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ABSTRACT

This study measured the thoroughness of reported research which appeared in seven journals in the health education field. Evaluation was made of articles, appearing between May 1980 and May 1981, in the "Journal of the American College Health Association," "American Journal of Public Health," "Health Education Quarterly," "Health Values: Achieving High Level Wellness," "International Journal of Health Education," "Journal of School Health," and "Health Education." The evaluation instrument consisted of criteria in the areas of significance of research problem, definition of problem, definition of study population, sampling procedures, sources of error, appropriateness of statistical analyses, reasonableness of conclusions, and adequacy of reporting style. Articles were categorized as: (1) experimental (articles in which the independent variable was manipulated so that change in the dependent variable could be measured); (2) quasi-experimental (articles in which comparisons between groups were made but there was no random assignment of subjects to experimental and comparison groups); (3) nonexperimental (articles which were descriptive or historical in nature but did not compare groups); and (4) philosophical or theoretical (any article which described a procedure, occurrence, or school of thought without statistical verification). Results indicated that the seven journals similarly reported the information evaluated by the instrument. It appeared that the statement and significance of the problem seemed to be understated in the articles analyzed, while the sampling procedures, population definition, and the adequacy of the measuring instruments used were satisfactorily addressed. Tables present mean ratings, based on evaluation criteria, for each journal for each of the four categories in which the articles were classified. An overview is provided of previous studies analyzing the reporting of health education research. (JD)

An Analysis of Research Published In Health Education Journals: May 1980 - May 1981

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Introduction

Published research is a major vehicle through which academicians and professionals convey contempory developments in their fields of study to colleagues. An underlying assumption of published research data is that rigorous methodologies are employed to validate the findings--that outcomes measured are those which have been produced by design, occuring without extraneous influences. However, methodologies utilized in many studies tend to be compromises between the "real and ideal," resolutions between methodologically valid research paradigms and environmental constraints. While these compromises may take many forms, some serious, others inconsequential, the necessity for the professional to recognize the degree of compromise is of considerable importance. As the number of journals and published articles increases, research consumers must be sensitive to these validity-compromise questions in accurately gauging the contribution of the research.

In the last two decades, the amount of published information in learned journals has increased exponentially. Licklider (1966) has noted that the aggregate amount doubles on the average of once every twelve years. Moreover, in the information explosion, articles of all levels of quality apparently are being published, suggesting that critical analysis of published research by the readership is not only prudent but, perhaps essential. Even though the health education literature, the focus of this study, represents only a segment of the

general body of literature, it is increasing significantly in volume and the critical eye of the professional should be applied to it as well.

Descriptive Research

The analysis of published research as a recognized research endeavor began in the late 1920's and 1930's. The approach generally utilized in this analysis was descriptive in nature and sought to determine the distribution of the characteristics in question. Inasmuch, two types of descriptive research are relevant to the current study: content analysis and documentary research. Content analysis is concerned with any systematic reduction of a flow of text to a standard set of statistically manipulable symbols representing the presence, intensity, or frequency of relevant social characteristics (Lin, 1976). Conversely, documentary research addresses the methodologies and conslusions present in published research (Rummel, 1964).

Documentary research establishes the present record of the question under consideration. Papillion (1978) states that the technique of interpretation, the analytical technique utilized, is the discriminating factor between documentary research and other methods of analysis. As the data are present, it is the responsibility of the researcher to analyze and categorize the data correctly. The ulitmate task is to draw meaningful generalizations through comparisons of variables in different environments. Thus, these comparisons establish relationships between the factors present. The analytical instrument

is the key vaible to documentary research.

Documentary research has been an infrequently used research tool. Good (1972) states that the earliest form of documentary research consisted of simple, mechanical statistical studies of frequency distributions. The major emphasis of this early research was the quantitative analysis of textbooks. Since 1950, documentary research has had little to do with earlier textbook analysis. New approaches and techniques were developed that allowed for the study of data from various disciplines, among them clinical psychology, education, political science, business, and English.

ANALYSIS OF HEALTH EDUCATION RESEARCH

Documentary Analysis of Health Education Research

Loucks (1952) attempted to determine the relative emphasis placed on research in the various areas of the broad field of health-physical education-recreation-safety by workers in the field based upon studies published in Research Quarterly from 1930-1949. An analytical frequency survey was utilized in the study. The results indicated that approximately 72 percent of the articles published fell into the physical education category and the area of safety was almost completely ignored. The category of physical education-health received 10 percent of published material while health articles comprised 7 percent of the sample. The author concluded that the findings of the study clearly indicate what areas of thought have been of greatest concern to the leading writers in the field and hence should be of primary interest to curriculum makers in our teaching institutions.

Russell (1962) attempted to investigate the research reports relating to health and health education published in Research Quarterly from March 1951 through May 1960. The purpose of the research was to analyze the findings as to number and proportion by type of research, general topic areas, methodology, investigators, and evidence of research programs. The study was limited to reports published in the ten-year period concerned specifically with health or health education.

The results indicated that of the 447 articles sampled, 59 (12 percent) were concerned with health or health education. Of the 4,108 pages printed, 590 (14.6 percent) pages concerned health or health education. Russell (1962) reported that 57 individuals were cited for authorship with 20 listed as single author, 10 individuals served as first author, and 14 were credited with second or subsequent authorship. Forty-four (77 percent) authors contributed only one article two individuals contributed two articles, one authored three, and two individuals contributed together 15 reports. Fifteen (26.1 percent) of the authors were female.

The research methods and procedures utilized in the research indicated 34 percent dealt with gathering information from previously published reports, 70 percent dealt with data acquisition surveys or inventories, and 20 percent dealt with experimental research. Nine of the 57 articles dealt with the validation of an instrument while 11 studies communicated data from questionnaires.

Russell (1962) stated that two approaches appeared to be lacking. One was the case study approach, of an individual or group, which uses all available information to explain behavior. The other is the philosophical approach, wherein the basis for determining the objectives and approaches of health education are to be explored. The author concluded that the major challenge to health education research is the design and completion of developmental studies in which systematic attempts should be made to apply behavioral science findings to health education.

Veenker (1965) stated that a review of health education research literature indicated a slow but continuing advancement of the kind and quality of research performed. An increasing number of investigations were providing greater scope in the directions taken, and greater depth of investigation was exhibited. Much sound research had been undertaken so that the majority of the problem areas had been addressed. The author asserted that previous research provides a noteworthy base of descriptive data which lends itself to more precise research.

Veenker (1965, pp. 186-7) suggested that three steps were necessary for the realization of the potential in health education research: (1) reevaluation of dependence upon other disciplines for basic information to be translated into appropriate research and program application; (2) envisioning research in depth which includes active participation by health educators in the interdisciplinary study of many significant elements in the health education process; and

(3) adequate conceptualization of a broad pattern of health education studies that encompass basic and applied research in their appropriate proportion and relationship. The author concluded that the aim of health education is to bring about a desireable quality of human health behavior which will enable each individual to achieve optimum well-being. Research in health education must then concern itself with both process and results.

Wiist (1981) attempted to study systematically the trends in the publication of research in the official journals of professional health education organizations. Four publications were studied: Health Education Monographs (HEM), International Journal of Health Education (IJHE), Journal of School Health (JCH), and Health Education (HE). Articles were classified into one of five categories: (1) program evaluation research (included research conducted to test specific educational techniques and methods and to evaluate program effectiveness or disease treatment); (2) general research (articles following scientific procedures); (3) professional preparation (included official organizational reports on preparation, curriculum, training, or survey concerning professional roles); (4) literature reviews (included articles identified as such or which appeared to be intended as a comprehensive, systematic review of a concept); and (5) other (included program descriptions, conceptual and theoretical articles, and categorical health topics).

The results indicated that of the nonresearch publications, 69.9

percent of the articles dealt with program descriptions, 5.2 percent were devoted to professional preparation, and 3.2 percent to literature reviews. With respect to program evaluation reports, 30.8 percent of IJHE articles, 23.2 percent of JSH articles, 13.2 percent of HEM articles, and 11.8 percent of HE articles dealt with the topic. General research articles composed 16 percent of JSH articles, 13.5 percent of IJHE articles, 5.8 percent of HEM articles, and 8.3 percent of HE articles. Wiist (1981) concluded the percentage of research-oriented articles is increasing in each of the four publications, but less than one-third of all articles published in any of the journals in the past 22 years was devoted to research. In all journals combined, 78.35 percent of the articles were in the non-research categories.

Citation Analysis in Health Education

Price (1980) attempted to ascertain the most frequently cited health eudcation articles to determine which articles had the greatest impact upon health education. Citations from Health Education Monographs, Health Education, Journal of School Health, and the International Journal of Health Education were analyzed. Any article cited five or more times by articles appearing in the Social Science Citation Index was considered a highly cited work. Citations to a publication with more than one author are credited only to the first author.

The results as reported by Price indicate that only seventeen articles were cited five or more times. Of those articles, ten

appeared in the Journal of School Health, six were from Health Education Monographs, one was from International Journal of Health Education, and none were from Health Education. L. W. Green was the most cited author with the article "Should Health Education Abandon Attitude Change Strategies? Perspectives from Recent Research," the most cited article. The major themes reported were the health belief model, drug use, and human sexuality. The most cited article appeared 14 times. The mean citation rate was 7.9 per article (mean citation rate being the average number of times the 17 articles were cited in the sample surveyed).

Price (1980) concluded that citation analysis has been the primary step in attempting to identify those articles in health education which have the most significant impact on the field. The results should be considered with the notion that second authorship was not recognized and that topical areas may cite only specific articles. Regardless of conditional interpretation, citation analysis provides a cursory measure of those individuals and articles influencing health education.

Research Review in Dissertations and Theses

Daniels (1975) investigated health education theses and dissertations completed during the years 1970-73. The purpose of the study was the establishment of the current status of health education graduate research. One-hundred-seventy-one institutions were sent questionnaires seeking information about the graduate program. One hundred-fifty-four institutions responded producing a sample of 446 studies (216 theses and 230 dissertations) from 57 institutions. The study abstracts were then analyzed against an instrument of twenty questions dealing with the

statement of the problem, methods, data, and findings of the study.

The results indicated that two-thirds of the studies were descriptive in nature and that the survey and comparative methods accounted for two-thirds of those studies. The most frequently investigated domain was the cognitive domain. The qualitative analysis of the abstracts resulted on only four of the 230 dissertation abstracts achieving the standard for acceptable abstracts (an average rating of "3" on a five-point scale for each question of the scale). This low achievement was due to inconsistencies in the kinds and amounts of information contained in the abstracts. Daniels (1975) stated that the results of the study indicated that there is a need for standardization in the kinds of information contained in abstracts and the amount of emphasis given to information.

JOURNAL ARTICLE SELECTION AND CATAGORIZATION

All articles which were published in the Journal of the American College Health Association, American Journal of Public Health, Health Education, Health Education Quarterly, Health Values: Achieving High Level Wellness, International Journal of Health Education, and the Journal of School Health, during the time period May 1980 to May 1981 were categorized into one of four divisions: experimental, quasi-experimental, nonexperimental, and philosophical/theoretical. The categories were selected in light of Bailey's (1978) statements that experimental, quasi-experimental, and nonexperimental designs are those most frequently cited in evaluation research. The philosophical/theoretical category was added to extract any article not research-

oriented. The analytical instrument utilized in this study was designed only for research articles; thus all non-research articles were excluded. In addition, all book reviews, teaching aids and ideas, research abstracts, resources, and other non-research materials in each journal were removed from consideration.

Table I indicates the categorical breakdown of all articles published during the designated period meeting the sample selection criteria. In all there were 448 articles, of which five (5) articles are classified as experimental; one hundred twenty one (121) classified as quasi-experimental; one hundred fourteen (114) classified as non-experimental; and two hundred eight (208) as philosophical/theoretical. The percentage contribution of each journal to the article population and the percentage categorical breakdown for each journal are presented in Table I.

The articles were categorized according to the following criteria:

Experimental: Articles in which the independent variable was manipulated such that change in the dependent variable could be measured. There was also random assignment of subjects to experimental and comparison groups.

Quasi-experimental: Articles in which comparisons between groups were made but there was no random assignment of subjects to experimental and comparison groups.

Nonexperimental: Articles which were descriptive or historical in nature but did not compare groups.

Philosophical/Theoretical: Any article which described a procedure, occurence, or school of thought without statistical verification.

INSTRUMENT SELECTION

Instrument to Evaluate Research

The instrument utilized in the analysis of the respective journal articles was one developed by Kohr and Suydam (1970). The evaluation instrument was constructed by abstracting the major questions and important points from numerous articles and books dealing with survey methodology. Reliability studies were undertaken with articles from the field of elementary school mathematics where estimates of inter-rater agreement ranged from .80 to .95, while the estimates of reliability for a single rater ranged from .34 to .84. The judges were research staff members, faculty members in educational psychology, and faculty members in elementary education. These judges were regarded as representative of staff members engaged in research activities.

The instrument consists of nine major criteria by which an article was to be judged. Various sub-areas were stipulated for each question to focus the attention of all raters to the same pertinent issues of each question. Each question was to be assessed on a five-point scale, categorized as excellent (all requirements are met; nothing essential could be added) to poor (none or few of the requirements are met). The areas addressed by the instrument criteria were: significance of the research problem, definition of the problem, definition of the study population, sampling procedures, sources of error adequacy of measuring instrument, appropriateness of statistical analyses, reasonableness of conclusions, and the adequacy of the reporting style.

For this study, the word "survey" was deleted from the title of the instrument and from the second criterion with permission from the author. New psychometric measures of reliability were developed from the analysis of twenty-four (24) randomly selected journal articles (10 percent of the sampling units) by an expert panel of three judges. The articles were selected from the survey population of research articles and excluded from the survey population following the assessment of reliability. A stratified random sampling procedure was used to select articles based upon the journal's percentage of contribution to the article population. The sample consisted of seven articles from American Journal of Public Health seven articles from the Journal of School Health, three articles from Health Education, two articles each from the Journal of the American College Health Association, Health Values: Achieving High Level Wellness, and International Journal of Health Education, and one article from Health Education Quarterly.

Inter-rater reliability was assessed using the analysis of variance technique adjusted for differences in frames of reference as difined by Winer (1962, pp. 124-32). In this technique, an individual judge's mean rating for all measures was compared to the grand mean rating of each judge. Winer (1962) states, "For data adjusted in this way the within-people variation is free of any source of variation which is a function of differences in frames of reference for the judges" (p. 129).

Results

This study attempted to measure the thoroughness of reported research

which appeared in the seven study journals by the application of the "Instrument to Evaluate Research" (Kohr and Suydam, 1970). The instrument consisted of nine criteria which dealt with the presentation of the research problem(s), sampling procedures, statistical methods, conclusions, and the generalizability of the study.

Table 2 illustrates that the articles in Health Education Quarterly. (2.52) most thoroughly provide the information assessed by the instrument, followed by American Journal of Public Health (2.77), International Journal of Health Education (2.78), Journal of School Health (2.91), Journal of the American College Health Association (2.96), Health Values: Achieving High Level Wellness (3.03), and Health Education (3.20). The mean rating for all journals across all criteria was 3.00.

When the experimental articles are considered by themselves, the mean rating was 2.83. The American Journal of Public Health average was 2.44, while the article in the Journal of School Health averaged 3.22. Table 3 provides a complete documentation of the mean ratings.

The analysis of the ratings for the quasi-experimental articles resulted in a mean rating of 2.79. The range of criterion measures was 2.00 to 3.50. Health Education Quarterly (2.31) achieved the highest rating, followed by the American Journal of Public Health (2.72), International Journal of Health Education (2.76), Journal of School Health (2.93), Health Education (2.94), Health Values: Achieving High Level Wellness (2.95), and Journal of the American College Health Association (2.98). A thorough presentation of the mean ratings of

the quasi-experimental articles is presented in Table 4.

The mean rating for non-experimental articles was 2.95. Health Education Quarterly (2.49) received the highest rating, followed by the American Journal of Public Health (2.81), Journal of School Health (2.87), Journal of the American College Health Association (3.11), Health Values: Achieving High Level Wellness (3.19), and Health Education (3.33). The mean ratings for the non-experimental articles is presented in Table 5.

Reliability

The reliability of the article assessments was estimated by using Friedman's analysis of variance technique for nonparametric statistics. The unadjusted F-ratio equalled 7.11 23,72 df; $p<.01$. The adjusted analysis of variance for differences in the frames of reference between judges produced an F-ratio which equalled 10.71 with 23,69 df; $p<.01$. The correlation coefficient for the adjusted data was .91.

The coefficient of stability was computed for the nine criterion measures in the "Instrument to Evaluate Research." After every group of 25 articles was evaluated, this procedure was employed to assess the continuity of measurement. This procedure, in association with the assessment of inter-rater reliability, was employed to limit single rater bias in the measurement process. The coefficients ranged from .63 to 1.00. The chronological progression of the coefficients was as follows: .63, .63, .74, .63, .74, .74, .85, .85, 1.00, 1.00. The mean stability coefficient was .78.

Discussion

The results indicated that the seven study journals similarly report the information addressed by the "Instrument to Evaluate Research." It appears that the statement and significance of the problem appear to be understated in the articles analyzed while the sampling procedures, population definition, and the adequacy of the measuring instrument seems to be satisfactorily addressed. However, a previous analysis of these data (Frazer, 1982) indicated no relationship between these means, and a rating of the value of the journal to practicing health educators.

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TABLE 1

Summary and Categorization of Articles from Seven Journals Comprising Study Population May 1980-May 1981

JOURNALS	Total Articles Published	Percent of Article Sample	Number Experimental Articles	Percent of Journal Articles	Number Quasi-Experimental Articles	Percent of Journal Articles	Number Non-Experimental Articles	Percent of Journal Articles	Number Theoretical/Philosophical Articles	Percent of Journal Articles
American College Health Association	41	9.2	0	0.0	13	31.8	6	14.6	22	53.6
American Public Health Association[a]	133	29.7	2	1.5	61	45.8	67	50.4	3	2.3
Health Education	57	12.7	0	0.0	4	7.0	4	7.0	49	86.0
Health Education Quarterly	23	5.1	0	0.0	4	17.4	6	26.1	13	56.5
Health Values Achieving High Level Wellness	37	8.2	2	5.4	4	10.8	4	10.8	27	73.0
International Journal of Health Education	26	5.8	0	0.0	8	30.8	4	15.4	14	53.8
School Health	131	29.3	1	0.8	27	20.6	23	17.6	80	61.0
TOTAL	448	100.0	5	1.2	121	27.0	114	25.5	208	46.3

[a]Public health briefs included.

TABLE 2

Grand Mean Ratings Based on Instrument Criteria for the Seven Study Journals

JOURNAL	INSTRUMENT CRITERIA									
	1	2	3	4	5	6	7	8	9	$\bar{x}$
American College Health Association (N=16)	3.36	3.13	2.43	2.27	3.00	3.00	3.06	3.12	3.29	2.96
American Public Health Association (N=123)	3.13	3.12	2.47	2.49	2.87	2.62	2.58	2.76	2.85	2.77
Health Education (N=5)	3.83	3.67	2.78	2.95	3.00	3.05	3.05	3.05	3.45	3.20
Health Education Quarterly (N=9)	2.89	2.78	2.22	2.11	2.67	2.22	2.67	2.67	2.44	2.52
Health Values: Achieving High Level Wellness (N=8)	3.38	3.25	3.00	2.88	3.13	2.88	2.88	2.75	3.13	3.03
International Journal of Health Education (N=10)	3.02	2.80	2.50	2.40	3.00	2.80	3.00	2.60	2.87	2.78
School Health (N=45)	3.16	3.05	2.73	2.70	2.98	2.80	2.82	2.96	2.96	2.91
Mean	3.25	3.13	2.59	2.55	2.95	2.77	2.87	2.84	2.91	3.00

Mean Rating Scale: 1=high/positive
5=low/negative

TABLE 3

Mean Ratings Based on Instrument Criteria
for the Seven Study Journals
(Experimental Articles Only)*

JOURNAL	INSTRUMENT CRITERIA									
	1	2	3	4	5	6	7	8	9	$\bar{x}$
American College Health Association (N=0)	-	-	-	-	-	-	-	-	-	-
American Public Health Association (N=1)	3.00	3.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.44
Health Education (N=0)	-	-	-	-	-	-	-	-	-	-
Health Education Quarterly (N=0)	-	-	-	-	-	-	-	-	-	-
Health Values: Achieving High Level Wellness (N=0)	-	-	-	-	-	-	-	-	-	-
International Journal of Health Education (N=0)	-	-	-	-	-	-	-	-	-	-
School Health (N=1)	2.00	3.00	2.00	3.00	3.00	4.00	3.00	3.00	3.00	3.22
Mean	2.50	3.00	2.00	2.50	3.00	3.50	2.50	2.50	2.50	2.83

Mean Rating Scale: 1=high/positive
5=low/negative

*Three experimental articles utilized in reliability assessment were excluded.

TABLE 4

Mean Ratings Based on Instrument Criteria for the Seven Study Journals (Quasi-Experimental Articles Only)*

JOURNAL	INSTRUMENT CRITERIA									
	1	2	3	4	5	6	7	8	9	$\bar{x}$
American College Health Association (N=11)	3.25	3.00	2.58	2.03	3.00	3.00	3.00	3.08	3.33	2.98
American Public Health Association (N=58)	3.05	3.12	2.52	2.47	2.78	2.57	2.48	2.62	2.85	2.72
Health Education (N=2)	3.50	3.00	3.00	3.50	3.00	2.50	2.50	2.50	3.00	2.94
Health Education Quarterly (N=4)	2.75	2.75	2.25	2.00	2.50	2.00	2.25	2.00	2.25	2.31
Health Values: Achieving High Level Wellness (N=4)	3.00	3.00	3.00	2.75	3.25	2.75	3.00	2.75	3.00	2.95
International Journal of Health Education (N=6)	3.00	3.00	2.00	2.33	3.00	3.00	3.00	3.00	2.67	2.76
School Health (N=24)	3.17	3.13	2.92	2.83	2.96	2.71	2.83	2.96	2.88	2.93
Mean	3.10	3.00	2.61	2.56	2.93	2.65	2.70	2.70	2.85	2.79

Mean Rating Scale: 1=high/positive
5=low/negative

*Twelve quasi-experimental articles utilized in the reliability assessment were excluded.

TABLE 5

Mean Ratings Based on Instrument Criteria
for the Seven Study Journals
(Non-Experimental Articles Only)*

JOURNAL	INSTRUMENT CRITERIA									
	1	2	3	4	5	6	7	8	9	$\bar{x}$
American College Health Association (N=5)	3.60	3.40	2.60	2.80	3.00	3.00	3.20	3.20	3.20	3.11
American Public Health Association (N=64)	3.21	3.13	2.43	2.51	2.95	2.65	2.67	2.89	2.86	2.81
Health Education (N=3)	4.00	4.00	2.67	2.67	3.00	3.33	3.33	3.33	3.67	3.33
Health Education Quarterly (N=5)	3.00	2.80	2.20	2.20	2.80	2.40	2.40	2.60	2.00	2.49
Health Values: Achieving High Level Wellness (N=4)	3.75	3.50	3.00	3.00	3.00	3.00	2.75	2.75	3.25	3.19
International Journal of Health Education, (N=4)	3.05	2.50	2.80	2.50	3.00	2.50	3.00	3.00	3.00	2.82
School Health (N=20)	3.21	2.95	2.53	2.53	3.00	2.84	2.79	2.95	3.05	2.87
Mean	3.40	3.18	2.60	2.60	2.96	2.82	2.88	2.96	3.00	2.95

Mean Rating Scale: 1=high/positive
5=low/negative

*Nine non-experimental articles utilized in reliability assessment were excluded.