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Barrows' Integration of Cognitive and Clinical Psychology in PBL Tutor Guidelines

Kareen McCaughan

Abstract

Scholars have noted PBL is consistent with John Dewey's educational theories and with constructivist philosophies. This paper explores the similarities between the assumptions within Howard Barrows' principles for the PBL tutor's actions with Dewey's theories that address teacher behaviors and with Carl Rogers's conceptual frameworks that support the therapeutic behaviors of the client-centered therapist. In doing so it recognizes Barrows' integration of the educational and cognitive psychology concepts of two psychologists who have influenced the psychology of education and provides an additional conceptual and theoretical anchor for PBL tutor facilitation skills.

Key words: PBL tutor, PBL facilitation skills, PBL and educational psychology

Barrows' Integration of Cognitive and Clinical Psychology in PBL Tutor Guidelines

Howard Barrows' problem-based learning (PBL) tutor guidelines were built on a strong educational and cognitive psychology conceptual framework. Similarities have been noted between PBL and the educational theories developed by John Dewey (Koschmann, 2001; Neville, 1999) and the tenets of constructivism (Colliver, 2002; Mifflin, 2004; Savery & Duffy, 1995; Whitman, 1993; Windschitl, 2002). This paper examines conceptual consistencies between the nondirective PBL tutor role described by Barrows (1980; 1988; 2000; 2007), the client-centered therapist, and the actions of the teacher using Dewey's educational theories. Dewey's theories addressed the behaviors of teachers that promoted student inquiry, problem-solving learning experiences, and self-direction. Rogers's client-centered therapy applied similar theoretical concepts to a therapeutic context. Barrows integrated the concepts, purposes and skills of facilitation held by Dewey and Rogers in his recommendations for PBL tutors.

A PBL tutorial consists of small-group, collaborative, self-directed learning. Ideally the group size is limited to seven students plus a tutor. The number of tutorials and their length varies with the curriculum. In a typical health science curriculum tutorials occur twice a week for a three-hour period. The term "tutor" is used instead of teacher to underscore that the role is to facilitate the learning process. The focus of the tutorial is to engage students in a self-directed learning process that will help them uncover their learning issues using a problematic situation as a trigger. For example, in a typical health science PBL curriculum, PBL tutorial groups are presented with a clinical case, and the tutor is a clinician. In the process of discussing a case, students shift back and forth between individual and group learning. They identify individual learning issues (what they know and what they need to know), develop group learning objectives, engage in higher order thinking skills, such as analysis, hypothesis generation, decision-making, problem-solving, and evaluation, in tandem with communicating their thinking verbally to group members. The focus in this paper is on the techniques that the tutor, teacher or therapist uses with the individual student and between students in a small-group setting.

PBL Tutor Guidelines

Barrows was one of the first PBL experts to provide guidance on facilitating the educational concepts of PBL, at a time when the literature focused on the PBL student and compared student success using PBL with traditional learning methods. He wrote extensively on the attitudes, beliefs, characteristics, and actions a teacher would need to be a successful PBL tutor (Barrows, 1988; Barrows & Tamblyn, 1980; Barrows & Wee, 2007; Hmelo-Silver & Barrows, 2006). The combination of Barrows' background as a physician

and educator resulted in tireless efforts to convey the importance of the PBL tutor role. As a neurologist, he was an expert on the neurological system including how the brain processes information when learning. As an educator, he was keenly aware of the impact of teacher behaviors in learning situations. As an individual, Barrows cared deeply about building teachers' knowledge of cognition and learning, as well as their facilitation skills. Barrows was not only a scholar who wrote about nondirective facilitation, he epitomized the ideal nondirective facilitator. His ability to do so may have resulted from his training in therapeutic communication skills during his graduate medical education.

The role of the PBL tutor was first published at McMaster University as part of a practical monograph on how to operate a small-group PBL tutorial in medical education (*Small Group Learning in Medical Education*, 1972). In his PBL works, Barrows emphasized the role of the tutor as critical to PBL success. He was mindful that most new PBL tutors were unaccustomed to the tutor role and considered the nature of tutoring as an unplanned variable in the quality of PBL that acts as a major determinant of the method's success (Barrows, 1986).

Even though students are expected to behave differently from traditional students in PBL, new PBL educators often expect to use the same communication techniques, actions, and strategies as traditional teaching methods. They carry conceptions of teaching based on the traditional objectivist teaching approach, such as lectures and presentations. Objectivism is based on the belief that knowledge exists without personal experiences. This often means that course content is prescribed and delivered in a didactic manner. In higher education the teachers' role results from either a transmission-oriented perspective or an interaction-oriented perspective (Dahlgren, Castensson, & Dahlgren, 1998). The transmission perspective focuses on teacher actions, learning environment control, and teacher control of curriculum content. In the interaction-oriented perspective a teacher's role in the curriculum is directed by students' different ways of thinking, and students are empowered to make learning choices about how and what they learn. Authentic PBL tutoring is an example of the interaction-oriented perspective.

Barrows emphasized that PBL tutors require a mix of direct and nondirective facilitation techniques built on humanistic attitudes. This combination is necessary to inspire students to reap the benefits of inquiry and problem-solving thinking, learning autonomy, self-directed learning skills, communication, teamwork, social skills, and lifelong learning (Barrows & Tamblyn, 1980; *Small Group Learning in Medical Education*, 1972). A complete list of Barrows' recommendations for the communication techniques, actions and strategies of the PBL tutor is presented in Table 1. These techniques invite the student to self-assess their comprehension by pushing for deeper levels of understanding using questions that probe student's metacognition, statements that avoid giving information, expressing an opinion, and challenge students to confront their understanding when they are correct as often as when they are incorrect.

Facilitation Technique	Tutor PBL	Therapist CCT	Teacher Dewey
Requires the student/patient to select their learning goals and issues	x	x	x
Uses scaffolding to guide students/clients through stages of inquiry/reflection process	x	x	x
Pushes student/patient to deeper levels of understanding and expression of problems	x	x	x
Asks primarily open-ended questions	x	x	
Avoids expressing opinions concerning the correctness of student/client dialogue	x	x	
Avoids acting as expert or information source	x	x	x
Encourages discussions between students	x		
Shows unconditional positive regard	x	x	
Refrains from giving directions to enable student/client leadership of directing their learning of content	x	x	x
Responds to expressions of feelings as well as of thoughts about content	x	x	
Interprets expressed feelings and ideas the student/patient has said for confirmation	x	x	
Elicits and draws out problems	x	x	
Gives neutral responses	x	x	
Permits free expression of thoughts and feelings	x	x	x
Encourages self-initiated actions	x	x	x
Conveys psychological independence of the student/patient	x	x	x
Guides student/patient awareness of learning attitudes	x	x	
Stimulates student/patient to develop concepts	x	x	x
Uses indirect probes to prompt the student/patient to express their thoughts	x	x	
Reformulates student/patient statements (less familiar into more familiar)	x	x	
Stimulates deductive thinking	x	x	x
Compares and summarizes patient/student information out loud without drawing conclusions	x	x	
Pinpoints contradictions in student/patient statements	x	x	
Uses silence to stimulate student/patient dialogue	x	x	
Interacts with students at the metacognitive level	x	x	

Table 1. Tutor, therapist, and teacher facilitation techniques

A close examination of Dewey and Rogers's theories and concepts as they relate to Barrows' recommendations for PBL tutor facilitation actions discloses more similarities than differences. Table 1 aligns the facilitation actions embodied in Barrows' (1980; 1988; 2000; 2007) recommendations and principles for PBL tutors with therapeutic techniques that apply Rogers's client-centered therapy, and Dewey's theory of inquiry (1910/1997) and of experience (1938/1963). All positions recommend similar behaviors of the teacher/tutor/therapist to enable the student or client to self-direct their learning. All approaches consider self-direction as a factor that shapes the quality of the learning experience (intellectual operations involved in inquiry and problem-solving.).

Nondirective Facilitation and Client-centered Therapy

Client-centered therapy (CCT) was developed by Carl Rogers in the 1940s. CCT was one of the first therapeutic techniques to vary from the prevailing Freudian psychotherapeutic approach, which considered the psychologist to be expert on the patient's mental issues, and to shift emphasis from a focus on the patient's past experiences to the patient's self-insight and self-acceptance in the therapeutic relationship. Rogers also popularized the term "client" as a move away from the medical model of mental illness. Client-centered therapy creates a therapeutic psychological atmosphere that is fundamentally nondirective therapy (Brodley, 1986). In client-centered therapy the therapist respects and protects the autonomy and self-direction of the client. The client is viewed as expert about his or her self, and the therapist is considered as an expert only in maintaining the attitudinal conditions in the relationship with the client, not as an expert on the client or how the client should solve personal problems (Brodley, 1986).

In this approach the therapist uses careful listening, acceptance, empathy and reflection to create a humanistic nonthreatening environment where the client feels free to explore and seek answers to his or her own problems (Hall, Lindzey & Campbell, 1998). One of the assumptions upon which Rogers' model was built is the *actualizing tendency* (Hall et al., 1998), which has been interpreted as holding the additional assumptions of self-authority, self-directivity, and self-regulation (Bozarth, 1999; Zimmerman, 2001). According to Rogers (1942), client-centered therapy is an approach that results "from a therapeutic orientation that relies primarily upon the capacity of the client" (p. 10). The therapist does not direct the client's learning about psychological issues by providing interpretations, suggestions, advice, or other directive techniques. Instead the therapist helps the client express their issues by letting them talk about what they want to talk about. The client is permitted and encouraged to take the lead in directing the therapy.

According to Rogers, nondirective therapeutic techniques involve three core components: (a) bringing meanings to a conscious level through the use of a "recognition technique" in which the client must objectively state feelings or attitudes, (b) promoting

development of insight—the seeing of relationships or gaining understanding, and (c) enabling integration and organization due to personal insights into behaviour. When an individual self-discovers insights the individual takes ownership of the insights and is committed to them (Combs, 1946, p. 596). This view upholds respect for human dignity and uniqueness of the individual, promotion of personal freedom of choice for actions, the client's right to self-direction, and regards motivation as optimal when learners perceive personal meaning in learning.

Rogers and others were instrumental in transferring the therapeutic techniques of client-centered therapy from its origin in clinical counselling to broader applications in education, industry, social and religious work (Rogers, 1942; 1951; Rogers & Freiberg, 1994). Although the influence of Rogers's client-centered therapy on education may go largely unnoticed, some researchers have identified his influence in raising the interpersonal encounter as an important topic in psychology and in education as a building block of constructivism. As early as the 1940's scholars have argued that the roots of nondirective facilitation techniques in education extend back to the humanistic principles developed by Rogers (Albrecht & Gross, 1948). Herman (1995) claimed that paradoxically, although Rogers' synthesis of humanistic and existentialist theory surfaces in constructivism, the literature rarely shows philosophical and theoretical links between Rogers' theories and constructivism.

Pope and Keen (1981) noted that teachers who adopt a client-centered approach engage in an encounter with students similar to that found between therapist and patient in client-centered therapy. As client-centered methodology spread from the psychology field to the education field, client-centered terminology was contextualized into student-centered and later as student-centered strategies (Albrecht & Gross, 1948; Rogers, 1942; Rogers & Freiberg, 1994).

Much like Dewey's educational philosophy, Rogers's perspectives on education were a reaction to Behaviorism's assumption of the passivity of the learner's mind (Herman, 1995). He considered it insufficient that knowledge should be given by a teacher or textbook and accepted unquestioningly by the student. He felt that students must find the truths in knowledge for themselves and incorporate them within their understandings of the world. This position resembles the individual meaning-making concept advocated by constructivism, Dewey's theories of inquiry and experience, and PBL.

In applying his client-centred concepts to education, Rogers (1984) supported significant, meaningful, and experiential learning that involves personal involvement, is initiated by the learner, is pervasive in its influence on behaviour, attitudes, and personality, is evaluated by the learner and provides meaning to the learner. His model emphasized the personal involvement in learner-based learning, meaning the learning is self-initiated and self-evaluated. Rogers claimed that the process is not achieved through teacher

transmission or impersonal association. He believed knowledge needs to be personally appropriated and can be achieved through a specific type of encounter between the teacher and student, which he termed nondirective facilitation.

According to Rogers (1951), learning occurs when a dilemma (problematic situation) that has arisen in the life of an individual causes an appropriate level of disequilibrium to motivate the individual to reorganize their thinking. This unsettling scenario motivates the individual to clarify thinking in order to return to equilibrium.

In the same way as the therapist uses nondirective techniques to convey unconditional positive regard, empathy, and congruence to promote personal growth in learning about personal problems during therapy, the teacher or PBL tutor using a nondirective Rogerian approach uses similar behaviors in helping students problem-solve subject matter (Rogers, 1951; Rogers & Freiberg, 1994). The instructor using a Rogerian approach would take on a more subordinate and flexible role than is customary, would allow leadership to gravitate to learners, and would withhold approval and disapproval in order to provide an atmosphere of free discussion (Albrecht & Gross, 1948). The leadership literature refers to this kind of leader behaviour as self-sacrifice, where the leader sacrifices showing knowledge so others can exert theirs (Choi & Mai-Dalton, 1998; van Knippenberg & van Knippenberg, 2005).

The nondirective therapist or the nondirective PBL tutor uses a mix of verbal and nonverbal actions to encourage more permissive behaviours than their traditional counterparts. Permissive behaviour in this situation refers to the manner in which the psychologist or tutor uses silence and grants the client or learner permission to explore their situation rather than being told what to do by an expert. Silence is a key nondirective strategy claimed by both approaches that makes it possible for individual reflections to result in change (Barrows, 1988; Rogers, 1942; Rogers & Freiberg, 1994). In both PBL and in nondirective therapy the responsibility for solving the problem rests with the student or client, respectively, rather than with the professional (tutor or therapist). In PBL the tutor needs to help the student to see his or her knowledge level for what it really is and accept it to move forward (Barrows, 1988). Helping students self-express their understanding of problems is a form of assisting with self-disclosure. Encouraging disclosure resembles counseling as it requires the use of therapeutic conversational techniques.

In terms of learning, Rogers claimed, as Dewey (1910/1997) had done earlier, that active learning was key—that students must be discovery-oriented and the content under investigation must be meaningful. To Rogers and Freiburg (1994), the teacher has a responsibility to use active listening, have superior knowledge of the content, demonstrate outstanding communication skills, and hold beliefs consistent with this approach. The Rogerian approach placed the direction of the outcome of the therapeutic process in the hands of the client in much the same way as PBL places the outcome of the learning

process in the hands of the student. The task of the facilitator is helping individuals to clarify their directions, and become more autonomous, spontaneous, and confident in learning.

Some aspects of the Rogerian approach can be traced back to Dewey, especially to his experimentalist philosophy and his belief that truth and value can be found only in the realm of experience. In fact, Rogers indicated that his works represent a rediscovery of the effective principles of Dewey (Rogers, 1951). Both Dewey and Rogers were passionate about the centrality of experience, its dynamic character, its capacity to promote change, its ability to provide a sense of freedom, and to provide a self-directive purpose. What's more, they both believed in a social cohesiveness or as stated by Rogers, "self-actualization."

In summary, strong similarities exist between the Rogerian nondirective, client-centered or student-centered facilitation approach based on client-centered therapy and the role of the tutor using PBL as described by Barrows (1988). Both approaches view learning as active, where individuals have a freedom to learn, where there is respect for individual differences and creative ideas, learning involves critical thinking, a search for personal meaning, and there is excitement about the process of learning. For the teacher it means facilitating rather than directing learning, the primacy of self-responsibility for personal change, and the responsibility of the teacher to create an atmosphere of trust and openness in preparation for a healthy relationship between teacher and student. In this way, the ideal PBL tutor's behaviour embodies a Rogerian humanistic nondirective approach.

Dewey's Philosophy of Teaching and Learning

Scholars such as Koschmann (2001) and Neville (1999) linked the theories of Dewey with PBL. Dewey's philosophy of experimentalism, his theory of experience, of inquiry, pragmatic epistemology, and in particular his views on the role of the teacher and the learner contribute to an examination of the similarities with Barrows' conceptual framework of the role of the PBL tutor. PBL is what some say Dewey had in mind to build inquiry skills (H.S. Barrows, personal communication, March 20, 2004). PBL embodies Dewey's pragmatism philosophy and his hope that education would educate the mind beyond promoting memorization (Chiarelott, 2006). Dewey is commonly associated with the Progressive movement in education and inquiry's scientific attitude (McDermott, 1981). Progressivism holds that education should involve direct interaction with the environment to promote active thinking. Pope and Keen (1981) argued that this type of thinking is stimulated by cognitive conflict where knowledge is gained through experiential problem-solving situations. Dewey's philosophy and theory of inquiry advocated that knowledge was true only if it was objectively and, when possible, scientifically tested (Dewey, 1910/1997).

When compared, the essentials of an ideal teaching method advocated in PBL and Dewey's inquiry and problem-solving process are strikingly similar. For example, the stages that Dewey recommended begin with a situation of experience that contains a problem

leading to a generation of ideas, the observation and collection of data, a reasoned hypothesis or ideas, experimental application and testing, and a conclusion and evaluation. As mentioned previously, PBL uses similar stages. In addition, PBL exemplifies Dewey's views that educative experiences are constructed from designs where subject matter and method are interwoven rather than treated as two separate entities. Dewey was critical of curriculum dualism where the learning method was separated from subject matter and used merely as a subject-matter acquisition device.

To Dewey (1938/1963) traditional education often devalued authentic learning experiences because of expectations of the role of the teacher as expert, mental habits of conformity, and rules of conduct. In conjunction with connecting Dewey's theories of thinking and teaching beliefs with PBL tutor principles, it is relevant to also look at Dewey's (1938/1963) theories of experience and in particular the role experience plays in learning. His theory of experience maintains that education occurs through experience depending upon the quality of the learning experience. Two of the key principles that intersect in this theory are continuity (experiential continuum) and interaction. It is within the principle of continuity that Dewey expresses this belief that democratic social arrangements promote better quality experiences and that this includes the principle of regard for individual freedom (Dewey, 1938/1963). He viewed the principle of continuity as a criterion by which to discriminate between experiences that are educative and those that are mis-educative. Included in this principle is the expectation of the teacher's sympathetic understanding of individuality and that the teacher should refrain from imposing undue control over learning experiences. The concept of control is linked to an assumption that the quality of a good learning experience relies upon consideration of what goes on within the individual rather than the quality of what the teacher has provided. Hence, there are similarities between the basis for techniques teachers employ using the principle of continuity in Dewey's theory of experience with those of the therapist using client-centered therapy and the PBL tutor.

Dewey believed that teacher actions were a critical factor in determining the success of educative experiences that are social, connected to previous experiences, embedded in meaningful contexts, and related to learners' developing understanding of content. Ideally, PBL tutors provide similar learning conditions (Barrows, 1988) when they facilitate dialogue among a small group of learners, stimulate learners to connect new learning issues to previous knowledge, encourage inquiry, and provide the meaningful context of working on problematic real world cases that integrate content. Dewey recognized harnessing the learner's internal motivation was also critical to successful learning experience. His recommendations stem from an experientialist philosophy, which is characterized by individuals discovering the truths of life through experimentation. According to Dewey, the essentials of the experiential method are identical with the essentials of an educative experience. The PBL tutor's role encourages an experiential approach to learning.

Tutor, Therapist, and Teacher

Like the therapist, the PBL tutor seeks to encourage positive change within an individual through critical self-reflection, but rather than concentrating learning on the self, emotional adjustments and psychological issues the focus is on academics, such as learning concepts in a curriculum and metacognition. Although the techniques may be analogous, the goals and contexts between psychotherapy and education automatically generate instrumental dissimilarity. For example, the tutor has a limited amount of time with a tutorial group due to the curriculum pace whereas a therapist's time with an individual or group and the topics covered can be more open-ended.

While the work of Dewey and Rogers contributes humanistic elements to education that are consistent with the role of the PBL tutor, the views differ in the amount and kind of direction supplied by the teacher. According to Dewey (1938/1963) the teacher should arrange for beneficial learning experiences, but according to Rogers (Rogers & Frieberg, 1994) the teacher's intervention is more restrained. According to the principles of client-centered therapy, the teacher does not choose or structure the learning experience, the student does. As mentioned earlier, the teacher or therapist with a Rogerian philosophy allows the student or client to self-direct and self-manage their learning, whereas according to Dewey's theory of experience, the teacher plans learning experiences (Dewey, 1938/1963). Rogers, like Dewey, advocated the concepts of self-discovery and self-development. However, his view on the unfolding of the student's knowledge places a higher level of trust in the student for introspective discovery of how to problem-solve.

The nature of communication varies between the approaches. Dewey's theory of experience values interaction with others in the learning process, but does not delve into communication styles. It concentrates on specifying the conditions for authentic learning experiences, whereas Rogerian client-centered therapy focuses on the kind of communication needed to activate learning experiences, including the most useful therapeutic dialogue. While both Dewey and Rogers maintained that inquiry and problem-solving learning experiences should not be solved by the teacher or therapist, Dewey (1938/1963) believed that solution finding during inquiry involved social interaction with the teacher and others. Rogers on the other hand maintained that solution and problem-finding rested with the individual through self-disclosure. With Dewey's approach, the problem may be found introspectively but cannot be understood or solved except in social and scientific terms (Dettering, 1955).

Both Dewey and Rogers considered the learning experience (of knowing) to be as important as what is known, but differed in how the experience is acquired. For example, consider the similarities between Dewey's definition of inquiry with Rogers' description of the process of person-centered therapy. In his theory of inquiry, Dewey (1938/1963) defined inquiry as "the controlled or directed transformation of an indeterminate situation

into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole" (p. 226). Rogers (1986) described the central hypothesis of person-centered therapy, "that the individual carries within vast resources for self-understanding, for altering her or his self-concept, attitudes, and self-directed behaviour, and that these resources can be tapped if only a definable climate of facilitative psychological attitude is provided" (p. 258). Both psychologists shared the ethics of self-directed solutions to problems, but Rogers considered that the student must freely verbalize the solution. Verbalizing thoughts or thinking out loud about the problem is a key step in the problem-solving process in both Rogerian and PBL approaches.

Conclusion

Guidance for PBL tutors facilitation techniques is crucial to the success of PBL and PBL-like methods. To facilitate small group learning well requires a shift in behaviors for most teachers, especially those in higher education from disseminating expertise and knowledge through lectures to self-restraint of expertise, and the utilization of communication techniques, actions and strategies that promote self-directed learning. Barrows PBL tutor guidelines interweave Dewey's theories with the complementary concepts and techniques of Rogerian client-centered therapy. In doing so Barrows combined previously unrelated knowledge about learning from cognitive and clinical psychology into a new application that extended their reach. To the same extent that Dewey focused on teacher behaviors that favor inquiry, Rogers' principles address communication techniques, actions and strategies. The preceding analysis explains how Barrows' tutor guidelines and PBL are supported by the psychological and educational principles of two of the most progressive psychologists and educators, Carl Rogers and John Dewey.

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