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ABSTRACT

A study measured the connotations of selected health education related journals to their professional readers. The subjects were 250 randomly selected, college-affiliated health educators listed in "A National Directory of College and University Health Education Programs and Facilities 1981." Journals evaluated included: (1) "American College Health Journal"; (2) "American Journal of Public Health"; (3) "Health Education"; (4) "Health Education Quarterly (Monographs)"; (5) "Health Values: Achieving High Level Wellness"; (6) "International Journal of Health Education"; and (7) "Journal of School Health." The seven journals were selected because the combined readerships of the journals were thought to represent the gamut of health professionals. The semantic differential scales utilized consisted of 20 scales that measured the connotations of specific journals to their readers. Results are discussed, including findings on internal consistency and reliability. Four factors generated from principle component analysis are also discussed: reputation, interest, worth, and orientation. Five tables are included (JMK)

Connotations of Health Education Related Journals: A Factor Analytic Study

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ABSTRACT

CONNOTATIONS OF HEALTH EDUCATION JOURNALS: A FACTOR ANALYTIC STUDY. Gregory H. Frazer, PhD; Indiana State University, Terre Haute, IN; Robert S. Gold, PhD, DrPH; Southern Illinois University, Carbondale, IL.

This study provided some measure of the connotations of selected health education related journals to their professional readers. The sample consisted of 250 randomly selected, college-affiliated health educators listed in A National Directory of College and University Health Education Programs and Facilities 1981. A response rate of 50 percent was achieved (N = 125). The following journals were evaluated: American College Health Journal; American Journal of Public Health; Health Education; Health Education Quarterly (Monographs); Health Values: Achieving High Level Wellness; International Journal of Health Education; and Journal of School Health. The seven journals were selected because the combined principle readerships of the journals were thought to represent the gamut of health professionals. The semantic differential scales utilized consisted of twenty scales devised by Jakobovits and Osgood to measure the connotations of specific journals to their readers. The internal consistency for the twenty scales collapsed across journal lines was .92. Reliability estimates for each specific journal ranged from .86 to .89. Principle component analysis without interation was utilized to generate four factors which were tentatively labelled: (I) Reputation, (II) Interest, (III) Worth, and (IV) Orientation. The four factors accounted for 77.9 percent of the variance in the journal ratings.

INTRODUCTION

Measurement of the meaning- or "connotations" of behaviors and attitudes of individuals has been a complex process for scientists. Such measurement has often taken many different forms. One form that the measurement of meaning has taken, has been related to the development of the notion of location in three dimensional space and associated techniques with which to measure relationships in this space. In operationally defining terms for this process, Osgood et al[1] defined the meaning of a concept as its allocation to a point in multidimensional "semantic" space. Consequently, an attitude toward a concept is the projection of this point onto the evaluative dimension of that space (p. 190). With the notion that every point in semantic space has an evaluative component, every concept measured thus possesses an attitudinal component. When the identical sets of dipolar scales are utilized to measure concepts with the same individual, the scientist is allowed to compare concepts and assess differences in meaning based upon the spacial response differences. This study was devised to measure the connotations of seven selected health education related journals held by health education professionals.

An early study designed to measure the "images" of journals to their readers utilized twenty psychological journals. Upon the suggestion of Brighthill (1958), Miron[2] sampled fifty students and staff at Harvard, Stanford, and Illinois Universities to secure respondents' judgement of the journals via twenty semantic differential scales. Factor analysis of the data yielded three main factors, labeled seriousness, value and interestingness. This approach allowed for the display of the factor clustering in the three factor space as well as the connotative differences between journals.

Jakobovits and Osgood[3] attempted to measure the connotations of

psychological journals to their professional readers through the use of semantic differential scales. The study included all journals published by the American Psychological Association (APA) except two (Psychological Abstracts and Psychological Monographs) and ten non-APA journals. The semantic differential scales were selected from pilot study data for those factors having relatively pure loadings and from spontaneous descriptions of journals by various psychologists. The subjects were selected by sampling every nineteenth name from the latest available membership list of the APA. The final sample was 551 individuals.

The results indicated that factors derived by the twenty scales correspond reasonably well to those thought to be significant in research design. Valuableness, scientific rigor, interestingness, and orientation appeared from the data as independent dimensions and accounted for seventy five percent of the variance. Jakobovits and Osgood[3] (p. 799) concluded that the "feeling tones" psychologists reported for the journals could be described in the four major dimensions of variation with the first three paralleling those regularly found for the affective meanings of concepts in general. The fact that connotative differences between journals are present substantiates overall agreement among psychologists that psychological journals can be placed in a hierarchical arrange regardless of personal or professional preferences.

This study applies these techniques to the assessment of the connotations of health education related journals to their readers. The printed medium is thought to be a vehicle through which academicians convey contemporary developments to colleagues, but until now, there has never been an attempt to measure in this way the perceptions of health educators concerning the various journals read. In light of the

persistent push for continuing professional education via the literature as well as other means, it becomes imperative that the evaluation of perceived worth of professional journals be initiated and maintained. This study provides the preliminary parameters for such continued analysis.

METHODS

The methods utilized in the study consisted of a sample selection for respondents and journals, choice of semantic differential scales, questionnaire development, and instrument distribution.

Selection of the Sample: Professional Respondents

The professional respondents were selected via a random sample of health educators listed in A National Directory of College and University Health Education Programs and Faculties 1981. This publication lists full-time faculty members holding the rank of assistant professor or above. Those individuals who hold the rank of instructor, visiting faculty members, and those whose teaching responsibility are not in the areas of school and community health were excluded from the directory and thus from the study. The directory provided the most current listing of student preparation programs in school and community health education.

Selection of the Sample: Journals

The seven journals from which articles were evaluated were selected because the combined principle readerships of the journals were thought to represent the gamut of health professionals. The journals which were evaluated are:

American College Health Association Journal

American Journal of Public Health

Health Education

Health Education Quarterly (formerly Health Education Monographs)

Health Values: Achieving High Level Wellness

International Journal of Health Education

Journal of School Health

The readership of these seven journals includes physicians, nurses, health educators on various levels, administrators, community health organizers, and health practitioners. These journals were chosen because they best represent the printed medium through which contemporary research findings are presented to health professionals. This was indicated by Sechrist and Governali's[4] inclusion of the aforementioned journals in the list of publications of greatest applicability to the professional practice of health education. Additionally, research by Forouzesh[5] on the journals having the most influence on the filed of health education established that six of the journals (American College Health Association Journal excluded) were rated by faculty members as among those having the most impact on health education.

Semantic Differential Scales

The semantic differential scales utilized in this study consisted of twenty scales devised by Jakobovits and Osgood[3] to measure the connotations of specific journals to their professional readers. These scales were selected from the previous study because of the high and relatively pure loadings in factor analysis as identified in a pilot study involving psychologists, students, and staff at Harvard University, Stanford University, and the University of Illinois.

Questionnaire

A questionnaire was also included in the evaluation materials. Jakobovits and Osgood[3] developed a questionnaire which assesses the following areas: subscription behavior, familiarity to journal, publication preferences, seniority, area of degree, area of present interest, type of employment, and size of academic institution. This information provides demographic and descriptive data for analysis of response patterns regarding the semantic differential scales. Additionally, this information delineates sample characteristics in greater detail.

Instrument Distribution

The instrument package was sent to a random sample of health educators from the National Directory of College and University Health Education Programs and Facilities 1981. The instrument package included a letter of introduction, the twenty semantic differential scales listed for each journal, and a self-addressed return envelope. When the instrument package was not returned in ten working days (two weeks), a follow-up note was sent.

Article Analysis

The article analysis consisted of the assignment of the 448 articles published in the seven study journals in 1980 and 1981 to one of four categoies: experimental, quasi-experimental, nonexperimental, and philosophical/theoretical. The categorization resulted in the following enumeration: 9 experimental articles, 121 quasi-experimental articles, 114 nonexperimental articles, 208 theoretical/philosophical articles. The characteristics of the 240 research articles were assessed by using the "Instrument to Evaluate Research"[6] as the criterion. The characteristics

examined consisted theoretical significance of the problem, survey population, population definition, sampling procedures, sources of error, measuring instruments, statistical analysis, conclusions, and adequacy of reporting practices. Inter-rater reliability of these artical assessments was estimated by analyzing the ratings of four independent judges by using Friedman's analysis of variance technique and was found to be .91.

RESULTS

Reliability Analysis

Reliability of the scales was estimated by the use of Cronbach's alpha. This statistic is a measure of internal consistency in which the items measured correlate to the degree to which the items are independent measures of the same construct[7] (p. 543).

The internal consistency for the twenty scales collapsed across journal lines was .92. The reliability of responses to the scales for each specific journal is as follows: American College Health Association (.83), American Public Health (.86), Health Education (.88), Health Education Quarterly (.89), Health Values: Achieving High Level Wellness (.89), International Journal of Health Education (.89), and School Health (.83).

Data Analysis

Principle component analysis without iteration was utilized to generate four factors with eigenvalues greater than unity based on mean rating scores for all journals. The final four factors produced from a varimax rotation are summarized in Table 1. These factors have tentatively been labelled (I) Reputation, with nine scales loading on it;

(II) Interest, with five scales; (III) Worth, with four scales; and (IV) Orientation with two scales.

INSERT TABLE 1

Factor I accounted for 47.4 percent of the total variance in journal ratings, while Factor II accounted for 13.5 percent of the variance; Factor III accounted for 9.2 percent of the variance; and Factor IV accounted for 7.8 percent of the variance. The total variance accounted for by those four factors was 77.9 percent. The communalities of the variables ranged from .92 (good-bad) to .48 (personal-impersonal).

Table 2 presents the mean scale factor scores for the seven journals based on data from all respondents. On the reputation factor, the American Journal of Public Health rated highest (5.59) followed by Health Education (5.28). Least reputable, according to the respondents was Health Values: Achieving High Level Wellness (4.94). Health Education (5.31) was rated highest on the interest factor, followed by the American Journal of Public Health (5.26). The lowest rated journal here was the Journal of the American College Health Association (4.24).

The worth factor scores were highest for the American Journal of Public Health (4.81) followed by the Journal of the American College Health Association (4.62). The lowest rated journal on this dimension was Health Values: Achieving High Level Wellness (4.30). The Journal of the American College Health Association (4.64) was most highly rated on the domain of orientation, followed by Health Education (4.62). The lowest rated journal on orientation was Health Education Quarterly (3.63).

INSERT TABLE 2

A list of the highest and lowest rated journals on the twenty scales is provided in Table 3. It is presented to illustrate the range of mean judgements for the twenty scales. The American Journal of Public Health was judged to be most active, important, earnest, serious, reputable, useful, scientific, strong, good, and rigorous. Health Education was judged highest on broad, empirical, interesting, easy, positive, valuable, and varied. These two journals are rated highest on sixteen of the twenty scales. The Journal of the American College Health Association was rated lowest on active, important, earnest, broad, interesting, valuable, reputable, useful, and good.

INSERT TABLE 3

Using a transposition of raw data on the mean ratings for the total sample, a varimax rotation was carried out for journals as variables. As illustrated in Table 4, the four factors extracted account for 82.1 percent of the total variance. American Journal of Public Health, Health Education Quarterly, and International Journal of Health Education loaded highest on the first factor. Health Values: Achieving High Level Wellness and the Journal of School Health had primary loadings on the second factor. Journal of the American College Health Association loaded highest on Factor III, with the American Journal of Public Health

producing a secondary loading on this factor. Health Education loaded primarily on the fourth factor while the Journal of School Health had a secondary loading. Based on these data, it appears that the factors on which the American Journal of Public Health, Health Education, and the International Journal of Health Education load highest represent a Public Health Orientation; Health Values: Achieving High Level Wellness and the Journal of School Health factor represent Wellness; the Journal of the American College Health Association and the American Journal of Public Health factor represents a Health Care domain; and the Health Education and Journal of School Health factor best represent Health Education.

INSERT TABLE 4

The journals were rank ordered on each factor based on their respective factor scores. These ranks were the basis for the correlation analysis. The correlation coefficients ranged from .79 to -.46 across all variables with the mean correlation being .21. The highest correlation (.79, $p<.05$) existed between Factor IV Application and Factor III Worth. The lowest correlation existed between Factor IV Application and the article analysis. The complete correlation matrix is presented in Table 5.

INSERT TABLE 5

A graphic illustration of the relationship between the evaluative scores and the reported connotations of the journals is illustrated in

Figure 1 based on the development of "research" and "popularity" scores for each journal. The "research" variable is composed of the percentage of research articles published in the journal, the mean evaluation score for the journal, and the mean rating on Factor III (Health Care) and Factor IV (Health Education). The "popularity" variable is composed of the percent of the respondents subscribing to the journal, percent of respondents who read the journal, and the mean rating on Factor I (Public Health Orientation) and Factor II (Wellness). The respective journals were then rank ordered based upon the grand mean rank for each subcomponent of each variable. As indicated in Figure 1, the American Journal of Public Health rated highest on "research" and "popularity" with Health Values: Achieving High Level Wellness being furthest from the origin. A Spearman Rank- Order Coefficient established the relationship between "research" and "popularity" to be -.32.

INSERT FIGURE 1

Discussion

The sample of journals utilized in this study cannot be considered representative of the composite of health education journals. The sample journals represent a sample of convenience whose selection was based upon professional evaluation and research constraints. Due to the interdisciplinary nature of health education resources, the sample journals only represent a selected segment. Conversely, the readership of the seven study journals does represent the gamut of university based health professionals and thus, the results should be interpreted accordingly.

The factors derived from the twenty semantic differential scales, based upon individual ratings, accounted for 77.9 percent of the variance. The percent of variance explained corresponds favorably to the variance explained (75 percent) by the four factors generated in the Jakobovits and Osgood study, (1967). Although the same scales were utilized, a difference was identified in the labelling of the factors generated in the studies. Jakobovits and Osgood identified valuableness, scientific rigor, interestingness, and orientation as factor labels while reputation, interest, worth, and orientation were identified in this study. It would appear that the assigned factor labels in the study do not represent the factor labels generally found for affective meaning in concepts: evaluation, potency, and activity.

The relationship between "research" and "popularity" variables indicated dispersion across both measures for the study journals. It should be noted that the journals occupy all quadrants of the field indicating the presence of both philosophical and empirical literature. In light of the interdisciplinary nature of the profession and lack of a universally accepted course of action, it would seem appropriate that the breadth of health education literature represent those differences.

Perhaps most important in the results is the notion that health educators find things other than rigorous research desirable. Among the most "popular" journals, American Journal of Public Health, Journal of School Health, and Health Education, only the former was perceived to be a research oriented journal. While American Journal of Public Health was most highly regarded one the combination of these domains, Journal of School Health and Health Education appeared to achieve comparable popularity with a more balanced editorial approach.

The fact that all journals were given a positive mean rating on the twenty semantic differential scales indicates an overall acceptance of the types of literature published in these health education journals. Concerning the disparity in the overall ratings of the seven study journals, the various academic preparations of university based health educators along with the vast breadth of research interests must be taken into consideration. The realization that discrepencies do exist in the professional literature as measured by responses of professional health educators infers that certain journals will influence professional thought in greater degrees than others. It is imperative that the profession reassess its professional goals so as to allow the literature to provide a stable foundation.

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TABLE 1

Factor Scores for Scales
Compressed Across Journal Lines

SCALES	FACTORS				
	I	II	III	IV	h^2
Active	0.10	0.77[b]	0.32	-0.23	.76
Important	0.67[a]	0.59	0.17	0.05	.83
Earnest	0.83[a]	0.10	0.27	-0.09	.78
Broad	0.30	0.73[b]	0.38	-0.03	.76
Serious	0.76[a]	0.08	0.32	-0.14	.70
Empirical	-0.12	0.23	-0.08	0.79[d]	.69
Personal	-0.54[a]	0.09	0.05	0.43	.49
Interesting	-0.00	0.87[b]	0.04	0.37	.89
Easy	-0.33	0.48	-0.51[c]	-0.29	.68
Positive	0.41	0.81[b]	-0.08	0.06	.84
Valuable	0.76[a]	0.41	0.18	0.01	.77
Applied	0.25	-0.12	0.10	0.74[d]	.63
Reputable	0.84[a]	0.15	0.18	0.36	.88
Useful	0.73[a]	0.48	0.16	0.30	.88
Varied	0.52	0.68[b]	0.08	0.18	.76
Scientific	0.48	0.29	0.77[c]	0.15	.92
Strong	0.70[a]	0.28	0.55	0.14	.88
Good	0.67[a]	0.52	0.39	0.22	.92
Impartial	0.04	0.23	0.76[c]	-0.14	.65
Rigorous	0.28	0.01	0.89[c]	0.07	.89
Total % of Variance	47.40	13.50	9.20	7.80	.78

[a]Scales which loaded highest on Factor I.
[b]Scales which loaded highest on Factor II.
[c]Scales which loaded highest on Factor III.
[d]Scales which loaded highest on Factor IV.

TABLE 2

Factor Scores and Rank for
Seven Health Education Related Journals
(Total Sample)

JOURNALS	Number of Respondents	FACTORS I	II	III	IV
American College Health Association	54	4.81(6)	4.24(7)	4.62(2)	4.64(1)
American Public Health Association	99	5.59(1)	5.26(2)	4.81(1)	4.44(3)
Health Education	102	5.28(2)	5.31(1)	4.53(4)	4.62(2)
Health Education Quarterly	66	5.27(3)	4.77(6)	4.44(6)	3.63(7)
Health Values: Achieving High Level Wellness	68	4.94(7)	5.06(4)	4.30(7)	4.14(6)
International Journal of Health Education	67	5.02(5)	4.88(5)	4.50(5)	4.22(5)
School Health	104	5.22(4)	5.07(3)	4.54(3)	4.37(4)
FACTOR LABELS:		Repu-tation	Interest	Worth	Orienta-tion

TABLE 3

The Most Popular Journals:
Means of Journals on Scales

SCALES	JOURNAL RATINGS			
	Highest		Lowest	
Active	APHA	(5.60)	ACHA	(4.09)
Important	APHA	(6.00)	ACHA	(4.56)
Earnest	APHA	(5.93)	ACHA	(4.93)
Broad	HE	(5.39)	ACHA	(3.67)
Serious	APHA	(6.24)	HV	(5.01)
Empirical	HE	(4.67)	HEQ	(3.29)
Personal	HV	(4.84)	APHA	(3.37)
Interesting	HE	(5.19)	ACHA	(4.00)
Easy	HE	(5.34)	APHA	(3.46)
Positive	HE	(5.57)	HEQ	(3.45)
Valuable	HE	(5.57)	ACHA	(4.35)
Applied	ACHA	(5.00)	HEQ	(4.02)
Reputable	APHA	(6.40)	ACHA	(4.56)
Useful	APHA	(5.75)	ACHA	(5.02)
Varied	HE	(5.26)	HEQ	(4.70)
Scientific	APHA	(6.03)	HV	(4.20)
Strong	APHA	(5.69)	HV	(4.51)
Good	APHA	(5.75)	ACHA	(4.78)
Impartial	ACHA	(5.07)	HEQ	(3.61)
Rigorous	APHA	(5.43)	HV	(4.03)

KEY: ACHA--Journal of the American College Health Association
APHA--American Journal of Public Health
HE--Health Education
HEQ--Health Education Quarterly
HV--Health Values: Achieving High Level Wellness

TABLE 4

Varimax Rotation of Principal Axis Solution:
Journals by Factors

JOURNAL	FACTORS I	II	III	IV	h^2
American College Health Association	0.06	0.24	0.90[c]	0.19	0.91
American Public Health Association	0.71[a]	-0.11	0.57[c]	-0.02	0.85
Health Education	0.11	0.18	0.14	0.94[d]	0.96
Health Education Quarterly	0.90[a]	0.22	-0.09	0.16	0.88
Health Values: Achieving High Level Wellness	0.14	0.90[b]	0.12	0.09	0.85
International Journal of Health Education	0.54[a]	0.38	0.36	0.11	0.58
School Health	0.15	0.66[b]	0.16	0.48[d]	0.76
FACTOR LABELS:	Public Health Orientation	Wellness	Health Care	Health Education	
Total % of Variance	44.10	16.80	11.90	9.30	

Note--% of Total Variance 82.10

[a]Journals which loaded highest on Factor I.

[b]Journals which loaded highest on Factor II.

[c]Journals which loaded highest on Factor III.

[d]Journals which loaded highest on Factor IV.

TABLE 5

Correlation Matrix of Scores on Article Analysis and Factor Scores for the Seven Study Journals

SCORES	Article Analysis	Factor I Reputation	Factor II Interest	Factor III Worth	Factor IV Application
Article Analysis					
Factor I Reputation	0.36				
Factor II Interest	-0.32	0.61			
Factor III Worth	0.05	0.45	0.21		
Factor IV Application	-0.46	0.18	0.21	0.79*	

*$p < .05$

FIGURE 1

The Relationship of the Seven Study Journals
Based on Computed
"Research" and "Popularity" Variables