysis, structural equation modeling for validity analysis and other inferential statistics

and

Analyse the Qualitative Data:
- Analyse the qualitative data using procedures of theme development and categorisation based on grounded theories

Step 3

Use Strategies to Merge the Two Sets of Results:
- Identify content areas represented in both data sets and compare, contrast, and/or synthesise the results in a discussion or table
- Identify differences within one set of results based on dimensions within the other set and examine the differences within a display organised by the dimensions
- Develop procedures to transform one type of result into the other type of data (e.g. turn themes into counts). Conduct further analyses to relate the transformed data to the other data (e.g. conduct statistical analyses that include the thematic counts)

Step 4

Interpret the Merged Results:
- Summarise and interpret the separate results
- Discuss to what extent and in what ways results from the two types of data converge, diverge, relate to each other, and/or produce a more complete understanding

Adapted from Creswell & Plano Clark, 2011, p.79

Key Findings

- A total of 42 academics participated in this survey.
- Distribution by Cluster and Academic Position.

Name of Cluster * Academic Position Crosstabulation

			Academic Position				Total
			Lecturer	Senior Lecturer	Associate Professor	Professor	
Name of Cluster	Education & Social Science	Count	4	4	3	0	11
		% within Name of Cluster	36.4%	36.4%	27.3%	0.0%	100.0%
		% within Academic Position	36.4%	21.1%	33.3%	0.0%	26.2%
	Business & Management	Count	4	9	3	3	19
		% within Name of Cluster	21.1%	47.4%	15.8%	15.8%	100.0%
		% within Academic Position	36.4%	47.4%	33.3%	100.0%	45.2%
	Allied Sciences	Count	3	6	3	0	12
		% within Name of Cluster	25.0%	50.0%	25.0%	0.0%	100.0%
		% within Academic Position	27.3%	31.6%	33.3%	0.0%	28.6%
Total		Count	11	19	9	3	42
		% within Name of Cluster	26.2%	45.2%	21.4%	7.1%	100.0%
		% within Academic Position	100.0%	100.0%	100.0%	100.0%	100.0%

Key Findings

- **How reliable is the survey?**

Reliability for
Research Knowledge
& Skills Construct

Reliability for
Management of
Research Construct

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.900	.900	10

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.668	.694	12

Key Findings

- **How valid is the study?**
  - SEM Two-Step Approach used to determine construct validity.
  - Acceptable Comparative Fix Index (.713) and RMSEA (.150; p <.05).
 - Study is valid based on empirical evidence.
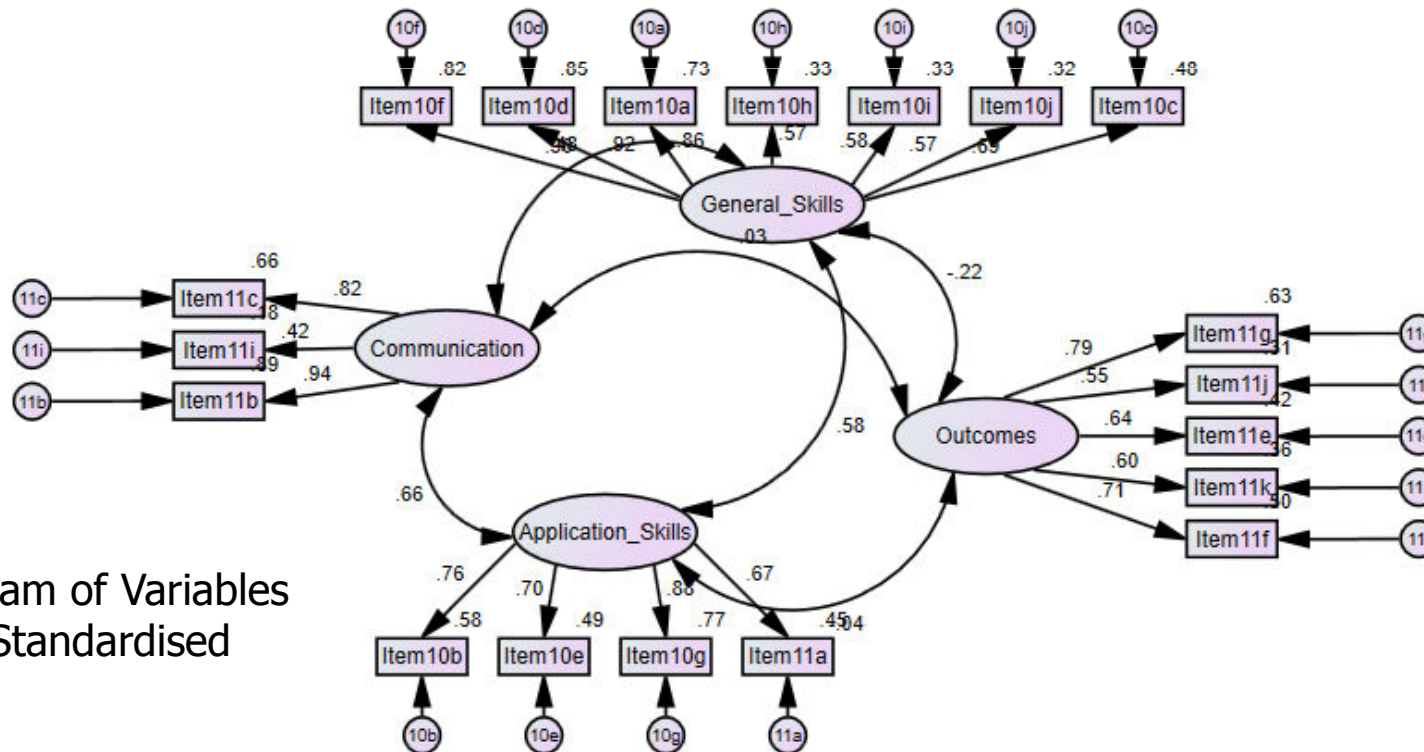
Path Diagram of Variables based on Standardised Measures

Key Findings

- **What are the factors which determine research inclination among OUM academics?**
  - Using exploratory factor analysis, the findings show 4 main factors affecting research inclination in OUM.

Scree plot showing factors

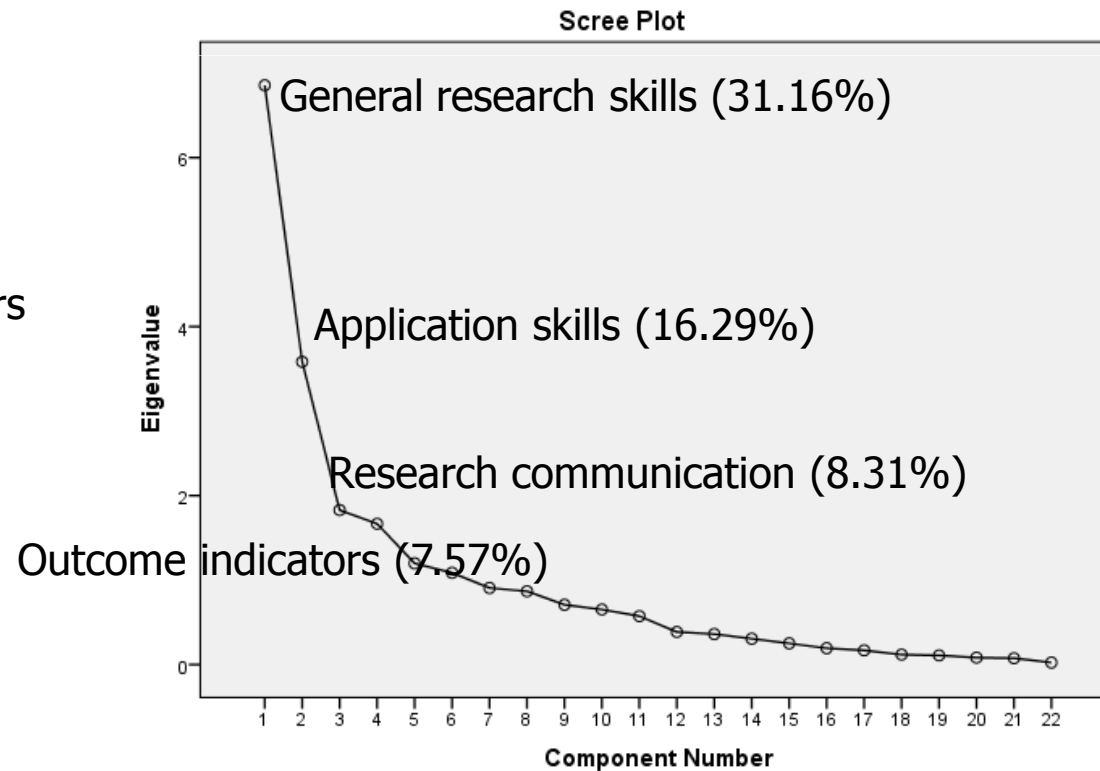4 Main Factors Affecting Research Inclination

10
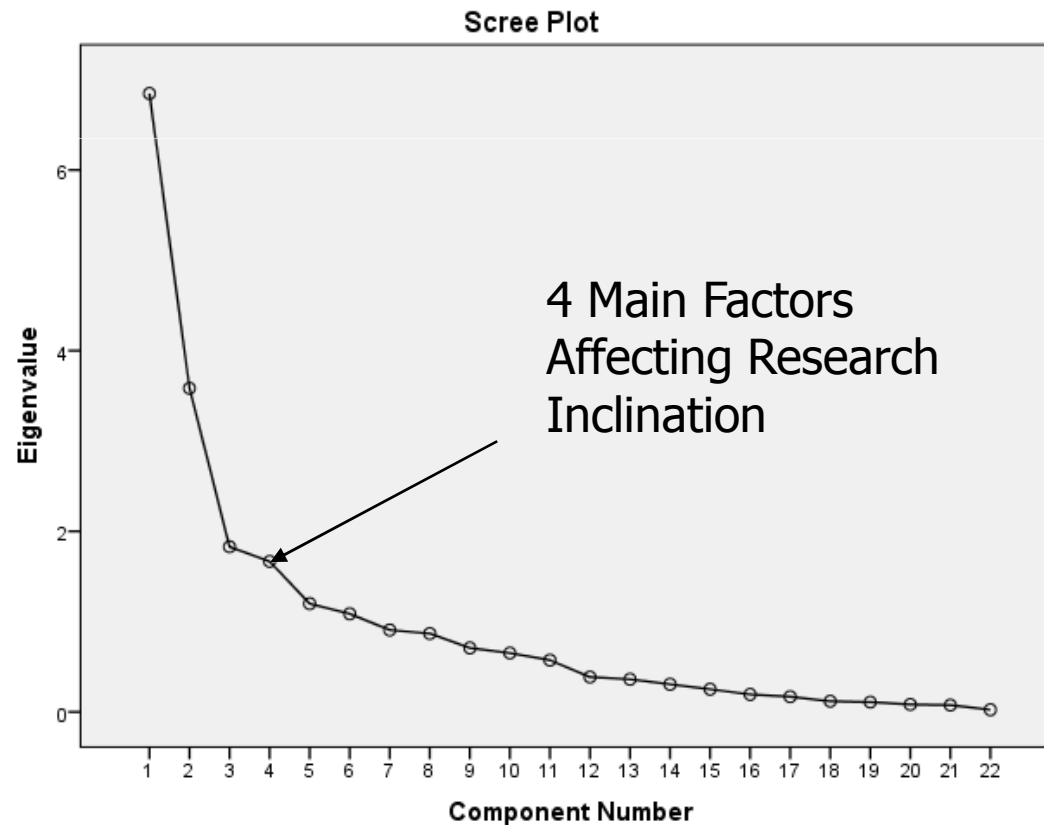
Key Findings

- **Factors affecting research in OUM:**
  - General research skills
  - Application skills
  - Research communication
  - Outcome indicators

Scree plot
showing factors

Scree Plot

General research skills (31.16%)

Application skills (16.29%)

Research communication (8.31%)

Outcome indicators (7.57%)

Key Findings

- **What is the contribution of each of these 4 factors?**
  - Factor 1 (General research skills): 31.164%
  - Factor 2 (Application skills): 16.288%
  - Factor 3 (Research communication): 8.313%
  - Factor 4 (Outcome indicators): 7.572%

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.856	31.164	31.164	6.856	31.164	31.164	4.653	21.149	21.149
2	3.583	16.288	47.452	3.583	16.288	47.452	3.324	15.109	36.258
3	1.829	8.313	55.765	1.829	8.313	55.765	3.186	14.481	50.739
4	1.666	7.572	63.337	1.666	7.572	63.337	2.088	9.489	60.228
5	1.199	5.449	68.786	1.199	5.449	68.786	1.507	6.850	67.078
6	1.086	4.937	73.723	1.086	4.937	73.723	1.462	6.645	73.723

Extraction Method: Principal Component Analysis.

Key Findings

- **Do the 3 Clusters have different capacities in doing research?**
  - No – differences were not significant (p > .05) determined via oneway ANOVA test.
  - Academics have a tendency to indicate that they "know how to do research" – above mid-value of 3 (based on 5-point Likert-type scale).
  - But these were slightly above average. Much needs to be done in capacity building of research competency among academics.
  - Findings based on Skills and Management elements.

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Composite Mean for B10 Items	Education & Social Science	11	3.5182	.57934	.17468	3.1290	3.9074	2.00	4.20
	Business & Management	19	3.3947	.70433	.16158	3.0553	3.7342	2.10	4.50
	Allied Sciences	12	3.4583	.49810	.14379	3.1419	3.7748	2.40	4.00
	Total	42	3.4452	.60735	.09372	3.2560	3.6345	2.00	4.50
Composite Mean for B11 Items	Education & Social Science	11	3.7045	.36010	.10857	3.4626	3.9465	3.00	4.25
	Business & Management	19	3.6316	.45839	.10516	3.4106	3.8525	2.92	4.42
	Allied Sciences	12	3.5903	.27400	.07910	3.4162	3.7644	3.25	4.08
	Total	42	3.6389	.38196	.05894	3.5199	3.7579	2.92	4.42

Key Findings

- **Do the 3 Clusters have different capacities in doing research?**
  - Individual Items on Research Knowledge & Skills Construct

Report

Name of Cluster		I possess quantitative research methodology ability.	I possess qualitative research methodology ability.	I possess mixed method research methodology ability.	I am able to generate quantitative analysis output using software application.	I am able to generate qualitative analysis output using software application.	I am able to interpret statistical outputs from research data.	I am able to interpret qualitative-based outputs from research data.	I am confident in writing academic research report.	I possess skills in institutional research.	I am confident in publishing in renowned journals for my research work.
Allied Sciences	Mean	3.75	3.42	3.42	3.58	3.25	3.58	3.33	3.75	3.42	3.08
	N	12	12	12	12	12	12	12	12	12	12
	Std. Deviation	.452	.793	.669	.515	.866	.669	.778	.754	.996	.793
Business & Management	Mean	3.63	3.26	3.26	3.42	2.79	3.58	3.37	3.68	3.42	3.53
	N	19	19	19	19	19	19	19	19	19	19
	Std. Deviation	1.212	.806	1.046	1.170	.787	1.017	.761	.671	.902	.841
Education & Social Science	Mean	3.18	3.82	3.45	3.27	3.27	3.36	3.73	3.91	3.64	3.55
	N	11	11	11	11	11	11	11	11	11	11
	Std. Deviation	.603	.751	.688	.786	.786	.809	.647	.831	.809	.820
Total	Mean	3.55	3.45	3.36	3.43	3.05	3.52	3.45	3.76	3.48	3.40
	N	42	42	42	42	42	42	42	42	42	42
	Std. Deviation	.916	.803	.850	.914	.825	.862	.739	.726	.890	.828

Key Findings

- **Do the 3 Clusters have different capacities in doing research?**
 - Individual Items on Management of Research Construct

Report

Name of Cluster		I am able to undertake budget planning for research activities.	I can achieve research outcomes based on the timelines given.	I am able to complete the research project according to the milestones proposed.	Much of my time is taken up for assessment work.	I have difficulty in allocating time for research.	I need more exposure for research-related activities.	I need to attend conferences to put forth my research findings.	I receive sufficient budget allocation to finance my research work.	I feel that promotion opportunities should be based on research work undertaken.	I am interested in undertaking Online and Distance Learning research activities.	I am interested in consultancy work outside the university.	I feel that innovative ideas should be shared with the learning community.
Allied Sciences	Mean	3.42	2.92	3.00	4.08	3.92	4.25	4.08	2.50	3.00	4.00	3.42	4.50
	N	12	12	12	12	12	12	12	12	12	12	12	12
	Std. Deviation	.669	.669	.739	.669	.669	.452	.515	.798	1.128	.603	.793	.522
Business & Management	Mean	3.58	3.37	3.47	3.68	3.95	3.89	4.05	2.58	3.05	3.79	3.79	4.37
	N	19	19	19	19	19	19	19	19	19	19	19	19
	Std. Deviation	.902	.684	.772	.946	1.079	.937	.848	1.170	1.079	.918	.918	.684
Education & Social Science	Mean	3.45	3.55	3.18	4.18	4.36	3.82	4.27	2.91	2.82	3.82	3.82	4.27
	N	11	11	11	11	11	11	11	11	11	11	11	11
	Std. Deviation	.688	.688	.874	.874	.809	.874	.647	.701	.982	.603	.603	.786
Total	Mean	3.50	3.29	3.26	3.93	4.05	3.98	4.12	2.64	2.98	3.86	3.69	4.38
	N	42	42	42	42	42	42	42	42	42	42	42	42
	Std. Deviation	.773	.708	.798	.867	.909	.811	.705	.958	1.047	.751	.811	.661

Key Findings

- **Do research skills predict management ability and vice versa?**

    - Yes, prediction is significant ($p < .05$) based on regression analysis. Linear relationship between these 2 variables.

    - Contribution of management ability to research skills is 10.8%

R^2 Linear = 0.108

$y=1.54+0.52*x$

Composite Mean for B10 Items

Composite Mean for B11 Items
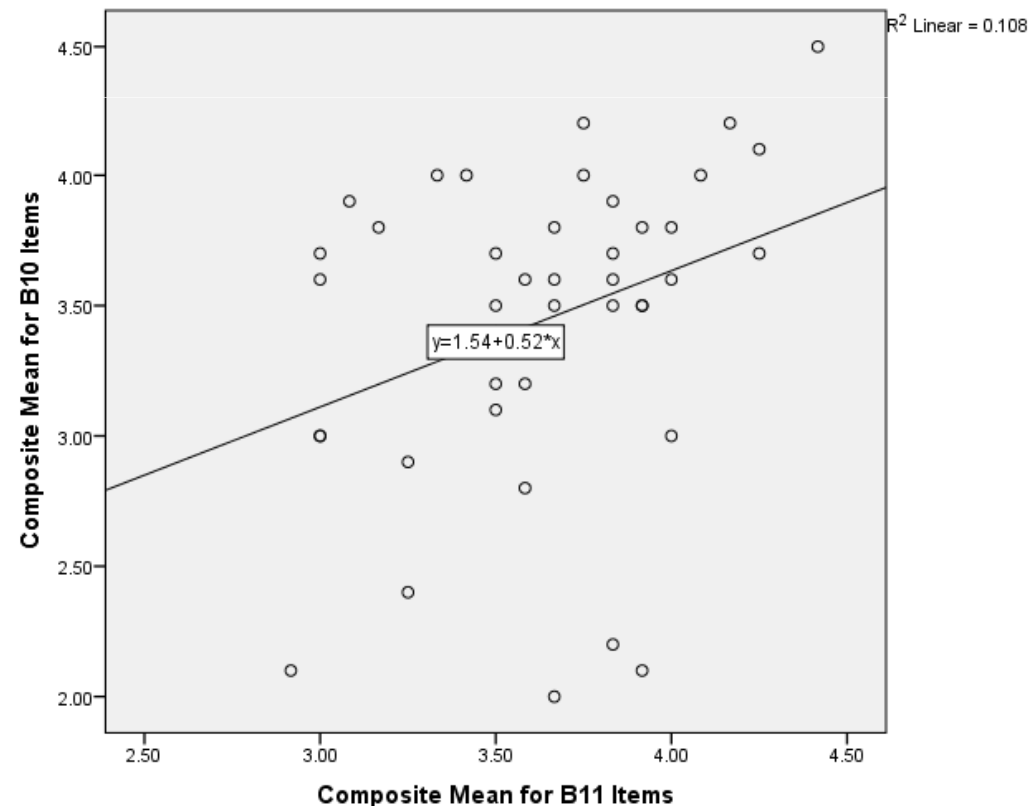
Key Findings

- **Is there is correlation between research skills and management effects?**
  - Yes – positive and significant correlation ($p < .05$). However correlation coefficient "not that high".

Correlations

		Composite Mean for B10 Items	Composite Mean for B11 Items
Composite Mean for B10 Items	Pearson Correlation	1	.329[*]
	Sig. (2-tailed)		.033
	N	42	42
Composite Mean for B11 Items	Pearson Correlation	.329[*]	1
	Sig. (2-tailed)	.033	
	N	42	42

*. Correlation is significant at the 0.05 level (2-tailed).

Key Findings

- **What is the level of correlations between the 4 factors identified in study?**
    - Mixed results – 4 positive pairs of correlations and 2 negative pairs of correlations
    - Negative correlations (high in one construct, low in the other and vice versa):
        - Factor 1 (General research skills) and Factor 3 (Communication): - .105 (p > .05)
        - Factor 2 (Application skills) and Factor 3 (Communication): - .020 (p > .05)

Correlations

		Factor Analysis Composite Mean for Factor 1	Factor Analysis Composite Mean for Factor 2	Factor Analysis Composite Mean for Factor 3	Factor Analysis Composite Mean for Factor 4
Factor Analysis Composite Mean for Factor 1	Pearson Correlation	1	.760**	-.105	.530**
	Sig. (2-tailed)		.000	.509	.000
	N	42	42	42	42
Factor Analysis Composite Mean for Factor 2	Pearson Correlation	.760**	1	-.020	.466**
	Sig. (2-tailed)	.000		.901	.002
	N	42	42	42	42
Factor Analysis Composite Mean for Factor 3	Pearson Correlation	-.105	-.020	1	.043
	Sig. (2-tailed)	.509	.901		.788
	N	42	42	42	42
Factor Analysis Composite Mean for Factor 4	Pearson Correlation	.530**	.466**	.043	1
	Sig. (2-tailed)	.000	.002	.788	
	N	42	42	42	42

**. Correlation is significant at the 0.01 level (2-tailed).

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What needs to be done to improve research capacity among OUM academics?

#1 Need for training to enhance research capacity among OUM academics.

Training must be practical-based and relevant to OUM's needs.

#2 Academics must be given opportunity to communicate research findings.

#3 Research must result in good outcomes.

#4 Support from management is necessary to leverage research activities.

Thank You
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