

Curricular Transformation I: Theoretical and Philosophical Views Underlying Selected Pharmacy Education Studies

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Rarely is ideology clearly and explicitly exposed in the curriculum development and planning process. Often those developing curricular plans and studies may not even be consciously aware of the world view orientation they hold. This study sought to identify and describe the theoretical and philosophical foundations underlying the primary curriculum studies in pharmacy education in order to make them more clearly visible. Such an examination can help uncover the conceptual framework upon which pharmacy education programs have been built. The authors believe this understanding can enable us to better comprehend the historical roots, the present status, and possible directions for the future of pharmacy education. Such an analysis can expand our capacity to not only understand what curriculum is, but also to begin to consider more comprehensively what it might be.

INTRODUCTION

Since the turn of the century, schools of pharmacy have been struggling with designing and delivering a curriculum that would prepare competent practitioners. As society changed, the role of the pharmacist also changed necessitating renewed examinations of pharmacy school curricula. Among the issues addressed were school mission, curriculum content and design, instructional techniques, and assessment strategies. Several studies and commissions have reviewed these issues and made recommendations for improvement, transformation, and development of colleges of pharmacy. The most recent initiative, undertaken by the Commission to Implement Change, has identified the present mission of pharmacy education as preparing students to provide pharmaceutical care(1).

There has been an assumption that recommendations from these studies and commissions would result in the transformation of the pharmacy school curricula and the profession. It is the premise of this article that present discussions and actions related to the revision of pharmacy curricula, as well as those of the past, have not achieved this

goal because change efforts have not been properly focused. While goals, missions, and objectives have been created, there has been little discussion of the underlying conceptual constructs around which these elements are based. Curricular guides, plans, instructional strategies, and assessment tools should not be designed without first determining the theoretical constructs upon which they are founded. Failure to do so results in a simplistic approach to change that may hinder the type of comprehensive effort required(2). This is what has occurred in pharmacy education.

The starting point for most curriculum efforts in pharmacy education has been the mission. While this is an acceptable beginning, it is not adequate to develop a curriculum plan that will transform the teaching/learning environment. Curriculum development is an ideological process that deals with the means and ends of education(3). It must include not only discussions of mission, but must also identify the philosophical beliefs around which this mission is centered. These beliefs are based upon the conceptual orientation one has of the world. They represent values(4) and epistemological beliefs about the nature of knowledge(5). These determine one's fundamental views about humanity, schooling, teaching and learning. As such, they impact not only the content of the curriculum, but the manner in which

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it is organized, delivered, and assessed and lead to “theories of action”(6) that guide program development and implementation activities. Penetrating underlying philosophical constructs relative to improving education is a mark of competent educational scholarship(7). Engaging in activities to uncover these foundational elements may assist pharmacy education in making curriculum reform a scholarly activity that will result in fundamental and significant curricular change.

CONCEPTUAL ORIENTATIONS

Habermas(11) has established three conceptual frameworks by which individuals understand the world. He labels these as technical, practical, and emancipatory interests. Grundy(12) has applied Habermas’ world views to curricular design and has established three different curricular orientations. These orientations are: (i) curriculum as product (technical interest); (ii) curriculum as practice (practical interest); and (iii) curriculum as praxis (emancipatory interests).

Technical Orientation. The technical world view is focused upon the issue of control. The world and those in it are viewed as objects. This view posits a definable universal reality. In the technical interest, curriculum is viewed as product. A curriculum built upon this philosophical foundation will be constructed around specific objectives focused upon behavior and the learning environment will be controlled by the instructor. The student is given the role of passive receiver of knowledge and has little or no interaction with the instructor. The majority of the learner’s time is spent listening to the instructor and taking notes. In addition, the learner has little input regarding the subject matter that is taught. In a technical curriculum, the focus is on the subject matter, which is based upon predetermined course objectives. The content of learning is more important than the process of acquiring that content. A measurable outcome determines whether something has been learned. An important feature in the technical curriculum is the acquisition of skills. An example of technically-oriented instruction is a lecture formal from a predetermined set of objectives in which the instructor speaks and the student passively takes notes, memorizes, and repeats the information through objective and/or standardized tests. Other examples include students copying passages or memorizing and reciting procedures, structures and information.

Evaluation in a technical-based curriculum is based primarily upon meeting predetermined objectives. If the student delivers a product that matches the original premise of the course, then course objectives have been met. A technically-oriented instructor would be evaluated favorably to the extent that he or she delivered the course objectives as specified.

Practical Orientation. Those with a practical interest view the world not as an object, but as a subject. Interaction between individuals and the individual and the environment are central. The emphasis is upon creating one’s own meaning. Rather than viewing truth as unchanging, it presents the possibility that reality is based upon one’s perceptions and experiences rather than being fundamentally true for all under all circumstances. Such truth is not arbitrary, but is founded upon data, viewed holistically within a context. The practical interest defines curriculum as practice. The curriculum is flexible and changing based upon student and

teacher interaction. The key concepts are understanding and interaction. Thus the processes of learning include such elements as developing critical thinking capabilities and acquiring the ability to solve problems. Process takes precedence over the content, which is viewed as ever-changing and subject to review and analysis.

Practically-oriented classrooms center upon broad, applied outcomes and stress a process orientation. In a practical environment, the instructor acts as a facilitator of knowledge as opposed to a provider of it. Rather than lecturing, the instructor interacts with the students and even learns from them. The key to instruction in the practical environment is to allow the students to help construct the knowledge and the means by which they will learn. The focus of action within the practical environment is on the student. What is important to the student helps guide the direction of both the instruction and content within the learning environment. In addition, the student is put in the position of generating his or her own knowledge based upon interactions and guiding ideas presented by the instructor. Another focus of the practical interest is having students apply knowledge to practice in simulated or field-based environments. Thus the student is given an opportunity to transfer abstract concepts and theory to real world situations.

Evaluation in a practical environment focuses on the extent to which the student understood the content, engaged in and acquired higher-order thinking processes, and developed the ability to apply knowledge and principles to other situations. An example of a practical learning environment is having the student make decisions about drug-related problems in a simulated or real world situation.

A teacher in a practical environment would be judged on the extent to which he or she facilitated the student’s learning. This would include interacting with the student and helping to create a learning environment which enabled the student to apply knowledge to practice.

Emancipatory Orientation. Curriculum in the emancipatory interest is built around the concepts of autonomy and responsibility. The individual must constantly question basic principles and engage in a critical review and analysis of them. Curriculum is viewed as praxis. Praxis is a form of action and reflection; action is informed by reflection and reflection is informed by action.

The emancipatory curriculum is one which focuses the student upon engaging in praxis. Thus the student acts, reflects, makes judgements regarding their actions, and continuously modifies actions based on this reflection. One engages in this praxis in order to be liberated from dependence upon dogma (technical) or the subjectivity of the environment (practical). The teacher and the student become collegial learners—equals, learning together and supporting one another. In union with the group, they create a learning environment that permits everyone to gain insights and power over their own learning and become enlightened through discussion, reflection, and self-directed learning activities.

In an emancipatory environment, the instructor serves to lead the learner to the point of enlightenment where the learner acts as his or her own instructor. The instructor’s role is to engage the learner in discussion about possible learning directions or options. The goal is to make the learner self-directive and capable of critical reflection on his or her learning goals, the learning environment, the content of learning, and broader questions of ethical and social significance.

Table I. Grundy's three curricular orientations

	Technical	Practical	Emancipatory
Curriculum as Philosophical issue	Product Control	Practice Interaction	Praxis Autonomy & Responsibility
Student role	Passive Receiver	Creating Meaning	Directing Learning
Teacher role	Director	Facilitator & Guide	Co-Learner
Student assessment	Meeting pre-determined objectives	Applying knowledge	Creating knowledge, Enlightenment

Evaluation within this system is based upon the degree to which the individual participates in group and individual processes related to self-learning and critical analysis. An example of an emancipatory learning environment is a project involving a student working with a group of patients to teach them self-care skills, which includes dealing with practical and ethical issues related to health care and requires the student to reflect and analyze the issues. Another example is the dissertation process in which the student ultimately takes control of the learning and there is an opportunity for the student to become the teacher and the teacher to become the learner.

Success as an emancipatory instructor would be based on the degree to which the instructor was able to share power. It would include the ability to stimulate thought and allow the individual and group to grow in their capacity to direct their own learning. Such capacity would involve questioning and determining what is to be learned, how this learning will occur, and the method for evaluating success.

Rarely is ideology clearly and explicitly exposed in the curriculum development and planning process(7). Often those developing curricular plans and studies may not even be consciously aware of the world view orientation they hold. This study sought to identify and describe the theoretical and philosophical foundations underlying the primary curriculum studies in pharmacy education in order to make them more clearly visible. Such an examination can help uncover the conceptual framework upon which pharmacy education programs have been built. The authors believe this understanding will enable us to better comprehend the historical roots, the present status, and possible directions for the future of pharmacy education. Such an analysis can expand our capacity to not only understand what curriculum is, but also to begin to consider more comprehensively what it might be(8).

METHODOLOGY

The authors began the study by conducting a speculative analysis of the documents developed through major studies, commissions, and research efforts in pharmacy education. This involved reading each document as a whole to get a feel for its central message(9). Next, documents were examined via content analysis by organizing the sentences, words, and phrases contained in separate units of information(9). Particular attention was given to metaphoric language, which often conveys underlying premises without actually using language that specifically identifies a world view(10). For example, "a statement such as teachers should be viewed as guides in the learning process" would point to a practical view of education in which the teacher facilitates the learning process. Data for each document were grouped into the three world view categories: technical, practical or emancipatory. One researcher conducted the initial analysis and coding process. A second researcher, familiar with the studies, reviewed the coded data and classifications. A third researcher reviewed the conclusions and identified any areas of disagreement. All disagreements were resolved through dialogue and review of the data. At times data were re-examined in context to be sure the interpretation of separated units of information maintained the original contextual meaning.

The study or commission was then classified as having a major, minor and/or implied conceptual orientation based upon the quantity of data in each world view category, the tone and metaphors identified, and the recommendations proposed. If a particular theoretical perspective appeared to be present throughout the study or commission and contained major recommendations related to that perspective, it was categorized as being a major conceptual orientation of the study. If a perspective was present in a limited manner, it was labeled as being a minor orientation. Finally, if the theoretical view was indicated but was not explicitly stated, it was classified as being an implied orientation.

FINDINGS

These three world views (summarized in Table I) represent the ways in which human beings frame their world and their understanding of it. These world views provide a basis for making decisions about the roles and relationships between teacher and learner, the learning environment, and how learning is defined and assessed. Findings related to an analysis of pharmacy education reports and commissions suggest that each of these world views has been incorporated into these studies with varying degrees of emphasis and clarity. These findings are discussed in the following paragraphs and are summarized in Table II.

Table II. Conceptual orientations of selected pharmacy education studies

Year	Study or Commission	Major	Minor	Implied
1913	The Pharmaceutical Syllabus	Technical	Practical	Emancipatory
1927	Basic Material for a Pharmaceutical Curriculum	Technical	Practical	Emancipatory
1946	General Report of the Pharmaceutical Survey	Practical	Technical	Emancipatory
1952	The Pharmaceutical Curriculum	Technical	Practical	
1967	Drug-Use Control by Donald Brodie ^a	Practical	Emancipatory	
			Technical	
1975	Pharmacists for the Future	Practical	Technical	
1993	Commission to Implement Change	Practical	Emancipatory	

^aAlthough Brodie is not a study or commission, his work is included because of its significant impact upon the profession.

The curricula at schools of pharmacy have undergone a multitude of changes since the 1900s. One of the first attempts to give guidance to curriculum revision in pharmacy education was provided by the *Pharmaceutical Syllabus*(13) published in 1913. The aim of the *Pharmaceutical Syllabus* was to identify the minimum standards for the courses within a pharmacy school curriculum. The majority of the course outlines in the *Pharmaceutical Syllabus* contained predetermined objectives and used terms such as provide, implant, cover, and study, which are indicative of a technical ideology. However, the study also included recommendations that students apply knowledge by performing experiments in laboratory settings. This suggests a practical environment in which instructors would tend to facilitate rather than direct learning.

When discussing change itself, a very powerful statement was made in this report. It read "... a syllabus, like a living language, is necessarily in [the] process of constant change. It must not be used to dam the flow of increasing knowledge either of fact or practice."(14) The concept of viewing the curriculum as a "living language," which would be fluid rather than static, implies an emancipatory perspective by encouraging others to become empowered to engage in a critical review of the curriculum. Given the context of the time, the authors may have included this language to caution educators to keep abreast of scientific advances. However, the phrase "living language" has inherent within it, elements of reflection and action which are representative of the emancipatory view. This had led us to suggest that its presence may be implied in this report.

In addition, the *Pharmaceutical Syllabus* encouraged instructors to select appropriate instructional methods, as evidenced by the following quote: "The syllabus is intended to allow the individual teacher or school the widest possible liberty as to order and grouping of these topics and method of presentation."(14) This statement, encouraging instructors and institutions to engage in reflection about topics and methods, might be considered an emancipatory perspective as it encourages praxis—reflection upon action. Although the *Pharmaceutical Syllabus* was revised four times from 1910 to 1946, other studies were completed during that period that also evaluated pharmacy education and the curriculum.

In 1927, Charter and his colleagues used a process called "functional curriculum" construction to design a curriculum that was based on actual practice activities(15). The process of functional curriculum construction was a means for meeting the needs of society. The study was entitled *Basic Material for a Pharmaceutical Curriculum*.

The functional curriculum construction process involved several steps. First, the members examined the practice setting to determine the specific duties that a pharmacist performed. Then they decided on the type of preparation needed to accomplish these duties intelligently. Finally, the authors constructed a curriculum that contained various courses to produce an individual capable of performing these responsibilities. Each course included a statement of objectives, content, and course aims. The use of predetermined objectives and terminology indicated that the instructor was a source of knowledge and the student was a passive receptor, which suggests a technical orientation. However, the document also stated that "... part of the skill needed in the use of the information may be gained in the store through practical experience."(16) This recognition of

the need to apply knowledge through experiential learning displays a practical orientation.

Another interesting concept addressed in the *Basic Material for a Pharmaceutical Curriculum* was that the pharmacist "...owes it to himself, his profession, and his community to continue to study and grow in information and skill after he is graduated from college. It is his duty to read professional journals with alert attention to new ideas."(17) Thus, as early as the 1920s the importance of "life-long learning" in the profession of pharmacy was espoused. This statement indicates a recognition of the need for individual responsibility and initiative. Likewise, it demonstrates an understanding of the importance of the individual and self-directed learning. Such concepts are clearly related to the emancipatory world view and appear to imply that methods for assisting pharmacists to become life-long, self-directed learners should be incorporated into the curriculum.

In 1946, a committee under the direction of Edward C. Elliott initiated another major study(18). The results of this study were reported in a document called *General Report of the Pharmaceutical Survey 1946-1949*. The committee made several recommendations regarding the pharmacy curriculum, the first being that "...sufficient time must be allowed for the student to achieve mastery of the subjects he studies. The goal should be assimilation by the student to the point where the principles become so much a part of his intellectual processes that he employs them almost automatically. Obviously, mere memorization, the inevitable result of an overloaded curriculum, does not prepare one to practice a profession(19)."

The concept of memorization relates to the student's role as a passive receiver of knowledge. This focus on memorizing the subject matter is evidence of a technical orientation. However, the recommendation to eliminate memorizing and move toward having students internalize knowledge implies higher-order thinking. By encouraging this type of thinking, the authors were suggesting a shift toward a more practical curriculum.

The report stated that often in schools of pharmacy "the curriculum fails to develop the student to the limit of his capacity; it may even stultify and stifle him." It also stated that curricula "force all students through the same inflexible curriculum."(19) These comments seem to suggest that there should be more flexibility within the curriculum, implying the need for a more practical environment. Another statement that curriculums should include "opportunities for the student to follow his own professional and personal interests"(19) implies the emancipatory orientation.

In addition, the report suggested that diverse methods be used in instruction. It stated that the instructor should consider "the use of discussion methods and individualized instruction in place of the largely outmoded lecture method."(20) The report also noted that audio and visual aids should be used in the classroom. The suggested change from lecture to alternative methods of instruction reflected a desire to move to a more practical environment within schools of pharmacy.

This study appears to suggest a major shift in the primary orientation of pharmacy education from a technical to a practical or even emancipatory focus. The committee proposed ideas and concepts that shifted the focus of education from the content and the instructor to the learner.

The next significant report published in 1952 was *The Pharmaceutical Curriculum*(21) which outlined a variety of

different curricula with different lengths. "This report was the single most influential force on curriculum development for the next 20 years. It added considerable strength to the arguments encouraging a longer curriculum."⁽²²⁾ The report made recommendations that a specific set of courses and program length be adopted among all schools of pharmacy. The concept of uniformity among curriculum could stifle both creativity and flexibility, thus making change more difficult. The concept of a uniform curriculum is inherently technical in that it does not allow the instructors and learners to interact to determine and construct the knowledge they deem important.

The authors recommended the development of educational objectives which were interdisciplinary in nature. The objectives intended to allow educators to select content from their various specialized fields⁽²¹⁾. They also recommended integrating general education and professional courses throughout the curriculum to reinforce each other. The authors stressed the importance of including general education components in the curriculum as a means of facilitating the development of the values and communication skills necessary for the successful practice of pharmacy⁽²¹⁾. The recommendations that focus upon integration of knowledge across fields suggest a practical world view. Furthermore, including the development of values might be emancipatory, if it involved having the student reflect on ethical and moral issues.

Although there were no other significant studies or commissions examining pharmacy education during the next 15 years, in 1967 Brodie introduced the concept of Drug-Use Control⁽²³⁾. While this concept is not associated with any study or commission, it is included in this report because of its significant impact upon the direction of both pharmacy practice and pharmacy education.

Brodie⁽²³⁾ asserted that pharmacy must change from a product-centered profession to a patient-oriented one. He labeled this practice as "Drug-Use Control," defining it as "that system of knowledge, understanding, judgments, procedures, skills, controls, and ethics that assures optimal safety in the distribution and use of medication⁽²⁴⁾." He stressed the importance of the pharmacist being competent in each element of the system. He stressed that Drug Use Control was a chain of events "that extends from the architect's bench to the pharmacy, and ultimately to the bedside. Each link must contribute its maximal strength to the chain as a whole⁽²⁴⁾." Further, he stated that "Drug-Use Control" should feed the efforts of pharmaceutical education⁽²⁴⁾.

The terminology used by Brodie has elements of all three of the world views. The reference to skills, procedures, and controls connotes the presence of technical theory. The concept of understanding a system of knowledge and applying it through judgments suggests reflection and a practical perspective. The concern with ethics and judgment appears to imply critical review consistent with an emancipatory orientation. This integration of all three conceptual orientations represents a holistic perspective of pharmacy and pharmacy education. This requires that pharmacy education create curriculum plans and educational environments that will develop pharmacists who have technical skills, are able to make sound judgements, and can accept responsibility for making ethical decisions that put the patient first.

In response to this evolving clinical orientation in pharmacy practice, another study of pharmacy education was undertaken in the early 1970s. The Study Commission on

Pharmacy report. *Pharmacists for the Future*⁽²⁵⁾, was published in 1975. The purpose of the Study Commission was to examine pharmacy practice and pharmacy education and make recommendations to improve the education and training of pharmacists so that, ultimately, some of the drug-related problems might be solved and the public better served. The Study Commission was "united by a deep concern for the public good as it is enhanced through the services of the health profession"⁽²⁵⁾ and attempted to answer the following question: "What is the appropriate education for pharmacy practice in 1980, 1990, or 2000?"⁽²⁶⁾

The Study Commission report included a number of recommendations related to the curriculum. First, it stated that "a curriculum should be designed based on what the pharmacist must be able to "do well." Second, it suggested that the curricula of the schools of pharmacy should be based upon the competencies desired for graduates rather than upon the knowledge available in the several relevant sciences. Third, it noted that the educational objectives should be based upon three components: (i) the mastery of knowledge and acquisition of the skills which are common to all of the roles of pharmacy practice; (ii) the mastery of the additional knowledge and the acquisition of the additional skill needed for those differentiated roles which require additional pharmacy knowledge and experience; and (iii) the mastery of the additional knowledge and the acquisition of the additional skills needed for those differentiated roles which require additional knowledge and skills other than pharmacy."⁽²⁷⁾

It is possible to find the presence of both the technical and practical views in this report depending upon which of these recommendations are analyzed. The suggestion to teach what the pharmacist must "do well" suggests a practical environment because it implies process as much as product. For example, a pharmacist must solve problems and think critically as well as dispense drugs. This recommendation also has three implications for the curriculum. First, it implies that the curriculum should be capable of continuously evaluating the needs of society in order to know what the pharmacists need to "do well." Second, the curriculum should be flexible and fluid in order to change as the needs of society change. Last, the curriculum should be proactive in forecasting the future needs of the student. These concepts of "differentiated roles" and experience to acquire skills implies the need to apply knowledge, make judgements, and solve problems which would enable the student to serve the profession and society. These recommendations challenged pharmacy educational systems to move towards a more practical orientation.

In 1989, Hepler and Strand proposed a new professional mandate and a new professional mission for pharmacy⁽²⁸⁾. They suggested that the philosophy of practice be called pharmaceutical care, and the organizational structure that facilitates the provision of this care be called a pharmaceutical care system. They defined pharmaceutical care as "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life."⁽²⁸⁾ Hepler and Strand further urged educational institutions to: (i) accept a unified mission that reflects pharmacy's mandate to the public, and (ii) begin to develop appropriate competencies that prepares students to fulfill this role. Although the pharmaceutical care concept by Hepler and Strand is not a study or commission, it is included in this paper because of the significant influence it has on the curricular reforms occurring today.

In response to this philosophical change, AACP established the Commission to Implement Change in Pharmaceutical Education to study pharmacy education. The Commission was charged in 1989 with providing guidance to pharmaceutical education about how to revise the curriculum to prepare students to meet the changing health care needs of society. In 1993, the Commission reported their findings in several position papers. First, the Commission developed and proposed a mission statement for pharmacy education that parallels the mission of the practice. The Commission believes that the mission of pharmacy practice is to render pharmaceutical care.⁽¹⁾ "In addition, they state that pharmaceutical education has a corresponding responsibility to promote the philosophy within the profession and to the public and to prepare students who are competent to render pharmaceutical care in practice."⁽³⁰⁾

In the second position paper, the Commission described (1) the curricular outcomes and content required to prepare entry-level graduates to deliver pharmaceutical care; and (2) the educational processes essential to reach these curricular outcomes⁽²⁹⁾. When evaluating the terminology, it is apparent that the majority of outcomes are driven by both process and outcome; none are based on predetermined objectives. Therefore, the proposed educational outcome statements fall predominantly into the practical domain.

Further, regarding teaching fundamental information, the Commission stressed that "Emphasis must be placed on fundamental biological, chemical and social mechanisms and systems rather than learning long lists of isolated facts."⁽³¹⁾ Finally, with respect to teaching communication skills, it was recommended that they be integrated throughout the curriculum and that students have many opportunities to present information to a wide variety of audiences (*i.e.*, peers, the public, faculty, and other health professionals). They suggested using discussions, reading assignments, problem sets, laboratories, role playing, simulations, presentations, and early practice experiences to help students become active learners. When an instructor engages students in discussion or when students participate in early practice experiences, there is the opportunity for the instructor to facilitate the learning process, not dictate it. The stress on teaching content in an integrated manner and the use of diverse instructional methods aid in the creation of a practical environment. Other instructional methods that would be practically oriented are simulation, problem-based learning, and case-based learning, which require students to work together and allow the instructor to act as their guide and mentor.

Self-directed learning would be required of students in order for them to meet the educational outcomes established by the Commission. These were included in the section entitled Self-Learning Abilities and Habits⁽³²⁾. In addition, the Commission urged that "a major responsibility of pharmacy educators is to shift the burden of learning from the teacher to the student." Another recommendation was that "teaching must be achieved through educational processes which involve students as active learners. Teachers must view themselves as coaches and facilitators rather than merely as providers and interpreters of information."⁽³³⁾ This emphasis on self-directed learning and shifting the burden of learning from teacher to student reveals an emancipatory perspective.

DISCUSSION

The profession of pharmacy has changed significantly since the turn of the century, evolving from a product-oriented to a person-oriented field. Through all of these changes, schools of pharmacy have been continuously challenged to modify their curriculum in order to develop the best possible graduate. To assist in creating these curricular modifications, studies and commissions were undertaken to provide recommendations for change. This study sought to uncover the theoretical and philosophical views underlying these endeavors.

It is apparent from these findings that throughout the history of pharmacy education, there has been a trend to challenge educators to shift the curriculum from a purely technical focus to a practical perspective. There has even been a subset of recommendations encouraging inclusion of the emancipatory view. Although there has been some movement toward more field-based instruction and application of knowledge, the major model for pharmacy education today remains technical and involves classroom lectures with the teacher as the dispenser of knowledge and the student as the receiver of it⁽²²⁾.

Presently, the need to modify, enhance, and change the curriculum and instructional model of pharmacy education is also connected to the survival of the field. The role of health care providers including pharmacists necessitates that their education change so dramatically that some call it revolutionary⁽³⁴⁾. It is therefore imperative that schools and educators adopt new paradigms of action and thinking when developing curriculum models and implementing them. Part of the problem has been that we as a profession have not examined the recommendations presented to us in terms of their underlying premises, and then adapted our thinking and our actions to those premises. The questions addressed when dealing with curricular reform have dealt with curricular content, planning models, and numbers of courses to be taken. The question to be addressed must now become, "How can we assure that pharmacy educators understand that the curricular reforms being proposed, indeed those which have been proposed for over 70 years, must involve not simply changing a curriculum plan, but adapting and modifying ones view of the role of the teacher, the student, and the environment in which they operate?"

It is our belief that a starting point is to create an awareness of ideological concepts and world views within the context of curriculum development activities. A secondary step is to identify how one's world view impacts curricular decisions and the implementation of them. Curriculum cannot be viewed simply as learning things. Rather, it must be viewed as a process of continuous interaction involving the construction of a learning environment and the interactions between and among the teacher, the student, the profession, and the broader social, economic and cultural communities⁽²⁾. Therefore, curricular reform efforts must also include activities that focus upon the skills, knowledge, and abilities educators will need to themselves become reflective about practice, use instructional strategies that will stimulate such reflection in their students, and move from the role of teacher as knower to teacher as facilitator, collaborator, and companion in the learning process.

Pharmacy education is at a crossroads. Our profession is, and will, continue to be in a state of flux as it functions in an ever-changing world and society. As early as 1970, Toffler⁽³⁵⁾ challenged our thinking about the future by

coining the phrase, the "Age of Transience." This is the world of today. It is a world in which the only constant is change itself. Such a world will demand much of the pharmacist, the pharmacy educator, and the profession. All of us must become adept at coping with change and flexible in addressing the educational needs of students and our profession. This will require that we adopt attitudes and operational modes built upon continuous inquiry about what we are doing, why we are doing it, and how we can do it better. This inquiry must include reflection, dialogue, and further reflection. We must adopt what Freire(36) labeled "problem-posing education," which has dialogue as its vehicle. He maintained that "apart from inquiry, apart from the praxis, men cannot be truly human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry men pursue in the world, with the world, and with each other."(37)

Throughout its history, our profession has had thinkers and researchers who have engaged in such inquiry. They have provided us with a solid base of thinking upon which we can build our future. These thinkers challenged us not to simply change our educational programs, but to incorporate practical and emancipatory conceptual orientations to transform them.

Such a shift in role and action does not necessarily involve negating the use of instructional strategies related to the technical view. Nor does it suggest that one world view is superior to another. Rather, like reports and recommendations of the past, it suggests that teaching and learning and curriculum and instruction must be viewed in a holistic manner that allows for diversity of perception and operation. Present and past practice has held the technical view as dominant. Yet historical documents have included the other world views as dominant, minor, or implied. During the last thirty years, these reports have suggested that the practical view should replace the dominance of the technical approach. Future discussions and curricular plans should also examine the relationship of the world views to one another and to the world of academia and practice. Perhaps these views may be complimentary rather than exclusionary, each containing something of value while contributing to the whole(38). Such a possibility might lead to an enriched curriculum in which students could be exposed to a wide variety of teaching methods, learning environments, and assessment opportunities that would enhance their capability to operate in diverse settings as learners and practitioners.

Some initial steps in developing this enriched curriculum might be:

1. creating an awareness and a common language among faculty about the world views and the underlying implications for teaching and learning;
2. establishing opportunities for discussion, reflection, and sharing in which faculty can express their ideas, concerns, and beliefs related to basic educational assumptions and develop greater understanding about one another's values and beliefs;
3. developing curricular guidelines that would include suggestions for using varied types of teaching strategies related to the world views;
4. providing support and training for faculty in how to apply assumptions, particularly those related to practical and emancipatory world views, to curriculum development and the teaching task; and

5. establishing internal structures in which dialogue, reflection, and collaboration become a permanent method of operating so that discussions regarding assumptions and beliefs are dealt with in a continuous and meaningful way.

Such activities should assure that mission statements clearly reflect the basic philosophical beliefs of the faculty and the organization. They should also contribute to the professional growth and development of faculty, facilitate diversity in curriculum design and implementation, and create an environment that supports continuous curriculum development and program improvement.

CONCLUSION

In the early 1900s, pharmacy educators were challenged to view curriculum as a living language in need of constant change. It is time to listen to this message and to the leaders of the past. Perhaps we must all re-read their words and reflect upon their meaning and relevance today. However, we can no longer simply read. We must also engage in *praxis*—that is act, reflect, act, and reflect on a continuous basis. This reflection and action should be built upon the wisdom of the past, the needs of the present, and the demands of the future. This will enable us to develop educational environments that include continuous renewal and meaningful inquiry that can transform pharmacy education and our profession.

It is evident that pharmacy educators have a history of engaging in reflection and inquiry about their roles and responsibilities. Although we have a body of literature suggesting diverse roads we might take, we have chosen to travel on a singular, straight, and narrow path. It is time to travel the forks in the road. As pharmacy educators prepare for the twenty-first century, they can draw upon a rich history of profound and meaningful thinking to guide them. The question that must be answered is: Will we have the courage to journey on to the road less traveled?

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