The Factors Influencing American Academic Library Directors' Approaches to Setting Goals for Change in the Information Age

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ABSTRACT: The purpose of this study is to examine more significant factors influencing approaches used by academic library directors to set goals for change in the information age. The collected quantitative and qualitative data were analysed using chi-square test and correlation analysis. The results of chi-square tests show that only three predictors – gender, library type, and number of different library professional positions – significantly influenced directors' approaches used. However, the other independent variables did not make any difference. The correlation results demonstrate that gender, education level, years of present positions, total years of directorship, total years of library service, number of various professional positions, number of subordinates, number of library branches, library type, and library size were significant factors. However, the predictor of age did not make any difference. The results may help directors and librarians better understand various significant factors influencing the approaches used to set goals for change.

I. Introduction

In the information age, information organizations face significant challenges such as technological development, collection and space management, competition with the proliferation of information sources found on the internet, publishing industry changes, and increasing budget pressures. The academic library is not exempt from these challenges, and is under pressure to remain ahead of technological change, to prove relevance in an era of free access to information through the internet, to maximise space usage, and to minimise physical collections, which will require directors and managers to set goals for change in order to continue to provide high quality resources and services for students, faculty, and staff.

Accroding to Yi (2013a), academic library directors use various approaches to set goals for change. The results of regression analysis demonstrated that the significant factors influencing the approaches they used are gender, total years of library service, library type, and total years of directorship.

This study examines the factors influencing approaches used by library directors to set goals for change based on the results of the collected quantitative and qualitative data derived from chi-square test and correlation analysis (Yi, 2013a). The results may help directors and librarians

better understand various significant factors influencing the approaches they will use to set goals for change in the information age.

II. Literature Review

There is a large amount literature on goal setting in organizations in different countries (Stueart & Moran, 2007, p. 316). In the literature of sport behavior, clinical rehabilitation, and other fields, many studies have focused on goal setting styles (Burton, Gillham, Weinberg, Yukelson, & Weigand, 2013), goal setting and action planning (Scobbie, Dixon, & Wyke, 2011), goal setting theory (Locke & Latham, 2006), and approaches to goal-setting and change (Cannon, Smith, & Lee, 2010). Some opinion papers have discussed the defintions of goal setting terms, the value and power of goal setting, various types of goals, steps of goal setting, how to set goals, reasons for setting goals, benefits of goal setting, and approaches to goal setting. The discussed and examined approaches in the literature include, but are not limited to the SMART (specific, measurable, achievable, realistic, and timely) approach, the bottom-up approach, the top-down approach, the interactive approach, the structural approach, the human resource approach, the political approach, the symbolic approach, the dual approaches, and the multi-frame approach.

Setting goals for change is one of the most important and fundamental tools used by individuals and organizations. Successful information organizations and other nonprofit and profit organizations often set both long- and short-term goals in order to develop services and improve quality. There is some literature on setting goals for change within information organizations. However, the empirical studies are still lacking.

The Bolman and Deal's reframing change model (Bolman & Deal, 1984, p. 255; Bolman & Deal, 1991a, 1991b, 1997, 1999, 2003, 2008, 2011) was used to examine the approaches to setting goals for change (Yi, 2013a) as well as to managing change in information technology (Yi, 2009), to planning change (Yi, 2011), to conducting meetings in the change process (Yi, 2012), and to evaluating change (Yi, 2013b). According to Yi (2013a), academic library directors used the Bolman and Deal model to set goals for change. When setting goals for change, directors used a variety of approaches such as dual and multiple approaches. They kept change efforts headed in the right direction, kept people involved and communication open, provided opportunities for individuals and groups to express their concerns, and developed shared values. Significant factors influencing the approached used to set goals for change were found to be gender, total years of library service, library type, and total years of directorship.

III. Study Framework and Hypotheses

The Bolman and Deal's reframing change model was used as a guideline for this study. The framework was to mainly examine the relationships between directors' different approaches to setting goals for change in the information age and three categories of variables: (1) demographics, (2) human capital, and (3) library characteristics.

Female or older directors were hypothesized to be more likely than their counterparts to use multiple approaches to set goals for change. Directors who have a higher level of education, have been in their current position of directorship or service for longer periods of time, have held

several different positions, oversee more subordinates and locations, or work in an institution that has a large enrollment or offers a higher academic degree were hypothesized to be more likely than their counterparts to use a multi-frame approach to set goals for change.

IV. Data and Methods

The collected quantitative and qualitative data (Yi, 2013a, p. 11) were used to test the hypotheses. The dependent variables were the four approaches defined by Bolman and Deal (2003) in addition to the use of dual, multiple, and other approaches, which were shown in Table II (Yi, 2013a, p. 11). The independent variables consisted of three categories: (1) demographics, (2) human capital, and (3) library variables, which were displayed in Table III (Yi, 2013, p. 12).

The techniques used to analyze the data were bivariate correlations and chi-square tests. They were used to check the relationships among the variables and determine if there was a multicollinearity problem.

V. Findings and Discussion

The descriptive results are noted in Tables II and III (Yi, 2013a, pp. 11-12). Most of directors use multiple approaches to set goals for change. The structural and human resource approaches are favored by directors choosing dual or multiple approaches. The dependent variables are the directors' approaches to setting goals for change. They are composed of three main categories: (1) single approaches; (2) dual approaches; and (3) multiple approaches. The single approaches consist of two subcategories: (1) structural; and (2) human resource.

Gender is a nominal variable. Age, education level, library size, and the number of subordinates are ordinal variables. Library type is a nominal variable with three categories. The other statistics (years of work, number of different positions, etc.) are continuous variables.

1. Results of Bivariate Cross-tabulation and Chi-Square Test

The bivariate cross-tabulation indicates that there are many significant relationships between the independent variables and the directors' approaches to setting goals for change (see Table 1 and Table 1 continued in the appendix). The chi-square test was used to check whether two nominal variables are independent from or related to each other (Sarantakos, 2005, p. 385). The collected continuous variables were recoded as the categorical ones. The ordinal variables with more categories were also recoded for the sake of reliable results. The results indicate that demographics, human capital, and library characteristics could be used to predict respondents' approaches to setting goals for change.

In Appendix Table 1, the χ^2 test displays a statistically significant relationship ($p = .05$) between gender and approaches to setting goals for change. The minimum expected count is 8.39. Thus, the result can be trusted. The results show that female directors are more likely than male directors to use dual and multiple approaches to set goals for change. This supports the hypothesis that females are more likely than males to use the multi-frame approach.

Those who work for a Master's degree granting college or university are more likely to use the multi-frame approach. The χ^2 test shows that there is a significant relationship (p = .05) between directors' approaches to setting goals for change and library type. The minimum expected count is 4.72. It was close to 5.0. The result can be trusted.

The χ^2 tests did not demonstrate a statistically significant relationship (p = .10) between directors' approaches used and these predictors: age, education level, and library size. However, the percentage results shows that directors who are 25 to 39 years old use multiple approaches more while directors who are 40 to 59 years old use single approaches more. Those with an MLS degree employ the multi-frame approach more. Those who work for a college or university with a student enrollment less than 10,000 utilize the multi-frame approach more while those who work for a college or university with a student enrollment of 20,000 or more use dual approaches more to set goals for change.

In Appendix Table 1 (continued), the χ^2 tests did not detect a significant relationship (p = .10) between directors' approaches used and these variables: years at present position and total years of directorship. However, the percentage result shows that directors who have been in their current positions for ten or more years use the multi-frame approach more. Those who have been in directorship for five to nine years use the single approach more to set goals for change while those for ten to fourteen years employ multiple approaches more.

According to the result of the χ^2 test, there is no significant relationship (p = .10) between directors' approaches used and total years of library service. However, the percentage results demonstrate that those directors who have served in libraries for thirty or more years employ dual and multiple approaches more while those for less than one year to fourteen years use single approaches more to set goals for change.

The result of the χ^2 test displays that there is a significant relationship (p = .05) between directors' approaches used and number of different positions. The minimum expected count is below 5.0. The result could not be trusted. However, the percentage results show that those who have held one to three different positions use the multi-frame approach more while those who have held seven or more different positions employ dual approaches more.

According to the results of the χ^2 tests, there is not a statistically significant relationship (p = .10) between directors' approaches used and these predictors: number of subordinates and number of library branches. However, the percentage results display that those directors with twenty to twenty-nine subordinates employ the multi-frame approach more to set goals for change while those with thirty or more subordinates use single and dual approaches more. Those who do not oversee any library branch employ the multi-frame approach more while those who have overseen two branches or more use single and dual approaches more to set goals for change.

2. Results of Correlations

In Table 2, Parts 1-2 (appendix), bivariate correlations show that there are many significant correlations between the independent variables and the directors' approaches to setting goals for change in the information age.

2.1. Correlations between Independent Variables and Dependent Variables

The results of this study coincide with two hypotheses presented earlier regarding the use of multiform approaches (see appendix Table 2, Part 1). However, calculated r values for the variables are < .30, making the correlations very weak or low rather than moderate or strong.

In this study, years at the present position and total years of directorship are respectively detected to be positively and significantly correlated with the use of multiple approaches. Those directors who are in their current positions or all directorships for longer periods of time are more likely to use multiple approaches to set goals for change than their counterparts. However, the study results do not coincide with other hypotheses. Significant and negative correlations are noted for those directors who are males, have higher education levels, oversee more subordinates or work at a large school or library in addition to working at universities with a higher enrollment.

Male and library type are respectively detected to be negatively and significantly correlated with the use of multiple approaches. Those directors who are males or work at a large school or library are less likely than their counterparts to use multiple approaches to set goals for change.

There are many significant correlations between other independent variables and the approaches to setting goals for change. The structural approach is more likely to be used by directors overseeing more library branches. However, negative correlations are noted for those directors who have served in libraries for longer periods of time.

The human resource approach is more likely to be used by those directors who are males, have higher education levels, oversee more subordinates or worked at a large school or library. The single approach is more likely to be used by those directors who are males or work at a large school or library. Those directors who have served in libraries for longer periods of time, held more different positions, oversee more subordinates or work at universities with higher enrollments are found to be more likely than their counterparts to use dual approaches to set goals for change. However, negative correlations are noted for the directors who have been in their current positions or all the directorships for longer periods of time.

2.2. Correlations among Independent Variables

The correlations among independent variables are also given in Table 2 (Part 2). The final correlation between the number of subordinates and the number of branches is not detected to be high, indicating no multicollinearity problem. Other variables do not have a high degree of collinearity. The correlations ranged from -.008 to .517. These three categories of predictors – demographics, human capital, and library characteristics – can be used to predict respondents' approaches to setting goals for change.

VI. Conclusion

Chi-square tests and correlation analysis confirm that demographics, human capital, and library variables play significant roles in setting goals for change. The results of chi-square tests show

that only three predictors – gender, library type, and number of different library professional positions – significantly influence directors' approaches used. However, the other independent variables do not make any differences. The correlation results demonstrate that gender, education level, years of present positions, total years of directorship, total years of library service, number of various professional positions, number of subordinates, number of library branches, library type, and library size are significant factors. However, the predictor of age does not make any differences.

Using chi-square tests and correlations, significant findings in this study regarding academic library directors' approaches to setting goals for change and the relationships to demographics, human capital, and library variables have been determined at the 0.05, 0.01, and 0.001 levels respectively. Future research is needed to confirm these relationships at the 0.10 level.

This study provides a useful overview of more significant factors influencing the approaches used by academic library directors to set goals for change. Future research may focus on more predictors such as directors' attributes to further examine the significant factors predicting the approaches they prefer to use and compare approaches to setting goals for change in small and large schools.

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Appendix

Table 1

Percentage Distribution of Directors' Attitudes toward Approaches Used to Set Goals for Change (N = 455)

	Approaches Used (%)				
	Single	Dual	Multiple	Total	No.
Gender					
Female	3.1	5.1	91.7	100.0	(254)
Male	9.0	3.0	88.1	100.0	(201)
$\chi 2 = 8.009$, df = 2, p = .018					
Age					
25–39	3.8	0	96.2	100.0	(26)
40-59	5.6	4.6	89.8	100.0	(283)
60 or more	6.2	4.1	89.7	100.0	(146)
$\chi 2 = 1.530$, df = 4, p = .821					
Education Level					
MA/MS not in Library Science & Other	11.1	0	88.9	100.0	(18)
MLS	4.0	4.0	92.1	100.0	(177)
MLS plus other Master's degree	4.3	3.7	91.9	100.0	(161)
PhD	10.1	6.1	83.8	100.0	(99)
$\chi 2 = 8.000$, df = 6, p = .238					
Type of Institution					
Baccalaureate-granting	4.4	6.2	89.4	100.0	(113)
Master-granting	3.2	1.6	95.1	100.0	(185)
Doctoral-granting	9.6	5.7	84.7	100.0	(157)
$\chi 2 = 12.294$, df = 4, p = .015					
Total Student Enrollment					
<10,000	5.5	2.7	91.8	100.0	(329)
10,000–19,999	6.2	7.7	86.2	100.0	(65)
20,000 or more	6.6	8.2	85.2	100.0	(61)
$\chi 2 = 6.429$, df = 4, p = .169					
Total	5.7	4.2	90.1	100.0	
No.	(26)	(19)	(410)	(455)	

Legend: No. = Number

Table 1 (continued)

	Approaches Used (%)				
	Single	Dual	Multiple	Total	No.
Years of Present Position					
0 - 4	5.4	5.4	89.2	100.0	(167)
5 - 9	6.9	5.6	87.5	100.0	(144)
10 or more	4.9	1.4	93.8	100.0	(144)
$\chi 2 = 4.855$, df = 4, p = .303					
Years of All Directorship					
0 - 4	5.6	7.4	87.0	100.0	(108)
5 - 9	8.7	5.2	86.1	100.0	(115)
10 - 14	3.8	2.5	93.7	100.0	(79)
15 or more	4.6	2.0	93.5	100.0	(153)
$\chi 2 = 8.580$, df = 6, p = .199					
Years of Library Services					
0 - 14	8.9	1.8	89.3	100.0	(56)
15 - 29	6.4	3.5	90.1	100.0	(172)
30 or more	4.4	5.3	90.3	100.0	(227)
$\chi 2 = 3.469$, df = 4, p = .483					
Number of Different Positions					
0 - 3	5.9	2.0	92.2	100.0	(153)
4 - 6	6.3	2.9	90.8	100.0	(207)
7 or more	4.2	10.5	85.3	100.0	(95)
$\chi 2 = 12.611$, df = 4, p = .013					
Number of Subordinates					
1 - 9	5.5	2.3	92.2	100.0	(128)
10 - 19	4.1	4.1	91.9	100.0	(123)
20 - 29	4.6	1.5	93.8	100.0	(65)
30 or more	7.9	7.2	84.9	100.0	(139)
$\chi 2 = 7.685$, df = 6, p = .262					
Number of Library Branches					
0	3.0	4.3	92.7	100.0	(164)
1	6.6	3.6	89.8	100.0	(167)
2 or more	8.1	4.8	87.1	100.0	(124)
$\chi 2 = 3.977$, df = 4, p = .409					
Total	5.7	4.2	90.1	100.0	
No.	(26)	(19)	(410)	(455)	

Legend: No. = Number

Table 2 (Part 1)

Correlation Matrix for Variables Used in the Analysis (N = 455)

Approaches to Setting Goals for Change						
	A	B	C	D	E	F
1	.007	.166****	.124***	-.053	-.061*	-.124***
2	-.015	.035	.014	.043	-.040	-.014
3	-.043	.111***	.049	.049	-.071*	-.049
4	.007	-.040	-.024	-.088**	.077*	.024
5	-.065*	-.012	-.055	-.127***	.128***	.055
6	-.084**	.001	-.060	.072*	-.002	.060
7	-.037	-.037	-.053	.106**	-.030	.053
8	-.024	.087**	.045	.083**	-.091**	-.045
9	.082**	-.020	.045	-.006	-.031	-.045
10	.013	.116***	.093**	.002	-.074*	-.093**
11	-.018	.027	.007	.087**	-.064*	-.007

Notes: A=Structural, B=Human Resource, C=Single, D=Dual, E=Multiple,
F=Single Approaches vs. Dual & Multiple Approaches
1=Male, 2=Age, 3=Education, 4=Years at Present Position, 5=Total Years of Directorship,
6=Total Years of Library Service, 7=No. of Different Positions, 8=No. of Subordinates,
9=No. of Library Branches, 10=Library Type, 11=Library Size
*p≤0.10; **p ≤ 0.05; ***p ≤ 0.01; ****p≤0. 001

Table 2 (Part 2)
Correlation Matrix for Variables Used in the Analysis (N = 455)

Approaches to Setting Goals for Change

	1	2	3	4	5	6	7	8	9	10	11
1	1.000										
2	.024	1.000									
3	.207****	.152****	1.000								
4	.059	.344****	.058	1.000							
5	.167****	.466****	.239****	.642****	1.000						
6	-.008	.636****	.097**	.377****	.500****	1.000					
7	-.077*	.199****	.021	-.161****	-.038	.264****	1.000				
8	.067*	.199****	.213****	-.064	.081**	.188****	.214****	1.000			
9	.035	.085**	.028	-.039	.017	.034	.113***	.265****	1.000		
10	.067*	.169****	.136***	-.055	.040	.159****	.159****	.415****	.298****	1.000	
11	-.022	.133***	.089**	-.096**	-.038	.088**	.178****	.314****	.459****	.517****	1.000

*p≤0.10; **p ≤ 0.05; ***p ≤ 0.01; ****p≤0. 001

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