

## **Standards in the design and implementation of programs for the correctional setting.**

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### *Abstract*

*The concept of education as analysed by R.S. Peters concludes that there are implicit standards in the process of education. This paper pursues that line and considers how to improve facilitation of programs to meet that implicit standard. However, several reasoning biases appear to have a detrimental impact at both the design and implementation stages. Some authors believe that these biases cannot be eradicated. The paper accepts this view as a starting point and considers how they can be minimised. The conclusion is to control the risk of bias through management at the stages of design and implementation. The educational tool of Blooms taxonomy is considered valuable for the purpose of controlling cognitive behavioural objectives. On a larger scale the models of Freire and Mezirow are considered as viable mediums to transform the meaning structures of offenders in a state where there is dialogue, communication and active deciding.*

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## **Foreword**

Throughout the paper I will use the term facilitator to refer to the instructor. I view the facilitator's role as one that draws out, in contrast to, putting in or the empty bucket theory of knowledge. It is something like the Socratic method of teaching but with one difference - it also includes teaching modes that provide roles of modeling for the participants. Scheffler suggests that teaching "requires us to reveal our reasons to the student and, by doing so, to submit them to evaluation and criticism". (Scheffler, 1960, p.57) The teaching element places emphasis on a reasoned dialogue between two human beings.

References to emotions have been avoided for the purpose of argument and for the purpose of clarity. However, I believe that emotions play a significant role in educating and, there is enough documented evidence, that when meaningful learning takes place in an adult it can sometimes be a disturbing event almost, shall I say, therapeutic. (Mezirow 1996) One only needs to read the 'heady' works of Mezirow (with the knowledge of its derivation from Habermass) and his transformational learning to believe that transforming meaning structures may, in fact, be a disturbing event.

## **Introduction**

Programs in the correctional setting are designed for the purpose of the rehabilitation of the offender by changing their meaning structures. In the program setting the burden for addressing offending behaviour falls upon the offender. Too often the educating, or learning, process is, in one way, a vector moving from the one who knows to the one who needs to know. This paper will show that the only way to transform the meaning structures is by reflection and dialogue between offender and facilitator. A number of reasoning biases will have a negative impact on the facilitation process. Some authors even declare that these biases cannot be eliminated. If this is so, the paper calls for the minimisation of the biases by the use

of educational methodologies to give the facilitator control over the number of learning events. The taxonomy of educational objectives by Bloom, et al. (1984) is suggested as a way of controlling the learning of cognitive behaviours and minimising the biases. However this cannot be done without establishing a model of delivery. The paper suggests that the transformational learning of Mezirow would be one way by which to establish some dialogue in attempting to change an inmate's meaning structure.

## **Standards**

There are two clear standards in program design and implementation. The first is an explicit standard that is imposed from an external source. These standards are comparable to the competency-based standards as prescribed by the VET focus on training. These standards

"have application when a skill or competence has to be acquired which is to be exercised in relation to a specific end or function or in accordance with the canons of some particular mode of thought, or practice." (Peters, 1966, p.34)

The document titled "The Australian Vocational Certificate Training System" states

" essential aspects of a Competency Based Training (CBT) system are that delivery, assessment and certification of training should relate to the identification of, instruction in, and demonstrated attainment of the knowledge, skills and applications required for effective performance at the required level, as defined in competency standards." (March 1992, p.24)

This quote clearly states the outcomes required of the standard. These explicit standards are usually prescribed in document form and, in the case of a Cognitive Skills program, as policy. The policy statement for therapeutic and personal development programs in Queensland prisons is Chapter 23. It is prescribed by the Queensland Corrective Services Commission (QCSC) as the minimal standard to be achieved in the development, implementation and evaluation of programs.

The next standard is more discrete. It is the implicit standard that is not explicitly prescribed but rather inferred through an ethical perspective. It is the standard that allows us to "lay out the various explicit and implicit positions on the principle of who or what really counts. It is the ethical consideration and weighing up of stakeholder attributes of power, legitimacy and urgency." (Mitchell, et al. 1997, p.853) These standards are generally implied in policy and corporate goals such as the 1994 to 1998 QCSC Strategic Plan,

"to achieve a correctional environment in which the assessed needs of offenders can be met and in which offenders can correct their offending behaviour while subject to an appropriate degree of control which minimises risk to the public, staff, and offenders." (QCSC Strategic Plan, 1994)

Hence, the implicit standard of any program designed to address offending behaviour needs to apply an ethical consideration towards the stakeholders. However, the argument goes much further. The program design and implementation should consider best practice and professional knowledge to bring about the best possible solution in program design, implementation and evaluation. In this case, establishing a program that addresses offending behaviour for the benefit of all the stakeholders. The same responsibility extends to the professionals who, as policy makers, program designers, and program facilitators need to apply the same ethical practice in their specific tasks. In the end the professionals have a responsibility to the stakeholders to use their skills and knowledge to assist the offender to address his/her offending. This conflicts in some ways when professionals belong to a professional body. The professional code of the body sometimes dictates compliance which may, to some degree, deflect away from the other and more relevant stakeholders.

The standard that I want to pursue in this paper is the standard implied by the concept of education. In his book *Ethics and Education* Peters (1966) analysed the concept of education from a normative perspective and offered three criteria of educational processes

1. "that 'education' implies the transmission of what is worth-while to those who become committed to it;
2. that 'education' must involve knowledge and understanding and must have some kind of cognitive perspective, which are not inert;
3. that 'education' at least rules out some procedures of transmission, on the grounds that they lack wittingness and voluntariness on the part of the learner." (Peters, 1966, p.45)

Peters' analysis and criteria provide, at least, some deductive evidence that the term education has an implicit standard. This implicit standard places a responsibility on the educator to transmit what is worth-while. It means that the educator must rely on his/her professional expertise and judgement to bring about knowledge and understanding and some kind of cognitive perspective. This paper will demonstrate how the use of current educational methodologies can assist to successfully transmit what is worthwhile, in the case of a Cognitive Skills program, thinking.

### **The facilitator as a decision maker**

Whilst delivering a program the facilitator must make numerous decisions at moments of uncertainty. Langer (1993) believes that decision making is irrational and argues that "processes that are most generally understood as leading decisions, such as weighting and integrating information in a cost benefit analysis may, in fact be post fact phenomena" (Langer, 1993, p.34). Langer proposes that

"information gathering is undertaken to make options that appear the same, look different. The information search ends when one reaches a cognitive commitment. Cognitive commitments are frozen or rigidly held beliefs that are unwittingly unmodulated by context. Once the cognitive commitment is reached, the choice follows mechanically, without calculation". (Langer, 1993, p.34)

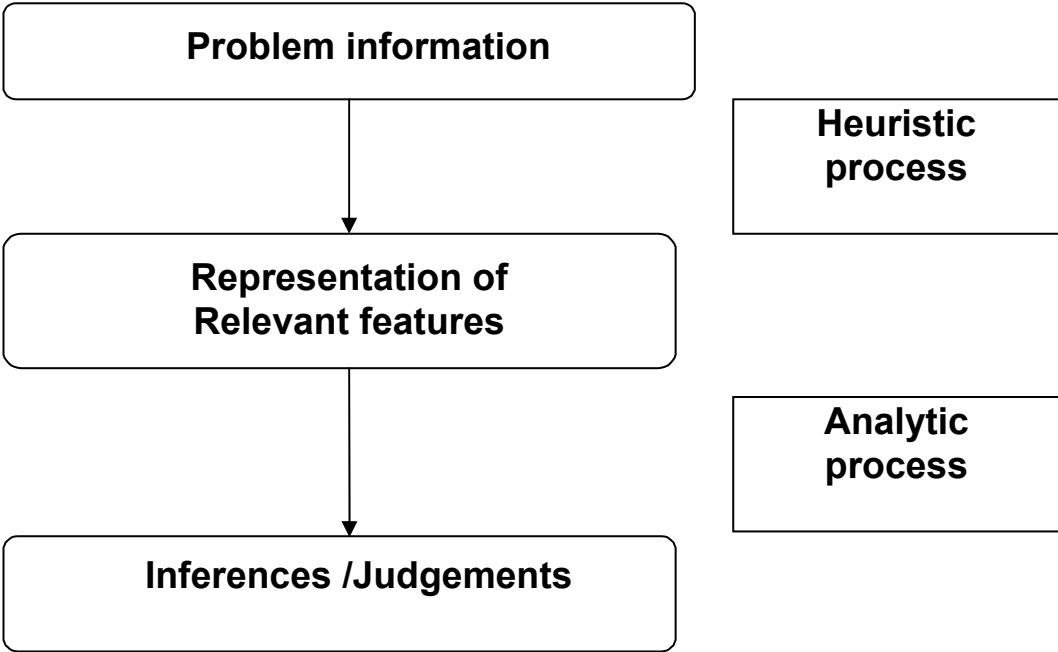
Decision making for Langer (1993) can be divided into passive deciding and active deciding. Passive deciding is choosing from previously determined options and active deciding, which also incorporates passive deciding, consists of creating and modifying options, and selecting from these options (Langer, 1993, p.35). The active

decider will explore more alternatives that suggest new dimensions for comparison and this allows for the development of self knowledge.

Langer's perspective allows us to conclude that when facilitators search their memory banks for relevant alternatives they are making passive decisions. Langer would expect them to consider more alternatives. What Langer proposes is a creative process whereby each decision making event is new and active and all parties in the process have an equal influence on the outcome. If we consider the importance of modeling in the learning process then it becomes the role of the facilitator to be an active decider and act as a model in the learning process.

Another approach to decision making derives from the perspectives of heuristics and human reasoning bias as demonstrated in the works of Evans (1984; 1989; 1993) and Kahneman and Tversky (1973; 1979; 1982)

Figure 1 The two stage reasoning process (Evans 1984) The heuristic process, in the Evans model, takes place before any analytical process is activated.



Evans and Kahneman and Tversky approach heuristics from different models. Evans suggests "that biases in reasoning tasks of all kinds are principally attributable to

selective processing of the problem information". (1989, p.15) This selection takes place in the heuristic, or pre-attentive, stage of reasoning that is responsible for representing the psychologically relevant features of the problem (see figure 1). "Errors in the relevance judgement will bias the outcome of subsequent reasoning, no matter how soundly based it may be in itself." (Evans, 1984, p.451)

It is important to distinguish between the term heuristic used by Evans and same term used by Kahneman and Tversky. Evans believes that reasoning proceeds in two stages, the heuristic and then the analytic. The heuristic stage is the stage where information is identified as "relevant and selected for further processing. The analytic stage is where inferences are drawn from the selected information." (Evans, 1989, p.25) The heuristic stage is the stage, which determines what the subjects will think about.

Kahneman and Tversky's refer to heuristic as a method of drawing inferences and is identical to Evans' analytic stage.

### **Biases that impact on the delivery of programs**

There are a substantial number of biases that will impact on the delivery of programs. Table 1 (see appendix) provides a number of them for reference. However, for the purpose of argument only two will be presented in detail to show how they impact on the transmission of what is worthwhile. The first bias is termed the confirmation bias.

Baron (1985, cited in Evans, 1989, p.41) identified the confirmation bias "as one of the central problems to be overcome in the attempt to facilitate the use of rational strategies in human thought". Evans continues

"Humans have a fundamental tendency to seek information consistent with their current beliefs, theories or hypothesis and to avoid the collection of potentially falsifying evidence. In social cognition, confirmation bias may be seen as a major mechanism responsible for the maintenance of prejudice, irrational beliefs and ... cognitive failures". (Evans, 1989, p.41)

"Subjects confirm, not because they want to, but because they cannot think of a way to falsify. The cognitive failure is caused by a form of selecting processing which is very fundamental indeed in cognition - a bias to think about positive information rather than negative information. The general view is, amongst psychologists and educationalists interested in the problem appears to be, that it is possible to teach critical thinking skills. However evidence casts doubt upon this assumption". (Evans, 1989, p.114)

This bias, according to Evans, challenges the structural principle of any Cognitive Skills program - that it is possible to teach critical thinking skills.

The confirmation bias states that human beings have a tendency to seek information consistent with their current beliefs, theories or hypotheses and to avoid the collection of potentially falsifying evidence. (Evans, 1989, p.41) Evans continues to express a warning that impacts on designers and instructors of programs

" ...subjects fail to discover general rules when required actively to seek relevant evidence because they adopt strategies designed to confirm rather than refute their hypotheses". (Evans, 1989, p.41)

There is enough research to support the proposition that people search for confirming, rather than disconfirming, evidence. (Wason 1960; 1968a; 1968b; Evans 1993) This search for confirmation impacts directly on the delivery of programs like Cognitive Skills. Evans has a view regarding the role of verbal thinking and the role of verbal instruction. This is the primary medium of correctional programs and Evans (1989, p.114) believes that any teaching of critical thinking skills by verbal means will be largely ineffective. If we accept Evans' belief then it becomes difficult to countenance how any education takes place. Perhaps modeling and the social learning approach of Vygotsky may be the solution. Perhaps education is transmitted through socialization and not through the verbal medium.

There are several other biases that impact on facilitator's decision making and they all appear to have a negative impact on the cognition of the facilitator. However, if it is possible for the facilitator to control them they might become valuable instruments for monitoring a learner's stage, provide clues and paths in questioning and

maneuvering. Several of the biases are offered in the Table 1 in the appendix. The biases are based on the heuristics research of Kahneman and Tversky (1972; 1973; 1979; 1982). Heuristic, in this sense, is the method of drawing inferences at the Evans analytic and not the pre-attentive stage. The prime assumption in this paper is that these biases are possible to manage in an instructional setting. If there is a real possibility of them affecting successful learning outcomes, and there is no reason to believe the contrary, then it becomes the responsibility of the facilitator, to overcome the pitfalls in their reasoning.

Another bias that has a direct impact on the delivery of programs is named framing of choices. The Cognitive Skills program refers to offenders as being impulsive. The term has a negative weight or negative frame. However, when we look for a synonym we find the word 'spontaneous'. It has a comparable meaning but a positive frame. The word 'impulsive' carries a bias that may affect the delivery of the proposed material. In the delivery of programs in the correctional environment we sometimes rely too heavily on the word (with all its hidden and weighted meanings) and not enough on the concept.

Bazerman (1998) describes how negatively framed choices bring out risk-seeking behaviour whereas others that are positively framed are risk averse. His basis for this argument derives from the prospect theory of decision making. "This theory identifies a *systematic* pattern of how framing of the problem causes a decision-making behaviour to deviate from both expected-value and expected-utility theory" (Bazerman; 1998, p.50).

Being impulsive, and not spontaneous, impacts negatively on the decision making process. When the framing combines with the relevant confirmation bias the problem would seem to compound. Telling an inmate to make a spontaneous decision rather than an impulsive one creates a different impact. If we ask the inmate a question with the knowledge that he/she is impulsive then we probe for confirmatory evidence that fits the frame. If we ask the same question with the knowledge that he/she is spontaneous then we have a different reaction from the inmate and a different

reception on the facilitator's part. Knowledge of framing will, therefore, improve the delivery of programs - both in the actual delivery and in sourcing relevant and appropriate information from the learner.

Evans (1989, p 114) suggests that the confirmation bias makes it nigh impossible to rely on verbal instruction. If this is so, what is the place and function of a teacher or facilitator in a program?

What I propose is to use Quality Assurance theory and minimise the harm by reducing variability - if we reduce variability we improve quality (standards). The implication that follows is that many systematic errors will be reduced, which in turn will improve the program standard. I will suggest that Education methodology and technologies (not necessarily of the information technology type) should be used at the program design stage to reduce any variability. What follows is that in the delivery of any program the responsibility falls on the facilitator to reduce variability by using the appropriate techniques. In the next section I will discuss how the problems created by bias pitfalls can be minimised by using an education model. If programs are pre-planned using sound educational methods at the design stage then some reduction in variability may occur and this consequently establishes some control over the program material. The consequence of this is that the reduction in variability will improve standards. I suggest the use of the taxonomy of educational objectives of Bloom, et al. (1984) by both the designer and the facilitator to control the facilitation of the cognitive behaviours.

### **Addressing the problems identified and establishing standards.**

Programs to offenders contain the two elements of declarative and procedural knowledge. The declarative knowledge is usually delivered in the form of concepts and they are the building blocks to a program like Cognitive Skills. To facilitate their acquisition it necessary that these concepts be clearly outlined and developed at the program design stage. When preparing concept definition I propose that the program designer provide clear criteria for each concept. If a program facilitator is to facilitate

the meaningful learning of the concept 'think' in the deBono stop and think tool then the designer has a choice of two approaches. Firstly, do nothing and leave it for the facilitator, to weave some magic, and hope that he/she will expand the concept during the program (and allow biases to take their effect). Secondly, the designer can set out the criteria or attributes for the concept 'think' that can be understood, translated and measured in a simple and efficient manner by the facilitator. Bedell and Lennox (1997) do this by breaking down the term think to the five categories,

- a) Want ,
- b) Expectation,
- c) Comparison,
- d) Description,
- e) Evaluation.

This eliminates any misunderstanding of the concept think in its facilitation. It also gives the facilitator some assistance in framing directions 'what did you want when you stole that money?', 'Did you expect to get away with it?' etc This should eliminate some framing pitfalls. This is not what the standard of education demands but

1. it assists in the verbal learning medium at the knowledge or data level,
2. it provides a clear guideline for the facilitator to implement educational strategies, and
3. it sets up performance indicators to measure learning objectives and outcomes.

It means that a program like Cognitive Skills, that is considered to be a standardised program across the state, has some consistency in the learning objectives between different centres and reduces some variability in bias and framing errors.

During the implementation of the program the facilitator can use specific educational methodology to teach the concept. This means that the facilitator gains some control over educational events in the cognitive domain. This will, in turn, reduce some bias and consequently improve standards. Bloom, et al. (1984) organised the behavioural objectives into cognitive behaviours, affective behaviours, and psychomotor

behaviours. (Borich 1996) (see figure 2 in the appendix). Bloom, et al. (1984) categorised the cognitive behavioural objectives according to six levels of cognitive complexity (knowledge, comprehension, application, analysis, synthesis, and evaluation).

"The higher level objectives include, and are dependent upon, the lower level cognitive skills. Therefore the objectives of evaluative skills are presumed to require more complex mental operations - higher cognitive skills than objectives at the knowledge level. (Borich, 1996, p. 150)

The higher cognitive skills are also closer to the real world than the lower ones that can be taught by pencil and paper. Table 2 gives an outline of action verbs that describe learning outcomes at each of the six cognitive domain levels. This table gives the designer and the facilitator tools to assess and evaluate the program and the ability to gain some control in the facilitation of events. The hierarchical nature of the objectives also allows the designer and the facilitator a structure on which to build a program from its foundation.

The question that remains is whether or not using the taxonomy eliminates bias. Fischhoff (1982) provides procedures for debiasing judgements.

"He (Fischhoff) proposes four strategies that reflect increasing ease of perfecting decision making 1) warning about the possibility of bias, 2) describing the direction of the bias, 3) providing a dose of feedback; 4) offering an extended program of training with feedback, coaching and whatever else it takes to improve judgement." (Bazerman, 1998, p. 168)

However in the hindsight bias (see table 2). Fischhoff (1977) has demonstrated "that when biases are explicitly described to participants and they are asked to avoid the bias, the bias remains". (Bazerman, 1998, p.168) Research on the overconfidence bias "has found that intensive, personalised feedback is only moderately successful in improving judgement." (Bazerman, 1998, p.168)

Bazerman (1998) believes that debiasing is a difficult process that must be guided by a psychological framework for changing. Changing bias is difficult. Evans (1989)

states that the bias commences in the pre-attentive level and this presents difficulties in attempting to facilitate change. Bazerman (1998) claims that neither experience nor expertise have any impact on addressing biases. Tversky and Kahneman (1986) believe that biases cannot be corrected in the real world.

It must be accepted that bias cannot be eradicated. I propose that the use of a tool like the taxonomy of Bloom et al, while not eliminating biases, will result in their minimisation in the context of program delivery. Bias in the facilitator must be reduced using extrinsic tools at the design stage to control behavioural objectives. If the material is left till the delivery stage then we allow the risk of bias to take effect. Methods like Blooms taxonomy of educational objectives (table 2 in the appendix) can be used to spell out behavioural objectives clearly and unambiguously. The facilitation of a number of educational events will be strictly controlled through the expectations of the program itself.

I have discussed one bias and one frame of reference in the paper and only from the perspective of the facilitator. I suggest that if the facilitator grasps and understands the effect of the bias in his delivery, he/she may be able to use the knowledge as a tool to identify biases and assumptions in the participant in the hope of creating meaningful learning. An observed, and noted, bias in an offender may allow the facilitator, if he/she has the knowledge of the bias, the flexibility of using a particular technique in facilitation, like creating cognitive dissonance or even using the material as an advanced organiser for a future event.

Cognitive dissonance is a very useful tool in the delivery of programs. It is particularly effective when a participant bias is noted and challenged. If the facilitator confirms the bias, leaves the discussion afloat and moves on to another topic he/she will find that the participant will show some discomfort until the participant, somewhere down the track, raises the issue (seeking accommodation). Far too often discussions on biases and cognitive distortions come to a conclusion and have no real instructional value or effect. If the facilitator continues to confirm and allows conclusive discussions then all that occurs is reinforcement and confirmation.

Can we deny that the teaching of thinking is a worthwhile activity - I think not. The arguments for, and the propagation of, the Cognitive Skills program demonstrate that there is something worthwhile that needs to be transmitted. We can agree that thinking is a worthwhile activity and that it is worthwhile teaching thinking to offenders. However the question is how can we do it? Obviously the bias pitfalls discussed earlier will impact on the program and the successful outcome of teaching thinking. If we pursue the line of argument that the effect of bias can be minimised then we can build a model by which to effectively teach thinking. - For if we accept the arguments that it is impossible to teach thinking, then minimisation or eradication of those problems is highly unlikely.

Evans would consider it a futile exercise and certainly the arguments presented might suggest that it is perhaps nigh impossible. However, there are significant educational models that might assist in successfully achieving the desired outcomes. Firstly, we must accept Langer's argument on active deciding as being worthwhile. In a program to address offending behaviour like Cognitive Skills, the facilitator is attempting to change inmates thinking patterns. In actual fact the facilitator is trying to establish new ways of thinking. This is synonymous to asking the inmate to be creative and think of new alternatives in the decision making process. We are asking them to be active deciders. It then becomes the responsibility of the facilitator and teacher to transmit that active deciding by supporting dialogue.

This almost parallels the thoughts of Freire and Mezirow in their work on educating adults. Freire's work with the oppressed and his ideas are a fertile ground which can be used to develop critical thinking as a meaningful learning outcome for the inmates by establishing a dialogue and actively deciding. Freire talks of critical thinking, its development and its relationship with education.

"Only dialogue, which requires critical thinking, is also capable of generating critical thinking. " (Freire, 1972, p. 65)

The dialogue that he refers to is similar to the active deciding of Langer (1993).

Mezirow can offer a facilitator and a program developer a great deal of assistance in the design and implementation of programs. His approach expands on the theories of Freire and Habermass and offers ways in which the theory might be applied to transformation of an adult's frame of reference or meaning structure and its two components, meaning perspectives and meaning schemes. He states that the meaning perspectives form a series of assumptions that allow past experience to assimilate and transform and *interpret* new experience. (Mezirow, 1991, p.42) These perspectives

"...act as perceptual and conceptual codes to form, limit, and distort how we think, believe, feel, and how, when and why we learn." (Mezirow, 1991, p.34)

Meaning schemes are

" sets of related and habitual expectations governing if-then, cause and effect and category relationships as well as event sequences ...Meaning schemes are habitual, implicit rules for interpreting (Mezirow 1990, p.2)

In the delivery of programs the meaning structure has a dual effect. In the attempt to deliver material using the passive deciding of Langer the meaning structures of both the facilitator and participant collide. It becomes two colliding confirmation biases that have a negative impact on the generation of what is worthwhile. The facilitator has a meaning structure of the inmate's pathology and the inmate has an investment in his perspective. The problem is, how is it possible to create a learning environment and transmit what is worthwhile? The inmate being in secure custody has an extra investment, survival in a hostile environment. The question that Mezirow would want us to consider is how to transform the meaning structures of both parties? Mezirow would suggest that the facilitator and inmate become critically reflective of their assumptions and investigate the grounds for their beliefs...and establish a dialogue (Mezirow 1996, p.10). This is tantamount to the active deciding of Langer.

Mezirow continues

"that we reflect on the unexamined assumptions of our beliefs when the beliefs are not working well for us, or where old ways of thinking are no longer functional. We are confronted with a disorientating dilemma which serves as a trigger for reflection." (1994, p.223)

This should take place when delivering programs. Far too often the responsibility for learning is thrown upon the participant. This is perhaps due to a bias in the framing of the term learning itself and its thrust from teacher towards the learner. There is an inherent bias in the literature towards an outward delivery of information. The frame is from the transmitter / receiver model. This indirectly impacts on the transmission of education. Freire supplies a possible solution - dialogue

" Without dialogue there is no communication, and without communication there can be no true education. Education which is able to resolve the contradiction between teacher and student takes place in a situation in which both address their act of cognition to the object by which they are mediated." (Freire, 1972, p.65)

"Authentic education is not carried on by A for B or by A about B but rather by A with B, mediated by the world - a world which impresses and challenges both parties, giving rise to views or opinions about it. These views impregnated with anxieties, doubts, hopes, or hopelessness, imply significant themes on the basis of which the program content of education can be built. " (Freire, 1972, p.66)

" Many educational plans have failed because their authors designed them according to their personal views of reality, never once taking into account (except as mere objects of their actions) the *men in a situation* towards whom their program was ostensibly directed." (Freire, 1972, p.66)

## **Conclusion**

Implicit standards exist in the concept of education and that these standards should be the responsibility of those designing, implementing and evaluating program. It

becomes the responsibility of the program designers to consider the possible pitfalls created through reasoning biases and attempt to overcome pitfalls in the design stage of the program and not during its implementation. It has been shown that these biases may be managed using the appropriate methodologies like the taxonomy of Bloom, et al. (1984), in the design stage. The facilitator, on the other hand, needs to develop skills in the instructional aspects of program delivery and attempt to take the bias into account. It was also suggested that if the facilitator is aware of the biases then he/she might use them as a tool for monitoring the progress of the participants. Finally the use of the transformational process of Mezirow would assist the facilitator with a model whereby the assumptions and biases of both learner and teacher are transformed through dialogue communication and active deciding.

The responsibility for the creation of standards in the correctional setting falls upon those who design, implement and evaluate programs. The improvement of these standards will impact on the rehabilitation of offenders. This will meet the needs of the stakeholders and, in turn, society by initiating the inmate into what is considered worthwhile.

**Appendix**

Table 1 Summary of thirteen biases presented by Max Bazerman (Bazerman, 1998, p. 39).

	<b>Bias</b>	<b>Description</b>
<b><i>Biases Emanating From the Availability Heuristic</i></b> (Tversky & Kahneman, 1973)		

1	Ease of Recall (Tversky & Kahneman, 1974)	Individuals judge events that are more easily recalled from memory, based on vividness or recency, to be more numerous than events of equal frequency whose instances are less easily recalled.
2	Retrievability (Tversky & Kahneman, 1983)	Individuals are biased in their assessments of the frequency of events based on how their memory structures affect the search process.
3	Presumed associations (Chapman & Chapman, 1967)	Individuals tend to overestimate the probability of two events co-occurring based on the number of similar associations that are easily recalled whether from experience or social influence.
<b>Biases emanating from the representativeness heuristic</b> (Nisbett & Ross, 1980)		
4	Insensitivity to base rates (Kahneman & Tversky, 1972; 1973)	Individuals tend to ignore base rates in assessing the likelihood of events when any other descriptive information is provided - even if it is irrelevant.
5	Insensitivity to sample size (Tversky & Kahneman, 1974)	Individuals frequency fail to appreciate the role of sample size in assessing the reliability of sample information
6	Misconception of chance (Tversky & Kahneman, 1974)	Individuals expect that a sequence of data generated by a random process will look "random" even when the sequence is too short for those expectations to be statistically valid.
7	Regression to the mean (Tversky & Kahneman, 1973)	Individuals tend to ignore the fact that extreme events tend to regress to the mean on subsequent trials
8	The conjunction fallacy (Tversky & Kahneman, 1983)	Individuals falsely judge that conjunctions (two events co-occurring) are more probable than a more global set of occurrences of which the conjunction is a subset
<b>Biases Emanating from Anchoring and Adjustment</b> (Slovic & Lichtenstein, 1971 )		
9	Insufficient anchor adjustments (Tversky & Kahneman, 1973)	Individuals make estimates for values based upon an initial value (derived from past events, random assignment, or whatever information is available) and typically make insufficient adjustments from that anchor when establishing a final value.
10	Conjunctive and disjunctive events bias (Kahneman & Tversky, 1974)	Individuals exhibit a bias toward overestimating the probability of conjunctive events and underestimating the probability of disjunctive events.
11	Overconfidence (Tversky & Kahneman, 1974)	Individuals tend to be overconfident of the infallibility of their judgements when answering moderately difficult questions
<b>More General Biases</b>		
12	Confirmation trap (Einhorn & Hogarth, 1978)	Individuals tend to seek confirmatory information for what they think is true and neglect the search for disconfirmatory evidence.
13	Hindsight and the curse of knowledge (Tversky & Kahneman, 1974)	After finding out whether or not an event occurred, individuals tend to overestimate the degree to which they would have predicted the correct outcome. Furthermore, individuals fail to ignore information they possess that others do not when predicting others' behaviour.

Table 2 Cognitive Domain behavioural objectives (Bloom et al 1984, cited in Borich 1996, pp.150 – 153)

<b>Knowledge</b>			
<ul style="list-style-type: none"> <li>To remember or recall information</li> <li>Facts, terminology, problem solving strategies, and rules</li> </ul>			
Define	List	Recall	Describe
Match	Recite	Identify	Name
Select	Label	Outline	State
<b>Comprehension</b>			
<ul style="list-style-type: none"> <li>Change a form of communication</li> <li>Restate what has been read, see connections, draw conclusions</li> </ul>			
Convert	Estimate	Infer	Defend
Explain	Paraphrase	Discriminate	Extend
Predict	Distinguish	Generate	Summarize
<b>Application</b>			
<ul style="list-style-type: none"> <li>Application of previously acquired information</li> </ul>			
Change	Modify	Relate	Compute
Operate	Solve	Demonstrate	Organise
Transfer	Develop	Prepare	Use
<b>Analysis</b>			
<ul style="list-style-type: none"> <li>Identify logical errors</li> <li>Differentiate among facts and opinions, assumptions hypotheses and conclusions.</li> </ul>			
Break down	Distinguish	Point out	Deduce
Illustrate	Relate	Diagram	Infer
Separate out	Differentiate	Outline	Subdivide
<b>Synthesis</b>			
<ul style="list-style-type: none"> <li>To solve unfamiliar problems in a unique way</li> </ul>			
Categorise	Create	Formulate	Compile
Design	Predict	Devise	Produce
<b>Evaluate</b>			
<ul style="list-style-type: none"> <li>Required to form judgements and make decisions about the value of methods, ideas, or people</li> <li>Required to provide reasons</li> </ul>			
Appraise	Criticise	Justify	Compare
Defend	Support	Contrast	Validate

## References

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