Application and evaluation of a combination of socratice and learning through discussion techniques

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Abstract

This article has its genesis in the inquirer's interest in the need for internalizing critical thinking, creative thinking and reflective skills in adult learners. As part of a broader study the inquirer used a combination of two techniques over a period of nine months, namely: Socratic discussion/questioning and Learning Through Discussion Technique. The inquirer within this inquiry elected mainly qualitative methods, because they were seen as more adaptable to dealing with multiple realities and more sensitive and adaptable to the many shaping influences and value patterns that may be encountered (Lincoln & Guba, 1989). Purposive sampling was used and sample size (n =10) was determined by the willingness of potential participants to enlist in the chosen techniques. Feedback from participants was obtained: (1) verbally after each discussion session, and (2) in written format after completion of the course content. The final/ summative evaluation was obtained through a semi-structured questionnaire. This was deemed necessary, in that the participants were already studying for the end of the year examination. For the purpose of this condensed report the inquirer reflected only on the feedback obtained with the help of the questionnaire. The empirical study showed that in spite of various adaptation problems experienced, eight (8) of the ten (10) participants felt positive toward the applied techniques

Introduction

If autonomy is the goal of professional education, the key issue according to Dittman (1976) is to bring its facilitation from the unconscious, unplanned level to the level of conscious awareness. Despite a growing body of literature on the subject of critical thinking, creative thinking and reflective learning, practical suggestions for improving these skills are limited, however, it seems that it is best developed in an atmosphere of dialogue, interchange and problem solving. Therefore, educators must rethink their roles and concentrate on facilitating in students the skills and attitudes needed for self-directed critical thinking, reflection and inquiry.

Essentially, the normative nature of education implies that it should be concerned with inspiring in students the skills and attitudes necessary to know how to think, how to understand, how to appreciate, how to make use of knowledge and how to discover its inherent values, its usefulness, its clarifying and revealing powers, its insight and its truth for a meaningful human existence (Higgs, 1993).

Problem statement

Despite widespread interest in, and recognition of the importance of internalizing critical thinking, creative thinking and reflective skills in adult learners there is no clear agreement concerning how to develop these skills.

Research objectives

The inquirer set the following objectives (as part of a more comprehensive study):

* Application and evaluation of selected strategies to raise self-consciousness, critical thinking, creative thinking and reflective thinking. For the purpose of this study the inquirer used a combination of two (2) techniques, namely: Socratic discussion/or question-ing and Learning Through Discussion Technique.

* Assessment of students' attitudes and feelings towards the selected guided, critical reflective and creative tech-niques.

Research setting

The inquirer selected to carry out the study in the natural context of the entity (participants), that is, a tertiary (higher) education environment for adult learners. The selected site was chosen due to practical reasons, namely being a full-time lecturer at the chosen institution:

* The inquirer was able to build trusting relations with the participants even before the study.

- Entry into the setting was possible.
- Prolonged engagement was possible, resulting in sub stantial involvement at the site of the inquiry, to over come the effects of misinformation, distortion, or pre sented fronts to establish the rapport necessary to uncover constructions/assumptions.
- The inquirer, being a staff member, understood the context's culture.

Research methodology

The inquirer within this inquiry elected mainly qualitative methods, because they were seen as more adaptable to dealing with multiple realities and more sensitive and adaptable to the many shaping influences and value patterns that may be encountered (Lincoln & Guba, 1989). Feedback from participants was obtained: (1) verbally after each discussion session, and (2) in written format after completion of the course content. The final/summative evaluation was obtained through a questionnaire. This was deemed necessary, in that the participants were already studying for the end of the year examination. For the purpose of this condensed report the inquirer reflected only on the feedback obtained with the help of the questionnaire.

Sampling method

Purposive sampling was used to include adult students who complied with the following criteria. The participant should: (1) have given informed consent; (2) be a post-basic student; and (3) be willing to participate in reflective exercises, Socratic Technique and Learning Through Discussion. Sample size was determined by the willingness of potential participants to enlist in the chosen techniques. **Ten (10)** students agreed to participate in the study.

Informed consent

The inquirers explanation included orientation regarding the: (1) different types of methods that would be used, namely

Table 1: LTD process plan

Table 1	LTD process plan
Step 1 Checking in	During first meeting every group member must get to know each other and exchange phone numbers. During following meetings students quickly greet one another and express feelings related to the group discussion
Step 2 Concept clarification	Students look up difficult concepts in different dictionaries, even though they think they know the concepts.
Step 3 General statement of overall meaning of the assigned reading for the day.	Verbal expressions of the general statement help to zero in on the topic for discussion.
Step 4 Identification and discussion of major themes or subtopics.	Reading material is broken down into a number of important themes or subtopics. Emphasis is placed on what the author has to say on a particular topic and not on the opinions of the students.
Step 5 Application of material to previous learning situations/discussions.	To counteract the possibility of fragmented learning, time are now allocated to make conscious effort to relate learning to concepts acquired in previous learning sessions. The purpose is to take the arguments of one author and either refute or support them with another point of view. This means that the student should be able to translate understanding of the work/article to peers, while also showing how the current work/article relates to other literature.
Step 6 Application of the material to the self.	Knowledge needs to be cumulative and integrated, as it is most valuable when it has personal value or significance. Self-application encourage students to make the discussion personal and rewarding. When theoretical knowledge is applied in a practical way students tend to feel personal attachment to the material being discussed. This enables them to accept the author's point of view, or challenge and modify it in some way.
Step 7 Evaluation of the author's viewpoint/beliefs.	Students are now allowed to express their personal opinions, as effective group process requires critical reflection and constructive criticism. To learn to make appropriate judgements, students need to see the educator role model critical reflective thinking.
Step 8 Evaluation of group and individual performance.	This, final step is essential. Yet it is the step that meets most resistance. The last seven minutes of the discussion must be devoted to evaluation . Evaluation criteria are summarized in Table 2.
(Rabow, Charness, Kipperman, & Radcliffe-Vasile,1994)	

Socratic discussions,questionning and Learning Through Discussion Technique; (2) possible benefits and risks for participants involved; (3) requirements for participation; (4) right to withdraw at any time; and (5) what was to be expected from the inquirer. During the introductory explanation it was made clear that: (1) continuous and summative feedback would be requested from every participant to evaluate the methods used, and that (2) the data would be used for further publication.

Guidelines for participation was developed by the inquirer and discussed with the participants during the orientation period. The minimum requirements that the participants had to meet, included:

- attend group discussions regularly.
- preparing for group discussions (see guidelines, table

Table 2: Evaluation criteria for LTD

Table 2 - Evaluation criteria for LTD
• Criteria
1. How well has the group covered the subject?
2. Did the authors' key points make sense?
3. What areas of agreement did the group members reach?
4. Where differences resolved?
5. Was every group member heard and understood?
6. Where there questions that needed further clarification?
7. What areas of disagreement are there that cannot be answered?
8. What contributed greatly to the discussion?
9. If someone did not contribute why not?
10. Who and what inhibited the discussion?
11. Was nonfunctional or disruptive behaviour confronted and discussed?
(Rabouw, et.al.,1994)

Period of application and evaluation of the chosen techniques

A combination of Socratic and Learning Through Discussion techniques was applied and evaluated for a period of nine (9) months, during which the inquirer obtained feedback from participants after each dialogical session. The final feedback was obtained with the help of a short questionnaire.

The combination of the two techniques allowed students to: (1) take responsibility for their own learning and peer learning; (2) develop and evaluate their thinking compared to the thinking of peers; and (3) learn a sense of intellectual discipline and thoroughness. During the application period students learned that all thoughts/beliefs/viewpoints should be pursued in at least four directions: (1) their origin; (2) their support; (3) their conflicts with other thoughts; and (4) their implications and consequences (Paul, 1990). The inquirer applied all forms of Socratic and dialogical questions and discussion - spontaneous, exploratory and issue-specific.

3).
- perceiving every group discussion as a cooperative learning experience.
- seeing to it that the material for a specific day is ad-equately and sufficiently covered
- participation in evaluation of the dialogical process, group process and individual contributions (see table 2).
- expressing their experience such as that they are be-ing helped, encouraged, supported, understood, in-hibited, frightened, or intimidated by others.
- discovering how they are perceived and evaluated by other as helping or hindering their peers.
- accepting responsibility for gatekeeping,expediting by attempting to spread participation and timekeeping. Gatekeeping and expending are directly connected with group members accepting responsibility to move the group through the group process stages as discussed in table 1. Timekeeping involves time management to ensure that the group keep within its time budget.

• being prepared to take personal risks: to sense the feel-ings of others deeply, to understand the meaning of their experiences for themselves, and to risk being personally changed.

Table 3: Guidelines for preparation

Table 3 - Guidelines for preparation
Step 1: Definition of terms and concepts List all the concepts of which your are unsure. Look them up and write down their definitions.
Step 2: State the author's message Write down your version of a general statement of the author's message.
Step 3: Identify major themes and subtopics Identify and write down the subtopics in the readings/article.

Step 4: Discuss the major themes and subtopics Write out a brief statement of the subject matter of each subtopic. Design a question that you would ask for each.
Step 5: Integrate material with other knowledge Write down the meaning or usefulness the material has for understanding other concepts. Indicate what other ideas the material substantiates, contradicts or amplifies.
Step 6: Apply the material Write down how the material can apply to your own life or work situations, or what implications the readings/articles has for your own intellectual interests or pursuits.
Step 7: Evaluate the author's presentation Write down your reactions and evaluation of the assignment. (Robow, et.al.,1994)

Ethical implications

The inquirer, by implications of the complexity, depth and impact of the inquiry needed to remain true to the principles of developing a true partnership with the participants. There-fore, the inquirer sought to:

• **empower** all who participated in the study. Each participant's viewpoints, beliefs and assumptions were respected.
• **provide educative opportunities.** Opportunities to share, confront, criticize and learn from one another were a central feature of the inquiry. The inquirer attempted to let each participant emerge with more information and better understanding than he or she initially had. In addition the techniques provided an educa-tive opportunity for the inquirer in that it resulted in better understanding of the participants' personal realities and the process of critical reflective practice.

The inquirer also identified and provided for the following ethical requirements:

• **recognition of the inquirer's frame of mind.** The inquirer attempted to meet this requirement through **reflex-ive journal** writing. Thoughts, assumptions, values and re-flections exposed in the journal were challenged during **peer debriefing sessions.**
• **research integrity and quality.** The inquirer used peer debriefing sessions, member checks and rich de scriptions to improve the project quality.
• **worthiness of the project.** The inquiry was seen as worthwhile, in that various authors and health professionals remarked on the need for learners to become conscious of their meaning perspectives, knowledge and actions, their prac-tice experiences and the potentialities and constraints of their study and work setting (Bines & Watson, 1992; Street, 1991; Champion, 1992).

Assumption of the inquirer

The inquirer assumed that:

• Critical reflective ability are developed in an environ

-ment that allows the learner to reason dialectically, thus to reason across, between and beyond the neatly marshalled data of the given technical domain.

Concept clarification

For the purpose of this paper only the following concepts will be defined. The definitions was constructed by the inquirer after prolonged engagement with the literature (American Philosophical Association, 1990; Bandman & Bandman, 1995; Baron, 1990; Boud & Walker, 1991; Caine & Caine, 1990; Chaffe, 1991; Meizirow, 1990; Siegel, 1990; Sternberg, 1990):

* **Dialogical thinking.** Dialogical thinking is thinking that involves a dialogue or extended exchange between different points of view or frames of reference.

Figure 1: Participants'attitudes towards techniques
(n=10)

(n = 10)
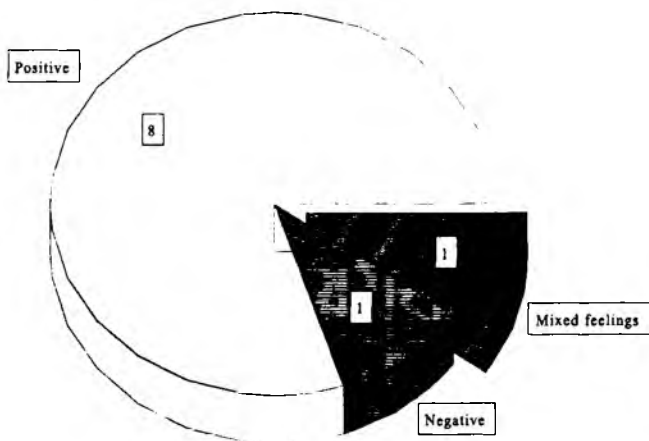
* **Dialectical thinking.** Dialectical thinking debates idea against idea, reasoning against counter-reasoning to get at the truth of the matter. Dialectical thinking can be practised whenever two conflicting points of view, arguments, or conclusions are under discussion.
  Dialectical thinking refers to dialogical thinking that is conducted to test the strengths and weaknesses of opposing points of view (Paul, 1990).
* **Socratic technique.** Socratic technique or learning involves both dialogical and dialectical thinking, in t hat it allows learners to develop and evaluate their ideas by comparing it to that of other learners. This type of learning focuses on the process of thinking rather than on the product of thinking, in that learners are taught to pursue all ideas/thoughts in at least four directions: (1) **their origin** [*How did you come to think this? Can you remember the circumstances in which you formed this belief/idea?*]; (2) **their support** [*Why to do you think/belief this? Do you have any evidence for it? Why do people think/believe this? In believing/thinking this*
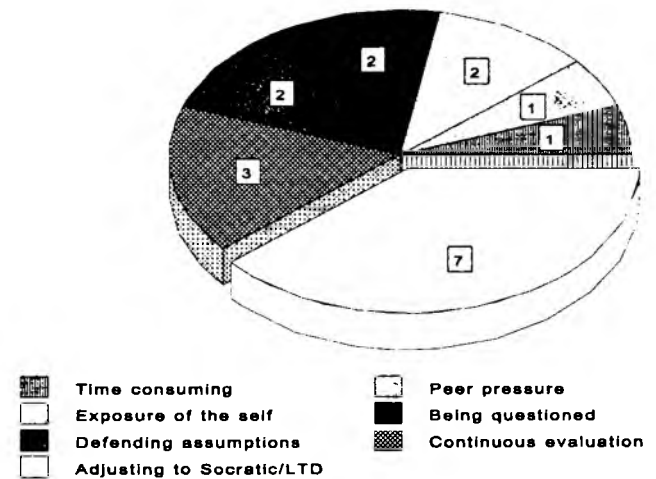
are you not assuming that such and such are true? Do you think that is a sound assumption?]; (3) **their conflict with other thoughts/ideas** [*Some people might object to your position by saying . . . How would you answer them? What do you think of this opposing view/idea? How would you answer objection that . .*]; and (4) **their implications and consequences** [*What will the practical consequences be of believing this? What would you have to do to put it into action? What follows from the view/idea that . . .?*].

Socratic technique/learning requires three forms of questioning or discussion: spontaneous (unplanned), exploratory and issue-specific (see the description discussed in the literature review).

* **Socratic educator.** The Socratic educator reflects analytical listening and active consideration of alternative points of view. He/she attempt to reconcile differences of viewpoint and tries to find out not just what learners think but whether what they think is actually so. The Socratic edu-

Figure 2: Problems experienced by participants (n=10)

(n — 10)

Time consuming		Peer pressure
Exposure of the self		Being questioned
Defending assumptions		Continuous evaluation
Adjusting to Socratic/LTD		

cator therefore, empowers learners to learn a sense of intellectual discipline and thoroughness.

* **Reflective learning.** Reflective learning is the process of making a new or revised interpretation of the meaning of an experience, which guides subsequent understanding, appreciation and action. It involves critical analysis and interpretation of an experience, openness to new information, acceptance of self-reality, a change in personal perspective, and examination of the implications for future behaviour and others.
* **Reflective thinker.** The ideal reflective thinker is more than thoughtful in that his or her reflective skills are internalized.This involves a total response to a situation, event or internal feeling. In recapturing the experience the reflective thinker mulls over it, rationally examines it in an open-minded and insightful way, effectively formulates competing assumptions, thinks about his or her thinking process itself, admits the feelings that accompany the situation and takes control of the situation.

- **Creativity.** The element of creativity in relation to critical reflective thinking and practice may be described as the ability to sense gaps in problems within known information, ability to see many relationships among elements; flexibility in thinking and reorganization of understanding to produce innovative ideas and solutions; testing ideas and modifying those ideas in a unique way; and communicating the results. Creativity involves curiosity, imagination, discovery, innovation, balance between divergent and convergent thinking, intuitive thought processes and contemplation of abstract philosophical issues.

Condensed literature review

An educational environment oriented toward empowerment of students liberates students from modes of thinking and learning which limit their potential and narrows their perspective. Such an environment provides a critical education. A critical education, according to Paul (1990) appeals to reason and evidence, and encourages students to: use their own thinking to come to conclusions; defend positions and issues and solutions; consider a wide variety of points and views; analyse concepts, theories and explanation; clarify issues and conclusions; evaluate the credibility of sources; raise and pursue root questions; solve non-routine problems; transfer ideas to new contexts; make interdisciplinary connections; evaluate arguments, interpretations and beliefs ; generate novel ideas; question and discuss each other's views; compare perspectives and theories; compare ideals with actual practice; examine assumptions; distinguish relevant from irrelevant facts; explore implications and consequences; and come to terms with contradictions, and inconsistencies.

It is necessary to teach students to sift through huge amounts of information, make connections to prior knowledge and transform data to knowledge in an informed and critical way. Students need to become information literate. Socratic and dialogical techniques allow students to develop and evaluate their thinking in comparison to that of other students. They learn a sense of intellectual discipline and thoroughness. They learn to appreciate the power of critical, reflective and creative thinking.

Broadly there are three (3) general forms of Socratic questioning or discussion: spontaneous (unplanned), exploratory and issue specific (Paul, 1990). Following is a short description of each:

- **Spontaneous.** This type of discussion or questioning is teaching imbued with the Socratics spirit, implying that the educator often spontaneously asks students what they mean and explore with them how they might find out if something is true. It provides models of listening critically as well as exploring beliefs expressed. It helps students to become self-correcting.

- **Exploratory.** This form enables educators to find out what students know or think, and to probe students thinking on a variety of issues. This type of questioning or discussion raises a broad range of interrelated issues and concepts and require minimal preplanning. It has a relatively loose structure. Educators prepare

by having some general questions ready to raise when appropriate by considering the topic or issue, related issues and the key concepts to be discussed. They also prepare by predicting students' responses and preparing some follow-up questions. However, it is important to remember that once the thought processes of learners are stimulated, no one can predict the nature of the discussion.

- **Issue-specific.** To really probe an issue or concept in depth, to have students clarify, sort, analyse and evaluate thoughts and perspectives, distinguish the known form the unknown, synthesize relevant factors and knowledge, students should engage in extended and focused discussion. Issue-specific discussion provides students experience in engaging in an extended, ordered, and integrated discussion in which they discover, develop, and share ideas and insights. This type of discussion requires preplanning or thinking through possible perspectives on the issue, grounds for conclusions, problematic concepts as well as implications and consequences.

Care and caution should be used when introducing students to dialogical discussions and questioning for the first time. The level of questions and discussions should match the level of the students' thoughts and educators should not assume that students will be successful with it (except over a considerable length of time). Dialectical and dialogical methods can foster cooperative learning, as the student must learn to earn the right to confidence in his beliefs by acquiring the capacity to make a reasonable case for the belief in question (Scheffler,1973).

The educator encourages mutual awareness, respect, and fair mindedness by pointing out such problems as not thought through interpretations of opposing viewpoints. Learners should also be required to prepare a defence of a position to which they were initially opposed. This is crucial because of the extreme difficulty of considering alternative frames of reference sympathetically.

The Learning Through Discussion Plan (LTD) is a procedural tool that outlines an orderly sequence that a group should follow in order to learn from discussion. This plan is made up of eight steps (see table 1) that is followed during group discussions. Guidelines for preparation are also followed by students before the actual group discussion (see table 3). Student members must prepare for the discussion meetings and approach the material as if they were conducting a silent group meeting, and prepare contributions at each step of the process. Preparation guidelines are followed by students to ensure that they will have learned a great deal before the discussion with peers begin.

Discussion of findings

For the purpose of this report the inquirer reflect only on the **final feedback** obtained at the end of the study period. The feedback was obtained with the help of a semi-structured questionnaire that was developed by the inquirer and critiqued by four peers for content validity. Please note that the respondents feedback is precisely quoted as it was written/given in

the completed questionnaires.

Participants' attitudes toward Socratic & LTD (Dialogical) Techniques

The participants (n =10) were requested to reflect on their feelings/attitudes regarding the chosen techniques (see figure 1) and to provide a short rationale/motivation for their answers.

Participants provided the following rationale/motivation (M) for their feelings:

• The eight (8) participants with positive feelings:

M1 : It enlarges an individuals mind - learn to be assertive.
M2 : It forced me to become conscious of my habitual thinking, personal strengths and weaknesses.
M3 : It made me to be a creative thinker and to go back to material to internalize it.
M4 : It made me feel responsible for my learning.
M5 : Because the methods include teacher and student participation it is easy for the students to identify their problems, and the teacher can help where there is a need.
M6 : It made me conscious of peers feelings, thus, resulted in respect for others' opinions and values.
M7 : It forced me to participate in the class, thus, I find it easier to recall the knowledge during tests.
M8 : . . . made me conscious of the necessity to think answers through, to motivate my viewpoints and to respect others.

• The one (1) participant with negative feelings, provided the following rationale:

Some peers took dominance of the discussion and if one asked for clarification she would be told that she is delaying the group, however, others soon called that dominating figure to order.

• The one (1) participant who indicated mixed feelings, provided the following rationale:

I find the methods time-consuming and emotionally demanding, however, I also benefited in that I was forced to cover a topic thoroughly.

Problems experienced by the participants

The ten (10) participants were requested to reflect back on their participation in Socratic & LTD technique: ALooking back, list what you perceived or experienced as MOST difficult during the Socratic & LTD discussions.
The participants felt that the techniques: are time consuming, result in peer pressure and exposure of the self, involves

being questioned and having to defend personal assumptions/ viewpoints and beliefs, requires continuous evaluation and adjustment (see figure 2). Adjusting to Socratic and LTD techniques were experienced by seven (7) of the participants as the most difficult.

Participants had to indicate:
(1) if they would recommend Socratic & LTD techniques to other students and (2)
why and for what reasons they would recommend it.
Eight (8) participants indicated **yes;** one (1) indicated **no;** and one (1) indicated **uncertainty,** but provided no rationale for her answer. The participants provided the following rationale/motivation (M) as to why and for what reasons they would recommend it:

M1 : I found this method to be very effective because you share ideas under supervision - thus, there is a media -tor to clarify points, unlike where discussion is done out of the class."
M2 : The examples given in class make an individual not to forget easily."
M3 : It will increase participation in the learners and possibly motivate them."
M4 : I found it easy to master content and viewpoints."
M5 : It limited competitiveness between the learners and forces them to respect each others' strengths, weaknesses and different experiences. It makes you admit weak viewpoints."
M6 : The methods prevent rote learning, thus result in insightful learning and efficient recall of knowledge when needed. This resulted in positive self-esteem."
M7 : I will recommend this methods because it improves the relationship between lecturer and learners, resulting in a comfortable learning environment in which no one is afraid to voice personal feelings and viewpoints."
M8 : The methods make the subject content interesting, thus, motivates one to attend discussion sessions."

The one (1) participant who indicated uncertainty provided the following rationale/motivation:

Sometimes it was fulfilling, yet at other times it yielded to frustration and embarrassment.

Participants had to indicate:

(1) if they would use Socratic & LTD techniques to teach others and (2)
why and for what reasons they would use it.

Eight (8) indicated that they **would use** Socratic & LTD techniques to teach others. They provided the following rationale/motivation(M):

M1 : In using the techniques to teach others, they will learn the techniques and, thus, will be able to use it in their teaching efforts."
M2 : So that they learn to tolerate others and respect other persons' point of view."
M3 : I fully support the system. It forces the individual un

derstanding of an article or subject knowledge in or-
der to internalize it."

M4 : I think through these methods I will be able to identify
problems of learners immediately during discussion
of each topic."

M5 : I support the method as it provides opportunity to learn
from experience, to recall previous
knowledge, to share knowledge and to ques
-tion the opinion's/viewpoints of experts and
others."

M6 : The methods force students to become involved in dis-
cussions and thus prevent them from coming unpre-
pared to class.

M7 : Methods result in realistic self-knowledge and expec-
tations. You have to admit that what you become de
pend on yourself and not others (such as the lecturer).

M8 : I will use the method as I personally find the lecture
method boring and a waist of time. Lecture method
mostly result in rote learning and limited effort from
students."

The one (1) participant who was uncertain provided the fol-
lowing rationale/motivation, whilst the one (1) student who
would not use the techniques provided no rationale:

I favour a mixture of teaching techniques so that every stu-
dent at time gets the favourite technique and sometimes has
to put up with the least favourable.

*The participants provided the following feedback regard-
ing the inquirer (educator) who facilitated Socratic & LTD
(Dialogical) techniques*

The participants were requested to reflect on the period of
implementation of Socratic and LTD techniques and indicate
whether the inquirer (educator) **continuously** modelled cer-
tain behaviour to ensure successful implementation of the tech-
niques (see table 4).

Seven (7) participants provided a short rationale/motivation
(^{M}):

M1 : ... she continuously probed for motivation/exam-
ples/explanations.

M2 : ... forced us to defend or explain personal view-
points, to admit habitual thinking, to listen to peers,
to compare different experts viewpoints and then se-
lect an acceptable one.

M3 : ... managed to make us conscious of the need for

Table 4: Feedback regarding the enquirer/educator

Table 4: Feedback regarding the inquirer/educator The educator continuously	n=10 Yes	n=10 No
• considered alternative points/beliefs/assumptions sympathetically	6	4
• challenged students to think critically	8	2
• motivated students to reflect on previous learning	10	0
• challenged students to engage in reflective self-criticism	9	1
• accepted criticism or challenge from students positively	8	2
• modelled critical, reflective thinking	9	1
• motivated students to recall circumstances during which a belief/viewpoint/assumption/theory was formed	8	2
• expected students to paraphrase opposing points of view	7	3
• expected students to study the meaning of difficult concepts in depth	9	1
• expected students to stay focused during discussions	10	0
• managed to make students conscious of the need for critical, reflective	10	0

critical reflective thinking and learning, through explaining and clarifying to make the students see the item through another angle/view.

M4: ... encouraged us to clarify personal value systems, inquire into that of peers, to listen attentively to each other, to be slow to judge and to defend our personal viewpoints if indicated.

M5: I was made to understand that knowledge acquired in one topic can be applied in various situations, provided it is thought through and applied in such a way as to fit by use of valid motivation.

M6: The educator exposed us to both the positive and negative sides of a viewpoint/issue/decision. She expected from us to take SA society into consideration before formulating a personal viewpoint.

M7: ... managed to make me conscious of the need to take responsibility for my own actions/learning and to critically reflect on consequences of decisions taken. She forced me to critically reflect on what I am saying and writing, in that she never credited test answers that were not appropriately motivated or explained - telegram style was unacceptable.

General remarks revealed by the data

The questionnaire made provision for a space in which the participants write general remarks/feedback not covered by the semi-structured questions. Five (5) participants recorded the following general remarks (^{R}):

R_1: I generally enjoyed the classroom sessions and more especially I feel even more responsible than before.

R_2: At the end of the first module and following modules I found myself mastering the content.

R_3: It has been a good year of self-discovery in which one was made to feel the importance of self-directed learning, an how much it yield to long lasting knowledge that is easily retrieved and applied in various situations.

R_4: The methods kept students focused in class. They were actively participating, unlike when the lecturer was the only participant.

R_5: I really wish to continue with you (the educator) in future. You've been the best teacher/ facilitator I've ever had."

Inquirer remarks

The inquirer observed during the first two (2) months of implementation of the dialogical techniques that the participants found it difficult to adapt to the techniques:

- some participants found it difficult to provide a rationale for their answers, opinions or viewpoints. When requested to do so, the participants reacted by not voicing their opinions/viewpoints.
- from time to time individual participants failed to come prepared to discussions, however, the rest of the participants confronted the problem by objecting or by showing their disapproval with such conduct.
- at first individual participants objected to being ex-

posed to different authors or experts viewpoints, as this required more reading and study time. The inquirer, however, observed that feedback (verbally in class and tests) no longer mirrored rote learning. Individual answers and motivations were now unique to the person.

- participants had to be reminded of previous learning and other subject content relevant to the material under discussion.

Statements with regard to the study findings:

- Guided critical reflective techniques should be introduced as a requirement for basic-, post-basic and postgraduate courses, as it will bring about learning that results in conceptual change and meaningful learning.

- Careful planning of a conducive environment is crucial for critical reflective and creative learning. Self-evaluation by the educator is imperative to determine whether they are knowledgeable about, and comfortable with dialogical techniques and strategies.

- Objectives and criteria for learning must be set at higher cognitive levels to encourage meaningful learning and the development of critical, reflective and creative skills.

The empirical inquiry substantiated:

- expert viewpoints (Paul, 1990; Mezirow, 1990; Bandman & Bandman, 1995) that critical reflective and creative strategies/techniques, such as Socratic and LTD techniques, are emotionally demanding and time consuming for all parities involved.
- viewpoints (Boud & Walker, 1991; Paul, 1990; Mezirow, 1990; Bandman & Bandman, 1995) that critical, reflective and creative skills need to be taught.
- expert opinion (Paul, 1990; Mezirow, 1990; Rabow, Charness, Kipperman & Radcliffe-Vasile, 1994; Bandman & Bandman, 1995) on the need for guidance during critical, reflective and creative thinking and learning.
- viewpoints (Paul, 1990; Sternberg, 1990; Rabow, et.al., 1994) that Socratic & LTD techniques are a necessity for initiating conceptual change and meaningful knowledge.

Recommendations

- Educators wishing to implement Socratic & LTD techniques in their work environment should first take time to get to know their students individual preferences and learning styles. Participation in Socratic & LTD Techniques will only be constructive if students participate voluntary. Therefore, students should be fully informed on the meaning and implications of taking part in these techniques.

- It is important to notice that these techniques are time consuming and can therefore, not successfully be implemented in periods of less than ninety minutes.
- Socratic and LTD technique require venues that lend itself to group discussion.

Conclusion

Dialogical and guided critical-reflective techniques are compatible with a Problem Based and Outcomes Based Curriculum. The inquirer, however, wishes to stress the importance of modelling positive traits of mind and modes of thinking and learning. A transformative educator must lead learners to a point, at which they are intellectually comfortable with dialogical issues and critical, reflective and philosophical discussions. The educator must be motivated by personal ability to:

- create vision in others

- empower others

- create meaning through critical thinking and reflecive processes. Abstract and propositional skills do not occur naturally, they must be taught, practice, refined and reinforced.

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