

TRPP: a model for change

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ABSTRACT

The authors have developed a model for change (TRPP) that has as its primary purpose maximizing student development and learning. The significant components of the model are theory, research, practice and principles. Educators are encouraged to make connections back and forth among these four components through a process of critical reflection. The model is not a hierarchical one; there is no one prescribed starting place. In this article, we start the reflection process by looking at principles that have emerged from practice in higher education. We organize those principles, along with relevant theory and research, according to the general outcomes that have been developed by SAQA for implementation in South African tertiary institutions. For each linkage we also look at the implications it has for practice.

OVERVIEW OF THE TRPP MODEL

The four basic components

TRPP is useful as a dynamic framework, its components continuously affect one another and no one component can function effectively without the others. It requires awareness of new research and new ways of viewing theories about learning as well as the examination of long-standing practices that may need to be revisited. To remain vibrant, enthusiastic, and effective, educators must be engaged in a continuous quest for refining and improving the teaching and learning process. This does not mean that old ways of teaching need to be discarded, but it does mean that they should be reviewed and evaluated in terms of what is currently known about the learning process and the specific settings where learning occurs. Professional educators make decisions regularly about instruction and curriculum development based on theory and principles of practice supported by research. The TRPP

model offers an effective way to engage in this decision-making process.

The four components of TRPP (theory, research, principles and practice) interact to help explain why certain practices are preferred and why one approach may be more effective than another. One purpose of the TRPP model is to provide a way of integrating different theoretical perspectives in order to better understand what educators do, why they do it, and how it ultimately leads to learning outcomes. An underlying assumption of the model is that no one theory adequately explains all behaviors in every situation. An eclectic approach that includes facets of different theories is most useful in developing instructional strategies and program planning for increasingly diverse groups of students.

Critical reflection

The four components in the TRPP model function together within a framework of critical reflection. According to Brookfield (1995), to engage in critical reflection is to examine the assumptions that underlie our belief systems. To do this successfully, individuals must be willing to de-construct long held habits and analyze why they do what they do. For instance, if teaching has traditionally placed the lecturer at the focal point rather than the student, it is not enough to simply decide to "become student-centered". Lecturers must first think through why they have kept themselves at the center of the teaching/learning process for so long. Is it because that is how they were taught? Or is it because they think there is so much material that it is the only efficient way to get it out to students? Or is it really a lack of trust in the students to understand it independently? Is the image they have of themselves as a teacher tied to standing before a class as an expert and delivering a lecture? What will students think of them if they turn some of the responsibility for learning over to them? The answers to questions like these form the assumptions that determine behaviors.

Many of these assumptions are so deeply ingrained

that several layers must be uncovered to find them. When hunting for these assumptions, there are actually three layers to examine (Brookfield 1995). The deepest, and those that drive everything else, are the paradigmatic assumptions. They connect all the activities in the learning environment to a general, overall framework. The middle layer of assumptions is the prescriptive one; it translates the deepest level into a direction for practice. Finally, the easiest ones to identify, are the causal assumptions. These are the actual practices that operationalize the two deeper layers.

What do these layers of assumptions look like in practice? Let's take an example of a lecturer in a South African tertiary institution today. We will assume that this individual teaches in the sciences and has been lecturing for 20 years. The paradigmatic assumption that has guided him "successfully" for the last 20 years is that he is the expert and the authority in his classrooms. The students are lacking the knowledge that he possesses, and the reason they come to his class is to gain from him what they need. The prescriptive assumption that translates this into his practice suggests that his role is to decide which content is important and to ensure that it is organized and analyzed for the students.

At the causal level, we can easily see how these assumptions have been operationalized. He has found that the lecture format works best. Given a seven week term, providing the information that he has organized ahead of time is the most efficient way to transmit his knowledge to the students. He assumes that they will come to class regularly and be prepared to take down the information he has so carefully organized. He doesn't expect them to start thinking like an expert; he simply wants them to learn the content and demonstrate how much they can remember on the end of the term examination.

How do these assumptions and subsequent practices fit into the new student-centered model of education in South Africa with its general outcomes very much focused on student involvement? How can this lecturer make the paradigm shift that will be required for success within the new South African model for teaching and learning?

USING TRPP AS A MODEL FOR CHANGE

Examining long-held assumptions

Let's first apply the TRPP model to the assumptions driving the learning environment just described. In this case, our starting place is practice and principles.

From there we look for connections with theory and research.

PRACTICE

The teaching/learning environment consists of the following behaviors:

- Organization of content by the lecturer
- Development of lectures to communicate the organized content
- Presentation of lecture to students
- Recording of lecture by students through notetaking
- Learning of content through notes and textbook by students for examination.

PRINCIPLES

The principles that connect to this practice include:

- Knowledge is a discrete entity that is transmitted from an expert to a novice
- Students are novices whose role is to receive knowledge from the expert lecturer
- Students' goals are driven by achievement on an examination.

THEORY

What happens when we look for connections between the principles and practice listed above and a sampling of theories about effective learning? One place to start is with the classic work of Vygotsky (1965) and its emphasis on the learning environment and the facilitators in the environment. He focuses on the learner's zone of proximal development, the area between latent ability (or entry level knowledge) and realized potential (or learning outcomes). He theorizes that guided instruction leading one across that zone is a necessary ingredient for learning. Vygotsky's framework outlines the effectiveness of an external mediator who gradually releases the responsibility for learning to the learner. This implies a collaborative, dynamic relationship and the active involvement of both the lecturer and the student. It can be considered along with Freire's theory of problem-based learning which he contrasts with the "banking" model of instructional delivery. In the traditional "banking" delivery method, the lecturer simply pours knowledge into the student who is assumed to have none and whose only job is to passively receive it. Freire contends that students learn more effectively when the facilitator makes learning relevant and connects

new information to the students' prior experiences and realities.

Related to student realities is Mezirow's (1991) concept of "meaning systems." He suggests in his perspective transformation theory that these systems act as filters through which learners take in information and try to make sense of it. Individuals are continuously constructing these systems using their own experiences to develop their beliefs, theories and assumptions about the world. These, in turn, become the filter through which new information is processed and subsequently organized. Cross and Steadman (1996) also talk about the organization of information and refer to it as the development of schemata. These schemata act as mental filing cabinets, and they help the learner link new information with existing knowledge in an organized way. These theorists provide a good image for this by suggesting that, "Our existing knowledge base is the Velcro of the mind to which new information sticks. However, in the same way that lint can keep Velcro from sticking, misconceptions in a schema can interfere with connecting new information to existing knowledge" (1996:41).

Another theoretical framework that seems relevant here is that of goal-setting. In the area of goals, theorists have discussed two general types: mastery and performance. Hagen and Weinstein (1995) describe mastery goals as having a primary focus related to learning the material at hand; whereas, performance goals focus on the outcome, with learning serving only as a means to an end. When learners are engaged in trying to attain mastery goals, they are more apt to seek out challenges and put forth more effort. These goals are also more often associated with a regular process of self-monitoring. With performance goals, however, learners more often give up when they experience difficulty and do not tend to look for alternative strategies. These learners also do not frequently apply the cognitive strategies of planning and monitoring their learning activities.

How do these theories connect with the practice and principles that were listed earlier? They clearly raise questions in at least the following three areas: the relationship between lecturer and student, the instructional delivery format, and students' goals. Using the TRPP model, let's take a brief look at what research has to say in these areas.

RESEARCH

The research on group structures in learning suggests that the effects of student-centered instruction versus instructor-dominated environments are positive.

McKeachie, Pintrich, Lin and Smith (1986) reviewed studies comparing student-centered methods to those in which the instructor maintained dominance. They found that the more student-centered instruction leads to a higher application of concepts, increased abilities to solve problems, more positive attitudes, increased motivation toward group membership, and more effective leadership skills. In related research, a group of biology instructors shifted their teaching formats from lecture-driven classes to small-group, problem-solving workshops and found that there was a higher overall completion rate for the courses, increased student achievement, and increased excitement on their part toward teaching (Smith & MacGregor 1992).

It even seems that the students themselves are aware of the effectiveness of working in groups. Brennan and McGeever (1988) found that college students are critical of higher education when it tends to emphasize individual work and competition at the expense of collaborative experiences.

Research on goals and learning has produced consistent results that show that an orientation toward mastery goals leads to more engagement in the learning process (Maehr & Pintrich 1995). One study (Van Etten, Pressley & Freebern 1998) looked at goals and motivation. It found that students were more motivated when they received feedback and also when they had a self-set standard of achievement rather than when trying to compete against others.

Connecting this very brief overview of theory and research to the principles and practice of the lecturer we have described demonstrates how useful the TRPP model can be. There are discrepancies between his practice and current theory and research. In a process of critical reflection, the lecturer would need to examine closely his long-held assumptions about teaching. For instance how does the lecture format engage students in an active process of learning? How does the lecturer help the students connect new information to existing schemata? What motivates students to set mastery goals in this setting when the only feedback seems to come from the end of term examination?

APPLYING TRPP TO SAQA OUTCOMES

In this section, we apply the features of the TRPP model to 4 of the 7 general outcomes developed by SAQA (South African Qualifications Authority). We demonstrate the utility of the model by linking the outcome to a principle that is then connected to

research, theory and practice. There are many more principles that can be applied to the SAQA outcomes; these simply represent a sampling in order to demonstrate how the model can be applied.

Outcome: Identify and solve problems and make decisions using critical and creative thinking

In order to effectively integrate problem solving and critical thinking skills into the learning environment, it is essential to look at the cognitive development of learners and the different ways they conceptualize knowledge. Without this framework, it is not possible to guide them in a process that will lead to the stated outcome. One way to approach this is to look at theory and research related to the following principle: Learners move through different levels of cognitive development that influence their understanding of knowledge and their roles as learners.

Some of the ways of knowing and various understandings of what knowledge is can be related to the developmental stages through which a learner moves. This notion began with the work of William Perry (1970) when he established his nine classic stages of cognitive development. According to him, learners progressed through four major categories of knowing: 1) absolutist or dualist (viewing the world in terms of right or wrong, with experts holding the "right" answers); 2) multiplicity or problematic (uncertainty creeps in; 3) relativism (knowledge becomes contextual and learners make their own judgments; and 4) commitment which leads to a personalized set of values, lifestyle and identity.

Whereas Perry's work is limited to males, Belenky and others (1986) extend the notion of various ways of knowing to females. Even though they do not suggest that these ways are developmental, they have been widely interpreted as such. The positions include (1) silence (a person feels voiceless), (2) received knowing (knowledge comes from an external source), (3) subjective knowing (knowing is intuitive rather than based on evidence), (4) procedural knowledge (procedures for processing information are developed), and (5) constructed knowledge (knowledge is contextual and the knower is part of the context).

More recently, Baxter Magolda (1992) has looked at college students' ways of knowing and reasoning. She discovered patterns of thinking that are related to, but not dictated by gender. She identifies four ways of knowing that evolve from simple to more complex. Within the stages, she shows patterns of gender differences. The stages – absolute, transitional, in-

dependent, and contextual – are similar to those of Perry and Belenky, but the patterns within them make them significantly different.

According to Baxter Magolda, at the absolute level, the learner sees knowledge as being held by an external authority. Females at this level tend to function as receivers, taking notes and studying to do well, whereas males function here in a mastering pattern, exhibiting more verbal interaction with the instructor. At the transitional level females tend to exhibit an interpersonal pattern by relying on the opinions of others through dialogue and the collection of others' ideas to help construct their own knowledge; males more often engage in an impersonal pattern, with the opinions of others used as material for debate or challenge. At the independent level of knowing females are often engaged in an inter-individual pattern, whereas males tend to use a pattern of independent processing. Within the inter-individual pattern, learners have their own interpretations but value an exchange of ideas; the individual pattern focuses more on the learners' own independent thinking. The contextual level is generally characterized by thinking in which a person can make informed judgments and evaluate distinctions among perspectives. According to Baxter Magolda, it rarely appears during the university years, so she does not suggest any patterns within this level.

The theory suggests that students are functioning within a range of cognitive levels. It seems clear that in order for them to solve problems and think critically, they will need to move through some of these levels. They will need to see their role as an active one where they are at least partially responsible for the construction of knowledge. Cross and Steadman suggest that instructors can induce higher-order processing, not by explaining but by providing an environment that "demands active learning" (1996:189) and introducing cognitive conflict (looking at things through different perspectives) through instructional delivery methods.

Research dating from the 1970's has indeed shown that course-based interventions and formal education in general have advanced students' cognitive development. The work of Stephenson and Hunt (1977) describes a first year social science course designed to advance students from Perry's dualistic level to the more advanced relativistic one; the results demonstrate a substantial movement toward relativism in the experimental group. According to Pascarella and Terenzini (1991), other research has shown similar advances when the constants include providing challenges to students' cognitive levels and values within a supportive environment. Basing his work on

the varying degrees of cognitive levels that students bring into the classroom, Crawford (1989) developed a set of tactics he felt would facilitate development while acknowledging current levels of processing. He suggests having a direct discussion regarding the process of cognitive development so that students understand why certain aspects of the course might be frustrating to them. He also recommends balancing challenge with safety in order to lessen student discouragement.

Kitchener and King (1990:140) report the transitions between levels to be more like waves than steps and plateaus. In fact they describe the stages as "waves across a mixture of stages where the peak of a wave is the most commonly used set of assumptions". Using this metaphor, students are likely to be processing information at more than one level, and educators need to be challenging them at the highest edge of that level within a supportive learning environment (Kroll 1992; King & Kitchener 1994).

Pascarella and Terenzini (1991) estimate that college students advance half a stage during their college years, and Kitchener and King assert that although this may seem like a small shift, the significance is a qualitative one: the students have developed from reasoning that is based primarily on personal beliefs to a process that depends on gathering evidence in order to make judgments.

The research of Baxter Magolda also found that students' levels of thinking evolve with increasing complexity throughout the college years. At the absolute level, students place the responsibility for learning on the instructor who has the authority and has all the answers. In her study, these students were most prevalent in their first year of university study; represented only two percent of the population in their senior year and disappeared completely in the year following graduation. In the next stage, the transitional one, the students began to understand knowledge and saw it as more uncertain. This way of thinking increased dramatically during the first three years of university study from 32 percent of the population in the first year to 83 percent in the third year.

It seems that instructional delivery and curriculum development at the tertiary level has an impact on a student's level of processing. Research related to the teaching of writing demonstrates that by applying theories of intellectual development, the instructor could develop relevant "strategies to help a writer complicate her thinking process as she practices some writing patterns" (Mullin 1998:86). She found that by increasing the students' metacognition, or

self-awareness of how they were approaching various writing tasks, intellectual development is facilitated. She compared the process approach of the writing class where students are guided across levels of thinking to a content course where assignments are frequently made without regard to a student's current development. The content instructor often "presupposes abilities to synthesize, construct or contextualize ideas and evaluate evidence to support competing authoritative claims" (1998:89). Mullin contends that if the student is functioning at Perry's dualistic stage, for example, this type of assignment could create enough stress to cause a regression to the level of comfort and the student, not wanting to take any chances, will produce a paper that appears simplistic.

The work of Perry and that of Belenky has also been used to design curriculum in which students must interpret meaning and face controversial issues. For instance, Crawford (1989) reports on developing art and art history courses based on Perry's work. Because these are courses in which students are encouraged to accept ambiguities and conflicting perspectives related to evaluating and creating art, it can be uncomfortable for those who are operating at the lower levels of Perry's scheme. For instance, students who are in the stage of dualism and see the teacher as authority and possessor of all knowledge will not want to construct their own perspective nor will they value their peers' thoughts and opinions.

Another content area that has been studied is that of social justice classes in which students are expected to challenge stereotypes and accept divergent perspectives. This was examined by Adams and Zhou-McGovern (1994) at a large public institution where students must take a social diversity course. After studying the course goals and the students within the frameworks of Perry and of Belenky, the researchers came to several conclusions. First, they decided that first-semester students who often function at Perry's dualistic stage of processing are not ready for a course that encourages listening and learning based on divergent experiences. For this reason, they now discourage first-semester students from enrolling in the social diversity course.

Second, they found that the number of issues raised should be limited to accommodate the students' lack of readiness to confront so much uncertainty. They also discovered a need to begin the course with concrete, personal, and experiential themes in order to provide a foundation for the more abstract, uncertain concepts. Equally important was the provision of support and structure for the contradictions that would be introduced as the course progressed.

Finally, they recognized the usefulness of the students' perceptions of teacher as authority and used it to provide modeling of new ways of thinking.

The research and theory provide challenges for educational practice. Many traditional assumptions may need to be re-examined. Frequently, instructors express dismay at the passivity of the learners they encounter in their classrooms. They expect them to ask questions and even debate with them from the first day. When this doesn't happen, they conclude that the students do not care or are underprepared. They decide to provide no challenges because few could meet them.

The majority of recent secondary school graduates, however, are thinking and reasoning at levels that differ considerably from those of their instructors. They also hold different views of what knowledge is. For many of the learners, knowledge is still something to "get" from someone else, someone who is an expert and can simply hand it over. They do not see themselves as active participants in the meaning-making process; they see no value in interpreting or adapting a perspective based on their own experiences or knowledge because they do not see the personal connection. If these learners are given the opportunity to connect their understandings and prior experiences to the new material right from the beginning, they will begin to understand the significant role they have in the process. The instructor can then gradually lead them into higher levels of reasoning as they start to depend on their own abilities to interpret meaning and eventually to construct it. In the process, their approach to learning will go beyond the surface, to the deep level, where they assume the responsibility for understanding and constructing meaning.

What are some concrete ways to integrate these ideas into the learning environment?

- Begin the term by grouping students into small groups and presenting them with problems to solve collaboratively. Structure a portion of a class session around the various groups sharing their knowledge about how to solve problems. The problems could be constructed to lead into some of the concepts to be discussed in class. This immediately sends the message that the instructor values the students' perspectives, and it also allows the instructor to assess the levels of thinking and the knowledge base represented in the class.
- Create some conceptual conflict by introducing variables to the earlier problem that would force students to think it through from a new perspective,

perhaps one that stretches their original thinking. A significant component of this activity would be an acknowledgment of the value of the students' earlier processing and how it was helping to further develop the course. The instructor could at that point discuss some of the group solutions along with the processing she had gone through to work on the problems herself. This would confirm the value of students' thinking and allow them also to see an expert's way of thinking.

- Directly discuss levels of cognitive development and how they relate to the instructor's expectations and the students' approaches to learning. Raising everyone's level of awareness about the different levels will decrease frustrations as students realize that they are not incapable of achievement; rather, they may be reasoning at a particular level of development. Then challenges can more easily be provided and directly related to necessary development.

Outcome: Work effectively with others as members of a team, group, organization and community

In order to prepare students for working effectively as team members following their graduation, collaborative activities need to be a regular part of the learning environment. A principle that provides a framework for this is: Working in groups enhances learning outcomes.

Most of the theory and research in the area of collaboration suggests that it is a skill that must be taught but that it does lead to increased learning and often more positive attitudes from both instructors and students. Hamilton (1994) discusses three models of collaboration that are distinguished primarily by the source of authority and the type of task. One, the social constructivist model, represents a shared decision-making process between instructor and students. Groups of learners are expected to construct their own meaning with regard to a problem – one they may even have generated themselves. Each group processes information in a way that reflects the perspectives of its members and most likely tries to build consensus as the group integrates individual ideas. For this to be successful, the instructor may have to "reacculturate" students. Bruffee (1993:47) warns that students must learn, "sometimes against considerable resistance to grant authority to a peer".

To counteract this resistance, students coming from earlier, more competitive models of learning must develop a new set of skills. Bosworth suggests a taxonomy for groups that includes interpersonal skills,

group-building and management skills, inquiry skills, conflict-processing skills, and presentation skills. Many of these skills have already been learned implicitly from social experience, but the instructor needs to facilitate making them explicit as students learn to draw from their "reservoir of tacit knowledge" (1994:29).

In addition to these skills, recent research by Geary (1998) indicates three essential components to successful cooperative learning that can be applied to collaboration as well. First, a positive learning environment must be created to reduce fear and to increase students' willingness to take a risk. Second, social skills must be developed so that group interaction can be facilitated. Finally, there needs to be some type of structure to give the groups guidance as they proceed.

Cooper's (1995) research indicates that when students experience conflict in heterogeneous, collaborative groups and work to resolve it, the conflict contributes in a positive way to their intellectual development. In a study conducted with learners enrolled in a biology course where small-group problem-solving activities replaced lectures, group performance was highly dependent on a mixture of cognitive styles. As the cognitive diversity of individuals in a group increased, there was more group conflict and less satisfaction, but the overall performance improved (Miller, Trimbur & Wilkes 1994). Pascarella and Terenzini (1992) also found that cognitive and attitudinal changes result when students hear different perspectives in small-group settings. This may be the first time students recognize that their perspective is not the only one in a world that is much larger than they realized (McNeil 1996).

Williams and Sternberg (1988) studied the workings of groups and found that the work produced by groups reflects a higher quality than that produced by individuals alone and that both cognitive and social-cognitive skills are related to the effectiveness of the group. According to the researchers, high group intelligence develops when each member understands and operates within appropriate behavioral norms, has a sense of self-awareness, and contributes an average amount of talkativeness and dominance.

Clinchy's interviews with women (1994) relate to the significance of individual behavior within the group. She asked women what classes had helped them develop the most, and they answered, those that had "connected conversations" (1994:193). The women affirmed that within the effective groups each individual served as a midwife "building together a truth none could have achieved alone" (1994:41).

Tobias's work with seniors at the University of Michigan (1990) concludes that women often find college science classes to be "unfriendly" places. The emphasis on competition rather than collaboration makes them uncomfortable, and Tobias concludes that there is an absence of community in these classrooms.

Collaborative learning is described through a case study of a basic math classroom where the instructor confessed that he had run out of ideas for engaging the students' attention (Emerson, Phillips, Hunt & Alexander 1994). Following the integration of collaborative learning into the classroom, the instructor reflected, "Teaching collaboratively has enabled me to get through more material, and students have achieved a deeper understanding, worked harder and enjoyed it" (1994:83). In related research, a group of biology instructors shifted their teaching formats from lecture-driven classes to small-group, problem-solving workshops and found that there was a higher overall completion rate for the courses, increased student achievement, and increased excitement on their part toward teaching (Smith & MacGregor 1992).

From the research and theory reviewed here, it seems that integrating collaborative activities into the learning environment requires a major shift not only in the relationship between lecturer and student but also among students. In order to successfully implement it, the lecturer must be prepared to release some of the responsibility for learning to the students and also to teach students how to work effectively in collaborative settings. The outcomes reported in the research suggest that both instructors and students gain from the experience and that students' cognitive development is also affected.

What are some ways to implement collaborative activities in the learning environment?

- Rather than preparing a lecture on new material, develop a relevant application of the material through a case study or problem which students need to form groups to work out. Inform the students of the roles they need to assume within the groups in order to complete the project, eg, recorder, facilitator, librarian, etc, and spend time establishing guidelines. The roles and process will vary depending on the project, but it is important that clear criteria for participation and outcomes be outlined at the outset.
- Request that students keep journals regarding the collaborative activities. Ask them to write what is working and also what is most frustrating to them. Summarize their thoughts and lead a discussion on

them asking the students to come up with ways to make the collaboration more effective.

- Clarify assessment criteria from the beginning. Students need to know how they will be evaluated within the group context. Decide ahead of time if there will be both an individual and group evaluation. One method that gives additional responsibility to the students is to have them rate each other's performance within the group. This will be difficult for them, but it will contribute to future effectiveness if instruction is provided on how to apply specific criteria.

Outcome: organize and manage themselves and their activities responsibly and effectively

In order to organize and manage themselves, students must know why they are engaged in specific learning tasks and be motivated and able to exercise personal control over their behavior. Many principles of learning and development are relevant to the achievement of this outcome, but for the purpose of demonstrating the application of the TRPP Model, we use a principle related to motivation theory and research. This principle states that an orientation toward mastery goals increases engagement in learning.

Using the TRPP Model, we begin by looking at one principle to link to practice for achieving the desired learning outcome, namely that students will be able to organize and manage themselves responsibly and effectively in their learning activities. We examine the principle's foundation in theory and research completing the full circle of connections between the components of practice, principle, theory, and research. Finally, we critically reflect on all four components for the purpose of maximizing student potential.

The most prevalent theoretical view of motivation and learning is that of the cognitive perspective. Cognitive theorists seek to understand why a person is or is not motivated and focus their inquiries on a number of different areas including attribution and goal theory (Weiner 1990), social learning theory (Bandura 1982), and self-worth theory (Covington 1992). For our purposes we center on goals and motivation. Pintrich and Schunk define motivation as "the process whereby goal-directed activity is instigated and sustained" (1996:4). Motivation is a process and not a product. It is something that is inferred from behavior. In the study of motivation, goal theory differentiates *mastery goals* from *performance goals*. As presented earlier, mastery goals are oriented toward self-improvement without comparison to

others, and these goals emphasize the use of comprehension monitoring, which includes elaborating, as well as organizing strategies for relating new material to past experience. In contrast, performance goals involve comparison with others and competition. These goals often focus on memorization without emphasis on problem solving or critical thinking and are directed toward short-cuts and quick payoffs (Maehr & Anderman 1993). Students may be primarily oriented toward mastery or performance goals, or they may have a multiple-goal orientation if they have various goals in different learning situations.

Research on goals and learning has produced consistent results showing that an orientation toward mastery goals leads to more engagement in the learning process and a higher incidence of metacognitive strategies (Maehr & Pintrich 1995). Schunk (1991) found that the effects of goals on behavior depend on three properties: specificity, proximity, and difficulty level. Specificity refers to the degree to which goals are exact in nature; specific goals outline in detail what needs to be accomplished. The following shows how a teacher's instruction can convey a specific goal: "You will write a five-page paper and have the the body finished in two weeks, the conclusion completed in three weeks, and the introduction and final product completed in four weeks." General goals are less precise and would go something like this: "You will have the paper completed by the end of the term." Specific goals are known to increase motivation more than general goals.

Proximity refers to the extent to which goals are attainable in the future. Proximal goals are attainable within a relatively short period of time and tend to be specific. They contrast with distal goals whose attainment is further away and more global. A proximal goal such as, "By tomorrow, you will know all the answers to the questions at the end of the chapter" contrasts with a general goal such as "You will take your licensing exam next year." Proximal goals are more motivating than distal goals. One explanation for this is that with the pursuit of a proximal goal, the individual readily experiences progress toward completion and received feedback about performance in a more consistent and timely fashion. Distal goals do not provide the opportunity for evaluating progress in the same way that proximal goals do.

Motivation and proximal goal setting are enhanced when standards of performance are provided before beginning an activity (Harackiewicz, Sansone & Manderlink 1985). By receiving the standard first,

learners are able to monitor their actions during the activity and make assessments of their own performance.

Research findings also show that receiving consistent feedback in relation to goal attainment increases motivation, and students say that they are more motivated when targeting a self-set standard of achievement than when trying to compete against others. Students also say that thinking about distal goals and not proximal goals is counterproductive to studying. This supports the idea that proximal goals are more likely to increase motivation (Van Etten, Pressley & Freebern 1998).

Further research has found that students who had a goal were more likely to have positive self-efficacy beliefs. This, in turn, led to greater participation in activities connected to goal attainment such as attending class, using effective study strategies, expending effort, and persisting in the learning process. As the students made progress toward goal attainment and received feedback regarding this process, their self-efficacy beliefs improved. This helped increase motivation and the use of effective study strategies (Elliot & Dweck 1988; Schunk & Swartz 1993).

This cycle of goal identification leading to positive self-efficacy and resulting in increased motivation is critically relevant to the achievement of the learning outcome under consideration that seeks to develop students who organize and manage themselves and their activities responsibly and effectively.

Using TRPP, we have identified theory and research that connects to practice through examination of the principle of mastery goals and motivation in the learning process. Returning to practice, we reflect on ways to construct environments so they are more likely to result in the achievement of this learning outcome.

Knowing that mastery goals promote more engagement in learning than performance goals has significant impact on the way students are approached and how we respond to them. Traditional practice has often promoted the notion that competition is a motivating force and one that encourages effective learning behaviors. Research findings, however, have indicated that just the opposite is true. Using theory and research, the following suggestions are offered to help enhance the likelihood of students organizing and managing themselves responsibly and effectively.

- Place less emphasis on student comparisons. Instead of posting grades and indicating the

percentage of students performing well or poorly, make evaluation private. Have students collect their exam results so that students are only aware of their own achievement and not that of the others in the course. This promotes motivation for the achievement of a learning objective and not for the purpose of receiving a grade.

- Clearly communicate the goals of each learning activity and break larger goals into smaller, manageable parts. Ask students to target their own smaller goals leading to the attainment of the larger learning objective. Guide students toward directing their activities toward achieving the smaller goals and building on them in the learning process.
- Model a process that allows students to monitor their own progress toward the achievement of a learning objective. Offer guidance and detailed strategies that provide opportunities for students to reflect on their achievement of smaller goals that lead to mastery. Allow for differing timelines so that students may proceed at their own pace, spending more time on some aspects of the activity and less on others.

Beginning with these suggestions based on theory and research, students will be more encouraged to actively organize and manage themselves in the learning process.

Outcome: demonstrate an understanding of the world as a set of related systems by recognizing that problem solving situations do not exist in isolation

Making connections and applying knowledge to challenging situations is the goal of much of higher education. Too often students view learning as consisting of isolated bits of information and fail to link what is learned in one situation to that of another.

Beginning again with practice and the desire to provide opportunities for students to demonstrate an understanding of the world within a framework that requires connective thinking, we use the TRPP model and start with a principle. This principle states that environments characterized by critical dialogue, integrative learning, and risk taking promote student learning and development. Looking at each of these factors (critical dialogue, integrative learning, and risk taking), we examine theory and research and make applications for promoting the achievement of this outcome.

Engagement theory in learning is a key concept in higher education today (Haworth & Conrad 1997).

One critical part of engagement theory is the opportunity for critical dialogue. Critical dialogue requires that students have opportunities for questioning and debating and that they are encouraged to view knowledge from differing perspectives. To have critical dialogue, students must interact. To develop wide perspectives, they must be in learning environments that have diverse participants. The concept of learning communities (Gamson 1984; Spitzberg & Thorndike 1992; Tinto 1993) includes the idea of interaction among all participants in the learning process and is not limited to student-teacher interactions. Instead, learning communities involve interactions among all students, teachers, and administrators. Learning communities are not limited to courses or specific class sessions. They exist throughout the higher education institution.

The engagement theory of learning emphasizes not only critical dialogue but integrative learning as well. Integrative learning is that which promotes connections between what is known and applications to real life situations. In their research with graduate students, Haworth and Conrad (1997) found five clusters in their concept of engagement: (1) diverse and engaged participants, (2) participatory cultures, (3) interactive teaching and learning, (4) connected program requirements, and (5) adequate resources. These clusters serve as a framework for the concept of engagement, and each cluster contributes to program quality; contributions include the idea that student learning and development are at the core of higher education and that all program quality is not just the result of students' active learning but the interaction of students with all players in the educational environment, including teachers and administrators.

Finally, the notion of risk taking is important as it relates to the attainment of this learning outcome. The idea of risk taking is upheld by Parker Palmer (1983), who emphasizes the importance of openness to new and creative ideas, and Macrorie (1984), who reports that outstanding teachers are those who construct climates in which students are free to take chances and to make positive use of mistakes. When students are encouraged to believe in the banking approach to knowledge (Freire 1970) such that what is known is in the possession of an expert and learning is the process of having knowledge deposited and to be withdrawn later for use on exams, the idea of risk-taking is a foreign concept. Instead, it is important to encourage students to explore information interactively with others, to question and examine what they discover in their learning activities, and to take risks by asking hard questions, revealing uncertainties, and

making attempts to apply what is learned to novel situations.

Using theory and research, these suggestions are presented to help increase student awareness that problem solving situations do not exist in isolation and that the world and knowledge about it exists as a set of related systems.

- Create a learning community where colleagues interact with each other and organize ways to integrate course content across and within disciplines.
- Use assessment procedures that require students to connect learning from one course to another and from one discipline to another.
- Provide opportunities for students to interact for the purpose of addressing situations that require linking course content to problem solving activities.
- Reduce the amount of content presentation through the medium of lecture presentation.
- Encourage and reward students who challenge and debate course content.

SUMMARY AND CONCLUSION

We have presented a new model, TRPP (theory, research, principles, and practice) for connecting theory and research to practice in higher education. Using critical reflection we have examined some assumptions that underlie certain beliefs and applied the TRPP model to these assumptions in a traditional learning environment.

To meet current needs and demands, the TRPP model was then been applied to four of the SAQA learning outcomes.

- Identify and solve problems and make decisions using critical and creative thinking
- Work effectively with others as members of a team, group, organization and community
- Organize and manage themselves and their activities responsibly and effectively
- Demonstrate an understanding of the world as a set of related systems by recognizing that problem solving situations do not exist in isolation.

For each of the above outcomes, relevant theory and research were presented and a principle for practice discussed. Finally, using theoretical foundations and research findings, specific suggestions for practice were proposed for each of the learning outcomes.

The TRPP model was presented as a framework for critical reflection to be used by professionals in higher education. There is no set formula or universal path for

achieving the SAQA learning outcomes. Instead, it is the responsibility of all involved to find creative and effective ways to achieve the desired results. What works in one situation may not be useful in another. The uniqueness of each institution and its individual members requires personalized and institutionally relevant practices.

Collaborative interaction and planning within specific institutional settings is recommended for effective programming and results. The TRPP model is a useful framework that provides a way to engage in planning for the achievement of the SAQA learning outcomes.

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