Top Journals in Operations Management and Operations Research

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This study reports on a survey of faculty at top U.S. graduate schools of business to determine their expert views as to the best journals in Operations Management and Operations Research. The author conducted the survey based on an instrument developed by OM/OR faculty members at the Katz Graduate School of Business. To the best of her knowledge, no such ranking based on the judgment of faculty at top business schools exists.

The author chose 25 of the top 27 business schools listed in *U.S. News and World Report: Best Graduate Schools,* 2001 Edition. The Schools surveyed are listed in Appendix 1. Faculty with assistant, associate or full professor rank were identified from the web sites of these schools by searching under departments or research areas such as: Operations; Operations and Technology Management; Decision Sciences; Quantitative; Statistics and Operations Research; Management Science; Information and Operations Management; Operations and Manufacturing; Technology and Innovation; Manufacturing; and the like. Where departments were broader than purely operations management and operations research, the author tried to limit the survey to those in the relevant areas. However, as the author is not in the operations field, she was fairly inclusive at this stage. The sampled faculty members had the option of not responding to the survey if they were not in a position to judge the journals as a consequence of being in a different field.

The names and email addresses of 254 faculty members were identified. Surveys were emailed to those individuals in May 2000 with two follow-ups. The survey instrument is included in Appendix 2. Twelve surveys were returned because of incorrect email addresses; thus 242 surveys presumably reached the addressees. Twenty-three wrote back that they could not respond.[1] There were 88 responses, of which 85 were usable,[2] yielding a usable response rate of 35 percent of the 242 surveyed.[3] At least one faculty member responded from 24 of the 25 schools. The respondents were asked their rank and their research fields. A maximum of two research fields was recorded. The responses

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[1] Of the 23 who said they could not respond: three said they could not access the file and were not interested enough to have a copy faxed to them; 15 said they were not in the field (ten statisticians and five in other areas); two were not active researchers; and three did not have time.

[2] One forgot to attach the survey to his email, one survey was blank and one was not readable.

[3] The total response rate was 111/242 or 46 percent.

are shown in detail in Table 1, but the majority of the respondents were in operations management (68 percent); the second most important area was operations research.

[Insert Table 1 about here]

The survey asked respondents to rate 30 journals in terms of their audience (general academic audience, specialized academic audience and practice) and in terms of their quality ("A" journal, "A-" journal, etc.) on a seven-point scale. As can be seen in Appendix 2, the survey included available information from *Cabell's*[4] on the journals such as circulation, number of external and internal referees, and the like. The list of journals was developed as follows. Members of the Operations, Decision Science and Artificial Intelligence Interest Group of the Katz School were asked to identify journals in their areas. A list of over 100 journals was put together. Then six faculty members of this interest group rated these journals using a survey instrument they developed, which was nearly identical to the one in Appendix 2 but which included over 100 journals rather than 30. Only those journals that were rated by three or more were included in the final list of the 30. Two of the journals included (*AIIE Transactions and Mathematical Programming Study)* are no longer published; these two journals are left out of the results, bringing the list reported on down to 28.[5]

Because the survey instrument sent to faculty at top business schools listed only 30 journals, it was possible that some important journals might have been excluded; therefore, at the end of the survey, respondents were asked to add and rate other journals. Some respondents did include the names of other journals and these are listed in Appendix 3; however, no major journals in the area appear to have been excluded. Few respondents rated all the journals and many commented that they were only rating the journals they knew well.

Results

AUDIENCE RATING

The question on the type of audience did not generate a clearcut classification of the journals on this dimension. Whether a journal is for general academic audiences (ag), for specialized academic audiences (as), or for practitioners (p) is clearly a view that differs by respondent. In the reported results shown in Tables 2 and 3, the last two columns relate to audience. The largest response for audience category is shown in the next to the last column and the percentage that chose that category from all those who rated the audience of that journal is shown in the last column. Where the division was fairly even between two categories, both are shown with the slightly higher category shown first.

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[4] *Cabell's Directory of Publishing Opportunities in Management and Marketing,* 7th Edition, 1997-98.
[5] *AIIE Transactions* became *IIE Transactions,* also included in the survey, in 1981. *Mathematical Programming Study* was discontinued in 1987.

QUALITY OF JOURNAL

Respondents were asked to rate the quality of a journal using the concepts of "A," "B," and "C" journals. An "A" journal was given a score of 1, an "A-" a score of 2, a "B+" a score of 3, and so forth. The mean, median and mode values of the quality rating of each journal were computed as well as the standard deviation of the response and the range. These are shown in Table 2 ranked by the mean score for quality. The complete frequency distributions are also shown in Appendix 4; outliers were not trimmed in this analysis.

[Insert Table 2 about here.]

VISIBILITY OF JOURNALS

No question was specifically asked about the visibility of the journal, but the number of persons who rated the quality of the journal might be considered a proxy for visibility of the journal since respondents generally rated only those journals with which they were familiar. Table 3 shows the results ranked by the number of respondents who rated the quality of the journal. One might assume there is a positive correlation between quality and visibility; and the Spearman's rho test confirms this. The Spearman's rho between the quality and visibility rankings is .608 and is significant at the .001 level for a one-tailed test.

[Insert Table 3 about here.]

The top two journals in terms of both quality and visibility ratings are *Management Science* and *Operations Research;* moreover, most considered these two journals to be for a general audience, particularly *Management Science.* The next four highest rated journals ranked by mean quality score are considered to be for more specialized audiences; these are *Mathematics of Operations Research; Journal of American Statistical Association; Mathematical Programming;* and *Manufacturing and Service Operations.* Perhaps because the survey was limited to 28 well-known journals in the area, no journal had a mean score below "B-."[6]

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[6] A "B-" score is a five and the lowest mean was 4.75.

Table 1

Faculty Rank and Research Areas of the 85 Respondents

Professorial Rank

Full Professor	39 (46%)	
Associate Professor	19 (22%)	
Assistant Professor	26 (31%)	
Missing	1 (1%)	
Total	85 (100%)	

Research Areas	**First**	**Second**
Operations Management	58 (68%)	0 (0%)
Operations Research	14 (16%)	11 (13%)
Decision Analysis	6 (7%)	2 (2%)
Statistics	2 (2%)	1 (1%)
Other fields	3 (4%)	2 (2%)
Missing	3 (4%)	69 (81%)
Total	85 (100%)	85 (100%)

Table 2

Journals Ranked by Mean Quality and then Median Quality

Journal	mean quality	median quality	mode quality	standard deviation	Range	# rating quality	# rating quality as % of total responses	audience rating[1]	# giving this audience type as % of total # rating audience
Operations Research	1.02	1	1	0.16	1	82	96.5	ag	58.7
Management Science	1.09	1	1	0.5	4	85	100	ag	80.8
Mathematics of Operations Research	1.45	1	1	0.76	3	73	85.9	as	89.9
Mathematical Programming	1.68	1	1	1.01	4	63	74.1	as	96.7
Journal of the American Statististical Association	1.68	1	1	1.16	4	53	62.4	as	70.9
Manufacturing and Service Operations Management (INFORMS journal)	1.85	2	1	1.06	4	75	88.2	as	62.9
Naval Research Logistics	2.44	2	2	0.86	4	78	91.8	as/ag	50.7
SIAM Review	2.47	2	1	1.33	5	47	55.3	as	68.1
IIE Transactions	2.5	2	2	0.98	4	68	80	as/ag	52.4
Transportation Science	2.52	2	2	1.05	4	60	70.6	as	88.1
Interfaces	2.58	2	2	1.22	6	79	92.9	p	78.9
INFORMS Journal on Computing	2.71	2	2	1.35	6	48	56.5	as	89.8
Operations Research Letters	2.72	3	3	1.19	6	71	83.5	ag	55.4
Networks	2.83	3	2	1.26	5	41	48.2	as	92.5
Annals of Operations Research	2.89	3	3	1.13	5	64	75.3	as	65
European Journal of Operational Research	3	3	3	0.92	4	81	95.3	ag	61.8
Production and Operations Management	3.2	3	3	1.05	6	71	83.5	as	61.5
Journal of Operations Management	3.22	3	3	1.22	5	65	76.5	as	58.1
Journal of the Operational Research Society	3.25	3	3,4	1.18	5	64	75.3	ag/as	52.6
Decision Sciences	3.54	4	4	1.31	6	72	84.7	ag	66.7
Computers and Operations Research	4.07	4	4	1.14	5	45	52.9	as	75.6
Mathematical and Computer Modelling	4.09	4	4	1.38	6	34	40	as	87.2
International Journal of Production Research	4.18	4	4	1	4	57	67.1	as	63.6
International Journal of Production Economics	4.31	4	4	1.16	5	51	60	as	62.5
Decision Support Systems	4.37	4	4	1.13	5	43	50.6	as	88.1
Computers and Industrial Engineering	4.49	4	4	1.07	4	39	45.9	as	72.5
Omega	4.5	4	4	1.22	5	54	63.5	ag/as	52
American Journal of Mathematical and Management Sciences	4.75	5	4,5	1.5	5	32	37.6	as	71

[1]The audience of the journal is classified into ag, as or p if more than 50% of those rating the audience gave it that classification.

Table 3

Journals Ranked by Number Who Rated Quality

Journal	mean quality	median quality	mode quality	standard deviation	Range	# rating quality	# rating quality as % of total responses	audience rating[1]	# giving this audience type as % of total # rating audience
Management Science	1.09	1	1	0.5	4	85	100	ag	80.8
Operations Research	1.02	1	1	0.16	1	82	96.5	ag	58.7
European Journal of Operational Research	3	3	3	0.92	4	81	95.3	ag	61.8
Interfaces	2.58	2	2	1.22	6	79	92.9	p	78.9
Naval Research Logistics	2.44	2	2	0.86	4	78	91.8	as/ag	50.7
Manufacturing and Service Operations Management (INFORMS journal)	1.85	2	1	1.06	4	75	88.2	as	62.9
Mathematics of Operations Research	1.45	1	1	0.76	3	73	85.9	as	89.9
Decision Sciences	3.54	4	4	1.31	6	72	84.7	ag	66.7
Operations Research Letters	2.72	3	3	1.19	6	71	83.5	ag	55.4
Production and Operations Management	3.2	3	3	1.05	6	71	83.5	as	61.5
IIE Transactions	2.5	2	2	0.98	4	68	80	as/ag	52.4
Journal of Operations Management	3.22	3	3	1.22	5	65	76.5	as	58.1
Annals of Operations Research	2.89	3	3	1.13	5	64	75.3	as	65
Journal of the Operational Research Society	3.25	3	3,4	1.18	5	64	75.3	ag/as	52.6
Mathematical Programming	1.68	1	1	1.01	4	63	74.1	as	96.7
Transportation Science	2.52	2	2	1.05	4	60	70.6	as	88.1
International Journal of Production Research	4.18	4	4	1	4	57	67.1	as	63.6
Omega	4.5	4	4	1.22	5	54	63.5	ag/as	52
Journal of the American Statistictical Association	1.68	1	1	1.16	4	53	62.4	as	70.9
International Journal of Production Economics	4.31	4	4	1.16	5	51	60	as	62.5
INFORMS Journal on Computing	2.71	2	2	1.35	6	48	56.5	as	89.8
SIAM Review	2.47	2	1	1.33	5	47	55.3	as	68.1
Computers and Operations Research	4.07	4	4	1.14	5	45	52.9	as	75.6
Decision Support Systems	4.37	4	4	1.13	5	43	50.6	as	88.1
Networks	2.83	3	2	1.26	5	41	48.2	as	92.5
Computers and Industrial Engineering	4.49	4	4	1.07	4	39	45.9	as	72.5
Mathematical and Computer Modelling	4.09	4	4	1.38	6	34	40	as	87.2
American Journal of Mathematical and Management Sciences	4.75	5	4,5	1.5	5	32	37.6	as	71

[1]**The audience of the journal is classified into ag, as or p if more than 50% of those rating the audience gave it that classification.**

Appendix 1

Business Schools Surveyed
in alphabetical order

Carnegie Mellon University
Columbia University
Cornell University (Johnson)
Duke University (Fuqua)
Emory University (Goizueta)*
Harvard University
Indiana University--Bloomington (Kelley)
Massachusetts Institute of Technology (Sloan)
New York University (Stern)
Northwestern University (Kellogg)
Ohio State University (Fisher)
Purdue University--West Lafayette (Krannert)
Stanford University
University of California--Los Angeles (Anderson)
University of California--Berkeley (Haas)
University of Chicago
University of Michigan--Ann Arbor
University of Pennsylvania (Wharton)
University of Rochester (Simon)
University of Southern California (Marshall)
University of Texas (Austin)
University of Virginia (Darden)
Vanderbilt University (Owen)
Washington University in St. Lousi (Olin)
Yale University

*No one responded from this school

Source: These are 25 of the top 27 business schools in *US News and World Report Best Graduate Schools,* 2001 Edition.

	A	B	C	D	E	F	G	H
1		B	C	D	E	**F**		
2								
3		**Appendix 2**						
4								
5		**Survey Instrument**						
6								
7		KATZ SCHOOL SURVEY OF JOURNALS						
8	**Please indicate your primary research area(s) in column F: 1--Operations Management; 2--Operations Research; 3--Statistics; 4--Artificial Intelligence; 5--Decision Analysis; 6--Other (Please specify).**							
9	**Please indicate your faculty rank in column F: 1--Full Professor; 2--Associate Professor; 3--Assistant Professor; 4--Other (Please specify).**							
10	*Please rate the journals below first for audience and then for quality.* *Audience* **(column B): AG--Academic General; AS--Academic Specialized; and P--Practice.** *Quality on a 7 point scale* **(column C)***:* **1--denotes A or the very top journals; 2--denotes A- journals; 3--denotes B+ journals; 4--denotes B journals; 5--denotes B- journals; 6--denotes C+ journals; 7--denotes C or lower.**							
11		**B**	**C**					
12	**Journal**	**"Audience" rating**	**Quality rating**	**Circulation**	**Number of External Referees**	**Number of Internal Referees**	**Frequency**	**Accept-ance rate**
13	AIIE Transactions			not disclosed				
14	American Journal of Mathematical and Management Sciences			not disclosed				
15	Annals of Operations Research			not disclosed				
16	Computers and Industrial Engineering			1000				
17	Computers and Operations Research			1000	2	0	Monthly	40%
18	Decision Sciences			4000	2	2	Quarterly	11-20%
19	Decision Support Systems			not disclosed				
20	European Journal of Operations Research			1001-2000	2	0	Bi-monthly	21-30%
21	IIE Transactions			no listing				
22	INFORMS Journal on Computing			1125				

	A	B	C	D	E	F	G	H
23	Interfaces			5001-10000	2	1	Bi-monthly	21-30%
24	International Journal of Production Economics							
25	International Journal of Production Research			not disclosed	2	3	Monthly	0.5
26	Journal of American Statistical Association			12000				
27	Journal of Operations Management			1000	3	2	Quarterly	11-20%
28	Journal of the Operations Research Society			not disclosed				
29	Management Science			5001-10000	3	0	Monthly	11-20%
30	Manufacturing and Service Operations Management (INFORMS journal)							
31	Mathematical and Computer Modelling			1001-2000	2	1	Bi-monthly	21-30%
32	Mathematics of Operations Research			3001-4000	2	0	Quarterly	21-30%
33	Mathematical Programming			not disclosed				
34	Mathematical Programming Study			not disclosed				
35	Naval Research Logistics (aka NRLQ)			1000				
36	Networks			1000				
37	Omega			1400	2	1	Bi-monthly	21-30%
38	Operations Research			10100	3	1	Bi-monthly	21-30%
39	Operations Research Letters			not disclosed				
40	Production and Operations Management			1200				
41	SIAM Review			10223	> 3	0	Quarterly	0.45
42	Transportation Science			1500	3	2	Quarterly	21-30%
43								
44	**Other Journals (Please specify)**							

Appendix 3

Additional Journals Mentioned by Respondents
Sorted by frequency and then alphabetically

Journal	Number of Responses
Journal of Applied Probability	4
Advances in Applied Probability	2
Annals of Statistics	1
Biometrika	1
Econometrica	1
Information Systems Research	1
International Journal of Flexible Manufacturing Sy	1
Journal of Econometrics	1
Journal of Manufacturing Systems	1
Journal of Product Innovation Management	1
Journal of Quality Technology	1
Journal of Royal Statistical Society	1
Journal of Service Research	1
Operational Research Quarterly	1
Queueing Systems	1
Rand Journal of Economics	1
Scandinavian Journal of Statistics	1

Appendix 4

Frequency Table

American Journal of Mathematical and Management Sciences--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	3.5	9.4	9.4
	3	3	3.5	9.4	18.8
	4	8	9.4	25.0	43.8
	5	8	9.4	25.0	68.8
	6	5	5.9	15.6	84.4
	7	5	5.9	15.6	100.0
	Total	32	37.6	100.0	
Missing	System	53	62.4		
Total		85	100.0		

Annals of Operations Research--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	7.1	9.4	9.4
	2	18	21.2	28.1	37.5
	3	23	27.1	35.9	73.4
	4	13	15.3	20.3	93.8
	5	2	2.4	3.1	96.9
	6	2	2.4	3.1	100.0
	Total	64	75.3	100.0	
Missing	System	21	24.7		
Total		85	100.0		

Computers and Industrial Engineering-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	6	7.1	15.4	15.4
	4	17	20.0	43.6	59.0
	5	9	10.6	23.1	82.1
	6	5	5.9	12.8	94.9
	7	2	2.4	5.1	100.0
	Total	39	45.9	100.0	
Missing	System	46	54.1		
Total		85	100.0		

Computers and Operations Research-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.2	2.2	2.2
	2	2	2.4	4.4	6.7
	3	10	11.8	22.2	28.9
	4	17	20.0	37.8	66.7
	5	10	11.8	22.2	88.9
	6	5	5.9	11.1	100.0
	Total	45	52.9	100.0	
Missing	System	40	47.1		
Total		85	100.0		

Decision Sciences-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	4.7	5.6	5.6
	2	12	14.1	16.7	22.2
	3	17	20.0	23.6	45.8
	4	26	30.6	36.1	81.9
	5	7	8.2	9.7	91.7
	6	5	5.9	6.9	98.6
	7	1	1.2	1.4	100.0
	Total	72	84.7	100.0	
Missing	System	13	15.3		
Total		85	100.0		

Decisions Support Systems-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.2	2.3	2.3
	3	9	10.6	20.9	23.3
	4	14	16.5	32.6	55.8
	5	13	15.3	30.2	86.0
	6	4	4.7	9.3	95.3
	7	2	2.4	4.7	100.0
	Total	43	50.6	100.0	
Missing	System	42	49.4		
Total		85	100.0		

European Journal of Operational Research--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.2	1.2	1.2
	2	26	30.6	32.1	33.3
	3	31	36.5	38.3	71.6
	4	18	21.2	22.2	93.8
	5	5	5.9	6.2	100.0
	Total	81	95.3	100.0	
Missing	System	4	4.7		
Total		85	100.0		

IIE Transactions--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	8.2	10.3	10.3
	2	35	41.2	51.5	61.8
	3	13	15.3	19.1	80.9
	4	11	12.9	16.2	97.1
	5	2	2.4	2.9	100.0
	Total	68	80.0	100.0	
Missing	System	17	20.0		
Total		85	100.0		

INFORMS Journal on Computing-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	9.4	16.7	16.7
	2	18	21.2	37.5	54.2
	3	9	10.6	18.8	72.9
	4	8	9.4	16.7	89.6
	5	4	4.7	8.3	97.9
	7	1	1.2	2.1	100.0
	Total	48	56.5	100.0	
Missing	System	37	43.5		
Total		85	100.0		

Interfaces--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	20.0	21.5	21.5
	2	23	27.1	29.1	50.6
	3	19	22.4	24.1	74.7
	4	18	21.2	22.8	97.5
	5	1	1.2	1.3	98.7
	7	1	1.2	1.3	100.0
	Total	79	92.9	100.0	
Missing	System	6	7.1		
Total		85	100.0		

Int'l Journal of Production Economics--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	2.4	3.9	3.9
	3	10	11.8	19.6	23.5
	4	20	23.5	39.2	62.7
	5	9	10.6	17.6	80.4
	6	9	10.6	17.6	98.0
	7	1	1.2	2.0	100.0
	Total	51	60.0	100.0	
Missing	System	34	40.0		
Total		85	100.0		

Int'l Journal of Production Research-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	3.5	5.3	5.3
	3	9	10.6	15.8	21.1
	4	26	30.6	45.6	66.7
	5	13	15.3	22.8	89.5
	6	6	7.1	10.5	100.0
	Total	57	67.1	100.0	
Missing	System	28	32.9		
Total		85	100.0		

Journal of the American Statistical Association--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	37	43.5	69.8	69.8
	2	4	4.7	7.5	77.4
	3	5	5.9	9.4	86.8
	4	6	7.1	11.3	98.1
	5	1	1.2	1.9	100.0
	Total	53	62.4	100.0	
Missing	System	32	37.6		
Total		85	100.0		

Journal of Operations Management-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	5.9	7.7	7.7
	2	14	16.5	21.5	29.2
	3	19	22.4	29.2	58.5
	4	18	21.2	27.7	86.2
	5	7	8.2	10.8	96.9
	6	2	2.4	3.1	100.0
	Total	65	76.5	100.0	
Missing	System	20	23.5		
Total		85	100.0		

Journal of the Operational Research Society--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	9.4	12.5	12.5
	2	5	5.9	7.8	20.3
	3	22	25.9	34.4	54.7
	4	22	25.9	34.4	89.1
	5	6	7.1	9.4	98.4
	6	1	1.2	1.6	100.0
	Total	64	75.3	100.0	
Missing	System	21	24.7		
Total		85	100.0		

Management Science-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	81	95.3	95.3	95.3
	2	2	2.4	2.4	97.6
	3	1	1.2	1.2	98.8
	5	1	1.2	1.2	100.0
	Total	85	100.0	100.0	

Manufacturing and Service operations Management--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	37	43.5	49.3	49.3
	2	21	24.7	28.0	77.3
	3	10	11.8	13.3	90.7
	4	5	5.9	6.7	97.3
	5	2	2.4	2.7	100.0
	Total	75	88.2	100.0	
Missing	System	10	11.8		
Total		85	100.0		

Mathematical and Computer Modelling--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.2	2.9	2.9
	2	1	1.2	2.9	5.9
	3	10	11.8	29.4	35.3
	4	12	14.1	35.3	70.6
	5	5	5.9	14.7	85.3
	6	2	2.4	5.9	91.2
	7	3	3.5	8.8	100.0
	Total	34	40.0	100.0	
Missing	System	51	60.0		
Total		85	100.0		

Mathematics of Operations Research--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	49	57.6	67.1	67.1
	2	18	21.2	24.7	91.8
	3	3	3.5	4.1	95.9
	4	3	3.5	4.1	100.0
	Total	73	85.9	100.0	
Missing	System	12	14.1		
Total		85	100.0		

Mathematical Programming--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	36	42.4	57.1	57.1
	2	19	22.4	30.2	87.3
	3	1	1.2	1.6	88.9
	4	6	7.1	9.5	98.4
	5	1	1.2	1.6	100.0
	Total	63	74.1	100.0	
Missing	System	22	25.9		
Total		85	100.0		

Naval Research Logistics-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	5.9	6.4	6.4
	2	46	54.1	59.0	65.4
	3	17	20.0	21.8	87.2
	4	8	9.4	10.3	97.4
	5	2	2.4	2.6	100.0
	Total	78	91.8	100.0	
Missing	System	7	8.2		
Total		85	100.0		

Networks--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	4.7	9.8	9.8
	2	16	18.8	39.0	48.8
	3	10	11.8	24.4	73.2
	4	7	8.2	17.1	90.2
	5	2	2.4	4.9	95.1
	6	2	2.4	4.9	100.0
	Total	41	48.2	100.0	
Missing	System	44	51.8		
Total		85	100.0		

Omega-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.2	1.9	1.9
	3	12	14.1	22.2	24.1
	4	15	17.6	27.8	51.9
	5	14	16.5	25.9	77.8
	6	9	10.6	16.7	94.4
	7	3	3.5	5.6	100.0
	Total	54	63.5	100.0	
Missing	System	31	36.5		
Total		85	100.0		

Operations Research-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	80	94.1	97.6	97.6
	2	2	2.4	2.4	100.0
	Total	82	96.5	100.0	
Missing	System	3	3.5		
Total		85	100.0		

Operations Research Letters-quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	12.9	15.5	15.5
	2	20	23.5	28.2	43.7
	3	24	28.2	33.8	77.5
	4	12	14.1	16.9	94.4
	5	3	3.5	4.2	98.6
	7	1	1.2	1.4	100.0
	Total	71	83.5	100.0	
Missing	System	14	16.5		
Total		85	100.0		

Production and Operations Management-qualtiy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	3.5	4.2	4.2
	2	12	14.1	16.9	21.1
	3	32	37.6	45.1	66.2
	4	19	22.4	26.8	93.0
	5	3	3.5	4.2	97.2
	6	1	1.2	1.4	98.6
	7	1	1.2	1.4	100.0
	Total	71	83.5	100.0	
Missing	System	14	16.5		
Total		85	100.0		

SIAM Review--quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	16.5	29.8	29.8
	2	13	15.3	27.7	57.4
	3	8	9.4	17.0	74.5
	4	9	10.6	19.1	93.6
	5	2	2.4	4.3	97.9
	6	1	1.2	2.1	100.0
	Total	47	55.3	100.0	
Missing	System	38	44.7		
Total		85	100.0		

Transportation Science—quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	10.6	15.0	15.0
	2	26	30.6	43.3	58.3
	3	11	12.9	18.3	76.7
	4	13	15.3	21.7	98.3
	5	1	1.2	1.7	100.0
	Total	60	70.6	100.0	
Missing	System	25	29.4		
Total		85	100.0		