DOCUMENT RESUME

ED 110 851 CE 004 694

AUTHOR McLagan, Patricia A.
TITLE Behavior Theory and Adult Education.
PUB DATE Apr 75
NOTE 39p.; Paper presented at the Adult Education Research Conference (St. Louis, Missouri, April, 1975)

EDRS PRICE MF-$0.76 HC-$1.95 Plus Postage
DESCRIPTORS *Adult Education; Adult Learning; Annotated Bibliographies; Behavioral Science Research; *Behavior Change; Behavior Development; *Behavior Theories; Individual Characteristics; Learning Theories; Positive Reinforcement; *Self Reward

ABSTRACT

The paper proposes that when behavior change is the major target of an adult education program, the designer must consider three factors: (1) the four basic targets for behavior change efforts (behavior goals and plans, basic knowledge and skills needed for successful performance, physical environment, reinforcers of behavior); (2) individual differences of the learner (self-esteem level, meaningfulness of behavior goals, self-image clarity, perceived locus of control); and (3) qualities of the target behavior. It describes self-behavior modification through self-goal setting, self-monitoring, self-reinforcement, and self-controlled environment change. Advantages and disadvantages of self-behavior modification are also proposed. Behavior theory is then related to adult education design, and an interactive model that can provide structure and/or freedom to individuals according to their needs to use in behavior change programs for adults is introduced. The paper also presents results of a study of the effects on new behavior development of educator- vs. learner-determined reinforcement in a reading and information handling program for technical professionals in industry, which suggest that adult learners will self-reward and that they find self-rewards more satisfactory than externally determined reinforcement. (Author/JR)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED110851

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

BEHAVIOR THEORY AND ADULT EDUCATION

Patricia A. McLagan

CE004694

Paper presented at the Adult Education
Research Conference, St. Louis, Missouri,
April, 1975.

BEHAVIOR THEORY AND ADULT EDUCATION

Patricia A. McLagan

This paper proposes that when behavior change is the major target of an adult education program, the program designer must consider three factors: 1) four basic targets for behavior change efforts, 2) individual differences of the learner, 3) qualities of the target behavior. It describes self-behavior modification through self-goal setting, self-monitoring, self-reinforcement, and self-controlled environment change. Advantages and disadvantages of self-behavior modification are also proposed. Behavior theory is then related to adult education design and an interactive model to use in behavior change programs for adults is introduced. The paper also presents results of a study of the effects on new behavior development of educator- vs. learner-determined reinforcement in a reading and information handling program for technical professionals in industry.

If we are concerned about maximizing meaningful learning outcomes (as our long-standing behavioral objectives tradition indicates we are), and *if* one kind of outcome of adult learning efforts is behavior change (in the form of new habit or skills development), and *since*, as I would like to show, behavior theorists have discovered rules that underly human behavior change in a humanistic framework, *then*, it's time to advance our perception of behavior theory and its relevance to adult learning (self-designed and educator facilitated) beyond the token economy, artificial reinforcement, and other manipulative designs that often characterize behavior modification attempts in education.

In fact, for the rest of this paper, let's set aside that part of behavior modification application that is associated with manipulation, token economies, and constant and immediate external (money, food, prizes, social approval) reinforcements. After all, common sense tells us that adult behavior often occurs without immediate external, material or social reward -- that performance is often motivated by ego or self-actualization needs, for example. Let's look instead, at what behavior theorists have discovered about how individuals and their environments mutually influence each other, at what individuals can do to manage their own self-development. These are critical issues that concern adult educators who want to set up educational programs that will encourage maximum learning and learning transfer and that will help learners develop skills for self-designed learning. Behavior theory can help us on both fronts.

This paper will discuss strategies for helping adults develop new behaviors, skills, competencies. It's purpose is not so much to add new information to an already information-rich field (behavior modification) as it is to examine the implications of behavior theory for the field of adult education. Later in the paper, I will describe a specific behavior change program I implemented in a reading and information handling skills course for technical professionals in industry, but my intent throughout is to suggest learning strategies and program design considerations that can be applied -- with varying degrees of

learner control -- *whenever behavior change and development is the main target of an adult learning effort.* These strategies -- as the literature suggests -- and as I'll hypothesize -- should consider:

-4 basic targets for behavior change efforts
-individual differences among learners
-qualities of the new behavior itself

Let's look at each in detail and see what the literature has to say about them before considering what the advantages and limitations of self-behavior modification in adult learning seem to be, and how programs for maximum effective self-control may be structured based on the findings of behavior theory.

FOUR TARGETS FOR BEHAVIOR CHANGE ATTACK

Whether the behavior change target is developing a new behavior or strengthening and refining an old one, behavior theorists commonly examine and try to effect 4 areas: the behavior goals and plans, basic knowledge and skills needed for successful performance, the physical environment, and the behavior's reinforcers.

Goals and Plans. Marston and Feldman (1972) suggest a key theme found in recent behavior change literature: although learning can occur without awareness, goals and change plans can minimize trial and error learning and should be carefully formulated for successful and efficient behavior change. Goals and cognitive plans play two important roles in successful behavior development efforts. First of all, they are powerful *mediators* that force a comparison between actual and desired behavior and that serve as portable cues that *generalize* across

situations (Miller, Galanter, and Pribram 1960; and Marston and Feldman 1972). Secondly, when commitment is strong (e.g., during the early goal setting stages), plans can *motivate* both the new behavior and major environment changes that in turn will cue desired behaviors when motivation is weak (e.g. setting up a minimally distracting study area when the goal is to increase concentration efficiency). McClelland (1965) suggests that goals will *motivate* behavior change to the extent that, among other things, they 1) are seen as consistent with the demands of reality, 2) are action-centered, 3) are stated in terms of every day activities, 4) are associated with an improved self-image, 5) are concrete, 6) are linked with progress records, 7) are signs of belonging to a more prestigious reference group.

Marlatt and Kaplan (1972) add that goals must also be specific enough to help distinguish between success, progress, and failure in the behavior change effort. The main point is, *clear goals and plans appear to reduce behavior development time because they both mediate and motivate change.*

Response Availability: Determining the Basic Knowledge and Skills Needed for Successful Skills Performance. Successful behavior change and development efforts also require varying base levels of knowledge and skills. That is, the learner must be able to perform with relative ease the behaviors required by the new habit, skill, or competency. Unless base knowledge and skill exist, or are cultivated through specific

skills development practice, the behavior change and development process may be doomed because it takes too much effort or because the learner feels the goal is beyond reach (Kanfer and Karoly, 1972).

Environment Examination and Change. Behaviorists, better than anyone else, have articulated a point we all know, but often don't do anything about: the people, places, things, and events around the learner are strong determinants of behavior. Socialization theories (e.g., Bandura's Social Learning Theory, 1969) and compliance theories (see Kelman, 1966) stress how the external environment provides both *standards* against which to compare personal behavior and *rewards* for behavior that conforms to social norms. More concrete theories of "stimulus (environment) control" (e.g., Goldiamond, 1965; also see Mahoney, 1972 for a review) suggest specific methods for identifying cues eliciting undesired behaviors and for managing the environment so that it's less likely to cue old behaviors and more likely to signal new. These management efforts can focus on people (others can be encouraged to verbally or otherwise support and reinforce change), things (old behavior cues can be removed or changed and new cues and reminders set up), and events (the learner can put himself (herself) into a new situation or plan to initiate new events). The point is, the external (in addition to the cognitive) environment has a powerful impact on behavior. The interesting point many modern behavior theorists are making these days, however, is that

behavior can have a powerful and planned impact on the external environment as well!

The Reinforcement System. Probably the most controversial behavior change strategy used by behavior modifiers is the use of non-task-intrinsic reinforcement. Certainly the effects of external rewards have been well researched -- especially in animal populations (shaping pigeon behavior) and with maladaptive behavor in humans (giving delinquent children prize-buying tokens for socially acceptable behavior) (see Skinner, 1953). Many recent studies have expanded -- and fortunately, complicated -- our knowledge of what reinforcement is. Some categorization might facilitate understanding its role.

There are *two* basic classes of rewards (and punishments -- which this paper will not discuss as a major topic). Those that are *external* to the behavior (not a byproduct of it: e.g., food, drink, money and tokens, social approval, grades) and those that are *intrinsic* to the behavior (e.g., pleasure and enjoyment of the task itself, feeling satisfied about a job well done). External consequences can be further subdivided into those that exist in the *real* environment (e.g., social approval for communicating effectively), and those that derive from an *artifical* environment (e.g., a grade for successful speech performance).

Both external and intrinsic rewards can be *really* or

imaginally administered. Cautela (1967), for example, suggests that imagined rewards and anticipation of rewards play an important role in behavior change and development and could be more effective if learners knew their value and more frequently self-administered imagined positive (and negative) consequences. Mahoney and Thoresen (1974) suggest that combining rewards (real and imagined) with punishment (especially withdrawing positive consequences of undesirable behavor) can hasten the change process, although they conclude that more research is needed on the combined effects. But no matter what the combination of initial rewards and punishments, it's generally accepted that final established behavior pattern must be intrinisically rewarding and/or derive its external rewards from the real environment or it will not remain in the learner's behavior repertory (Bandura, 1974).

It's almost axiomatic, then, that successful behavior change and development depends on goal clarity, response availability (having the requisite knowledge and skills), setting up a congruent environment, and linking the behavior to favorable reinforcements (see Bandura, 1969; Kanfer, 1972; Mahoney and Thoresen, 1974; Goldfried and Merbaum, 1973; for more in-depth information about these issues).

These are the key areas to impact, but it's necessary also to know what determines a) how much *time and effort* should be spent on each, and b) *who should plan* the learning experience -- educators or the learners themselves.

The answers to both questions, it seems, is "it depends." *It depends on both the individuals and the kind of behaviors involved.*

INDIVIDUAL DIFFERENCE MODERATORS

Scattered throughout the literature is a great deal of evidence that individual differences affect the degree to which a behavior change and development program should formalize goal clarity, base knowledge and skill development, environment management, and reinforcement management. We all know, for example, that some people can develop skills based on seemingly very sketchy goals, while others require several iterations of tutoring; that some learners can change and develop behavior within a hostile environment (artists and social activities for example) while others won't try a new skill until external conditions are just right; and that some learners need constant external reinforcement -- at least early in a behavior change effort -- while for others, commitment to a goal and goal attainment are almost synonomous.

Some of the major individual difference factors that seem to affect the form a behavior change program can take include:

1. General self-esteem level. One of the most commonly occuring correlates of structure vs. non-structure (& external vs. no external support and control) in behavior change programing, is individual self-esteem (Hovland, Janis, Keller, 1966; Marston and Feldman,

1972; Bandura, 1969 and 1971). Bandura (1969), for example, equates low self-esteem with high frequencies of negative internal statements, and high self-esteem with high frequencies of positive self-evaluation. He suggests that low self-esteem personalities therefore usually need more external reinforcement to compensate for the internal reinforcement deficits. In general, it seems that the lower the self-estimate, the stronger and longer-term the external reinforcement and support must be if successful behavior change and development are to occur.

2. Meaningfulness of the behavioral goal. Standards may be based on past experiences, on current modeling (of peers, social models, educators, for example), on instructions, guided participation, or explicit goal statements. But task meaningfulness varies among individuals and affects the degree of effort that will be expended on skill development.

3. Self-Image Clarity. This may be another way of looking at self-esteem, but an interesting study by Winter Griffith, and Kolb (1968) suggests this should be a separate inclusion. Winter, et al.'s investigation of the "Capacity for Self-Direction" concluded that goals naturally create more dissonance for individuals who have a clear self-perception than for those whose

identity is "diffused" (i.e., characterized by indecisiveness, vagueness, merging persent and future). The clear self-image individuals in their study benefited more from commitment to change and from feedback about progress or lack of progress than did the "diffused" group. The former needed less external support and control, in other words, to reach their goal -- and were able to be more self-directing.

4. Perceived Locus of Control. This variable has been examined both as a "personality trait" determining risk-taking and self-directed behavior change (Lefcourt, 1966), and as a task-specific issue (Bandura, 1969). Lefcourt concludes that individuals who typically (according to, in this case, the Rotter Internal-External Locus of Control Scale) see the locus of control in the external environment need more support in the form of more external rewards, clearer and more guided goals, and more constant feedback. Individuals who score high in self-control need correspondingly less externally imposed structure and reinforcements.

Other studies that have investigated specific instances of learner vs. experimenter control of rewards have generally concluded that external and internal reward control lead to the same amount of behavior change.

But several trends in these studies indicate that this conclusion doesn't tell the whole story:

-individuals who *self-determine* rewards often set high goals and rigid reward schedules (Bandura 1969) -- unless model behavior and model reward patterns instruct otherwise. Bandura's conclusion is that individuals who feel they control their behavior development process, judge their behavior against self-esteem standards. If self-esteem is never activated (i.e., if learners never feel responsible for developing the new behavior) then they can justify just getting by. Self-esteem, in the latter case, is not perceived to be at stake.

-*maturity* and feelings of internal control seem to be positive related -- a point from behavior modification literature that converges with current views of adult educational psychology. (Bandura and Perloff, 1967)

-there is evidence, too, that the more *meaningful* the task, the more rigid the self-set standards (Glynn, 1970). This has interesting significance for adult education and makes sense (much of the research to date that has examined self-set vs. externally controlled rewards and standards has not used meaningful tasks!)

Other individual difference variables to consider for designing adult learning programs and determining how self-directed or learner-controlled they should be seem to include:

- the learner's perception of the effort involved in the change program
- the learner's past success/failure record in behavior change in general, and in the specific behavior change target area
- the nature and specificity of pre-existing internal rules and behavior standards
- the individual's history of self-rewarding behaviors (some people have used positive thinking more than others, for example)
- ideosyncracies in reinforcement preference (internal and external)
- life stage interests
- aptitude in the subject area
- ideosyncracies in the kinds of environment cues that have a high probability of eliciting the desired behaviors
- pervasiveness and reinforcing qualities of competing habits
- the clarity of the learner's understanding of the knowledge and skills required for behavior mastery.

THE NATURE OF THE TARGET BEHAVIOR/SKILL/COMPETENCY

In addition to individual differences, the behavior/skill/competency (used interchangeably in this paper) helps determine how behavior change and development programs should be structured. Some major skill variables recur in the literature and should be considered in designing both self- and other-planned programs:

-the difficulty of the behavior

-its complexity

-the stage of the learning effort (early in the change effort there is more self-denial involved than during later stages. Initially, old habits are usually more competitive and new behaviors less intrinsically rewarding than later in the change process.)

-the availability of learning aids (models, instructions, guidance, persuasive communications)

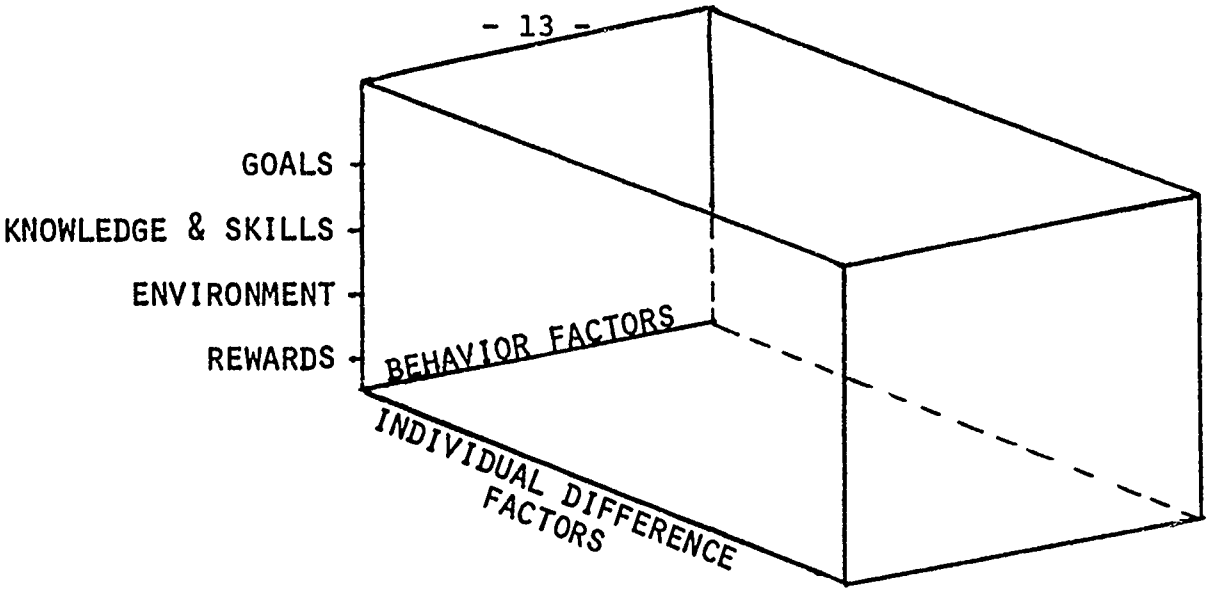
-the level of environmental support of or hostility toward the new behavior

-the extent to which the intrinsic or real world benefits will be delayed (setting up a new accounting system, eating less, developing new study techniques, all involve varying degrees of delayed rewards, for example).

A SUMMARY SO FAR

We can draw two important implications, it seems to me, from the above considerations of the four behavior change target areas and the moderating individual differences and behavior factors:

1. When *favorable* individual difference and behavior factors exist, there is probably less need to belabor goal setting, environment change, and reinforcement planning than there is when a difficult task and/or low self-esteem personality are factors. The decision matrix can be conceptualized in three-dimensional terms, in other words, and planning strategy based on the sum of the three considerations :



Favorable conditions mean that self-direction and minimal external support will likely succeed.

2. But, it should likewise be clear from the preceding discussions that the more complex the task, the more varied the learner group, and the more diverse the transfer environments -- the more important it becomes for individual learners to be responsible for customizing their own behavior change programs. Only they have the relevant individual difference and environment information. Educators simply do not have and usually can't reasonably get enough information about such factors as individual self-esteem, past successes, reinforcement ideosyncracies, perceived task importance, current environment supportiveness or hostility, to be able to customize a high success probability program for each program participant. Yet all these factors should be considered for each individual (sometimes in a very structured and externally supportive way) if a program with meaningful goals, clearly defined base knowledge and skills, relevant environment management,

and meaningful and potent consequences is to emerge.

Since educators are limited in the amount and intensity of individual counseling and program design we can do, but since at the same time structure may be needed if individual behavior changes are to occur, the question becomes: how can educators and learners work together to personalize a successful behavior change or development program?

The first requirement is that both learners and educators understand what self-behavior modification involves.

SELF-BEHAVIOR MODIFICATION

Recent literature is full of information about behavioral self-control. Goldfried and Merbaum (1973), for example, suggest that self-control can be applied to two kinds of "maladaptive" behaviors: emotional and psychological problems, according to their model, can be eliminated or reduced by auto-suggestions, self-controlled relaxation (desensitization), cognitive relabeling, and self-administrated aversive stimuli (e.g., a nausea-producing anti-alcohol pill). They also suggest that strategies for developing more adaptive behaviors can include self-managed environment change, verbalizing that old behaviors are inappropriate, self-reinforcing preferred behaviors both imaginally and through self-administered external reinforcement.

Some researchers opt for more ordered, step-by-step process-oriented models. Bandura's includes 1) selecting a well-defined objective, 2) making a social contract, 3) keeping records, 4) altering the stimulus conditions, and 5) adding self-rein-

forcement to self-control. Kanfer and Phillips (1970) "instigation therapy" trains learners to become behavior change engineers. This training centers in self-observation, evaluating and classifying behavior, planning environment change, and self-reinforcing.

Still another group of theorists emphasizes the role of *cognition* in self-control. They feel that what people say to themselves is a potent behavior change agent (Meichenbaum and Cameron, 1974). Homme (1965) states that people know what they are thinking about and can control their thoughts. Ellis (1961) in "rational emotive therapy" proposes systems for this kind of self-thought control. Marston and Feldman (1972) suggest that self-control involves two processes: 1) developing the *cognitive set* for change by specifying the new behavior and listing the advantages and disadvantages of changing, and 2) determining and implementing the *controlling responses* -- which might include rewards and punishments, emotional role-playing, contracts, checklists.

There are several common themes in this self-behavior modification literature that can clarify and unify what the process seems to involve and that advance behavior theory beyond its old role as just a problem remedy. It's now ready for day-to-day adult learning and education design.

There is general agreement, for example, that *cognitive processes* (thinking, planning, and the viewpoint of the "behaver") are key behavior change variables. There is also concurrence that self-control is a *learned skill*, a process that can be refined

and planned.

Likewise, many researchers agree that self-control is an effortful response that only occurs when a learner deliberately engages in a low probability response in a situation that normally would elicit another behavior (Kanfer, 1970; Mahoney, 1972). Once the new response becomes a high probability behavior, self-control is no longer necessary and ceases to exist for that response (learning a new behavior in this context is a process of deliberately developing it to a point where it is no longer necessary to control it -- that is, where it becomes a habit activated on cue by the environment or reference to an internally held standard (Kanfer and Karoly, 1972).)

If behavior change does involve activating low probability responses and resisting those that are more likely to occur, then it's easy to understand why so many behavior change attempts fail -- learners aren't usually aware of the specific self-control requirements of the early stages of new behavior development. Perhaps we ought to tell them!

So, with this in mind -- that self-control is partly cognitive, is learnable, and both temporary and effortful (but often necessary) in new behavior development, let's look at the four processes that self-control subsumes.

Goal Setting. Since only the individual learner has access to his/her environment and individual difference variables, only he/she can write a terminal objective that will create that very important perceived discrepancy between actual and desired

behavior and that will serve as a meaningful behavior standard in the natural environment. Others, according to self-control theory, can only write guide objectives.

Self-Monitoring. Monitoring behavior change efforts in the natural environment has many advantages: 1) it gives knowledge of results to compare with the goal, 2) it seems to cause behavior change to occur -- even when done without specific goals. Noone knows specifically why self-monitoring effects change (Kazdin, 1974), but speculation alternately centers around the following hypotheses:

- it's a "Hawthorne effect," a function of "being watched." Attending to the target behavior causes it to occur.
- it's effective because it sets the stage for self-instruction and goal setting
- it can activate self-esteem and achievement oriented standards -- when a meaningful behavior is the objective of the observation, that is.

Self-reinforcement. Since perceptions of what is rewarding vary among individuals, this is another area that is often most effectively self-determined. This statement requires a qualifier, however. Self-rewards, whether real or imagined, external or intrinsic to the behavior, don't occur in isolation. Societies check and balance harmful behavior and also influence standards for self-reinforcement via norms, elevating socially acceptable individuals as models, and by direct intervention (Bandura, 1969 and 1974). Self-reinforcement of desirable behaviors, however, because it is portable from situation to situation, because it uses personally satisfying rewards (Cautela and Kastenbaum, 1967,

have designed an inventory that can help individuals identify preferred reinforcers), and because it usually uses real world consequences, has the potential for producing more lasting and generalizable behavior change than externally administered rewards.

One important point to bring out here is that the frequency and appeal of self-rewarding behavior seems to depend on 1) past individual history of self-rewarding (and positive thinking) behavior, 2) the clarity of the goals and the frequency of progress monitoring, and 3) the reward patterns and criteria demonstrated by people the learner accepts as behavior models (Bandura, 1969). Self-rewards may also require varying degrees of externally controlled support (i.e., planning help, external feedback, external reinforcement) depending on the individual differences and task factors involved. (McReynolds, 1973, for example, suggests that performance contracting for study skills improvement in his research would have been more than the recorded 40% effective if the experimenter had intruded goals, feedback, and rewards in the process.) But total external control of reinforcement does not, as a rule, seem to produce lasting or generalizable behavior change (Hovland, Janis, Keller, 1966).

Self-Controlled Environment Change. Relationships between individuals and environments are reciprocal ones. Individuals can enhance their chances of success in behavior change efforts if they minimize environment conditions that will support old behaviors and block new ones, and if they maximize conditions that will support target behavior. Since these conditions vary with individuals, self-control can be advantageous here as

well (Mahoney and Thoresen, 1974).

The Apparent Advantages and Disadvantages of Self-Behavior Modification. Based on the preceding discussion, pure (totally self-controlled) behavior modification appears to have many advantages:

-It puts power and responsibility for the behavior change and development effort close to most of the information. Only individuals themselves have access to the variety of environments in which the behavior is expected to occur, to what they prefer as rewards, to what will be a clear, dissonance-creating goal for them in their own situations.

-It helps develop an atmosphere of freedom and personal control rather than compliance. This can help activate internal standards that can motivate goal-directed activities.

-It helps keep the learning experience relevant to the real world. Learners always see information in terms of application, needed environment modifications, and probable natural rewards because they set goals based on their own world perceptions, not someone elses.

-It sets a process in motion that can last over a long span of time. The learner her/himself is the planner and the controlling and maintaining agent.

-If individuals become skilled in the mechanics of behavior change (i.e., can specify when the learning result they want is behavior change or development, 2) know that successful behavior change requires clear goals, base knowledge

and skills mastery, environment analysis and management, and outcome analysis and management, and 3) can design and implement a behavior change plan) then they can use self-behavior change -- and environmental control processes anywhere. In view of the quick pace of change today, this can be a major personal adjustment and control tool.

-A self-behavior modification framework also fits what we know about how adults learn. Tough (1971) tells us that over 70% of the adult's learning projects are at least partially self-planned, for example. SBM can help learners structure behavior change projects that are more likely to efficiently catalyze behavior change than programs based on "willpower" (as adult self-designed -- and other -- projects often are).

One major disadvantage of a pure self-behavior change model,is, of course, that learners often don't know enough about the new behavior they want to develop to be able to set clear goals, define base knowledge and skills, determine the characteristics of a congenial environment, articulate the eventual intrinsic rewards. In short, learners often need to seek out standards of excellence for desired behaviors and in some cases require active assistance in learning project design (Tough).

A second disadvantage of "pure" Self-Behavior Modification is that it doesn't allow for individual differences in need for external support (planning, feedback, reinforcement, environment change, assistance), or for the additional external planning and support that a difficult new behavior may require.

The question that arises here, of course, echoes a now common

adult education concern: Once you have identified that the major kind of learning outcome you want is behavior change, how do you decide who plans the learning experience?

BEHAVIOR THEORY AND ADULT LEARNING PROJECT DESIGN

I would like to propose three possible answers to that question ("Who plans the learning experience?") -- all based on the three-dimensional model presented earlier in this paper.

First of all, when individual differences and task factors are primarily favorable (i.e., when the learner has high self-esteem, goal commitment, a clear self-perception, etc., and when the behavior itself is simple, supported in the natural environment, etc.), and the learner understands that behavior change plans should affect goals, base knowledge and skills, environment, and rewards -- then a self-designed learning (behavior change) project is likely to succeed. Favorable conditions also probably necessitate less external reinforcement.

When individual difference and task factors are mainly unfavorable (i.e., when individual commitment is low, when the behavior is complex or difficult, etc.) then, as the research cited previously indicates, more external support and planning assistance is probably necessary.

Finally, when individual difference and task factors are both favorable and unfavorable for self-control, or when a general behavior change plan must be designed for more than one person (as in an adult education program), then an *interactive* model that will provide structure and/or freedom to each individual according to her/his needs seems appropriate.

Since the interactive model represents the category into which my reading and information handling systems (RIHS) programs for industry fall, and because it is a design that can be used in other adult education programs that have behavior change and development as objectives, I would like to explore it further.

The Interactive Model of Adult Education Program Design. The interactive design I have used in reading and information handling programs in industry has included the following:

-An *explanation* of the importance of seeing reading and information handling skills development as a behavior change process requiring clear goals, basic knowledge and skills mastery, environment analysis and change, and reward analysis and management.

-*Lists* of:

.possible behavior change goals for job-related reading and information handling

.basic knowledge and skills for success in the program

.environment modification suggestions

.common intrinsic rewards of reading and information handling behaviors (see Exhibit 1)

-*Checklist/contracts* that help individuals record weekly goals and objectives in their own words in terms that relate to their real reading and information handling needs and materials, and that encourage daily self-monitoring (see Exhibit 2).

-*Weekly written feedback* by the instructor centering on the relationship between individual goals and recorded applications.

This is not, of course, the only possible interactive design. Homme, for example (1970) describes a 5-stage contracting process that begins with total instructor control and gradually weans learners to full self-control. Knowles (1967) outlines a 7-step process of mutual planning that includes 1) creating a structure for mutual planning, 2) establishing a favorable climate, 3) 3) self-diagnosing needs, 4) formulating objectives, 5) developing the general design, 6) choosing techniques and materials, and 7) planning the evaluation. The "interactive model" used in RIHS differs from Homme, however, in that it is one flexible process (not 5 successive stages with varying but externally planned ratios of learner and instructor control). The RIHS model allows for more individual differences at all stages. The RIHS model differs from Knowles, too, in that it is *specifically applicable to behavior change*, not to all forms of learning.

The Interactive Model has many starting points for research. For the next few pages, however, I would like to concentrate on one: the effectiveness of external vs. learner-controlled rewards.

The Interactive Model and External vs. Learner-controlled Rewards. In Fall 1974 I decided to investigate the role that self- and externally-determined rewards can play in adult behavior change programs. Most of the research I had read suggested that both reward types produced equal behavior change and more change than no external rewards, but I wanted to see if these generalizations applied to an adult professional audience. I wanted also to correct for any effects of self-monitoring (inaccuracies of self-reporting, "Hawthorne effects").

The Situation and Participants. 18 degreed technical professional and 6 non-degreed technical people voluntarily entered the 6-week (2½ hour sessions per week) RIHS program. Individuals then, were motivated for the new behaviors and engaged throughout the program in meaningful (not experimentally contrived) skills. For the first 4 weeks, the entire group followed the interactive design procedures previously described. Specifically, the process included:

- a brief verbal description to the group of the importance to behavior change of goal setting, base knowledge and skill development, and environment change (rewards were not mentioned at this point and the reward category was deleted from the contract/checklist), plus a statement that contracting and daily behavior monitoring via checklisting would help the skills development process.

- weekly individual contracting and goal setting. At the end of each class session, participants chose the techniques, skills, and environment changes they wanted to try, determined the extra skills practice needed for mastery, and recorded these -- in their own words -- on a blank contract/checklist

- daily checklisting. Individuals were asked to spend a few seconds at the end of each day checking off those contract items they had tried.

- weekly written comments by the instructor about the checklisted behaviors and their relationships with the student's overall goals.

Some Insights into Self- vs. Instructor-determined Rewards. At the end of the fifth class session, each participant identified an important (to him or her) behavior that he/she felt was important but hadn't yet mastered. They also described how they would know that mastery had occurred (e.g., "when I have mastered skimming I will be able to finish Time in 30 minutes with an understanding of the main points in all the articles"). This "difficult" (not previously mastered) target then became the focal behavior for treatment during the fifth week.

After identifying their target behavior for the week, the group (which now numbered 21) was divided into three groups of seven:

> *The Control Group* (no planned reinforcement): left with the contract/checklist, instructed to check off behaviors daily as during the previous four weeks.
>
> *The First Experimental Group (E1)* (Externally determined reinforcement): This group was promised a $5.00 incentive for target mastery achieved by the next lesson (one week later)
>
> *The Second Experimental Group (E2)* (self-determined rewards). Individuals in this group determined rewards and reward schedules that they would give themselves for successful target behavior performance.

Results.

> *Control.* In the contract/checklist only group, one of the seven participants (14%) reported mastery of the target behavior.
>
> *E1.* Two of the seven (28.5%) returning from this group reported success and claimed their $5.00.
>
> *E2.* Four of the six (66%) returning learners in the self-reinforcement group reported they had reached their target objective.

An analysis of the effects of self-monitoring throughout the first four weeks of the program revealed that self-monitoring lead to different degrees of reported behavior change success in each group:

> *Control.* This group reported mastery of an average of 73% of all checklisted skills through week four (mastery was defined as "I will use this technique over 50% of the time in the future -- when it is appropriate to the situation."
>
> *E1.* 74% of the contracted behaviors were reported as mastered.
>
> *E2.* This group averaged a perceived mastery of 86% of all tracked behavior through week four.

To determine the effects of the reward treatment it was necessary to adjust for the past success discrepancies among the groups

(which could have been due to individual differences in commitment, to the kinds of target behaviors selected for contract/checklist treatment, or to differential effects of self-monitoring). It was hypothesized that if rewards have zero impact on behavior change, then success factors of 14.2% and 17% for E1 and E2 respectively would correspond with the 14% control success during week five. Behavior success under conditions of externally determined reinforcement exceeded predicted levels by 14.3%, however, and success under self-determined reinforcement surpassed expectations by 46.6%.

Conclusions about Self- and Externally Determined Rewards In This Behavior Change Situation:

-According to this data, external rewards -- both self-determined and externally determined -- do appear to increase the probability of success in behavior change efforts of adult professionals, and seem to be more effective than self-goal setting and self-monitoring alone.

-Self-determined rewards appear to be more effective and are perceived more positively than externally determined reinforcement, but, again, individual differences and the nature of the target skill moderate the effects of reinforcement. Questionnaires administered after the RIHS program ended showed that perceptions of the external reward ($5.00) ranged from negative (2 in the E1 group described the reward as "manipulative") to neutral (3 felt it had no effect), to positive (2 described it as an incentive and a memory aid [these were the two who mastered the skills and received the $5.00].

Noone in the self-administered reward group reported negative perceptions of that reinforcement system, on the other hand. One felt it had no effect, and five reported positive reactions to the self-determined incentive.

BACK TO THE CENTER

I have been suggesting throughout this paper that when behavior change and/or development are the primary targets of a learning effort, we (and the learners themselves) should recognize:

-that learning projects keying in on behavior change and development require different strategies than programs aiming at knowledge acquisition or values change

-that there is a usable behavior change and development technology that suggests we key change and development efforts to goal setting, base knowledge and skill development, environment change, and reinforcement management

-that the optimal amount of external support and planning varies depending on the people and behaviors involved

-that there are many reasons why adult learners should design -- or at least help design the behavior change program

-that the interactive program design proposed in this paper both structures the learning experience according to behavior theory guidelines and allows individuals to personalize goals, environment changes, and reward systems

-that adult learners will -- at least according to these findings -- self-reward -- and that they find self-rewards more pallatable than externally determined reinforcement.

Behavior theorists have discovered, it seems to me, some natural laws that underly human behavior development and change. It will be unfortunate for adult education if in our fear of behavior modification's potential manipulativeness we don't see the contributions it can make to program design and to self-designed learning.

EXHIBIT I

THE 4-COMPONENTS OF BEHAVIOR CHANGE
And the Design of the Reading and Information Handling Systems Program

MENTAL SET AND GOALS

- -Clear perception of real vs. desired skills levels through:
  - .tests
  - .setting specific weekly goals
- -Clear perception of possible goals, techniques, and the specific practice that is necessary to achieve each result
- -Clear perception of the advantages and disadvantages of each skills development effort
- -Clear perception of your own goals and progress

KNOWLEDGE AND SKILLS

Knowledge

- -What you need to read
  - .to do the job
  - .to keep developing
- -The difference between information handling, learning
- -How your own reading materials are structured
- -What determines optimal rates
- -What information is available in print
- -Why the skills work and how to use them

Skills

- -Being more relaxed in reading and learning
- -Surveying and prioritizing
- -Clarifying needs and eliminating material that is irrelevant
- -Centering and controlling attention
- -Setting up an environment that will support efficient, relaxed reading
- -Skimming for main points
- -Reading at optimal rates through
  - .pace-reading
  - .pace-scanning
  - .patterned eye motions
  - .unit pace-checking
- -Marking for organized reading and improved retention
- -Note-taking for reading, listening and planning
- -Discovering underlying bias and values
- -Making learning from reading make a difference in your behavior
- -Remembering the main points and details you need to remember

ENVIRONMENT

-People

- -Secretary can screen and organize
- -Others who pass material on can be shown marking techniques
- -Alert others to marking methods, etc.
- -Explain specific goals to others (e.g., to go through and sort in-basket in 15 minutes)
- -Arrange competition with someone who is taking the course

Copyright © 1975. Patricia A. McLagan.

-Places, things, events
  Have books and materials handy that relate to each project as you work on it
  -Arrange furniture to minimize distractions
  -Schedule times for in-basket reading
  -Schedule times for reading low priority materials
  -Have pencils, note cards, important files, and often used reference materials within reach
  -Set objectives and schedule time for reading books and articles that can help you learn new things
  -Set time limits for mastery of specific new reading behaviors
  -Check lighting
  -Set up a book prop
  -Get visual control of the environment by clearing off the top of your desk
  -Put up signs to remind you of important techniques
  -Put the checklist in a visible spot
  -Revise in-basket filing method
  -Have secretary bring in mail a stack at a time
  -Be overly systematic during the duration of the course

REWARDS
-Extrinsic
  -Checklist
  -Specify your own rewards and reward schedules
  -Instructor feedback
-Intrinsic
  -Feeling of accomplishment because of covering material more efficiently
  -Less strained, more relaxed reading
  -More note-taking options
  -More flexible, active reading -- more satisfying and controllable
  -Good feelings from finishing more books and articles that can help you learn and develop
  -Each technique, once it is comfortable, can have its own intrinsic satisfactions

NAME_____

WEEK_____

RIHS WEEKLY CONTRACT

ENVIRONMENT CHANGES	*Check when you have made changes* day 1	day 2	day 3	day 4	day 5	day 6
TECHNIQUES TO USE ON THE JOB	day 1	day 2	day 3	day 4	day 5	day 6
SPECIAL WORK (FOR SKILLS SHARPENING AND UNDERSTANDING INFORMATION HANDLING AND LEARNING THEORY)	day 1	day 2	day 3	day 4	day 5	day 6
REWARDS	day 1	day 2	day 3	day 4	day 5	day 6

BIBLIOGRAPHY

Bandura, A., Principles of Behavior Modification, Holt, Reinhart, Winston, New York, 1969. *Discusses almost every facet of behavior modification except the most recent work in self-behavior mod. It's very technical, but if you read it from the Index -- targeting on subjects that interest you, it can be very practical.*

Bandura, A., "Behavior Theory and the Models of Man," in the American Psychologist, Dec. 1974, pp. 859-869. *Bandura discusses reinforcement, modeling, and self-behavior modification. He tries to show that behavior mod need not be manipulative. A good update.*

Bandura, A., "Self-Reinforcement Processes," from R. Glaser, ed., The Nature of Reinforcement, Academic Press, 1971. *Discusses individual differences in self-reinforcement, external conditions that assist self-rewards, and self-rewarding thoughts*

Bandura, A., Grusec, J., Menlove, F., "Some Social Determinants of Self-Monitoring Reinforcement Systems," in the Journal of Personality and Social Psychology, 1967, Vol. 5, No. 4, pp. 449-455. *Investigates how instructor friendliness, the presence of outside rewards, and group norms affect new behavior development. An interesting result was that friendliness of the model lead to lowered performance standards in learners.*

Bandura, A., and Perloff, B., "Relative Efficacy of Self-Monitored and Externally Imposed Reinforcement Systems," in the Journal of Personality and Social Psychology, V.7, 111-116. *Concludes that externally controlled and self-determined reinforcement are equally effective and that, when individuals set their own goals their self-esteem is at stake and they usually opt for high behavior standards.*

Cautela, J., and Kastenbaum, R, "A Reinforcement Survey Schedule for Use in Therapy Training," Psychological Reports, 1967, 20, 1115-1130. *Describes an inventory that can help identify individual and group reward preferences.*

Ellis, A., and Harper, R., A Guide to Rational Living, Wilshire Books, 1961. *Details the importance of cognitive factors, especially self-sentences, in self-controled behavior change.*

Glynn, E., "Classroom Applications of Self-Determined Reinforcement," Journal of Applied Behavior Analysis, #3, pp. 123-132, 1970. *This study examined 9th grade girls learning under varying external reinforcement conditions in a real school situation. It concluded that both self- and experimenter determined reinforcement contributed to more behavior change than no-reward and chance; and that under self-determined reward conditions, individuals imposed strict standards.*

Goldfried, M., and Merbaum, M., Ed., Behavior Change Through Self-Control, Holt, Rinehart, Winston, 1973. *Includes 33 articles on issues relevant to self-controlled behavior change: theory, practice, results.*

Goldiamond, I, "Self-Control Procedures in Personal Behavior Problems," Psychological Report, 1965, 17, pp. 851-868. *This article illustrates how self-control -- especially of the environment -- can be applied in marital, handwriting, and study problems.*

Hall, S., "Self-Control and Therapist Control in the Behavioral Treatment of Overweight Women," in Behavior Research and Therapy, 1972, v. 10, pp. 59-68. *In this study, experimentor control of rewards and goals was superior to self-control -- even after the experimental group had participated in three weeks of self-control training. I'd like to suggest that this may be a situation where individual differences and the nature of the new behavior were unfavorable for self-control for most individuals in the study (there was a wide range of individual achievement differences).*

Homme,L., "Control of Coverants, the Operants of the Mind," Psychological Record, 1965, Vol. 15, pp. 501-511. *Demonstrates that thinking, imagining, and other mental activities are stimuli for behavior change and should be managed in behavior change attempts.*

Homme, L., How to Use Contingency Contracting in the Classroom, Champaign Illinois Research Press, 1970. *Includes a description of a 5-stage contracting process -- beginning with total instructor control of goals and rewards, and ending with total learner control.*

Hovland, C., Janis, Keller, "A Summary of Experimental Studies of Behavior Change," in Attitudes, Jahoda, M., Penquin Books, Baltimore, 1966. *Discusses the qualities of the communicator, the communication, the audience, and the behavior that affect opinion change.*

Kanfer, F., "Self-Monitoring: Methodological Limitations and Clinical Applications," Journal of Consulting and Clinical Psychology, V. 35, #2, p. 148-152, 1970. *Self-monitoring does modify behavior. But why? This article suggests that among other things, SM provides self-knowledge and a basis for reinforcement.*

Kanfer, F., "Behavior Modification: An Overview," Chapter One in Behavior Modification in Education, 1972. National Society for the Study of Education., ed. Carl E. Thoresen. *A good and understandable discussion of the basic elements in behavior modification.*

Kanfer, F., and Duerfeldt, "Effects of Pre-Training on Self-Evaluation and Self-Reinforcement," Journal of Personality and Social Psychology, V. 7 #2, 164-68. *An important conclusion*

here was that changes in self-statements about performance don't necessarily affect self-reinforcement -- that goal and standard clarity is necessary for knowledge of results to be meaningful.

Kanfer, F., and Phillips, J., Learning Foundations of Behavior Therapy, Wiley, New York, 1970. *Discusses how the findings of behavior therapy can affect our view of learning strategy.*

Kanfer, F., Karoly, P., "Self-Control: A Behavioristic excursion Into the Lion's Den," in Behavior Therapy, V. 3, pp. 398-416, 1972. *Presents a model of self-regulation that includes self-monitoring, self-evaluation, and self-reinforcement. It argues for helping learners develop competence in self-behavior engineering.*

Kazdin, A., "Self-Monitoring and Behavior Change," in Self-Control: Power to the Person, Mahoney, M., and Thoresen, C., Brooks/Cole, 1974. *Acknowledges that self-monitoring causes behavior change and asks why? Because it fixes attention on the target behavior/skill, or because it leads to goal clarity and self-assessment? I.e., is it a function of being watched or doing the watching?*

Kellman, H.,"Three Processes of Social-Influence," in Attitudes, Jahoda, M., ed., Penguin Books, 1966. *Discusses three environments for behavior: behavior under compliance; behavior that conforms to a role; and behavior that occurs freely based on internally held standards.*

Knowles, M., "Program Planning for Adults as Learners," Adult Leadership, February 1967, pp. 267-279. *Suggests a program design plan for adult education.*

Knowles, M., The Adult Learner: A Neglected Species, Gulf Publishing Co., Houston, 1973. *Talks about how adult learners differ from child learners: in terms of self-concept, experience base, life-stage, learning readiness, orientation to learning, time-perspective.*

Lefcourt, H., "Internal vs. External Control of Reinforcement; A Review," in Psychological Bulletin, 1966. V. 65 #4, pp. 206-220. *Suggests that an individuals internal-external locus of control (measured via the Rotter Internal/External Control Scale) is predictive of individual differences in social conformity, male (but not female) learning achievement, need achievement, anxiety and frustration.*

MacMillan, Donald, Behavior Modification in Education, MacMillan, New York, 1973. *An excellent discussion of behavior change principles and application -- but doesn't really deal with self-control.*

Mahoney, M.J., "Research Issues in Self-Management," from Behavior Therapy, V. 3, pp. 45-63, in Self-Control: Power to the Person. *Reviews research on self-rewards, self-punishments, stimulus control, and cognitive control.*

Mahoney, B, Moore, T., Wade, N., Moura, N., "Effects of Continuous and Intermittent Self-Monitoring on Academic Behavior," in Journal of Consulting and Clinical Psychology, Vol. 41, #1, 65-69. *This study concludes that self-monitoring favorably affects both performance accuracy and attention.*

Mahoney, M., and Thoresen, C., Self-Control: Power to the Person, Brooks/Cole, 1974. *An excellent up-to-date discussion of many facets of self-behavior modification. Includes readings.*

Marlatt, G., and Kaplan, B., "Self-Initiated Attempts to Change Behavior: A Study of New Years Resolutions," Psychological Reports, 1972., v. 30, pp. 123-31. *Indicates that the more general the goals the more likely individuals are to think they have achieved them (only 25% of the new years resolutions tracked in their study were reported as broken!)*

Marston, A., and Feldman, S., "Toward the Use of Self-Control in Behavior Modification," Journal of Consulting and Clinical Psychology, Vol. 39 #3. 1972. pp. 429-433. *One of my favorites, this article discusses self-control, the importance of a clear mental set, and generally, the importance of uniting thinking with behavior modification.*

McClelland, D., "Toward a Theory of Motive Acquisition," in the American Psychologist, Vol. 20, 1965, pp. 321-333. *Discusses factors that underly attitude change. McClelland's major interest is need achievement and he uses the attitude change ideas to help learners develop higher achievement motivation.*

McFall, R., and Hammen, C., "Motivation, Structure, and Self-Monitoring: Role of Non-Specific Factors in Smoking Reduction," Journal of Consulting and Clinical Psychology, Vol. 37 #1, pp. 80-86. 1971. *This study determined that three factors are present in all major stop-smoking programs -- and showed that a program including only those factors (self-monitoring, motivation, and structured behavior change) is as successful as more elaborate programs. Results here also suggest that self-monitoring undesired behaviors aided the change effort.*

McReynolds, W., "Self-Control: Study Skills Development and Counseling Approaches to the Improvement of Study Behaviors," in Behavior Research and Therapy, 1973., Vol 11, pp. 233-35. *Found that self-contracting and traditional externally planned study skills development were equally effective in behavior change. Because about 40% of the self-contracts were broken, however, McReynolds suggests external controls areneeded to supplement learner self-efforts.*

Meichenbaum, D., and Cameron, R., "The Clinical Potential of Modifying What Clients Say to Themselves," in Self-Control: Power to the Person, Mahoney, M., and Thoresen, C., Brooks/Cole, 1974. *Emphasizes the importance of cognitive control training and illustrates the forms it can take.*

Miller, G., Galanter, E., Pribram, K., Plans and the Structure of Behavior, Holt, 1960. *An early statement about the role of cognitive processes in behavior change.*

Skinner, B.F., Science and Human Behavior, MacMillan, New York, 1953. *A classic statement of early behavior theory -- but without self-control.*

Sobell, L., and Sobell, M., "A Self-Feedback Technique to Monitor Drinking Behavior," in Behavior Research and Therapy, 1973., Vol II, pp. 237-38. *Reports that self-recording drinking behavior led to reduced alcohol intake.*

Thoresen, Carl, "Behavioral Means and Humanistic Ends," in the 72nd Yearbook for the National Society for the Study of Education (1973), and reprinted in Self-Control: Power to the Person, Mahoney, M., and Thoresen, C., Brooks/Cole, 1974. *Discusses humanism, behaviorism, and freedom.*

Tough, A., The Adult's Learning Projects: A Fresh Approach to Theory and Practice in Adult Learning, The Ontario Institute for Studies in Education, 1971. *This breakghrough book documents a fact we all know but that past education practice refused to admit: that most adult-learning is self-started and self-directed.*

Winter, S., Griffith, J., Kolb, D., "Capacity for Self-Direction," in the Journal of Consulting and Clinical Psychology, Vol. 32, #1, 1968. pp. 35-41. *This paper looks at the personality traits and values of people who can successfully self-direct behavior change. Their conclusions? That self-direction relates to the ability to see a difference between the real and desired self and to the clarity and consistency of the self-perception of the learner (a statement in a different way, of the importance of clear goals.)*