AN EXPLORATORY STUDY OF ATTITUDES TOWARD PARTICIPATION IN PHARMACY CONTINUING EDUCATION AND THEIR RELATIONSHIP TO SELECTED VARIABLES

by

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INTRODUCTION

In our dynamic society the role and function of the health professions are under constant examination and evaluation in an endeavor to align services being rendered with those presently in demand. The profession of pharmacy has not been exempted from this process.

The challenge of our times lies in our ability to satisfy this demand. This challenge can be met with a practitioner who can perform competently under transitional standards. Further, he must actively seek enlightened preparation to cope with professional and technical evolution. Participation in continuing education activities has been almost universally accepted as the most feasible means of responding to this mandate.

Recognized Need for Continuing Education

The Squibb Review for Pharmacy Seniors contends that:

> Knowledge in most fields, pharmacy included, is growing at such a rate that unless one continues to study after graduation, the road to obsolescence is quickly traveled. To make progress in pharmacy, you cannot stand on the education you acquired in college. You must diligently build on it through a program of continuous academic updating.[1]

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1. "Watch Your Obsolescence Rate," Squibb Review for Pharmacy Seniors, 1:1, October, 1962, p. 2.

Lemberger's measure of obsolescence lay in a pharmacist's ability to serve as a pharmaceutical consultant. Tests of institutional pharmacists, community pharmacists, and graduating pharmacy students revealed that all three groups functioned below the accepted 75 percent performance level required for pharmacy licensure by the National Association of Boards of Pharmacy. The institutional pharmacist ranked first with a 71.4 percent score, the community pharmacist scored second with a 65 percent average, and the graduating pharmacy student gave the lowest performance at 58.1 percent.[2]

Many educators have written of the impact of innovation on the ability of pharmacy practitioners to function meaningfully in our society. Blockstein has stated that:

> If we can assist our pharmacist-learners in conducting their lives by adjusting to change, by anticipating change, and by effecting change, we will have fulfilled our mission in continuing education. Both our profession and the public will be better served by our response to the constant challenge of change.[3]

Masters and Benson offered similar reasoning in their argument for continuation studies.

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2. Max A. Lemberger, "A Preliminary Study to Measure the Pharmacist's Ability to Utilize Medication Records in His Role as a Pharmaceutical Consultant," unpublished M.S. Thesis, University of Wisconsin, Madison, 1971, p. 42.

3. William L. Blockstein, "The Constant Challenge of Change," American Journal of Pharmaceutical Education, 30:1, February 1966, p. 61.

> Changing patterns of distribution, changing habits of consumers, and foremost of all, changing medicants and pharmaceutical supplies demand continuing study and knowledge. The strategic importance of continuing education is underscored by the fact that the adult is in a position to put the results of his learning into practice immediately. Through adult learning we reduce the time lag between the development of new and better ways of living and doing and their quickest actual use in everyday living. Thus it is that adult learning is the quickest and surest way to a better state, a better region, and a better profession.[4]

Kremers also spoke to this issue of professional competence; to him the term "....means that one must keep abreast of the progress in his field. This necessitates a continuing growth through education and experience, whether formal or on the job."[5] Further, he suggested that, "Full competence can be developed only over a period of years and does not end with the granting of even the most advanced degree."[6] These statements revealed him to be an ardent proponent of continuing education and served

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4. Hugh B. Masters and John B. Benson, "Pharmacy and Continuing Education," American Journal of Pharmaceutical Education, 23:1, Winter 1959, p. 7.

5. R. E. Kremers, "Professional Attitude and Education," American Journal of Pharmaceutical Education, 23:2, Spring 1959, p. 243.

6. Ibid., p. 245.

as a substantial foundation for his characterization of professional attitude through daily conduct.

Busse placed the active pursuit of knowledge among the heirarchy of requisite activities for competent functioning: "The pharmacist who ceases to learn ought not be allowed to practice in these dangerous days."[7]

Pellegrino went even further in speaking of continuing education "....as a moral responsibility, and not a luxury to be indulged if it does not interfere with our time, income, or professional security."[8]

These statements are only a small sampling of the much publicized movement toward heightening the level of proficiency in pharmaceutical services. One can observe widespread attempts at developing a practical and accepted program for delivering continuing education. Unfortunately, most of these efforts have met with limited success, leading program coordinators to seek rational explanations for their unfruitful labors.

Lawrence Weaver sought a direction toward which program planning should proceed.

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7. Louis Busse, as quoted by W. L. Blockstein, "Developing a Program for Continuing Education for a College of Pharmacy," American Journal of Pharmaceutical Education, 33:5, December 1969, p. 767.

8. E. D. Pellegrino, "Continuing Education in the Health Professions," American Journal of Pharmaceutical Education, 33:5, December 1969, p. 713.

> The focus [of continuing education] should be individual requirements and must include five elements of practicality: personal satisfaction; freedom of choice; continuity; accessibility; and convenience. These criteria assume that (1) learning is essentially an individual, personal achievement; (2) ideal motivation consists of personal standards of excellence; (3) education most beneficially occurs separate from regulation.[9]

Blockstein conceded that measures of education presently in use gave only superficial indication of the worth of these ventures.

> The test of education is not in the certificate of attendance for a short exposure but in the determination of what the student has learned over a sustained period of time and the uses he makes for his newly acquired knowledge.[10]

The Report of an Interprofessional Task Force on Continuing Education seemed to echo this viewpoint:

> How often are programs of continuing education judged by anything more penetrating than an account of the number of participants and their subjective judgments of program worth: 'good meeting'; 'excellent speakers'; 'fine hotel'. If continuing education is designed to influence professional information, new understanding, new skills, new attitudes, then evaluation must aim at the demonstration of

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9. Lawrence C. Weaver, as quoted by William L. Blockstein, Ibid., p. 772.

10. William L. Blockstein (1966), op. cit., p. 59.

> behavioral change, not at the accumulation of intellectual responses.[11]

Response of the Pharmacist Clientele

These statements seem to suggest that present criteria reflect some large scale acceptance of formal educational offerings. Evidence in these and other writings, however, seems quite to the contrary. Sonnedecker reported that:

> Despite substantial gains in 'continuing education' since the Survey of 1946-49, the field remains so undeveloped that a program is outstandingly successful if it reaches 5% to 10% of the practitioners in the area served.[12]

Frank Lobraico, while chairman of the executive committee of the National Association of Retail Druggists expressed his concern in asserting:

> ....to insure that pharmacists themselves maintain their professional standing it is mandatory that we never cease to be students of pharmacy. That too few pharmacists try to keep up with scientific advances is evident from the fact that attendance at

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11. Continuing Education for the Health Professions, Report of an Interprofessional Task Force, Center for the Study of Medical Education, University of Illinois, 1966, p. 15.

12. Glenn Sonnedecker, Pharmacy as a Professional Occupation, Report prepared for the American Pharmaceutical Association, August 1965, p. 87.

> refresher and post-graduate courses sponsored by colleges of pharmacy is much too small.[13]

Explanations for Pharmacists' Disinterest

In view of the generally unenthusiastic response to structured programs, several authors have advised a reconsideration of the present techniques and methodology. Sonnedecker has proposed that:

> Enough pharmacists will absorb enough of these offerings to make it worthwhile if new learning is convenient, approximately at their present level, and suitably inexpensive and/or formally recognized (by board or association or school).[14]

The Interprofessional Task Force on Continuing Education for the Health Professions has observed:

> It is true that, in some programs, questionnaires and other surveys have attempted to assess the needs of potential program participants, but from the nature of the inquiry it seems clear that the response is more likely to reflect what practitioners want than to uncover any substantial evidence about the nature of their real needs.[15]

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13. "NARD, APhA Examine Olive Branch as States Ponder Intermediary Role," Drug News Weekly, 2:38, Sept. 19, 1962, p. 11.

14. Sonnedecker, op. cit., p. 88.

15. Interprofessional Task Force, op. cit., p. 15.

More often than not, however, educators think they have inculcated these values into their programs and glumly search for some new interpretation of these trends. Jack London offered one explanation in his survey of participation in adult education of all kinds. He contended that,

> The common belief that adults lose the ability to learn with age is widespread. This view, contrary to research evidence, declares that adults deteriorate mentally as they age, and therefore, resources expended upon them can be better utilized for the young. This attitude, closely related to the widespread fear of learning that exists among adults continues to persist in spite of the many remarkable intellectual achievements of older adults.[16]

Kirk and Weinswig directed attention to other obvious incongruities in submitting that, "The concept of pharmacists participating in continuing education programs would probably be opposed by only a small percentage of practicing pharmacists today."[17] They further contended, "Many of the problems of continuing education appear not to center around the programs themselves but rather upon

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16. Jack London, "Attitudes Toward Adult Education by Social Class," Adult Education, 13:4, Summer 1963, p. 227.

17. Kenneth W. Kirk and Melvin H. Weinswig, "Mandatory Continuing Education for the Relicensure of Pharmacists," American Journal of Pharmaceutical Education, 36:1, February 1972, p. 48.

the apparent apathy of practicing pharmacists in attending continuing education."[18]

Kazin attested to basically the same theory:

> ....there appears to be a lack of sufficient interest on the part of the practitioner in these programs. When we consider the revolutionary changes in pharmacy during the last two decades and the strong competitive forces now facing the field, such apathy could be dangerous to pharmacy's future economic and professional positions.[19]

Rodowskas discovered a similar tendency in Indiana pharmacists:

> It appears that the product (continuing education) is one that most pharmacists will say is good and fairly priced, but that they themselves do not wish to buy it. When a respondent speaks of the product he usually speaks for his colleagues but not for himself; or restated, it can be suggested that a general attitude exists that conferences are good and desirable to pharmacists in general, so long as one refers to 'other' pharmacists.[20]

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18. Ibid.

19. Louis E. Kazin, "Making Postgraduate Refresher Courses More Practical," American Journal of Pharmaceutical Education, 23:1, Winter 1959, p. 32.

20. Christopher A. Rodowskas, "Continuing Education in Pharmacy," unpublished M.S. Thesis, Purdue University, 1963, p. 49.

Waters and Braucher report their experiences in Georgia have found their clientele also lacking in motivation:

> After reviewing the slow but deliberate process of our continuing education program for pharmacists in the state of Georgia, we are of the opinion that the present group of retail pharmacists in this area are not 'conditioned' to university centered seminars, and, therefore, preliminary work must be done to sell the values of this service.[21]

Hartman and Watkins admitted that their opinion of an inadequate interest level of pharmacy practitioners in continuing education was strengthened by a low percentage return (12.3%) on a mail questionnaire. The survey had been designed to determine the opinion, needs, and desires of Mississippi pharmacists toward continuing education.[22]

In reviewing the participation of pharmaceutical chemists in continuing education, Paterson found that:

> The decision with respect to the maximum degree of participation that could be expected of a staff member

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21. Kenneth L. Waters and Charles L. Braucher, "Continuing Education in Pharmacy at Georgia," American Journal of Pharmaceutical Education, 23:1, Winter 1959, p. 22.

22. Charles W. Hartman and C. E. Watkins, "Opinions on Continuing Education," American Journal of Pharmaceutical Education, 27:3, Summer 1963, p. 429.

> depended in 1961 (and I believe still does -- although I hope this will not always be the case) on the individual's depth of personal belief in the importance of continuing education.[23]

Kirk and Weinswig outlined the reasons most often given by pharmacists for non-participation in directed learning thusly:

(1) There is a large number of programs offered at a fixed time and at a fixed place.

(2) Registered pharmacists are required by law to be present in their pharmacy whenever it is open for business and the availability of "relief help" is inadequate.

(3) Continuing education does not offer material relevant to their type of practice.

(4) The programs are largely repetitious, the material remained relatively the same over time.

(5) Efforts to fit programs to the future practice of pharmacy are generally too theoretical since the future roles and functions of practitioners are difficult to predict.[24]

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23. G. R. Paterson, "The Participation of Pharmaceutical Chemists in a Continuing Education Program," American Journal of Pharmaceutical Education, 29:5, December 1965, p. 788.

24. Kirk and Weinswig, op. cit., p. 50.

Yet again they submitted that,

> In spite of the numerous reasons why pharmacists do not attend continuing education programs, an underlying fact remains that most pharmacists do not think they need continuing education to practice competently. If pharmacists looked upon continuing education as a vital necessity for them to practice pharmacy adequately, they surely would surmount the various barriers and participate.[25]

These propositions seem to indicate motivation or the absence of motivation for life-long learning as having some root or basis in the psycho-social realm of man's gestalt. With this theory in mind, an exploratory study was considered in an attempt to examine the attitudinal dimensions associated with participation in continuing education. The idea gained impetus after reading of the significance national leaders in adult instruction have attributed to studies of educational disposition.

Relevance of Attitudes To Education

Harry Miller submitted that:

> The concept of attitude has been a battleground in the behavioral sciences for decades, but despite constant attacks on its validity it has proved too valuable a notion to give up. The critics on the extreme wing of behaviorism charge that what a person says about how

25. Ibid.

> he feels makes little difference; his behavior in a particular situation may well contradict his verbal expression, a contention difficult to deny. Nevertheless, most people exhibit a general, if qualified, underlying consistency of orientation and behavior, and change in verbal behavior may well relate to hypothesized change in overt behavior.[26]

Edmund Brunner substantiated this claim and proposed a framework within which such studies might be conducted.

> ....participation has thus far not been studied from the viewpoint of the participant or the potential participant. Such a study might also help determine whether or not participants choose different kinds and degrees of participation in adult education with reference to some system of priorities or values inherent in their manifold relationship with others.[27]

Kotzan and Jowdy, in summarizing their attempts to determine attitudes toward a particular program directed at Georgia pharmacists, conjectured,

> If attitudes are whole or partial indicators of voluntary attendance at adult programs, attitudinal research will become increasingly important to

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26. Harry L. Miller, Teaching and Learning in Adult Education, The Macmillan Co., Collier-Macmillan Ltd., London, 1964, p. 305.

27. Edmund de S. Brunner, An Overview of Adult Education Research, Adult Education Association of the U.S.A., Chicago, 1959, p. 118.

> adult educators. (Analysis of those potential students not in attendance) ...is a potentially fertile area of future attitudinal research for adult education.[28]

Prescott has been quoted as saying, "A person is motivated to learn when he has the active attitude of desiring to learn."[29] Briggs referenced a study of high school students in 1925 as demonstrating, "...the most significant factor, next to estimated intelligence in its association with scholarship appeared to be that quality or composite of qualities, defined as school attitude."[30]

The contentions of these authors all serve as a basis for a study of attitudes of pharmacists within the state of Wisconsin toward continuing education. It is hoped that information gained through indirect attitudinal measurement would find use in analyzing the beliefs practitioners truly hold rather than those to which they verbally subscribe.

Objectives

The objectives of this study are to:

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28. Jeffrey Kotzan and A. W. Jowdy, "Differential Attitudes Toward an Adult Education Program for Pharmacists," Adult Education, 21:1, Fall 1970, p. 27.

29. D. A. Prescott as quoted by Thomas Briggs, The Emotionalized Attitude, Bureau of Publication, Teachers' College, Columbia University, New York, 1940, p. 36.

30. Ibid.

a) determine if an attitude differential toward continuing education can be detected in Wisconsin pharmacists on the basis of participation in continuing education.

b) investigate possible relationships between the degree of participation in formal learning activities and educational attitude.

c) examine the sentiments held by Wisconsin pharmacists toward the role of women in the profession and the influence a composite educational attitude exerts on these sentiments.

d) survey the inclination of respondents toward the legislation of mandatory continuing education requirements and to relate this factor with cumulative questionnaire score.

e) inquire into the motivational impetus provided by:

(1) preceptorship requisites, and

(2) "special service" pharmacy qualifications,

to participation in continuing education and to associate these elements with orientation toward continuing education.

REVIEW OF THE LITERATURE

Much has been written about research directed at the determination of attitudes toward education. However, few publications are specifically aimed at adult or continuing education and even fewer are concerned with continuing education in the health professions.

Studies of Attitudes Toward Adult Education

Generalized studies have been done by Jack London in Oakland, California, based upon the assumption that the primary purpose of education must be rooted in the individual's desire for self-realization, and that his search for inner meaning and significance must continue throughout the life span if a man's life is to have relevance and meaning for him.[1] He attempted to detect an association between attitude and participation through use of personal interviews and a unique sampling technique. His measures of disposition toward specific aspects of education and basic personality and character traits led him to conclude that: "Attitudes toward adult education cannot be reduced to a small number of relatively independent dimensions."[2]

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1. London, op. cit., p. 228.
2. Ibid., p. 232.

Adolph and Whaley constructed an attitude scale to measure the relative degree of approval or rejection of the idea of adult education.[3] Included in the study was a graphic self-rating scale by which respondents reported their attitudes toward adult education. No criteria were applied to the sample to determine motives for participation; yet results reflect a favorable disposition of the participants in various adult education classes to continued learning.

Russell Kropp and Coolie Verner worked extensively on what appears to be a valid instrument for getting a general rating of participant reaction to formalized educational meetings. Their scale measured and compared participant satisfaction with one type of instruction in contrast with another.[4]

A study on the relationship between attitudes toward adult education and extent of educative behavior was done by Seaman and Schroeder in 1970.[5] The Leisure

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3. T. Adolph and R. F. Whaley, "Attitudes Toward Adult Education," Adult Education, 17:3, Spring 1967, p. 152-156.

4. Russell P. Kropp and Coolie Verner, "An Attitude Scale for Evaluating Meetings," Adult Education, 7:4, Summer 1957, p. 212-215.

5. D. F. Seaman and W. L. Schroeder, "Relationship Between the Extent of Educative Behaviors by Adults and Their Attitudes Toward Continuing Education," Adult Education, 20:2, Winter 1970, p. 99-105.

Activities Survey (a measure of educative behavior) and an attitude scale of bi-polar adjective pairs were used to assess 98 randomly selected employees of the Florida Power Co. The attitudinal dimension was limited to six concepts: education, self-improvement, knowledge, skill, learning, and instructor with the following fine bi-polar scales: strong-weak; optimistic-pessimistic; high-low; positive-negative; and fast-slow. The investigators inferred that attitudes toward continuing education were not always reflected in the extent of educative behavior.[6]

Waldron conducted a study of adults in rural areas of Wisconsin "to investigate the relationships among various educational and sociological factors and participation in adult education activities.... In addition, the relationship between the various background factors and attitudes toward participation in adult education was explored."[7] His particular undertaking was a segment of a longitudinal study begun in 1949 by Dr. B. W. Kreitlow at the University of Wisconsin to examine the educational effectiveness of Newly Formed Centralized School Districts

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6. Ibid., p. 104.

7. Mark W. Waldron, "A Study of Selected Background Factors and Their Relationships to Participation in and Attitudes Toward Participation in Adult Educational Activities of Young Adults from Rural Areas," Unpublished Ph.D. Thesis, University of Wisconsin, Madison, 1968, p. 2.

in Rural Areas.[8] His investigation, however, did not attempt to correlate the variables of degree of participation and attitudes although it did provide a significant theoretical and methodological basis for subsequent work in this area.

Studies of Attitudes Toward
Professional Continuing Education

Bennett's study of Air Force nurses' participation in continuing education involved 589 nurses, including 211 who had not been involved in continuing education during the past five years.[9] He found participation significantly related to educational levels, but not to nurses' effectiveness as officers. No significant correlation was detected between participation and age, rank, marital status, and years of service. Although goal orientation could be related statistically to participation, the nurses' major learning orientation was determined as need fulfillment. The nurses' attitudes, their perceptions of supervisors' attitudes, and lack of counselling were delineated as major barriers to

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8. Burton W. Kreitlow, Long-Term Study of Educational Effectiveness of Newly Formed Centralized School Districts in Rural Areas, Cooperative Research Project #1318, University of Wisconsin, Madison, 1966, p. 94.

9. Leland R. Bennett, "Air Force Nurses' Participation in Programs of Continuing Education as Related to Selected Criteria," Unpublished Ed.D. Dissertation, Boston University, Massachusetts, 1968.

educational involvement. Of particular interest was the general contention of this sample of Air Force nurses that participation in continuing education offered no assistance in gaining promotions or increasing effectiveness.

Signe Cooper undertook a study of registered nurses in Wisconsin to provide descriptive background on nursing practitioners and their educational activities.[10] One aspect of the research aimed at determining the felt need for continuing education among the respondents and discerning any barriers they encountered in seeking such education. Results indicated a strong belief in the need for continuing education among the sample chosen (77.5% of the respondents).[11] Inherent difficulties in keeping informed during periods of rapid change and "family responsibilities" were reported as the major obstacles to participation.[12]

An investigation of continuing education of elected and appointed public officials in Florida found these individuals were not properly concerned about lacking skills for meeting the problems of accelerated urbanization

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10. Signe T. Cooper, Wisconsin Registered Nurses, University Extension Division, University of Wisconsin, Madison, 1962, p. 61.

11. Ibid., p. 62.

12. Ibid., p. 63.

and the public clamor for their resolution.[13] One disturbing factor realized by Long was that a high percentage of officials (70%) felt their past education adequately prepared them for their responsibilities despite the increasing complexity of municipal operations and rapid urbanization.[14]

Two recent studies were directed at the evaluation of the level of interest held by engineers toward continuing education. Landis attempted to assess the extent to which engineers were concerned with professional development. He used a sample of 1,146 upper-level engineering, management personnel; engineers; and scientists chosen from twelve companies representing the "old line" and "new line" engineering firms.[15] He concluded that most engineers found little use for continuing education since they perceived little demand for technical competence.

Projective attitudinal techniques were adopted by Rubin and Morgan to ascertain engineers' disposition to

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13. Huey B. Long, "A Longitudinal Study of Continuing Education of Municipal Officials in East Central Florida, 1964-68," Research Reports in Social Science, 12, February 1970, p. 9.

14. Ibid., p. 13.

15. Frank Landis, Continuing Engineering Education: Who Really Needs It? (What is the Market for Continuing Education?), New York, New York University, Department of Engineering, 1969.

continuing their education.[16] The instrument was comprised of three versions describing a hypothetical research and development engineer as having (a) obtained an M.S. degree in a continuing education program, (b) completed seven courses, or (3) completed only one course since graduation.[17] A random distribution of the different resumés was made to 312 research engineers in a government research and development center. These men were instructed to review the acceptability of the applicant presented as their assistant. The form requested them to rate the potential assistant on a series of 43 bi-polar adjective pairs, containing such factors as activity, competence, maturity, individuality, and obsolescence.[18] An interesting portion of this study lies in its application of a projective attitudinal instrument. This technique attempted to evaluate the attitudes of the respondent by asking him to make judgements concerning the character of the individual described in the resumé, thereby "projecting" his own attitudes in his interpretation.

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16. Irwin M. Rubin and Homer G. Morgan, "A Projective Study of Attitudes Toward Continuing Education," Journal of Applied Psychology, 51:6, 1967, p. 453.

17. Ibid., p. 454.

18. Ibid., p. 458.

Analysis of the data collected revealed no significant difference in the perceived advantages of obtaining a degree or taking several courses in a continuing education program. Both of these, however, were seen as having more positive attributes than participating in only one continuing education course. Further, these accomplishments were associated with better management potential, higher ambition and more professionalism.[19]

Studies of Attitudes Toward Continuing Education in Pharmacy

Four attitudinal scales were constructed by Kotzan and Jowdy to measure the post exposure attitude differential toward a series of adult education programs for pharmacists.[20] The instruments measured three specific factors of the pharmacy program:

(1) relevancy of the program material,

(2) ability of the program lecturer, and

(3) management of the program series.[21]

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19. Ibid., p. 460.

20. Jeffrey A. Kotzan and Albert W. Jowdy, "Differential Attitudes Toward an Adult Education Program for Pharmacists," Adult Education, 21:1, Fall 1970, p. 21.

21. Ibid., p. 23.

The fourth questionnaire represented a general criterion assessment of general attitudes to the educational experience. Comparisons of the attending pharmacists were made on the basis of type of practice and graduation date from pharmacy school.

Statistical analysis uncovered a more negative general attitude toward the series of pharmacy programs among hospital pharmacists. Community pharmacists were found to be more amenable to technical adult education programs than previously hypothesized. However, no significant differences on either of the four scales could be attributed to a differential in date of graduation.[22]

In surveying the general trends that could be extrapolated from their study of continuing education in Georgia, Waters and Braucher found a definite differential in participation among pharmacists in their state. They concluded that:

> Generally speaking, there appears to be a positive professional attitude among young pharmacists which gives way to a negative professional attitude among some of the older pharmacists. The long range answer to this situation seems to be the development of professionally enlightened pharmacy groups around strong nuclei of professionally indoctrinated graduates.[23]

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22. Ibid., p. 27.

23. Waters and Braucher, op. cit., p. 22.

Hunter undertook a study of professional continuing education in 1962 within the state of Wisconsin.[24] Several of his hypotheses were interesting from the viewpoint of attitudinal research in that he employed a five point scale to measure perceived importance of continuing education and attempted to relate his findings with various characteristics of his sample. With a final sample of 444 pharmacists, his data reflected a designation of continuing education as being "very important" by two out of every three pharmacists surveyed.[25] Table I summarizes the results of his inquiry.

In cross-classifying this information with selected research variables,[26] the analysis disclosed a greater percentage of hospital pharmacists indicated continuing education as "very important". A positive relationship also was found between the volume of a pharmacist's prescription practice and his evaluation of continuing education. Further the author contributed no significance to years of practice, no major implication to the effect of length of formal pharmacy education, and no influence of the age of responding pharmacists to the expressed

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24. Jack B. Hunter, "The Continuing Education of Wisconsin Pharmacists," Unpublished M.S. Thesis, University of Wisconsin, Madison, 1963.

25. Ibid., p. 30.

26. See Table II.

TABLE I

(Hunter Survey)

Frequency Distribution of Expressed Need for Continuing Education
(N=435)

Measure of Importance	Frequency	% N
5 (very important)	298	68.5
4	68	15.6
3	56	12.9
2	12	2.8
1 (not important)	1	0.2
Total	435	100.0

TABLE II

(Hunter Survey)

Expressed Need for Continuing Education Cross-Classified With Research Variables

Variable	N	Importance of Continuing Education: 5 - Very Important	4	3	2	1 - Not Important	5's as % of N
A. Type Pharmacy	435	298	68	56	12	1	68.5
1. Independent	366	244	58	51	12	1	66.7
2. Chain	31	19	8	4	0	0	61.3
3. Hospital	38	35	2	1	0	0	92.1
B. % R_x's/Total Sales	368	238	68	61	11	0	64.7
1. 20%	61	37	13	8	3	0	60.7
2. 20-35%	179	113	36	27	3	0	63.1
3. 36-50%	78	51	12	11	4	0	65.4
4. 50%	50	37	7	5	1	0	74.0
C. Years of Practice	428	292	67	56	12	1	68.2
1. 5	69	51	15	2	1	0	73.9
2. 5-10	76	57	10	8	1	0	75.0
3. 10-15	101	62	17	21	1	0	61.4
4. 15-20	27	15	5	4	3	0	55.6
5. 20-25	27	20	4	2	1	0	74.1
6. 25	128	87	16	19	5	1	68.0
D. Years of Formal Education in Pharmacy	427	294	65	55	12	1	68.9
1. Apprenticed or less than 2 years	58	36	7	11	3	1	62.1
2. 2-year graduate	30	25	2	3	0	0	83.3
3. 3-year graduate	20	11	2	4	3	0	55.0
4. 4-year graduate	319	222	54	37	6	0	69.5

TABLE II - Cont.

(Hunter Survey)

Variable	N	Importance of Continuing Education: 5 - Very Important	4	3	2	1 - Not Important	5's as % of N
E. Age	429	296	66	54	12	1	69.0
1. 30	83	64	14	5	0	0	77.1
2. 30-39	134	92	20	20	2	0	68.7
3. 40-49	73	44	15	10	4	0	60.3
4. 50-59	90	57	13	16	4	0	63.3
5. 60-64	26	21	2	1	1	1	80.8
6. 65-69	11	9	2	0	0	0	81.8
7. 70 or over	12	9	0	2	1	0	75.0
F. Position in Independent Pharmacy	368	247	57	51	12	1	67.1
1. Employed Pharmacist	147	94	29	21	3	0	63.9
2. Owner	173	119	21	24	8	1	68.8
3. Partner	48	34	7	6	1	0	70.8
G. Number of Full-Time Pharmacists	409	284	59	54	11	1	69.4
1. One Full	154	98	21	26	8	1	63.6
2. Two Full	164	110	30	22	2	0	67.1
3. More than Two	91	76	8	6	1	0	83.5
H. Total Number of Pharmacists Servicing Pharmacy	409	282	61	54	11	1	68.9
1. One	65	41	9	13	2	0	63.1
2. Two	169	108	31	22	7	1	63.9
3. More than Two	175	133	21	19	2	0	76.0

need for continuing education. No significance could be attributed to position in an independent pharmacy (employed pharmacist, owner, or partner), but the number of full-time pharmacists and the total number of pharmacists servicing the pharmacy appeared to provide statistical implication to expressed need for continuing education.[27]

Inter-class analysis between the acknowledged attendance at programs offered through Extension Services in Pharmacy within the last two years and the research variables investigated, likewise produced noteworthy results.[28] Significance tests disclosed a higher rate of attendance for hospital pharmacists[29] and a measurable influence of the number of pharmacists servicing the pharmacy on attendance.[30] Also through an extrapolation of the data collected Hunter conjectured that:

> there was some evidence that the non-respondents did not evaluate the need for continuing education as highly as respondents nor did they attend as many educational activities sponsored by Extension Services in Pharmacy.[31]

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27. Ibid., p. 31, 34, 35, 37, 39, 40.
28. See Table III.
29. Ibid., p. 61
30. Ibid., p. 66.
31. Ibid., p. 116.

TABLE III

(Hunter Survey)

Attendance at Programs Sponsored by Extension Services Cross-Classified With Research Variables

Variable	Number of Different Types of Meetings Attended						% N of 1 or More
	N	0	1	2	3	4	
A. Type of Pharmacy	440	182	137	69	44	8	58.6
1. Independent	367	158	110	61	35	3	56.9
2. Chain	35	19	12	3	0	1	45.7
3. Hospital	38	5	15	5	9	4	86.8
B. % R_x's/Total Sales	383	167	114	63	36	3	56.4
1. Less than 20%	63	32	22	7	2	0	49.2
2. 20-35%	190	86	57	27	18	2	54.8
3. 36-50%	79	31	20	17	11	0	60.8
4. More than 50%	51	18	15	12	5	1	64.7
C. Years of Practice	440	182	137	69	44	8	58.6
1. Less than 5	69	32	19	12	5	1	53.9
2. 5 but less than 10	76	26	29	15	5	1	65.8
3. 10 but less than 15	101	42	31	17	8	3	58.4
4. 15 but less than 20	30	11	11	7	1	0	63.3
5. 20 but less than 25	28	10	9	2	6	1	64.3
6. More than 25	136	61	38	16	19	2	55.1
D. Years of Formal Education in Pharmacy	436	181	137	67	43	8	58.5
1. Apprenticed or less than 2 years	61	31	15	5	10	0	49.2
2. 2-year graduate	32	11	12	4	4	1	65.6
3. 3-year graduate	22	7	11	3	1	0	68.2
4. 4-year graduate	321	132	99	55	28	7	58.9

TABLE III - Cont.

(Hunter Survey)

Variable	Number of Different Types of Meetings Attended						% N of 1 or More
	N	0	1	2	3	4	
E. Age	443	183	139	69	44	8	58.7
1. Less than 30	87	40	24	18	4	1	54.0
2. 30-39	134	53	49	19	11	2	60.4
3. 40-49	76	24	24	16	9	3	68.4
4. 50-59	95	43	22	12	16	2	54.7
5. 60-64	27	11	13	2	1	0	59.3
6. 65-69	11	6	2	1	2	0	45.5
7. More than 70	13	6	5	1	1	0	53.8
F. Position in Independent Pharmacy	379	163	114	62	35	5	57.0
1. Employee	150	66	53	21	8	2	56.0
2. Owner	181	79	47	34	19	2	56.4
3. Partner	48	18	14	7	8	1	62.5
G. Number of Full-Time Pharmacists Servicing Pharmacy	431	177	133	69	44	8	58.9
1. One Full	167	79	48	25	12	3	52.7
2. Two Full	164	71	54	23	16	0	56.7
3. More than Two	100	27	31	21	16	5	73.0
H. Total Number of Pharmacists Servicing Pharmacy	431	177	133	69	44	8	58.9
1. One Total	74	34	21	11	5	3	54.1
2. Two Total	184	88	55	26	15	0	52.2
3. More than Two	173	55	57	32	24	5	68.2

Rodowskas undertook a similar study of continuing education in Indiana. The problem was conceptualized as a marketing situation involving the continuing education session (the product) and the pharmacists of Indiana (the market). The market was further divided into four segments: total potential market (random sample of Indiana pharmacists); potential buyers in the immediate vicinity of a major producer (pharmacies in the community in which the Purdue campus is located); present buyers of the product (registrants at the 1962 Purdue Management Conference); and the future market (Purdue senior pharmacy students).[32]

His inquiry uncovered several noteworthy inconsistencies in regard to the issues raised. One of these concerned the higher value placed on the most recent Purdue program by those in attendance.[33] Another involved the rating given the maximum fee to be charged for a continuing education session:

> Individuals not attending the most recent conference rated a higher maximum fee for continuing education sessions than those in attendance. This high figure may have resulted from an indifferent attitude on the part of those respondents. If a respondent is not planning to attend a conference in the near future, he

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32. Rodowskas, op. cit., p. 34.

33. Ibid., p. 53.

would be little concerned with the price set as the fee.[34]

Also, Rodowskas attempted to assess the factors attracting pharmacists to a continuing education function and noted that the presence of well-known speakers was rated as one of the most important. He questioned this high score in face of only average attendance at a recent Purdue conference where both the president of the National Association of Retail Druggists and the president-elect of the American Pharmaceutical Association were both on the program, and finally conjectures that "....it is doubtful that there is an individual in pharmacy whose presence on a continuing-education program will cause attendance to increase substantially."[35]

In evaluating "opinions" on continuing education in Mississippi, Hartman and Watkins selected an initial sample of 900 pharmacy practitioners within the state. The survey instrument was returned by only 111 members of the potential study group and 103 of these (92.8%) expressed a desire for continuation studies.[36] These data were elicited through tabulation of "Yes" responses to the question:

"Would you like to participate in post-graduate

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34. Ibid.

35. Ibid., p. 72.

36. Hartman and Watkins, op. cit., p. 427.

seminars, conferences, and short courses in pharmacy education?"

Their questionnaire further revealed that only 13.6% of the respondent group had participated in refresher courses. The information gathered in this inquiry in combination with the low percentage return on the questionnaire itself only served to reinforce the preconception of the researchers that there was little inclination toward continuing education among Mississippi pharmacists.[37]

37. Ibid., p. 428.

METHODOLOGY

The design of this study is exploratory in nature.[1] The purpose is to examine the possibility of an attitude differential between participant and non-participant Wisconsin pharmacists in formal continuing education. The variables measured were:

(1) participation

(2) attitude toward

  (a) the role and contribution of women in pharmacy

  (b) mandatory continuing education for relicensure

(3) motivation toward participation in continuing education provided by

  (a) designation as a "special service" pharmacy[2]

  (b) qualification for preceptorship status.

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1. Exploratory studies are only first steps in the research process. They seek to discover new relationships, find likely hypotheses, or define subsequent research problems. This type of design is further discussed in: Harper W. Boyd, Jr. and Ralph Westfall, Marketing Research, Text and Cases, Richard D. Irwin, Inc., Homewood, Ill., 1964, p. 54-58.

2. Designation as a special service pharmacy in Wisconsin enables a retail outlet to charge an additional $0.20 fee on its prescriptions that are paid theough Title XIX.

Data obtained through quantification of these factors were analyzed in relationship to composite attitude score on a multiple-item instrument.

Definition of Terms

The framework of this study rests on an implicit understanding of certain terms basic to the concepts under investigation as well as to the theoretical schema of the development of the instrument used.

Attitude -- "a persistent mental and/or neural state of readiness to react to a certain object or class of objects, not as they are but as they are perceived to be. It is by the consistency of response to a class of objects that an attitude is identified."[3]

Adult education - "an organized sequential learning experience intended for the continued learning of those whose participation is supplementary and subsidiary to a primary productive role in life and society."[4] For the purposes of the present study,

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3. Mark W. Waldron, "Development of an Instrument to Measure Participation in and Attitudes Toward Adult Education," Unpublished M.S. Seminar Report, University of Wisconsin, Madison, 1966, p. 3.

4. Waldron (1968), op. cit., p. 19.

the terms "adult education," "continuing education," "continuation studies," and "refresher courses," were used interchangeably and refer only to pharmacy oriented studies.

Participation - "the act of being involved in an overt manner in some function or activity which results in an interchange between a learner and a teacher arranged situation."[5]

Participant - a pharmacist who has engaged in two or more formal adult education activities during the past three years (1969-1972).

Non-Participant - a pharmacist who has engaged in no more than one formal adult education activity during the past three years (1969-1972).

Formal adult education participation - "is that participation which takes place in organized, sequential learning experiences,"[6] e.g., classes, organized discussion groups, workshops, seminars, telelectures.

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5. Ibid.

6. Ibid., p. 20.

The Sample

An initial sample of 200 Wisconsin pharmacists was randomly selected from a mailing list held by the Extension Services in Pharmacy, University of Wisconsin.[7] On March 22, 1972 the measurement instrument and an accompanying cover letter were mailed to the pharmacists chosen.[8] The original mailing resulted in a 23 percent return by April 12, 1972, one week after the requested date of return. In an effort to increase the percentage return, telephone calls were made to the non-respondents during the weeks of April 13 through 27. Additional questionnaires were sent to those pharmacists who requested them. These questionnaires contained a personal hand-written note addressed to the non-respondent encouraging him to return his completed form as soon as possible. This procedure brought an additional 31 responses, yielding a total percentage return of 38 percent. Of this number, four questionnaires were unuseable due to respondent ineligibility[9] or respondent's failure to

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7. A listing of pharmacy registrants as held by the Wisconsin State Board of Pharmacy would probably have resulted in a more representative sample, but none was available at the time of the study.

8. See Appendix A for questionnaire and cover letter.

9. One respondent was practicing as a podiatrist and not as a pharmacist although he had previously held a pharmacy license.

complete required information and were therefore eliminated from the study. Consequently, statistical analyses were performed with a total of 72 respondents or 36 percent of the 200 initially drawn.

Previous to the initial mailing, statistical calculations were performed to determine the minimum sample size required to detect a true association when attitude (as measured by the instrument used in the study) accounts for 25 percent or more of the variance in participation.[10] In performing these calculations, the power of the test was set at .99, and the risk of rejecting a true hypothesis was placed at .01.[11] It was found that a minimum sample size under these requirements was 36 per group in a study of two groups of equal size or a total sample of 72. Hence the responding sample in this study met the calculated criteria for sample size.

Measurement Instruments

Participation in Formal Pharmacy Continuing Education Activities

This variable was concerned with the extent to which a respondent pharmacist engaged in organized learning

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10. This procedure is explained in William L. Hays' text, Statistics, Holt, Rinehart, and Winston, 1963, p. 329-330.

11. See Appendix B.

experiences with pharmacy-oriented subject matter. In addition, these learning experiences were not to be considered as fulfilling advanced degree requirements.

A measurement instrument was developed as a basis for empirically scoring the respondent's participation during the past three years.[12] It was designed as a self-report mail questionnaire which listed those activities sponsored by the Extension Services in Pharmacy, University of Wisconsin during the period of 1969 to 1972 and allotted space for the respondent's indication of attendance.[13]

In scoring this instrument, a value of one was given for each activity in which a respondent indicated participation. These total participation scores then served as the basis for categorizing respondents as participants or non-participants.

Attitudes Toward Participation in Pharmacy Continuing Education Activities

The instrument used in this study was developed by Mark W. Waldron in 1966[14] and subsequently used in his

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12. See Appendix A.

13. Space was also provided for respondents to indicate any pharmacy-related educational activities they attended that were not sponsored by the Extension Services in Pharmacy, University of Wisconsin.

14. Waldron (1966), op. cit.

study of rural Wisconsin adults in 1968.[15] It attempted to measure the variable of attitude toward continuing education by accumulating an attitude score for each respondent as an indication of his disposition toward participation, given that sufficient opportunity was available.

The original instrument consisted of a 40-item attitude questionnaire on which respondents indicated their degree of agreement or disagreement with each statement on a four-point continuum.[16] In the construction of this scale, Waldron adopted five basic propositions as his theoretical framework. They include the premises that:

> "(1) All men and women possess, in some measure, the desire to learn.
>
> (2) Adult education is the process by which adults either alone or in groups, consciously and voluntarily try to improve themselves by increasing their skills, their understanding, and their knowledge.
>
> (3) Adult education programs generally focus on the individual differences among adults and consequently are based on the individual's needs and wants.
>
> (4) Each adult has changing educational needs as he experiences changes in the life cycle leading to changes in role definition and differentiation.

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15. Waldron (1968), op. cit.

16. Waldron (1966), op. cit., p. 43.

(5) Existing adult education agencies and programs tend to focus their attention on five factors which lead to participation: cultural reading, mass media, associational, and academic."[17]

Waldron further delineated the concepts associated with these factors leading to participation. Cultural factors were seen as producing a favorable inclination toward involvement in cultural activities; factors associated with reading concerned the acceptance of the activity as a means of discovering the ideas of others, as an interchange between the author and the reader. The mass media concept involved the consideration of magazines, newspapers, radio, and television as means of learning more about the world; the associational aspect pertained to the recognition of the influence of group action on decision-making within the community. The academic component of programming was perceived as the acknowledgment of the significance of sequential and integrated learning experiences as avenues to self-fulfillment in accord with one's abilities and ambitions.[18]

Of the 40 items included in Waldron's instrument, 28 were used without alteration in this investigation. Seven items were modified to achieve a greater similarity

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17. Ibid., p. 44.

18. Ibid.

to concepts associated with pharmacy continuing education and five were deleted and replaced with statements directed toward the measurement of other factors of interest in this study.[19]

Two representative examples of these seven statements were altered as follows:

Waldron's:	10.	Before visiting a foreign country, I would like to read about its history.
became:	10.	Before attending a professional meeting, I would like to review information relevant to the topics under discussion.
Waldron's:	36.	I have often felt that I'd like to get together with some friends and neighbors a couple of times a month to discuss world news.
became:	36.	I have often felt that I'd like to get together with other members of the health team a couple of times a month to help bridge the gap in communication between the professions.

19. Items 4, 10, 26, 27, 33, 36, and 39 of Waldron's instrument were modified, and items 13, 14, 20, 34, and 40 were deleted.

A Hoyt Coefficient of Reliability[20] of 0.89 was computed for Waldron's instrument[21] using the Fortap program. This program is designed to maximize the internal consistency of an instrument by distributing the weight given an item on the basis of the degree of discriminatory power.[22] Validity measures were not attempted beyond that of prima facie validity, or face validity.

Measurement of Selected Variables

Specific statements were included within the body of the measurement instrument directed at the assessment of certain attitudes held by the respondents toward the role and contribution of women in pharmacy and the requirement of mandatory participation in continuing education for relicensure. Other items were inserted to ascertain the motivational impetus to participation in continuing

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20. The Hoyt Coefficient of Reliability reflects the internal consistency of a measurement instrument. This is accomplished through the quantification of observed variation in the distribution of test scores in terms of the variance which cannot be attributed to the unreliability of the instrument. See Cyril Hayt, "Test Reliability Estimated by Analysis of Variance," Psychometrika, 6:3, June 1941, p. 153-160.

21. Waldron (1966), op. cit., p. 63.

22. Further information is available on the Fortap program in Frank B. Baker's Fortap, a Fortran Test Analysis Package, Laboratory of Experimental Design, Department of Educational Psychology, University of Wisconsin, Madison, 1969.

education provided by designation as a special service pharmacy and qualification for preceptorship status. Five statements were added in replacement of the five deleted from Waldron's study. Two of these were directly concerned with attitudes toward women:

14. A pharmacy education is as promising for a woman as a man.

34. From my experience, a woman pharmacist can contribute as much to the profession as a man.

Disposition toward mandatory continuing education was assessed through statement:

13. Participation in continuing education programs should be a requirement for relicensure.

Motivational analysis was attempted in items:

20. Qualificatión for preceptorship is a primary motivation for participation in continuing education activities.

40. As far as I'm concerned, participation in continuing education is simply a means of qualifying as a "special service pharmacy."

These items, as well as those comprising the cumulative attitude survey, were scored according to a priori weights assigned to each statement on a 1 to 4 basis. The score for attitude toward women in pharmacy was obtained from the total of the scores on the two individual items.

Statistical Analyses

Basically two types of statistical analyses were used to interpret the data. Correlation analysis was employed to examine the degree of relationship existing between selected pairs of variables. These calculations were facilitated through application of the DSTAT2 Program of the Statjob statistical package held in the program library of the Univac 1108 computer at the University of Wisconsin.

This program yielded:

(1) basic statistics: the sum, sum of squares, mean, variance, standard deviation, and coefficient of variation for each variable,

(2) coefficient of correlation for each variable pair,[23]

(3) the significance test for each coefficient of correlation.[24]

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23. The coefficient of correlation reflects the extent to which there is a systematic linear relationship between the scores on two variables. See: William L. Hays, Statistics, Holt, Rinehart, and Winston, 1963, p. 499.

24. This represents the probability that the corresponding correlation estimator is greater than the observed value under the null hypothesis that the correlation is zero. For further information, consult Statjob Series: DSTAT2, Madison Area Computing Center, University of Wisconsin, Madison, 1966.

A two sample t-test, programmed in Fortran on the Univac 1108 computer, was used to analyze the difference between means on attitude scores found to exist between the groups of participants and non-participants in continuing education.[25]

Limitations

Limitations imposed upon this study include:

(1) the inability of the experimenter to control variables which may influence participation and attitudes toward participation.

(2) the unavailability of a more complete listing of Wisconsin pharmacy registrants from which to draw the random sample.

(3) the necessity of using a normal approximation in statistical calculations to represent data which may reflect a relatively large standard deviation.

(4) respondent error in the interpretation of the statements.

(5) experimenter error in scoring the answer sheets.

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25. For a detailed description and explanation of this test statistic, see: William L. Hays, Statistics, Holt, Rinehart, and Winston, 1963, p. 320.

(6) error due to the application of an attitudinal instrument to a population for which it had not been proven reliable.

FINDINGS

The findings of this study are reported in terms of the objectives proposed in the introductory chapter. Presentation of the data includes:

(1) accumulation and analyses of scores on the six selected variables:
   (a) participation
   (b) attitude toward participation in continuing education
   (c) attitudes toward the role of women in pharmacy
   (d) attitudes toward mandatory continuing education
   (e) motivation for participation provided by designation as a special service pharmacy, and
   (f) qualification for preceptorship.

(2) comparison of attitudinal scores on the basis of participation, and

(3) classification and analyses of relationships between attitude score and the five other variables.

In the analyses of the data, the exploratory nature of the study enabled the investigator to seek meaningful relationships without previously proposing hypotheses to

be tested. Hence correlations detected between variables are meant to serve only as bases for making hypotheses in more extensive investigations.

Participation of Respondents in Continuing Education

Participation scores were based upon a composite of the number of pharmacy continuing education activities attended by a pharmacist. Only those activities which could be considered as organized learning experiences in which the participant was in contact with an educational agent were included in the score. The tabulation of the data shows that only 30.5 percent of the respondents attended three or more formal programs during the past three years. The mean attendance score for all respondents was 1.9.[1] Table IV summarizes the data associated with participation.

These results seem to deviate from the information Hartman and Watkins obtained in their study of Mississippi pharmacists. Only 13.6 percent of their sample had participated in any continuing education programs,[2] as compared with 70.7 percent in this survey. This differential may be attributed to an increased interest of

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1. See Appendix C for computer print-outs of descriptive statistics for this variable.

2. Hartman and Watkins, op. cit., p. 429.

TABLE IV

Number of Activities Participated In By Respondents

Number of Activities	Number of Respondents	Percentage
0	21	29.3
1	15	20.8
2	14	19.4
3	6	8.3
4	9	12.5
5	4	5.5
6	1	1.4
7	1	1.4
8	1	1.4
Total 138	72	100.0
Mean 1.92		

pharmacists in continuation studies over the nine years that have elapsed since Hartman and Watkins completed their study. Also the number of opportunities to pursue this interest is probably greater now in Wisconsin than it was in Mississippi in 1963.

Forbes' "Survey of Practicing Pharmacists in Wisconsin" seemed to coincide with the percentage of pharmacists found to refuse participation in continuing education activities. He wrote that over one-third of all pharmacists in his survey reported non-attendance at

any professional conventions, seminars, or meetings during the past year.[3] Although his time reference was one-third of the span used in this study and his definition of a continuing education activity was much wider, the parallel is nonetheless interesting.

Attitude Toward Participation in Continuing Education Activities

Attitude scores were compiled from 35 items on the measurement instrument. Six ranges of composite attitude scores were established for tabulation of the data.

The mean attitude score was calculated to be 73.35 for all respondents. Because of the inverse nature of the attitude scale, a low attitude score indicates a positive attitude and conversely, a high attitude score indicates a negative attitude. Hence those respondents with a score above 73 could be said to have a negative attitude toward participation and those with a score below 73 could be considered as having a positive attitude toward participation in pharmacy continuing education. The data evidences that 50 percent of the respondents have a negative attitude toward participation while 44 percent have a positive attitude.[4]

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3. David S. Forbes, "A Survey of Practicing Pharmacists in Wisconsin," unpublished M.S. Thesis, University of Wisconsin, Madison, 1971.

4. See Appendix C for computer print-outs of the descriptive statistics of this variable.

TABLE V

Ranges of Composite Attitude Toward Participation in Continuing Education Scores

Ranges of Scores	Number of Respondents	Percentage
81-87	12	16.7
76-80	18	25.0
74-75	6	8.3
73	4	5.5
71-72[a]	9	12.5
66-70	13	18.1
61-65	6	8.3
54-60	4	5.5
Total	72	100.0

Mean = 73.35

[a]Subsequently, ranges 74-75, 73, and 71-72 are grouped as range 71-75.

Table V shows the ranges of these scores and the distribution of respondents within these ranges. The mean attitude score is equivalent to 2.1 on the 1.0 - 4.0 attitude scale of the instrument. Therefore, the respondents can be said to generally favor participation in continuing education given the opportunity.

It is to be noted that although there was almost an equal distribution of respondents above and below the mean attitude score, positivity and negativity in regard

to attitude had been defined relative to the reference group. Waldron's study group of rural Wisconsin adults yielded a mean attitude score of 91 on a 40-item instrument.[5] By simple proportion this value can be converted to a score of 73 on a 35-item questionnaire as used in this study. This mean value coincides exactly with that found for Wisconsin pharmacists. Therefore, the reliability of the original instrument would seem to have suffered little through the alterations and deletions made in this application to pharmacists.

Attitude Toward Participation in Continuing Education and Participation Scores

Analysis of the relationship between composite attitude score and participation was accomplished by two methods. The first involved a correlation analysis[6] of the two variables using the data as outlined in Table VI.

A correlation coefficient of -.467[7] was calculated for the variables of attitude and participation. This

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5. Waldron (1968), op. cit., p. 139.

6. See Appendix D for computer print-outs of the correlation analysis of these variables.

7. The inverse scale of the instrument is also reflected in the correlation coefficients. Hence a negative correlation indicates a corresponding positive attitude score. That is, as the variable score increases, the attitude score decreases or becomes more positive.

TABLE VI

Ranges of Composite Attitude Scores by Attendance at Continuing Education Activities

Ranges of Attitude Scores	Number of Continuing Education Activities Attended									Total
	0	1	2	3	4	5	6	7	8	
81-87	9	1	1	0	0	0	1	0	0	12
76-80	8	5	3	1	0	1	0	0	0	18
71-75	3	4	5	3	2	2	0	0	0	19
66-70	1	3	3	2	2	0	0	1	1	13
61-65	0	2	0	0	4	0	0	0	0	6
54-60	0	0	2	0	1	1	0	0	0	4
Total	21	15	14	6	9	4	1	1	1	72

$r = -.467^{a}$

[a]r represents the correlation coefficient.

value was found to be significant at an α level of .01 in a test of zero correlation.[8] Hence this correlation analysis suggested that the inverse relationship between attitude and participation could be observed to be some value other than zero by chance only one time in a hundred.[9]

Another analysis of attitude and participation involved a comparison of mean scores of participants and non-participants.[10] This information is shown in Table VII.

This calculation showed that there was a significant difference between composite attitude scores of participants and non-participants at the .01 level of significance. It can be inferred from this information that attitude toward continuing education does affect the degree to which a pharmacist participates in formal continuing education programs.

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8. See Appendix E for computer print-outs of the significance matrix for these variables.

9. The significance matrix as computed by DSTAT2 Program of the Statjob Series represents the probability that the corresponding correlation estimator is greater than the observed value under the null hypothesis that the correlation is zero.

10. See Appendix F for computer print-outs of the t ratio calculation for these two groups.

TABLE VII

Composite Attitude Score Ranges for Participants and Non-Participants

Attitude Score Ranges	Number of Participants[a]	Number of Non-Participants[b]
81-87	2	10
76-80	5	13
71-75	12	7
66-74	9	4
61-65	4	2
54-60	4	0
Total	36	36
Grand Mean = 73.35		
Mean	70.19	76.50

t ratio = -3.91[c] (α = .01)

[a]Participants have attended two or more continuing education activities during the past three years.

[b]Non-participants have attended no more than one continuing education activity during the past three years.

[c]The t ratio tests the hypothesis that there is no difference between sample means in two different treatment groups.

Seaman and Schroeder found no significant relationship between attitude toward continuing education and extent of educative behavior in their study of employees of the Florida Power Co. However, they reported a positive correlation between these two variables. They also found the positive correlation between the level of education of the participant and the extent of educative behavior significant at the five percent level.[11]

These findings were not completely contradictory to the results of this study. The positive correlation of educational level and participation in continuing education has increased importance when applied to the professional education of professionals. This relationship probably bears enough weight to influence attitudes toward continuing education more than any other factor.

Culbertson seemed to concur with these results when he proposed that:

> There is reason to believe (though there is less research than one might like to indicate) that an attitude high in intensity, strength, and knowledge is apt to be a good predictor of behavior.[12]

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11. Seaman and Schroeder, op. cit., p. 104.

12. Hugh M. Culbertson, "What Is an Attitude?," Journal of Cooperative Extension, 6:2, Summer, 1968, p. 83.

Although he adhered personally to his theory, he further proposed that attitudes alone do not determine behavior.[13]

Briggs has stated that "....man's actions do not necessarily reveal his true attitude; social pressure, the desire to please and to be well thought of often lead people to behave in a manner designed to portray attitudes inconsistent with their true feelings."[14] He also explained the relevance of motivation to attitudinal research and offered this factor as perhaps the one overriding determinant in participation studies. Still others maintained that only limited utility could be found in the use of multiple-item attitude instruments as predictors of behavior. Even when the behavior in question represented a "normal configuration of repetitive actions" or commonly, a habit, these authors conceded the availability of only modest support in the literature for the predictability afforded by attitude measurement.[15]

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13. Ibid., p. 84.

14. Briggs, op. cit., p. 1.

15. Charles R. Tittle and Richard J. Hill, "Attitude Measurement and Prediction of Behavior: An Evaluation of Conditions and Measurement Techniques," Sociometry, 30, 1967, p. 212.

Attitudes Toward the Role of Women in Pharmacy

Pharmacists' attitudes toward the role and contribution of women in the profession were evaluated by combining the scores on two items of the measurement instrument directed toward this issue.[16] Table VIII provides the distribution of these scores.

TABLE VIII

Scores on Attitudes To the Role of Women in Pharmacy

Attitude Score	Number of Respondents	Percentage
2	14	19.4
3	15	20.8
4	37	51.4
5	4	5.6
6	2	2.8
7	0	0
8	0	0
Total 253	72	100.0
Mean = 3.51		

16. See Appendix C for computer print-outs of the descriptive statistics of this variable.

Examination of these data disclosed that approximately 20 percent of the respondents strongly agreed with statements which equated the benefits of a pharmacy career between the sexes. On the other hand, only about 3 percent of the sample expressed disagreement with these statements. The mean score of all respondents was 3.5 which is approximately equivalent to 1.8 on the 1.0 to 4.0 scale of the questionnaire. This can be interpreted to mean that there is a general agreement among pharmacists in this sample with the proposition that women offer as much to the profession of pharmacy as men.

Attitudes Toward the Role of Women in Pharmacy and Composite Attitude Toward Participation in Continuing Education

Further analysis was made of attitudes toward women in pharmacy in relation to the influence of attitude toward continuing education. A cross-tabulation of these data are depicted in Table IX.

The coefficient of correlation of these two variables was found to be .403.[17] This reflects a decrease in composite attitudinal score accompanying a corresponding decrease in score of attitudes toward women in pharmacy. Or more accurately stated, respondents with a more positive attitude toward continuing education tended to have a more

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17. See Appendix D for computer print-outs of the correlation analysis of these variables.

TABLE IX

Ranges of Composite Attitude Score by Score of Attitude Toward Women in Pharmacy

Ranges of Composite Scores	Scores of Attitudes Toward Women RPh's 2	3	4	5	6	Total
81-87	0	1	9	1	1	12
76-80	3	4	8	2	1	18
71-75	3	3	12	1	0	19
66-70	4	5	4	0	0	13
61-65	3	1	2	0	0	6
54-60	1	3	1	0	0	4
Total	14	15	36	4	2	72

$r = .403^{a}$

[a] r represents the correlation coefficient.

positive attitude toward the contribution of women in pharmacy. This correlation was significant at the .01 level.[18]

This relationship takes on added importance in view of the most common complaint about women in pharmacy. The responsibilities of a home and family have been thought to be too demanding for a woman working full-time as a pharmacist. If those pharmacists who have the

18. See Appendix E for computer print-outs of the significance matrix for these variables.

most positive attitudes toward participation in continuing education are indeed motivated by a desire for professional competence, then these practitioners might seem most resentful of these distractions. They could conceivably believe that too much of a woman's thoughts and energies are directed outside of her profession and equate divided interests with decreased concern, ability, and competence. The results of this inquiry seem to indicate that this is not the case.

Attitudes Toward Mandatory Continuing Education

Analyses of scores on an attitudinal statement designed to assess disposition toward mandatory continuing education disclosed that over 55 percent of the respondents favor the measure.[19] Forty respondents agreed with the requirement of mandatory continuing education for relicensure. Nine of these, or 12.5 percent, indicated strong agreement with the statement. The mean score for all respondents was 2.4 on a 1.0 to 4.0 scale, which indicates almost a neutral score or an even division among the respondents for or against the measure. Table X shows the frequency of observation of each of the score.

Only nine respondents, or 12.5 percent, of the sample indicated strong disagreement with this requirement. This may reflect less opposition among pharmacy

19. See Appendix C for computer print-outs of the descriptive statistics of this variable.

TABLE X

Scores on Attitude Toward Mandatory Continuing Education

Scores	Number of Respondents	Percentage
1	9	12.5
2	31	43.1
3	23	31.9
4	9	12.5
Total 176	72	100.0
Mean = 2.44		

practitioners to legislation of this sort than has been previously speculated. It seems possible that Wisconsin pharmacists may accept the issue as a feasible solution of upgrading competence especially among those who would not voluntarily seek this path themselves.

Attitude Toward Mandatory Continuing Education and Composite Attitude Scores Toward Participation in Continuing Education Activities

Table XI summarizes a cross-classification between attitude toward mandatory continuing education and composite attitude score.

The correlation coefficient was found to be .466[20];

20. See Appendix D for computer print-outs of the correlation analysis of these variables.

TABLE XI

Ranges of Composite Attitude Scores by Scores of Attitudes Toward Mandatory Continuing Education

Ranges of Composite Attitude Scores	Scores of Attitude Toward Mandatory Continuing Education 1	2	3	4	Total
81-87	0	2	8	2	12
76-80	1	4	9	4	18
71-75	0	13	5	1	19
66-70	6	5	1	1	13
61-65	2	3	0	1	6
54-60	1	3	0	0	4
Total	10	30	23	9	72

r = .466[a]

[a] r represents the correlation coefficient.

this value is significant at the .01 level[21] and suggests a high degree of linear relationship between the two variables. It can be interpreted to mean that a high score of attitude toward mandatory continuing education is associated with a high composite attitudinal score to participation in continuing education. Therefore, the more unfavorable the attitude held by a pharmacist toward mandatory continuing education, the more unlikely he is

21. See Appendix E for computer print-outs of the significance matrix for these variables.

to favor participation in continuing education programs in general.

This does not seem too difficult to interpret in terms of phenomena observable in participation studies. Pharmacists who attend more continuing education programs anyway, have little concern with whether or not this attendance becomes mandatory. Seemingly, those who do not attend show the least inclination to being forced to do so. This latter group would probably be regarded as the target audience for such a movement and they, in turn, would resist it most.

Motivation To Participation Provided
by Designation as a "Special Service" Pharmacy

The distribution of motivation scores provided by the incentive of being designated as a "special service" pharmacy is presented in Table XII. Over 83 percent of the pharmacists in this survey indicated agreement with a statement which named this "special service" qualification as the reason for participation in continuing education activities. Twelve respondents, about 17 percent of the sample, indicated strong agreement with such a statement. Only one pharmacist strongly disagreed with this motivation as the reason for his participation.

TABLE XII

Scores of Motivation Provided by Designation as a "Special Service" Pharmacy

Scores	Number of Respondents	Percentage
1	12	16.7
2	48	66.6
3	11	15.3
4	1	1.4
Total 145	72	100.0

Mean = 2.01

A mean score of 2.01 was found for all respondents.[22] On the 1.0 to 4.0 scale, a score of 2.0 reflects a general agreement that qualification as a "special service" pharmacy is the end sought by participation in continuing education. It would seem that pharmacists value a monetary incentive of this sort more than they would the desire for professional competence. If this incentive is indeed bringing pharmacists to the programs, then some attempt must be made to assess the learning differential of participants operating under these factors. An incentive which brings uncooperative learners to an education experience for reasons which strongly outweigh

22. See Appendix C for computer print-outs of the descriptive statistics of this variable.

any desire for learning, may eventually undermine all efforts at providing meaningful professional education.

Motivation Provided by Designation as a "Special Service" Pharmacy and Attitude Toward Participation in Continuing Education

The results of cross-classifying attitude toward continuing education and degree of motivation toward participation afforded by "special service" pharmacy qualification are summarized in Table XIII.

TABLE XIII

Ranges of Composite Attitude Score by Scores of Motivation Provided by Designation As a "Special Service" Pharmacy

Ranges of Composite Scores	Scores of Motivation of "Special Service" Priviledge				Total
	1	2	3	4	
81-87	0	8	4	0	12
76-80	1	12	4	1	18
71-75	2	14	3	0	19
66-70	5	8	0	0	13
61-65	3	3	0	0	6
54-60	1	3	0	0	4
Total	12	48	11	1	72

$r = .421$[a]

[a] r represents the correlation coefficient.

The correlation coefficient of these factors was determined to be .421.[23] A positive correlation of this magnitude indicates a strong direct relationship. This relationship was found to have significance at the .01 level.[24]

These results indicate that a high attitude score can be associated with a correspondingly high degree of motivation toward participation in continuing education afforded by the "special service" qualification. More concisely, the more positive a pharmacist's attitudes are toward continuing education the greater the motivation "special service" incentives provide toward participation in continuation studies.

One must question the worth of such motivation if it brings hostile or disinterested students to the learning situation. These data suggest that a positive attitude to the entire continuing education process usually accompanied the desire for "special service" benefits. If these benefits increase the personal commitment of pharmacists to the upgrading of professional services, then they must be regarded as valuable devices for stimulating our clientele. On the other hand, if

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23. See Appendix D for computer print-outs of the correlation analysis of these variables.

24. See Appendix E for the computer print-outs of the significance matrix of these variables.

only those pharmacists who are already favorably disposed to participation in continuing education are further attracted by these incentives, then perhaps these measures serve as reinforcements to their commitment.

In either instance, the data obtained in this study lend little evidence to the theory that designation as a "special service" pharmacy draws a clientele of completely unwilling learners. Further, it does not indicate that pharmacists who otherwise would not participate in continuing education activities are seeking re-education solely for monetary purposes.

Motivation Toward Participation in Continuing Education Provided by Preceptorship Requirements

Over 43 percent of the pharmacists in the sample indicated agreement with a statement naming qualification for preceptorship as a primary motivation for participation in continuing education activities. Four of these respondents designated strong agreement with this statement. By comparison, approximately seven percent of the pharmacists surveyed strongly disagreed with the primary motivation of preceptorship. The results of this analysis are depicted in Table XIV.

A mean of 2.58 was calculated for the responses to this statement.[25] This reflects an almost neutral

25. See Appendix C for computer print-outs of the descriptive statistics for this variable.

TABLE XIV

Scores of Motivation Provided by Qualification for Preceptorship

Scores	Number of Respondents	Percentage
1	4	5.6
2	27	37.5
3	36	50.0
4	5	6.9
Total	72	100.0

Mean = 2.58

attitude as representative of the concensus. From these data one could conclude that qualification for preceptorship primarily motivates only a little less than one-half of the respondents to participate in continuing education.

Motivation Provided by Qualification for Preceptorship and Attitude Toward Participation in Continuing Education

A cross-tabulation of data concerning composite attitude toward continuing education and degree of motivation provided by preceptorship requirements is given in Table XV.

TABLE XV

Ranges of Composite Attitude Score by Scores of Motivation Provided by Qualification for Preceptorship

Ranges of Composite Attitude Scores	Scores of Motivation of Preceptorship 1	2	3	4	Total
81-87	0	4	8	0	12
76-80	0	9	8	1	18
71-75	1	7	11	0	19
66-70	1	4	5	3	13
61-65	1	0	4	1	6
54-60	1	2	1	0	4
Total	4	26	36	5	72

$r = .050^{a}$

[a] r represents the coefficient of correlation.

A correlation of .050[26] between these two variables was found to be significant at the .01 level.[27] Particular attention must be given here to the calculation of the significance value using the DSTAT2 program. The significance matrix is computed in terms of the probability that the observed correlation value is less than the correlation estimator given that the true

26. See Appendix D for computer print-outs of the correlation analysis of these variables.

27. See Appendix E for computer print-outs of the significance matrix of these variables.

correlation is zero. This method attributes importance to a relationship if it differs significantly from the conditions of no association whatsoever. For the purposes of this study, a correlation of .050 is too small to be considered of interest, although it does deviate significantly from a completely non-existent relationship. In view of these findings, one could conclude that little linear predictability of attitude toward continuing education is afforded by knowledge of the motivational impetus provided by preceptorship qualification.

Implications

In a study of attitudes toward participation in continuing education, the observance of any hesitancy to enter into a learning situation among pharmacists might question their ability to learn once placed in such a situation. This reluctance seems contrary to the common belief that every individual desires to grow and that a professional person is eager to do well in his profession.

Bruner defined the desire to achieve competence as an intrinsic motive for learning and instruction as "an effort to assist growth."[28] Havighurst proposed that a

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28. Jerome Bruner, Toward a Theory of Instruction, Harvard University Press, Cambridge, Mass., 1966, p. 1 and 115.

person with a strong feeling or need to perform a particular task better is in a favorable position to seek education in this area.[29] The pharmacists in this study do not approach the subject matter of professional programs with the fervor adult educators have described. Their reluctance could be attributed to a degree of self-satisfaction with the level of proficiency at which they presently practice. Therefore, new learning would not be viewed as being essential for professional competence. Further explanation may be found in the threat to self-esteem posed by an encounter with new ideas.

Psychologists also have recognized the establishment of 'mental rigidity' in adults. Havighurst acknowledged the individual "...who has reached a plateau in his vocation, and does not feel the need of further learning there or anywhere else. He is getting along quite well by his standards and those of the people close to him."[30] Some have found adults satisfied and unwilling to pay the price for new learning.[31] Several have offered possible reasons for this attitude. It has been attributed to

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29. Robert J. Havighurst and Betty Orr, Adult Education and Adult Needs, Center for the Study of Liberal Education for Adults, Chicago, 1956, p. 58.

30. Ibid., p. 50.

31. Gale Jensen, A. A. Liveright, and Wilbur Hallenbeck, Adult Education: Outlines of an Emerging Field of University Study, Adult Education Association of the U.S.A., New York, 1964, p. 170.

(1) overlearning or "habituation," (2) rationalizing action (explained as a dislike to lose the emotional investment in behavior which new learning would compel one to change), (3) the risk involved in learning, and (4) the possibility of conflict which new learning might have with old elements.[32]

Thorndike submitted that adults learn less because of under-estimation of their power to learn, and partly because of self limitations resulting from narrowness of their interest and from the related attitudes and values they have.[33]

Harry Miller posed similar reasons for resistance to learning. He cited fear of failure as resulting in an unwillingness to attempt certain kinds of changes and the learner's perception of change itself as being threatening. He submitted that people envision habitual behavior as a part of them and consequently as something to be valued. People therefore tend to see any attempt to change them as an attack, which inevitably arouses defensiveness.[34] Boyd sought to explain the basic problem of adult re-education as the fear of losing one's present

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32. Ibid., p. 170.

33. Brunner, op. cit., p. 48.

34. Miller, op. cit., p. 40.

identity in the face of the creation of a new identity.[35]

Results of this study imply a similarity between the phenomena reported by these psychologists and the attitudes held by Wisconsin pharmacists toward participation in continuing education programs. One can reasonably conceive how the suggestion of the need for change not only implies some criticism of a pharmacist's image of himself but also threatens the stability of his relationships with others. Schein explained that,

> Even if he (a pharmacist) can appreciate what is being communicated to him on an intellectual level, it is unlikely that he can emotionally accept the need for change, and even if he can accept it emotionally, it is unlikely that he can produce change in himself in an environment which supports old ways of functioning.[36]

His application of Kurt Lewin's attitude change model (1947) provides a helpful guideline for the integration of new attitudes into pharmacy practitioners. Considering the process of influence as occurring over time, three phases can be affected during this integration.

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35. Robert D. Boyd, "The Dynamics of Adult Re-education," Syllabus: The Instruction of the Adult Learner, mimeographed syllabus, University of Wisconsin, Madison, Section 4.

36. Edgar H. Schein, as quoted by Quintin W. Guerin and Robert L. McKeand, "Attitudes That Hinder Self-Improvement," Adult Leadership, 16:4, October 1967, p. 144.

(1) Unfreezing - The forces acting on an individual may be altered to a point that the regaining of a normal equilibrium is sufficient motivation for change. An increase in the pressure to change or a reduction in the resistances to change are feasible means of accomplishing this end.

Pharmacy educators can remove or weaken the social support which reinforces old attitudes and saturate the environment with the new attitude to be acquired. Programs which help the individual perceive his present attitude as unworthy of his self-image may serve as good change agents. The association of willingness to change with rewards, and resistance to change with punishment may also function as effective behavior modifiers.

(2) Changing - This process of actively learning new attitudes can occur by either of two mechanisms. One is the identification of the learner with some other person who holds these attitudes. The other is the internalization of new attitudes by being forced into situations where the new attitudes are demanded of the learner in solving problems which cannot be avoided.

This can be accomplished by helping pharmacists recognize models in the environment worthy of emulation. The creation of mutual identification between groups of learners may lead to the composite synthesis of the role behavior and expectations desired. Further, if programs

are designed to enable the pharmacists to learn "how to learn" from experiences in which the new attitude proved of value, the process of internalization could be facilitated.

(3) Refreezing - This phase involves the final integration of the changed attitude into the total personality. Significant relationships are then emotionally bound to the new attitude and factors which disturb the new values are thereby resisted.

The pharmacy profession must establish conditions suitable for the stabilization of changed attitudes. This can be achieved in conjunction with the removal of practices or conditions which hinder the equilibration of the newly acquired attitude and the provision of strong supportive mechanisms to sustain the change.[37]

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37. Ibid.

SUMMARY AND RECOMMENDATIONS

Purposes

The purposes of this study were to (1) examine the attitudes of Wisconsin pharmacists toward participation in professional continuing education; and (2) investigate the influence of these attitudes on other selected variables. An attitude differential between participant and non-participant pharmacists also was determined.

Methodology

Due to the exploratory nature of the investigation, no prior hypotheses were made concerning the existence of relationships between these variables. Analyses of the findings were intended for the definition of subsequent research problems.

A mail questionnaire was used to gather information from a responding sample of 72 pharmacists. These were drawn at random from a mailing list held by Extension Services in Pharmacy, University of Wisconsin. Data were collected through the following scores:

(1) participation in a self-report instrument listing activities presented by Extension Services in Pharmacy during the period 1969-1972;

(2) attitude toward participation in continuing education on a 35-item questionnaire;

(3) attitude toward the role and contribution of women in pharmacy on two items added to the main instrument;

(4) attitude toward mandatory continuing education;

(5) motivation to participation in continuing education provided by designation as a "special service" pharmacy;

(6) motivation to participation in continuing education provided by qualification for preceptorship.

Measurement of the last three scores was obtained through the addition of one item to the main instrument for each variable.

Analyses of these data were performed using the DSTAT2 program of the Statjob Series and a two sample t test programmed in Fortran on the Univac 1108 computer.

Findings

(1) A significant difference was found to exist in the attitude toward continuing education by participant and non-participant pharmacists.

(2) There was a generally favorable attitude toward continuing education evidenced by a group mean score of 73. This is equivalent to a 2.1 response on the 4 point scale of the questionnaire. Participation scores averaged approximately 2 activities per respondent during the three year period. A strong correlation was detected between the variables of attitude toward continuing education and participation.

(3) The attitudes of the pharmacists toward the role and contribution of women to the profession were favorable. The average score is equivalent to 1.8 on the attitude scale and reflects a general agreement with the statements. This variable was strongly related to composite attitude score through correlation analysis.

(4) The issue of mandatory continuing education received an almost neutral score with approximately equal numbers of respondents taking opposing positions. A significant relationship was also shown regarding attitudes toward mandatory continuing education and attitudes toward participation in continuing education.

(5) The motivational impetus provided by being designated as a "special service" pharmacy revealed a considerable influence in this factor. Statistical analysis reflected a strong correlation between this motivational incentive and attitudes of the respondents toward continuing education.

(6) Fulfillment of preceptorship requirements, in contrast, was perceived by the pharmacists as having little effect on participation. Again, approximately equal percentages of pharmacists chose separate poles on the issue. Only a weak correlation could be found between the motivation of preceptorship requisites and attitude toward participation in continuing education. The relationship shown between these two variables was considered too small to be of consequence.

Recommendations for Further Research

Based on the findings of this investigation, the following recommendations are made for further research:

(1) A descriptive study should be undertaken to examine further the basic issues in this study. A larger sample size drawn from a more complete

listing might enable more representative generalizations to the pharmacist population of Wisconsin.

(2) In addition, the investigation should consider the influence of other personal characteristics on attitude toward continuing education. Some of these factors might include the sex of the respondent, his or her date of graduation from pharmacy school, and the type of practice in which the respondent is engaged.

(3) The relationship between a pharmacist's attitude toward continuing education and professional knowledge may prove to have adequate potential for further study. The effect that participation in continuing education may have on professional knowledge should also be studied.

(4) Other studies of adult education have exhibited a strong correlation between attitudes toward continuing education and the involvement of the respondent in the program planning process. Similar studies with pharmacists could provide useful information as to means of engendering more favorable inclinations to continuing education programs.

(5) Measures of job satisfaction and personality inventories could also provide insight into the characteristics of pharmacists attracted to continuing education, as well as describe those practitioners who exhibit little interest.

(6) Attempts should be made to examine the existence of a learning differential between pharmacists brought to a continuing education program for different reasons. Varying motivational factors may prove to introduce resistant or uncooperative learners into an educational environment, thereby minimizing or eliminating any benefits to be gained through the experience.

(7) Steps could be taken to assess the attitudes of undergraduate pharmacy students toward participation in continuing education after graduation. The achievement of positive attitudes concerning continuing education may well rest with the development of independent and self-reliant characteristics in the undergraduate curricula. The maturation of these attributes may create life-long learners among practicing pharmacists.

APPENDIX A

COVER LETTER AND QUESTIONNAIRE

UNIVERSITY EXTENSION

The University of Wisconsin
155 Pharmacy Building
Madison, Wisconsin 53706
Phone 262-3180 (Area Code 608)

tension Services in Pharmacy

March 22, 1972

Dear Fellow Pharmacist:

Extension Services in Pharmacy at the University of Wisconsin-Madison has attempted to offer pharmacists within the state a wide variety of programs aimed at the satisfaction of your continuing education needs and interests. In view of the growing complexity of pharmaceutical knowledge and skills required of pharmacists, like yourself, some attempt should be made to evaluate the acceptability of our programs and the range of pharmacists we are reaching.

One of the objectives of this study is to collect information concerning the actual participation in our programs by pharmacists throughout the state. Another objective involves an assessment of some of the beliefs pharmacy practitioners hold toward the concept of continuing education. It is hoped that this information will enable our department to better assist your professional development.

Therefore, it would be greatly appreciated if you would take the time to complete and return the enclosed questionnaire in the addressed envelope provided by April 5, 1972. Your responses to these questions will be most beneficial if they are given spontaneously and as honestly as possible. The confidentiality of this study is assured; your replies will be used in statistical analyses only.

We appreciate your time and interest and thank you for your cooperation.

Sincerely,

Melvin H. Weinswig, R.Ph.
Associate Dean

Ann M. Rouege, R.Ph.
Teaching Assistant

AMR:bh
Enclosures

nstructions:

This checklist requires approximately 10 minutes to complete and ay be done in either pen or pencil. All information provided will emain confidential and will be used only for research purposes. our cooperation in completing all applicable questions would be reatly appreciated. After completion please return this questionnaire n the enclosed addressed envelope by April 5, 1972. Thank you for our attention and cooperation.

ame _____

n the second column please check the various continuing education ctivities offered by Extension Services in Pharmacy in which you have rticipated during the past three years.

Activity	My Participation
969 Spring Pharmacy Management Institute	
Fall Wisconsin Pharmacy Institute	
Telelecture: Antibiotics	
970 Spring Pharmacy Management Institute	
Telelecture: Drug Interactions	
Telelecture: Current Issues in Drug Abuse	
Fall Wisconsin Pharmacy Institute	
971 Spring Pharmacy Management Institute	
Telelecture: Selected Topics in Pharmacology	
Telelecture: Venereal Disease	
Fall Wisconsin Pharmacy Institute	
Land O'Lakes (June or August)	
Winterfest (Land O'Lakes)	
972 Winterfest (Fontana)	
Correspondence Courses: A-50 Toxicology A-60 Principles of Pharmacology A-70 Drug Interactions	
Other (Please Specify)	

lease read each statement thoroughly and then indicate your degree f agreement or disagreement with the statement by recording the ppropriate number from the following scale on the line in front of ch of the statements.

Strongly Agree	Agree	Disagree	Strongly Disagree
1	2	3	4

__ 1. There is not much I can do to make my life happier and more satisfying than it is now.

__ 2. People do not lose the ability to learn as they get older.

__ 3. Practical experience is worth more than all the books put together.

__ 4. When talking with my friends in the evening, I'd rather talk about technological advancements than about people we know.

__ 5. It bothers me that I don't have more education.

__ 6. I look forward to a free evening so that I can read a good book.

__ 7. It doesn't pay for a person to study too much. It only makes him dissatisfied and hard to live with.

__ 8. When I watch TV, I usually check the program listings in the newspaper to help me decide what to watch.

__ 9. Unless I get credit towards a diploma or a degree, there's not much sense of my taking a course.

__10. Before attending a professional meeting, I would like to review information relevant to the topics under discussion.

__11. It's pretty hard to teach anything very complicated in the evening because adults are usually too tired to learn.

__12. Adults generally learn things easily because they are interested and have lots of experience.

__13. Participation in continuing education programs should be a requirement for relicensure.

__14. A pharmacy education is as promising for a woman as a man.

__15. There just doesn't seem to be time these days to read books.

__16. In this day and age you have to keep learning in order to keep up with society.

17. Too much emphasis is placed on education today as a way of getting ahead in life.

18. When I watch TV I prefer a panel discussion to a comedy.

19. There's no difference in the amount a person can learn by taking a course in the evening compared to the daytime.

20. Qualification for preceptorship is a primary motivation for participation in continuing education activities.

21. Adults should have an opportunity to assist in planning learning experiences.

22. If I wanted to progress in my job, I would be willing to spend a couple of evenings a week in an adult education class.

23. Taking a course in managing one's money would be a waste of time, since experience is the best teacher.

24. I find most books are too long and too hard to read.

25. There isn't much I can do to improve the community, since most decisions are made by only a few people.

26. I can't see why I need to participate in continuing education to be a competent pharmacist.

27. I would like to spend a weekend away from home in a discussion session on "The Role of the Pharmacist in Health Care Delivery."

28. People who take night courses are wasting their time.

29. If I were a member of a voluntary organization in my community, I would be willing to accept the position of president.

30. Despite the amount of education a person has, it's pretty hard to change human nature.

31. The mental age of the average adult is that of a twelve-year-old and therefore there isn't much point in becoming involved in classes for adults.

32. It is not necessary to have a high intelligence in order to participate in adult education activities.

33. Most people I know would not be interested in getting together for a serious discussion on the future of health care systems.

34. From my experience, a woman pharmacist can contribute as much to the profession as a man.

35. The teacher of a group of adults should be the one who decides what subject matter should be covered.

36. I have often felt that I'd like to get together with other members of the health team a couple of times a month to help bridge the gap in communication between the professions.

37. The adult should have a major voice in determining the type of learning situation he is going to be in.

38. After spending 15 or more years of my life in school, I've had enough. I just couldn't get interested in any continuing education activities.

39. Pharmacists should participate in some courses that help them make the most of their opportunities to serve the public's health needs.

40. As far as I'm concerned, participation in continuing education is simply a means of qualifying as a "special service" pharmacy.

APPENDIX B

CALCULATION OF SAMPLE SIZE

CALCULATION OF SAMPLE SIZE

In calculating the minimum sample size for a study of the difference between means statistically analyzed with a two sample t-test, several criteria must be specified. These include:

(1) the value of $K = \omega^2$ or the value of the true degree of association between the variables X and Y.

(2) the α probability or the risk of Type I error (rejecting a hypothesis which is true).

(3) the probability $1 - \beta$ or the power of the test (the probability of being right in rejecting the null hypothesis given that the alternate hypothesis is true).

The approximate required size of n (for each of two groups) equals

$$\sqrt{\frac{n}{2}} = \frac{[Z(1 - \frac{\alpha}{2}) - Z(\beta)]}{}$$

$$= \frac{2[Z(1 - \frac{\alpha}{2}) - Z(\beta)]^2}{2}$$

where,

$Z\ (1 - \frac{\alpha}{2})$ = the value of a standardized score in a normal distribution cutting off the lower $(1 - \frac{\alpha}{2})$ proportion of cases.

$Z(\beta)$ = the standardized score cutting off the lower β proportion of cases.

β probability is the risk of Type II error (accepting a hypothesis which is false).

$$\Delta = 2\sqrt{\frac{\omega^2}{1-\omega^2}}$$ = absolute difference between population means in standard deviation units.

Set ω^2 = .25+, since the experiment is designed to detect a true association when attitude accounts for 25 percent or more of the variance in participation.

Power = $1 - \beta$ = .99

α = .01

$$\Delta = 2\sqrt{\frac{.25}{1-.25}}$$

$Z\left(1 - \frac{\alpha}{2}\right)$ = 2.58

$Z(\beta)$ = -2.33

Therefore,

$$n = \frac{2(2.58 + 2.33)^2}{(1.15)^2}$$

$$n = 36.5$$

APPENDIX C

COMPUTER PRINT-OUTS OF DESCRIPTIVE STATISTICS FOR EACH VARIABLE

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM DSTAT2 05/20/
ATTITUDES AND PARTICIPATION IN PHARMACY CONTINUING EDUCATION
ATA SET 1

DESCRIPTIVE STATISTICS PACKAGE
UNBIASED ESTIMATES

VARIABLE NOS.	NAMES	SUM	MEAN	STANDARD DEVIATION	VARIANCE	MINIMUM
1	ATTITUDE	.52810+04	.73347+02	.74080+01	.54878+02	.54000+02
2	PART	.13800+03	.19167+01	.18896+01	.35704+01	.00000
3	WOMEN	.25300+03	.35139+01	.96404+00	.92938+00	.20000+01
4	MANDCE	.17400+03	.24167+01	.88413+00	.78169+00	.10000+01
5	SPECSER	.14500+03	.20139+01	.61651+00	.38009+00	.10000+01
6	PRECEPTR	.18600+03	.25833+01	.70711+00	.50000+00	.10000+01

NUMBER OF OBSERVATIONS 72.

APPENDIX D

COMPUTER PRINT-OUTS OF THE CORRELATION MATRIX OF THE VARIABLES

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM DSTAT2 05/20/72
ATTITUDES AND PARTICIPATION IN PHARMACY CONTINUING EDUCATION
ATA SET 1

CORRELATION MATRIX

VARIABLE NO. NO.	NAME	1 ATTITUDE	2 PART	3 WOMEN	4 MANDCE	5 SPECSER	6 PRECEPTR
1	ATTITUDE	1.000					
2	PART	-.467	1.000				
3	WOMEN	.403	-.139	1.000			
4	MANDCE	.466	-.358	.092	1.000		
5	SPECSER	.421	-.253	.320	.506	1.000	
6	PRECEPTR	.050	.163	.071	-.191	-.116	1.000

APPENDIX E

COMPUTER PRINT-OUTS OF THE SIGNIFICANCE MATRIX OF THE VARIABLES

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM DSTAT2 05/20/72
ATTITUDES AND PARTICIPATION IN PHARMACY CONTINUING EDUCATION
ATA SET 1

S I G N I F I C A N C E MATRIX

VARIABLE NO. NO.	NAME	1 ATTITUDE	2 PART	3 WOMEN	4 MANDCE	5 SPECSER	6 PRECEPTR
1	ATTITUDE	.000					
2	PART	.000	.000				
3	WOMEN	.001	.247	.000			
4	MANDCE	.000	.002	.442	.000		
5	SPECSER	.000	.032	.006	.000	.000	
6	PRECEPTR	.680	.171	.557	.107	.334	.000

NUMBER OF OBSERVATIONS 72

APPENDIX F

COMPUTER PRINT-OUTS OF t RATIO OF ATTITUDE SCORES FOR PARTICIPANTS AND NON-PARTICIPANTS

```
          SEGMENT MAIN              001000 011663      040000 045060

UWERR$/NAGFORFUN01          1    001000 001606        2    040000 040436
NTAB$/FORIO                                           2    040437 040503
NFFTI$/FORIO                1    001607 002665        2    040504 040735
NFFTO$/FORIO                1    002666 003254        2    040736 040777
ERUS
SQRT$/NAGFORFUN10           1    003255 003324        2    041000 041011
FORIO$2/FORIO               1    003325 006017        2    041012 043513
NISYM$/FORIO                1    006020 006117        2    043514 043520
FORIO$1/FORIO               1    006120 011322        2    043521 044574
TPROG                       1    011323 011663        0    044575 045060


SYS$*RLIB$.  LEVEL 17
END OF COLLECTION - TIME 0.938 SECONDS

      (6X,I6,11F6.0/(6X,12F6.0))
          36    74.    81.    75.    73.    57.    64.    82.    71.    70.    78.    69.
        73.    77.    71.    65.    66.    69.    54.    80.    75.    67.    69.    77.
        69.    68.    63.    57.    79.    74.    72.    74.    68.    64.    60.    71.
        71.
 SUMX= 2527.
 SUM XX=    178989.
 MEANX=70.194 VARIANCE X=   45.93254
          36    80.    86.    73.    86.    66.    83.    72.    62.    73.    61.    79.
        76.    76.    68.    68.    77.    71.    77.    81.    77.    82.    80.    72.
        76.    76.    74.    84.    80.    72.    77.    86.    85.    69.    80.    82.
        87.
 SUMY= 2754.
 SUM YY=    212254.
 MEANY=76.500 VARIANCE Y=   44.94286
 P=46.736 Q=   .056
  N= 36 SUMX= 2527. SUM XX=    178989. MEANX=70.194 VARIANCE X=   45.93254
  M= 36 SUMY= 2754. SUM YY=    212254. MEANY=76.500 VARIANCE Y=   44.94286
 EST STANDEV OF DIFF=     1.611347 T RATIO=    -3.913220
```

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