Influence of Physical Therapist Faculty Beliefs and Conceptions of Teaching and Learning on Instructional Methodologies

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INTRODUCTION

In the last several years there has been a proliferation of techniques and publications for helping faculty in higher education improve their teaching. These efforts have often focused on curricular organization or instructional methodology issues, paying little or no attention to the underlying teaching philosophies held by faculty members. How curricula are organized, what teaching and assessment methods are utilized, and how a faculty member relates to a student are, however, all based on an overall teaching philosophy held by the faculty member. This philosophy of teaching and learning emerges from the teacher’s beliefs, values, and attitudes related to teaching and learning.1 Since intentions flow from beliefs and in turn direct the process of teaching actions,12 it is logical that in the process of improving teaching through faculty development, if any improvement in student learning is to occur, beliefs may need as much or more attention as teaching strategies. These beliefs are frequently held implicitly and often are unexamined, thus they may be difficult to influence or change. In physical therapy education there has been little or no research into the complexities of the educational beliefs held by faculty, the way physical therapy faculty conceive of teaching, or how these beliefs and conceptions relate to the way they approach their teaching.

Background and Purpose. The literature suggests that educators teach the way they do in part due to their belief systems related to teaching and learning. These beliefs in turn shape teachers’ conceptions of teaching and learning. The purpose of this qualitative study was to examine the beliefs and conceptions of teaching and learning held by physical therapist educators and explore connections between these beliefs and conceptions and preferred instructional methods.

Subjects. Seventeen core faculty members (13 female, 4 male) from 3 Midwestern physical therapist education programs (2 public, 1 private) participated in this study.

Methods. Data were gathered using multiple qualitative methods, including audiotaped semistructured interviews of participants, classroom observations, and document (syllabi) review. Constant-comparative data analysis methods were utilized. Classroom observation and syllabi review data were coded utilizing the framework of Kolb’s Experiential Learning Model adapted for classroom activities. This model consists of 4 phases of learning, including concrete experience (experiencing), reflective observation (examining), abstract conceptualization (explaining), and active experimentation (applying). Patterns, categories, and themes were coded, classified, and compared across all data sources. Interview data were independently read and coded by a second peer examiner. This study was categorized as exempt from review by the University of Minnesota Institutional Review Board Human Subjects Committee.

Results. The majority of physical therapist educators in this sample held beliefs and conceptions of teaching categorized as teacher-centered (emphasizing transmission of knowledge and skills).

Instructional methods were heavily concentrated in the abstract conceptualization (transmission of information) and active experimentation (transmission of skills) phases of Kolb’s Learning Cycle. Instructional methods involving the reflective observation or concrete experience phases utilized by faculty in this sample were limited.

Discussion and Conclusion. This study suggests that beliefs held by physical therapist faculty regarding education directly influence their conceptions of teaching and learning as well as their resultant choices of teaching methodologies. Faculty are encouraged to reflect on the explicit and implicit beliefs driving their teaching and curricular decisions to consider whether or not they are consistent with effective pedagogy. The quality of student learning may not be reaching its full potential if all phases of the Learning Cycle do not receive attention.

Key Words: Faculty beliefs, Faculty conceptions of teaching, Instructional methodologies, Physical therapy education.

Literature Review

Research that explores faculty beliefs and conceptions of teaching is a relatively recent phenomenon, with the majority of publications in this area having appeared since 1990.1,3 Several terms have been used by researchers to describe findings, including conceptions, beliefs, teaching approaches, orientations, and intentions. Pratt is one of the few researchers to have provided a definition for conceptions, the term most commonly utilized:

Conceptions are specific meanings attached to phenomena which then mediate our response to situations involving those phenomena... In effect, we view the world through the lenses of our conceptions, interpreting and acting in accordance with our understanding of the world.1

The less commonly used term belief also denotes something that cannot be directly observed, but that is inferred from statements and actions the believer makes or does.19

Comparisons among the literature investigating teaching conceptions held by faculty in higher education or by educators of adults show a great deal of similarity and overlap in the data collection methods and resulting descriptive profiles.1,5 All of the studies used a qualitative approach—interviews—for gathering data. The interviews included discussion about what is involved in teaching the faculty member’s subject (eg, teaching practices, assessment, and interaction with students) as well as what is meant by the concept of teaching. The labels and categories...
Table 1. Dimensions Used to Delimit Conceptions of Teaching\(^{20(p262)}\)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Imparting Information</th>
<th>Transmitting Structured Knowledge</th>
<th>Teacher-Student Interaction</th>
<th>Facilitating Understanding</th>
<th>Conceptual Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>Presenter</td>
<td>Presenter</td>
<td>Presenter and tutor</td>
<td>Facilitator</td>
<td>Change agent/developer</td>
</tr>
<tr>
<td>Teaching</td>
<td>Transfer of information</td>
<td>Transfer of well structured information</td>
<td>Interactive process</td>
<td>Process of helping students to learn</td>
<td>Development of person and conceptions</td>
</tr>
<tr>
<td>Student</td>
<td>Passive recipient</td>
<td>Recipient</td>
<td>Participant</td>
<td>Teacher responsible for student’s learning</td>
<td>Teacher responsible for student development</td>
</tr>
<tr>
<td>Content</td>
<td>Defined by curriculum</td>
<td>Teacher needs to order and structure material</td>
<td>Defined by teacher</td>
<td>Constructed by students within teacher’s framework</td>
<td>Constructed by students but conceptions can be changed</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Possessed by teacher</td>
<td>Possessed by teacher</td>
<td>Discovered by students but within teacher’s framework</td>
<td>Constructed by students</td>
<td>Socially constructed</td>
</tr>
</tbody>
</table>

used to describe the conceptions of teaching show a high degree of similarity across the research studies.

Two basic orientations have emerged out of the research concerning educators’ conceptions of teaching. One is a teacher-centered or content orientation wherein instructors transmit information and expect students to acquire it. The other orientation is a student-centered or learning orientation wherein teachers facilitate understanding, conceptual development/change, and intellectual growth.

From an extensive review of the literature on conceptions of teaching, Kember\(^{20}\) described 5 dimensions derived from the researchers’ descriptions of the faculty conceptions of teaching. These dimensions are presented in Table 1. Alternatively, several researchers argued that categories of conceptions of teaching are better portrayed as established positions within a continuum delineated by 2 or more conceptions as well as transitional conceptions.\(^{9,11,20}\) Figure 1 denotes Kember’s\(^{20}\) categorization model of conceptions of teaching. Although the descriptions and exact numbers of intermediate categories vary from study to study, overall there is a high degree of similarity. That a number of researchers working largely independently have a high degree of consistency in identified categories strengthens the reliability of this categorization.

In a recent review of the research on teaching beliefs and practices of university academics, Kane and colleagues\(^{21}\) pointed out that the majority of studies examined the espoused beliefs of action and self-reported practice of university faculty, primarily through the use of interviews designed to explore faculty beliefs about teaching and learning. They did not, however, compare the espoused beliefs of action with observed practice, or, in other words, “theories-in-use.”\(^{22}\) They argued that research that examines only what university teachers say about their beliefs and practice and does not directly observe what educators do is at risk of telling only half the story.

Studies of the beliefs and conceptions about teaching and learning of faculty who teach in health care professions education programs are scarce in the higher education literature and appear to be nonexistent in the physical therapist education literature. Schafer and Zygmunt\(^{23}\) examined the predominant teaching style (teacher-centered or student-centered) of nursing faculty and compared that style to instructional methods used in the courses taught by the faculty. Their data suggested that the faculty see themselves as nurses whose goal is to get all the information to the students, rather than as instructors whose goal is to help students learn how to learn. Overall, they found the faculty were more teacher-centered than student-centered; however, the faculty used student-centered language, often in a teacher-centered context, indicating that faculty may recognize the need for a student-centered learning environment but also may have difficulty implementing such an environment. For example, the authors wrote that faculty respondents frequently used terms such as facilitate and guide, but then framed what might seem to be student-centered activities with statements such as provide information and explain the content.\(^{25}\)

**PURPOSE**

The purpose of this study was to examine the beliefs and conceptions of teaching and learning held by physical therapist educators and explore connections between these beliefs and conceptions and preferred instructional methods. This study is part of a larger project based on a conceptual framework, outlined in Figure 2, derived from a review of the literature and a model of the teaching–learning process developed by Newble and Entwistle.\(^{24,25}\) The key element of the conceptual framework of this study focuses on

![Figure 1. A multiple-level categorization model of conceptions of teaching.\(^{20(p264)}\)](image-url)
teacher and student beliefs about teaching and learning and their ultimate influence on the other components of the teaching–learning model. This model asserts that what educators believe about teaching and learning directly influences their conception of teaching and learning. These beliefs and conceptions of teaching held by a faculty member drives decisions about teaching and instructional methodologies and influences individual teaching characteristics. Ultimately, a teacher’s characteristics and instructional methods have an impact on the way in which a student approaches his or her learning.

**METHODS**

**Research Design**

This study utilized a phenomenologic qualitative data collection approach. The intent of phenomenologic study is to try to understand human activity from the viewpoint of the person being studied. It is largely an investigative process in which the researcher’s main task is to explicate the ways people in particular settings come to understand, account for, take action on, and otherwise manage their day-to-day situations. Semi-structured interviews were conducted to examine teachers’ beliefs and conceptions about teaching and learning. Review of course syllabi and classroom observations provided data on learning experiences and teaching methodologies the faculty member implemented in the classroom; it also allowed the opportunity to evaluate congruence between the faculty member’s espoused beliefs and conceptions of teaching and learning and his or her “theories-in-use.” This study was categorized as exempt from review by the University of Minnesota Institutional Review Board Human Subjects Committee.

**Participants**

This study was conducted on the campuses of 1 private and 2 public institutions of higher education in the Midwest that have accredited professional (entry-level) postbaccalaureate degree physical therapist education programs. Seventeen full-time core physical therapist faculty members from the 3 institutions were recruited from a pool of 22 faculty to participate in this study. Part-time or adjunct physical therapist faculty members were not recruited for this study. Individual faculty members were recruited via e-mail and phone calls. Table 2 summarizes the characteristics of this faculty sample.

**Data Collection Instruments and Procedures**

**Interview data.** A 1-hour interview session was scheduled with each participant at a location of his or her choice, most often the faculty member’s office. Written consent was obtained from all participants. Demographic information was collected from each faculty member followed by a series of questions (see Appendix 1) designed to investigate each individual’s beliefs and conceptions about teaching and learning as well as to explore what teaching experiences and methods they preferred. Responses were summarized back to the participants to ensure accuracy. All interviews were audiotaped for later verbatim transcription.

**Course syllabi review.** A course syllabus from at least 1 course taught by each participating faculty member was reviewed. Each course syllabus reviewed was from the same course in which a classroom observation took place. Course syllabi from a total of 14 courses were reviewed. Nine of the courses were taught in the first year of the professional program, and 5 courses were taught in the second or third year of the professional program. Course content ranged from modalities, neuromuscular or musculoskeletal examination and evaluation, therapeutic exercise, and manual therapy, to physical therapy administration, lifespan development, and professional and psychosocial issues.

The syllabi were reviewed to gather data about beliefs about teaching and learning via primary teaching orientations and subsequent planned learning experiences. The type of course objectives written, the type of learning activities and teaching methodologies utilized, and the types of course assessment methods planned were reviewed in detail. To assist in organizing the data, Kolb’s Experiential Learning Model served as the framework around which the data were recorded. Kolb postulated that learning involves a cycle of 4 processes, each of which needs to be present for maximal learning. The cycle begins with the learner’s individual involvement in an experience (concrete experience). The learner reflects on this experience looking for its meaning (reflective observation). From this reflection the learner forms logical ideas and conclusions (abstract
conceptualization) and may integrate his or her ideas with the theoretical constructs of others. This process then guides decisions and actions (active experimentation) that lead to new concrete experiences. The learning processes used in Kolb’s model include the input of information either from experience or from abstractions and the processing of information via either internal reflection on the experience or external action on the conclusions that have been drawn.31 Accordingly, the objectives, learning activities, and assessment methods from the course syllabi were coded as conceptual (explaining), reflective (examining), concrete (experiencing), and experimentation (application) experiences.

Classroom observations. Observation of at least one class selected by each faculty member as a typical classroom session was completed. Eighteen classroom observations involving 14 different physical therapy courses were completed during this study. Because some courses were team-taught, 2 participating faculty members were sometimes observed in the same course. Field notes were taken during the observation, noting the type of class, physical classroom setting, instructional activities and methods, teacher and student interactions, informal classroom activities, etc. Kolb’s32 Experiential Learning Model again served as the framework around which the instructional activities and teaching method observations data were recorded. The class session was audiotaped to assist in filling in the notes after the observation was complete. The notes were written up within 1-2 days following the observation to limit recall problems.

Data analysis. The taped interviews were transcribed verbatim and field notes were reviewed on an ongoing basis. Using a process of content analysis, dominant categories and patterns were identified, coded, and categorized throughout the data.29 As major concepts or themes surfaced, they were chroned and charted. As previously explained, course syllabi and classroom observation data were analyzed based on the conceptual framework of Kolb’s30 Experiential Learning Model.

Triangulation, a process of using multiple methods of data collection or multiple investigators, serves as a mechanism for increasing internal validity and reducing researcher bias.32 The classroom observations and syllabi review provided sources of triangulation for the interview data. In addition to the principal researcher, all interview data were read and independently coded by a peer examiner familiar with qualitative research, coding mechanisms, and the background and purpose of this study. Comparison of the coding results of this study found a high degree of consistency between the principal researcher and the peer examiner. The level of coding agreement of the interview data ranged from 85% to 100% depending on the particular question. Where there were incongruences, the researcher and peer examiner re-read the transcript and discussed the data until agreement on categories was reached.

RESULTS

Interview Results

To explore individual beliefs and conceptions of teaching and learning, faculty members were asked questions designed to elicit expressions of personal beliefs, values, and ideals about teaching and learning as well as whether those beliefs guide teaching and learning decisions and actions. When asked, “What does it mean to you?” faculty responses ranged on a continuum from “transmitting knowledge” to “being a facilitator of learning.” The transmission of knowledge (teacher-centered conception) part of the continuum however, was more heavily represented. Thirteen of 17 faculty responses contained some reference to transmitting content or knowledge to their students:

I think it means to share information that I have about, especially, my profession or about basic science that has to do with my profession, with those people who are going to be my colleagues someday. And also [to] give them the opportunity to have a foundation so that they can learn further.

I guess the way I look at it is that all the students — and they’re very motivated and highly intelligent individuals — so I have a little bit more information about a certain topic that they’re interested in, and I try to give them as much of that information as I possibly can so, hopefully, they are better clinicians than I was . . . . So to me, teaching is more passing on the information that I have.

Three responses included references to the development of the students’ thinking, reasoning, and judgment ability. Those participants tended to see themselves more as facilitators of learning than transmitters of content:

Right now, after a number of years, it means to enable students to seek out information, to acquire information, to put information together. Now it means much less to me to actually give them information than it did in the past . . . .

And now, you know, I really look at my job as helping students discover what it is they need to know. Help them put it together. So I really look at the responsibility for learning, I look at the student as bearing that main responsibility, and I just kind of help them in the process. In a related question, “What is your primary role (as teacher) in this course?” responses fell into similar categories. Over half of the respondents (n = 9) spoke again about their primary role as providers of knowledge:

Again, I think it’s still evolving, but I would say as a person who has content knowledge in that area, who can somehow help screen and prioritize some of that content knowledge and direct them in terms of what material — at least presently — we believe is important . . . .

I think that my role is to take information that has a scientific foundation from all of the sources that are available and to summarize a baseline of knowledge for the students.

Several respondents recognized the value of moving toward a facilitator role but had not done it. Some did not seem to know how to do it, while others recognized achieving that role as part of a developmental process:

Right now I see myself more as a teacher where I’m telling them things and at times asking them things that they have to think about a little bit and draw some things out of them. But one thing I’m looking at wanting to get is some new tools so that . . . . I’m more of . . . a tutor or facilitator — that you guide them versus teach them.

. . . in high school and college and everything, that’s pretty much the format [as provider of knowledge] I learned as a new teacher without even knowing . . . . And then also just not really knowing how [else] to do it.

While 6 respondents mentioned the role of facilitator in response to this question, only 3 described facilitating learning as their primary role and noted that their perception of their primary role as teachers had changed and developed over time, moving from content expert and transmitter of knowledge to facilitator of learning or guide:

Well you know, first of all there’s that pressure — being a new teacher is sort of like, “Oh my god, I really need to know everything, and I need to always be right.” So I evolved from always needing to know everything to always having to be right and being very, very stringent on how I approached everything, to a
Faculty members were also asked, “What does to learn mean to you?” Responses ranged on a continuum from “the acquiring and applying of new knowledge” to “the process of abstracting meaning from new knowledge to “the integration of new knowledge, resulting in an altered perspective or worldview.” The majority of respondents (n = 10) talked about learning in terms of the acquisition and application of new knowledge:

To take what is offered and make sense out of it and apply it and use it....

To be able to acquire the information or take the information and apply it in a variety of different settings and activities. . . .

A smaller number of respondents (n = 3) talked about learning as the integration of new knowledge resulting in an altered perspective or worldview:

I’m going to get this little quote that I have on my board here. It says: “To learn is not merely to achieve data. It is to rebuild one’s world.” And I put that up there because I really like that. It’s a change in sometimes what you know, but also hopefully what you feel and what you think and maybe how you think.

Respondents were also asked, “What is the role of learners in your course?” All 17 respondents talked about some level of responsibility on the part of the student, occasionally in the ideal sense versus what their experience had shown:

To take responsibility to look at the material, try to understand it, try and make sense out of it, look at additional resources, look at additional resources I give them. They’re half the equation. I can’t do all of the equation by myself. . . . I’m not sure the students always recognize that.

Nine respondents indicated that one of the students’ roles is to take in information:

I like to look at students as sponges, and it’s fun to get them on a topic that they want to know so much about and that you are able to give them information on.

In a perfect educational setting, their role would be to be here to soak up everything that they could so they could go out there and be effective.

Eleven of the respondents saw the students’ role involving understanding and applying information:

Well, we get back there to the responsibility that the learners have to take the material and try to apply it and try to make it meaningful for them, to work at understanding it.

I feel they have the role to look at the assigned reading, to be able to come prepared, to be able to then take the information and not just regurgitate a test 1, 2, 3, 4, but to actually start being able to apply that.

About half of the respondents discussed the benefits of students being active in the learning process and described ways in which they encouraged an active learning role for students:

I do not see the learner as the person who sits there and listens and absorbs and takes notes. I know that there are a lot of students who are that way, and I think traditional. . . . Kindergarten through 12 fosters that—has fostered that. I think a lot of colleges and universities still foster that, and so I realize that it’s a part of the culture—the educational culture, but in those instances where students are able to break out of that, that’s really when you see some exciting stuff happening. So the learner needs to be an active participant, otherwise it’s in and out. It’s a pretty quick pass through.

And that’s why I try to create more problems and real clinic-type situations because I think they need to be active. The learner needs to be active in what they’re doing. . . . I just hate to stand up there and to read off a handout, because you can just see them going, “Oh gee, I could just memorize this at home.”

Other respondents who mentioned an active role for the learner saw it as a good thing, but as an “ideal,” or, they don’t have strategies for encouraging an active role for students:

The role of the learner is to interact with the teacher, help process this information, to be active learners rather than just passive. . . . I think if I probably had more formalized training in education, maybe I’d have more structured ways of knowing how to do that.

Faculty were also asked, “What does it require to be really good at teaching your subject or teaching in physical therapy in general?” This question provided insight into each faculty member’s conceptions of teaching by noting what he or she valued and believed about being a good teacher. Fifteen of the 17 respondents noted that content expertise or depth was required:

I think first of all you need to have knowledge in your area and know how to apply it.

You have to have a depth to your knowledge, you have to have a depth of knowledge in that subject area which allows you to speak freely from that foundation of knowledge. . . .

After content expertise, ongoing clinical experience was the most frequently mentioned requirement to be good in teaching in a subject area or physical therapy in general:

Clinical experience, keeping up with things, and diversity [of experience]—I’ve worked in so many different situations. I think it’s really to my benefit that I have worked with some neuro patients so I can bring neuro concepts into musculoskeletal. . . . Students seeing you still working in the clinic. Credibility. Your credibility of standing in front and just being able to say, “You know, yesterday I saw this patient that had this.” . . . and not only do you get the verbal feedback at times but you can tell in the students that they are listening and appreciate the fact that you’re still out there.

Faculty were also asked, “Describe the best teaching experience you have had teaching physical therapy students.” This question probed for information on beliefs about teaching methods and tactics and provided insight into each faculty member’s conception of teaching. It also shed light on what the faculty member saw as most important in his or her teaching experiences.

Nearly three quarters of the respondents talked about a positive teaching experience involving students being interested in the class, seeing them “get it” and integrate knowledge:

That’s probably the best part, when . . . the light bulb goes on and they are understanding what’s going on and that’s very rewarding. That makes those bad lectures go away.

I guess probably my best teaching experience is to just have the students come back and say, “Gee, that rehab class really helped me.” or “It really put it together.”, things like that. . . .

Factors contributing to best teaching experiences for other respondents included authentic communication with students about
what they understood, active-learning experiences typically involving case studies or real patients, seeing students apply what they have learned, and witnessing student discovery and growth:

[1] put some information like a case study up there and said . . . “Okay now, what would you look for? What would you expect?” The lights are on. They’re all awake and alert. They’re all thinking about the topic at that point in time, and they’re interacting. It’s not so passive at that point in time. They’re asking questions, which is good because then that helps them think and understand the information more, think at deeper levels, or try to coordinate the information with some of the lectures that they’ve already had. So this is probably one of the better—best—experiences, that interaction.

When asked to “Describe the worst teaching experience you have had teaching physical therapy students,” over half of the respondents talked about a teaching session where the learner was not engaging in the learning experience or the teacher and student were not connecting for some reason:

I guess it’s probably just any day when I feel like they and I aren’t connecting—that either I wasn’t prepared or I was prepared in a different way from what they were understanding, or we just weren’t fitting together and they weren’t getting it and I couldn’t think fast enough to come at it another way to help teach it . . . .

I think there probably [have] been whole classes that have been terrible. Yeah, I think it’s where, you know, you’re up there and they’re falling asleep, or they’re watching the clock, or the worst thing is when they catch you looking at them and they go into another persona. . . . It is like worse at that point because you think, all right, we’re into masking here.

Other worst teaching situations that respondents talked about involved a lack of confidence in how well they knew the information (ie, teaching in “foreign territory”), recognizing a lack of organization in an active learning experience with the result of students going in all different directions, conflict with angry students, clashing of values, loss of instructor credibility, and student resistance to learning.

To further probe intentions and beliefs about teaching and learning, as well as what was valued as manifested in their assignments, faculty were asked to describe their most important assignment or learning experience in the course and what they had been trying to get students to do in the assignment. All responses to these questions focused on some type of experiential assignment, with most focusing on integration (within a course, between courses, or between didactic and clinical application) and the promotion of problem solving and clinical reasoning:

The important part of it was they had to take the information that they obtained during the evaluation and write it in SOAP note format, so they had to integrate and communicate this coursework with the evaluation, with what they learned in documentation, and they had to meet the criteria of a correct SOAP note, and then they had to go into the library with the list of resources that I put on reserve and develop a treatment plan for the next week. And so it provided integration of 3 different courses, and it required them to think at a much deeper level than just, “Well I do this, I’m done, I’m out of here,” for the lab.

Four faculty talked about teaching life skills or increasing students’ sensitivity and ability to empathize with individuals as the goal of their favorite assignments:

So we have parents come in, in a panel, that talk about what it’s like to have your child assessed and what it’s like to feel the results or that you experience the results of that assessment, and then how you get past that to moving into action. . . . There are some things that increase the students’ sensitivity to their patients and their ability to empathize with their patients and understand. I think it’s just really the cornerstone of what they’re going to do in practice, because I really feel that if they don’t have the empathy, they may not get beyond that first step.

To determine if teaching methodologies corresponded to a faculty member’s beliefs and conceptions about teaching and learning, faculty respondents were asked to describe their preferred or typical teaching methods. These data were coded using Kolb’s Experiential Learning Model, modified for classroom activities.31 In this model certain classroom activities and teaching methods are viewed as supporting different phases of learning. A list of these activities appears in Appendix 1, Question 11.

Based on this model, 2 categories emerged from the faculty interviews as being the typical or preferred teaching method categories of the faculty respondents. These 2 categories are abstract conceptualization (explaining)—the lecture method in particular—and active experimentation (applying), particularly application labs and activities. All but one respondent mentioned 1 or both of them:

In pretty much . . . all the classes I’m in there’s always some type of lecture format that needs to be there to give the information. I certainly try to encourage questions—the students can get involved, and then I like to have some type of an active time where they’re internalizing and working with themselves or in small groups so they can have some type of an active part of the learning to share information and ideas.

Most of these respondents indicated that they typically utilized both of these methods; however, they often emphasized one method over the other. Five respondents emphasized the lecture part of these 2 methods:

Right now I would say they’re predominantly lecture interspersed with labs, mostly because . . . of this content focus that started everything and concern about getting across the content.

I kind of like a combination of lecture with demonstration and then practice. That’s my favorite. But sometimes they don’t teach content areas like that. So I would say that in a typical class that I teach, which would be like the one you listened to today . . . it’s like just information.

A couple of respondents noted that they emphasize the lecture format, often because of its efficiency, but that they had an interest in knowing more about or doing more active learning methods:

I would probably still tend to favor a lecture format, but . . . I haven’t used this a lot, but I would like more interaction between the instructor and the students. . . . I don’t want them to be quite so passive as to sit up there and take everything in, but I still think that it’s a faster, perhaps. . . . I’d better be careful with efficient, it’s not always efficient, but the information is imparted quickly . . . the traditional method is a little bit preferred, but by the same token I can see some value in going into a little more problem-based. . . .

Others in this group of faculty respondents indicated that they typically utilized lecture and lab or some other active experimentation method, but their emphasis was on the active methods, rather than the lecture methods:

Having enough students fall asleep in class definitely turned me away from
long-term lectures. I like the connection, and I like the active. . . . So lecture I like, but I really like when it doesn’t go longer than 20 minutes—you know 10 minutes, 5 minutes. And then experiences. Cases are a very powerful way of teaching.

I think my preferred methodology is kind of providing an overall framework and then having the students solve problems or questions. . . . It’s less the lecture but more the, you know, “Here’s a little bit of information and now here are some questions that you need to struggle with.”

Fewer than half of the faculty respondents mentioned teaching methods involving the concrete experience phase of the cycle. The methods that were mentioned involved students “experiencing” through the use of simulation, video clips of patients, role play, or more commonly, through observation of the instructor demonstrating techniques and treatment. Even fewer respondents mentioned teaching methods that could be categorized as reflective observation, and they were always mentioned along with other methods (eg., lecture, lab). These reflective methods included the use of thought questions and discussion:

Now I would say my typical method is to do some lecture, do some discussion in groups, and then if the class is appropriate to do lab experience. That’s pretty much how I go. Again, sometimes it turns out to be more lecture if the students aren’t responsive.

When asked how these methods became their preferred methods, the power of personal experiences as learners was clear as the majority of faculty respondents (n = 12) indicated that preferred methods reflected how teaching took place when they were students, that they had learned from coteaching or seeing other faculty teach, or because it was the way they preferred to learn:

Why is that? Probably because that’s what I’m most familiar with—my own, again, student experiences and seeing other faculty teach.

Naturally, I gravitate to more of a lecture off the baseline because that’s the way I learned. I don’t mind some of the application things and the small group activities. I enjoy them. It was not the way I grew up, and so I tend to gravitate to “Let’s present the material this way and move forward.”

Other responses indicated that typical or preferred methods reflect the methods’ efficiency, changes due to student feedback, less confidence in other methods relaying core information to students, and insufficient time to develop other methodologies.

Faculty were given the list of instructional activities and teaching methodologies reflective of Kolb’s Experiential Learning Cycle taken from the work of Svinicki and Dixon,1 and were asked, “Look at this list of instructional activities. (See Appendix 1) Which of these do you use? Do you emphasize any of them in your courses?” A follow-up question, “Which categories do you believe the physical therapy professional curriculum as a whole emphasizes?” was also asked. Table 3 summarizes the responses to these questions. It should be noted that because laboratories are listed in both the concrete experience and active experimentation categories, there may be respondents who did not appropriately differentiate these categories. Predominant teaching methods reported by the respondents fell heavily into the concrete experience and active experimentation categories with reflective observation being a component of the predominant teaching method of only one faculty respondent. Overall impressions of the physical therapist curricula as a whole also show a striking lack of reflective observation methods being utilized in these programs.

Course Syllabi Results

Course Objectives. The majority of course objectives across all 14 syllabi fell into the abstract conceptualization (explaining) or the active experimentation (applying) categories. Explaining objectives used words such as “identify,” “explain,” “justify,” “understand,” and “describe.” Applying objectives used words such as “perform,” “demonstrate,” “apply,” “develop,” and “administer.” Course syllabi contained from 7 to over 30 objectives in these 2 categories. While most syllabi also listed some reflective course objectives, they were substantially fewer in number, ranging from 0 to 15 objectives. Reflective objectives used words such as “discuss,” “analyze,” “self-evaluate,” “interpret,” and “reflect.” Concrete experience objectives were even fewer in number with 4 course syllabi having only one experiencing objective each. These objectives used phrases such as “work as part of a team” or “locate community resources” that indicated the student would be experiencing the team or their communities while accomplishing a task.

Instructional Activities and Teaching Methods. While all the course syllabi reviewed included course objectives, there was a much wider range of thoroughness of information provided about instructional activities and methods on the course syllabi. Some course syllabi had a section titled “Teaching Methods and Learning Experiences” explaining the instructional methods utilized in the course, and others had no information related to teaching methods. In cases where there was no explicit information in the syllabus, the course schedule indicating lecture and lab topics or activities covered each day was used to deduce some of the teaching methods.
The frequency with which abstract conceptualization and active experimentation instructional activities were mentioned on all 14 course syllabi leads to the inference that these instructional activities/methods are the primary ones being utilized in these courses. This inference is supported by the classroom visits where the primary teaching modes observed were explanatory (lecture) or application (practice labs). Abstract conceptualization methods noted from the course syllabi consist primarily of lecture, but other methods mentioned in this category included project opportunities, critical inquiry, guest speakers, student presentations, and student review of previous material.

Lab activities, particularly practice of examination and treatment skills, were the most common active experimentation instructional methods mentioned in the syllabi. Other application methods included written assignments for integration and application, problem solving, patient documentation assignments, case study analysis, teaching skills to peers, lab practice with children, and practice of skills outside of class time.

Eleven of the 14 course syllabi also contained some reflective instructional methods. These activities included group discussions, self-testing, analysis of lab experiences, critical inquiry, reflective written assignments, problem-solving, article reviews or critiques, case study analysis, consensus learning, small-group treatment planning, and seminar formats.

Concrete experience instructional activities and methods that were detailed in course syllabi included patients on video, labs in pediatric courses with children present, a parent panel in a pediatrics course, and field experiences or trips. It was assumed that most courses requiring readings had some readings that could be categorized under concrete experience and that many of the courses utilizing labs included instructor demonstrations in which the student observed the faculty expert performing techniques and treatments.

Assessment Methods. Mirroring the instructional methods, all 14 course syllabi indicated abstract conceptualization (explaining) and/or active experimentation (applying) forms of assessment were the primary form(s) of assessment utilized in the course. The main forms of abstract-conceptualization assessment methods documented on the course syllabi were written, objective exams and quizzes. Other methods of assessment that appeared to have an abstract-conceptualization focus to them were a research or critical inquiry project and a comprehensive paper that was to demonstrate mastery of a topic.

The main form of active-experimentation assessment methods was laboratory practical examinations. Other assessment activities that contained an application component included case study evaluation or treatment plans and presentations, patient or client interviews, assessment-tool documentation, case-study presentations, patient documentation, community-resource assignments, and application or experiential projects.

Several syllabi included assessment methods that had a reflective observation component, such as take-home exams, essay questions on written exams, case studies, article summaries, written assignments, patient-problem assignments, and patient-documentation assignments. These assignments tended to be weighted much less than the objective examination and laboratory practical-exam assessments. Only 2 courses had reflective-observation assessment methods as a substantial part of their course assessment. The assessment methods in these 2 courses included take-home examinations with a majority of essay questions, reflective written assignments including a comprehensive paper that required synthesis of the student’s frame of reference, and participation in and contribution to class discussions.

The only assessment methods mentioned on any course syllabi (2 of the 14) which involved a concrete experience component were assignments involving interviewing clients or assessing actual children and an assignment requiring the student to search in the community for resources for a patient or client. Again, these assessments were weighted much less than the abstract conceptualization or active experimentation forms of assessment.

Classroom Observation Results. The classroom visits showed that the dominant instructional methods utilized by this sample of faculty are abstract conceptualization (explaining) and active experimentation (applying). This finding parallels the course syllabi and faculty interview findings. In all of the observed classes, the primary abstract conceptualization instructional method utilized was lecture. Other explaining methods observed included the use of analogies, model building, reference to theoretical readings, and student reports. Lab activities, particularly student practice of observation, patient handling, and intervention skills, were the most common active experimentation methods observed. Other methods observed included the use of case studies, simulations of impairments and clinical scenarios, patient documentation, and patient teaching (simulated by peers).

Although not the primary mode of instruction in any of the observed classes, activities from the reflective observation phase of the Learning Cycle appeared in a number of classes. These methods included the use of thought-provoking questions by the instructor. For example, in one class an instructor asked the students to consider which exercise intervention would best meet the needs of a patient. This activity required students to reflect on the exercise interventions possible and choose the best. The use of discussion in the classroom is another activity that requires students to reflect; for example, when discussing a case study, students have to reflect on multiple aspects of the case.

Concrete-experience methods also were not a primary mode of instruction in any of the observed classes; however, a number of classes included one or more activities from this phase of the Learning Cycle. These activities included observing instructor demonstration of treatment, course readings, use of patient examples and clinical experiences by instructors, student experience of normal and abnormal movement patterns through simulation, observation of actual patients on video, observation and hands-on experience with children in the lab classroom, and students’ experiences receiving “treatment” in lab practice.

DISCUSSION

Faculty Beliefs and Conceptions of Teaching and Learning

The literature suggests that educators teach the way they do in part due to their beliefs, values, and attitudes related to teaching and learning. These beliefs, values, and attitudes are quite varied and can shape teacher conceptions of teaching and learning. This study supports that physical therapist faculty, like faculty in previous studies in other higher education disciplines, demonstrate faculty beliefs and conceptions about teaching and learning that fall along a continuum from teacher-centered to learner-centered with one or more mid-continuum categories that are transitional.

The majority of faculty respondents in this study described teaching in terms of providing or sharing their information and skills and described learning in terms of the acquisition and application of new knowledge, with students sharing the responsibility for this learning. Many described their primary role as a provider of knowledge and they defined the role of the student as taking in the information, understanding it, and applying it; respondents portrayed their best teaching experiences as seeing students “get it” or apply what they have learned. These responses indicate that the majority of faculty
participants in this study have beliefs and conceptions of teaching that would be categorized as teacher-centered on this continuum. The fact that many of these faculty respondents talked about student understanding and the application of theory in practical or clinical situations indicates that they believe teaching and learning involve more than simply transmitting and acquiring information, showing movement towards the middle of the continuum. These physical therapist faculty responses most closely match Trigwell and associates who described a teacher-centered strategy as having the intention that students acquire the concepts of the discipline. This description noted that the teacher’s intention is to help students acquire the concepts of the discipline and the relationships among them, assuming that the students can gain these concepts and relationships by being told or shown.

The teacher-centered faculty responses indicated beliefs that stem from an objectivist view of knowledge and perspective of teaching and learning. Pratt described the objectivist view of learning as one conceiving of knowledge as existing independently of the learners’ interest in it or awareness of it; therefore, teaching is a matter of moving knowledge efficiently from the outside to the inside. This view contrasts with subjectivism, which conceives of knowledge as something intimately determined by the learner through his or her perception and interpretation of it; in this way, therefore, teaching involves the negotiation of meaning. Further evidence of an objectivist perspective by the majority of faculty respondents came from the 2 most commonly mentioned factors in response to a question about what was required to be adept at teaching in their content area or in physical therapy: content expertise and clinical experience/expertise. The objectivist viewpoint holds that, to be a teacher, you must be an expert in the content area and present that content objectively. This viewpoint may also explain why some faculty respondents’ worst teaching experiences were when they lacked confidence in their knowledge of the information or when they had to teach in a “foreign” content area.

A smaller group of faculty responses indicated that those faculty have moved from a teacher-centered conception of teaching toward a learner-centered conception and from objectivist beliefs toward a more subjectivist viewpoint. These faculty members came to see their teaching role as being a facilitator of knowledge, the role of the student as being an active learner, and the best teaching experiences as those where students discover a new interest or where something touches them in a way that changes their worldview. Samuelowicz and Bain described a similar conception of teaching as one that starts with the learners’ existing conceptions, challenges them, and has an emphasis on developing frameworks appropriate for a given discipline and developing independent creative thinking. The outcome of the teaching and learning process with this conception is different knowledge (qualitative change) in contrast to increased knowledge (quantitative change).

Most of the faculty respondents who were categorized as being at the learner-centered end of the continuum indicated that this movement occurred over time through a developmental process. They started out as teacher-centered, emphasizing transference of knowledge. Most often, change was catalyzed by dissatisfaction with the nature of the teaching-learning encounter and the learning that was taking place. Deep reflection on teaching, resulting in a shift in beliefs about how teaching and learning occur, appeared to have been critical to their movement from one orientation towards another. This finding supports views that beliefs about teaching and learning can be developed or changed and may lend credence to Reinsmith’s assertion that teachers who are growing in relationship to their students eventually find the “lecturer/dramatist form” unsatisfactory and too remote.

Other faculty respondents indicated an awareness that a more learner-centered approach to teaching may improve student learning; however, they appeared fearful of trying new teaching methods, especially if doing things differently meant covering less content or losing what was perceived as core content. These faculty members appeared to have not yet reached a level of reflection on teaching and learning that allowed them to examine their implicit beliefs (such as, that the teacher must tell students the content in order for students to learn it) and values related to teaching and learning. As a result, they thought intellectually about learner-centered teaching, but show a resistance to changing what is actually happening in the classroom, stemming from their conflict with old beliefs that are inconsistent with new ideas.

There was an obvious tension or struggle within a couple of the faculty respondents who recognized themselves as teacher-centered but who described beliefs about teaching and learning that were shifting toward the belief that student learning would be enhanced with more learner-centered teaching. These faculty appeared to understand what it meant to be a facilitator or guide, but needed help in determining what they do in the classroom. They articulated that they would like to learn more about different instructional methodologies that would involve students more actively and demand higher-level thinking skills from their students, but time demands and lack of knowledge as to how to change were inhibiting this change from occurring.

A more subtle incongruence between teacher-centered and learner-centered conceptions surfaced when faculty respondents were asked what they saw as the most important assignment that they gave students and what they were trying to accomplish with the assignment. Here many responses focused on learner-centered assignments requiring the integration of knowledge and the promotion of problem solving and clinical reasoning. These were clearly higher-level thinking tasks and skills that would be best supported by learner-centered conceptions of teaching and teaching methodologies. Yet the majority of faculty in this sample held teacher-centered conceptions of teaching and most often utilized teacher-centered teaching methods. This incongruence may again speak to faculty wanting, on a cognitive level, more learner-centered teaching and higher-level student outcomes, but being unable to let go of implicit beliefs holding them to their usual classroom activities.

A number of faculty in this study described their teaching as being based on what they themselves have experienced and have seen modeled by authority and reference figures, as well as how they have learned to learn over their years as students. This process likely led to well-defined derived beliefs about how teaching and learning occur by the time their college education was completed. Faculty responses indicated that these beliefs may have been further strengthened through socialization in graduate school and through the early years as new faculty in physical therapist programs. This finding supports earlier studies, as well as K Patricia Cross’s viewpoint that many faculty are victims of their own past:

There is some danger that students in our classrooms are drowning in information. Many of their bone-weary teachers teach as they were taught. There is nothing in their preparation and training to break the cycle of teaching as telling. All too often information flows from the notes of the professor into the notebooks of students without passing through the minds of either.

Physical therapist education program faculty members indicated they have little time to reflect on the teaching-learning process and few discussed receiving any guidance in...
developing new ways to conceive of teaching or learning, so it is little wonder that traditional belief systems about how teaching and learning occur remain intact and slow to change.

**Influence of Faculty Beliefs and Conceptions on Teaching Methodologies**

The faculty belief systems and conceptions of teaching and learning discussed above have significant implications for the approaches faculty take towards teaching. Approaches to teaching ultimately in turn influence the approaches students take towards learning, based on how the student perceives the instructional methods and the teacher’s expectations.26

This study illustrates a logical connection between conceptions of teaching and preferred teaching methods. As previously mentioned, the majority of faculty in this study fall on the teacher-centered end of the continuum. One would logically think that teachers with this conception of teaching would prefer methods allowing them to transmit information and skills efficiently and that learning activities would be concentrated in the abstract conceptualization (transmission of information) and active experimentation (transmission of skills) phases of Kolb’s Learning Cycle. The findings of this study support this logic. The faculty interviews, course syllabi review, and classroom observations all suggested that the most common instructional methods utilized by this group of physical therapist faculty were lecture and demonstration-practice laboratory classes. The majority of course objectives related to explaining and application types of learning. The most common assessment methods were objective written exams and practical exams. These instructional and assessment methodologies emphasize the conception of teaching as the transmission of information and skills and parallel findings by Samuelowicz and Bain,19 who found that orientations to assessment practice closely relate to orientations to teaching and learning. These methodologies focus on the abstract conceptualization and active experimentation phases of Kolb’s Experimental Learning Cycle.

This study suggests that methodologies from the concrete experiencing and reflective observation phases of Kolb’s Experimental Learning Cycle could be strengthened in these courses and curricula. While they were present in many of the courses, typically less time was spent on concrete experiencing and reflective observation activities, and they generally were not weighted as much as abstract conceptualization and active experimentation activities in grading processes. This finding may be due to the likelihood that concrete experience and reflective observation learning activities do not flow as naturally from the teacher-centered conception of teaching held by the majority of the faculty participants.

McCarthy,40 Kolb,30 and Svinicki and Dixon31 argued that real growth and learning are based not only on receiving and doing, but also on sensing, feeling and reflecting. A combination of all 4 phases of the learning cycle produces the highest level of learning, emphasizing and developing all 4 modes of the learning process.31 McCarthy argued that learners must first sense and feel something new and then they must process it by reflecting on it and discussing its meaning with others. The third part of the cycle, as described by McCarthy, is thinking about new knowledge in order to understand it, intellectualize it, and connect it to past knowledge. The cycle is completed by doing—acting on reflections, adapting it, and taking ownership of the learning. While McCarthy used slightly different labels than Kolb or Svinicki and Dixon did, they were all talking about learning as part of a cycle of perceiving (experiencing and thinking/conceptualizing) and processing (reflecting and doing). All of these researchers advocated using this cycle of learning more consciously, paying attention to all 4 parts, and striving for balance and wholeness in learning and teaching.

The courses and curricula of the 3 physical therapist education programs in this study, with their emphases on lecture and lab formats, are likely typical of traditional physical therapist curricula across the country. Physical therapist education programs often pride themselves on the extent of hands-on, experiential learning in their curricula. Yet, much of the hands-on, experiential learning done in physical therapist education programs is done with students practicing on other students who, at best, are trying to pretend they have a pathology with its resultant impairments and functional limitations. Often these students are portraying conditions to which they have not yet been exposed or of which they have limited understanding. In a previously published part of this study, students indicated they want more real experiences to provide relevance, purpose, and knowledge that are contextual and applicable.30 The students’ message was that, lacking the clinical exposure and experience of their instructors, in the classroom they do not have the concrete reality (ie, subjective personal experience and meaning) of different disease processes, different patients, and so on around which to frame and reference what they are learning. As one student said, how could she understand what the instructor was teaching about spasticity when she had never felt it? McCarthy states this dilemma well:

**Oftentimes educators and researchers . . . make the serious error of believing that when we can conceive things apart from their concrete reality, we reach the ultimate step on the thinking ladder, that to return to the real is somehow a step down. It is the real that informs, enlightens, and renews our abstractions, over and over again. They cannot be separated. Yet in schoolrooms and workplaces everywhere the separation goes on. We teach botany without flowers, astronomy without the stars, geology without the earth, mathematics without real problems. No wonder learners do not understand.**40

Physical therapist education programs all have clinical education components to their curricula, and some may argue that the real, concrete experience and active experimentation phases of learning largely happen in that venue. While it is likely true that these phases of learning are emphasized in clinical education, I argue that it is not appropriate to teach in the classroom without attempting to utilize methods that encompass the entire learning cycle so that student learning is optimized. I also argue there is no longer time for the majority of experiential learning to occur in the clinical component of a student’s education. Clinical sites do not have the time to do as much teaching as they did in the past. Due to changes in the health care delivery system, fewer clinics are available for student clinical education experiences. These changes result in a need to provide experiential learning in different ways.31 In addition, clinicians and employers complain that new graduates are not prepared to “hit the ground running” in today’s environment. This lack of readiness may be due to physical therapist educators’ expectations that the majority of learning from the concrete experiencing and applying/experimenting phases of the learning cycle will happen in clinical education rather than the classroom, but that is not happening to the extent necessary for preparation for current entry-level practice.

As previously noted, instructional activities that support the reflective observation phase of learning were also found to be weak in the majority of the courses and curricula in this study. Skills developed by this phase of learning include being able to observe and reflect on experiences from many perspectives.31 While fear of using different methods and comfort with standard methods may be part of the reason there are limited reflective
activities utilized, it appears from the data in this study that time pressures also play a key role. Faculty spoke of lacking time to develop new teaching method skills and of concern about covering large amounts of content in a time-efficient manner.

While abstract conceptualization and active experimentation teaching methods are excellent and necessary components to physical therapist education, faculty members may benefit from reflecting on their teaching activities and considering restructuring activities to include stronger components of concrete experience and reflective observation. Svinicki and Dixon believe that one source of limited approaches to instructional methodology may be the absence of a theoretical framework for selecting and organizing classroom activities to enhance learning. They advocate using Kolb’s Experiential Learning Model as a theoretical framework for instructional design by using certain activities to support different phases of the learning cycle.

orientations towards understanding and personal meaning (deep-learning approach) versus towards reproducing (surface-learning approach) are shaped by students’ learning experiences and experiences associated with formal examinations. McCarthy also discussed how the expectations teachers have for students and the learning tasks teachers set for students affect how students learn. She argued that the more students are asked to do left-mode brain processing tasks such as logical, sequential analysis, breaking things down into parts, and categorizing information, the more students learn to learn in only that way. She went on to argue that students need to have learning tasks that involve both left- and right-brain processing, with tasks involving both analysis and synthesis. Not only conceiving of learning tasks from Kolb’s learning cycle phases, but also paying attention to the types of processing tasks that students are asked to do within the cycle, could further enhance a theoretical framework for selecting and organizing classroom activities to promote deep learning and the reflective ability that is critical to becoming an expert practitioner.

Limitations of the Study

The nonrandom selection and the small sample size of participating programs and faculty may not be representative of physical therapist education program faculty throughout the United States. This factor limits the generalizability of the findings. Comparable studies with comparable samples from other regions of the country need to be conducted and analyzed for similarities. The fact that the faculty who participated in the study were essentially self-selected was an additional limitation. It is not known whether the beliefs, opinions, and experiences of the 5 faculty who chose not to participate would be similar to the 17 faculty who participated in the study.

Directions for Future Research

The roles played by faculty beliefs in regards to teaching and learning, particularly as they relate to student outcomes needs further substantial exploring. There is a need to further study and delineate teacher beliefs that are (and those that are not) consistent with effective pedagogy and quality student learning and growth, and also to delineate student beliefs that influence how they approach learning. Identification of these beliefs appears to be key to informing educational practice. Further study is also needed to explain the nature and process of belief formation and change. Do educational beliefs change secondary to a developmental shift occurring over time as a teacher or is it due to some type of “conversion” or gestalt shift? Without this knowledge, faculty development efforts to affect change in educational belief-systems will be ineffective.

While this study did not look at sex differences in faculty (and there were 75% female faculty participants in the sample), it was noted by the researcher that the faculty members whose beliefs, conceptions, and teaching methods fell towards the learner-centered facilitative teaching end of the continuum tended to be women. Future research could pursue the question of whether female educators are more apt to be facilitative in their beliefs and conceptions of teaching and, if so, how that relates to male and female students’ learning.

CONCLUSION

Kagan noted that the more one reads studies of teacher belief, the more strongly one suspects that personal knowledge and beliefs lies at the very heart of teaching. Yet with a few major exceptions, researchers looking at teaching conceptions or learning conceptions have rarely paid more than passing attention to the role of beliefs in the formation of these conceptions. This study has provided preliminary evidence that the educational beliefs held by physical therapist education program faculty influence their conceptions of teaching and learning and their resultant choices of teaching methodologies. Furthermore, it appears that these beliefs may be catalyzed and changed either by major dissatisfaction with the teaching encounter and the learning taking place as a result of that encounter or through a shift over time due to a developmental process. Physical therapist faculty and education programs are encouraged to take a hard look at what explicit and implicit beliefs are driving their teaching and curricular decisions. Faculty are encouraged, as described by Hayward in her work on being a reflective teacher and by Jensen and colleagues in their work on expert practice, to develop the skill of reflective practice as a method for examining their teaching and thinking and directing their professional development. Development of more effective teaching and learning processes is necessary to improve the quality of student learning and student outcomes and to allow students to become proficient in the skills of life-long learning necessary in today’s professional.

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REFERENCES


Appendix A

Interview Questions (Faculty)

1. How did you become interested in teaching in a physical therapy program?
2. What does “to teach” mean to you?
3. What does “to learn” mean to you?
4. What is your primary role (as teacher) in this course? Why?
5. What is the role of learners in your course? Why?
6. What is the most important assignment or learning experience in this course? What are you trying to get them to do in this assignment?
7. Describe the best teaching experience you have had teaching physical therapy students.
8. Describe the worst teaching experience you have had teaching physical therapy students.
9. What does it require to be really good at teaching your subject or teaching in physical therapy in general?
10. Describe your preferred or typical teaching methodologies.
   a. How did they become your preferred methods?
11. Look at this list of instructional activities. Which of these do you use? Do you emphasize any of them? Discuss/talk about the four categories.
   a. Which categories do you believe the PT professional curriculum as a whole emphasizes?

Concrete Experience
Laboratories
Observations
Primary text reading
Simulations/games
Field work
Trigger films
Readings
Problem sets
Examples

Reflective Observation
Logs
Journals
Discussion
Brainstorming
Thought questions
Rhetorical questions

Active Experimentation
Simulations
Case study
Laboratory
Field work
Projects
Homework

Abstract Conceptualization
Lecture
Papers
Model building
Projects
Analogies

Adopted from the work of Svinicki & Dixon.31(p309)