Thirty Points About Motivation from Skinner's (1957) Book *Verbal Behavior*

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- Skinner discussed the topic of motivation in every chapter of the book *Verbal Behavior* (1957), usually with his preferred terminology of "deprivation, satiation, and aversive stimulation"
- These 30 quotations provide a comprehensive overview of Skinner's position regarding the role of motivation in behavior analysis
- In addition, various refinements and extensions of Skinner's analysis by Jack Michael and colleagues (Laraway, Snycerski, Michael, & Poling, 2003; Michael, 1982, 1988, 1993, 2000, 2004, 2007) are incorporated

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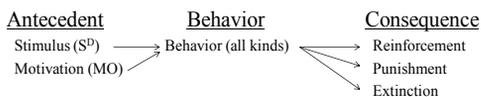
- Motivation is a major topic in psychology, especially applied psychology
- Most introductory psychology textbooks have a whole chapter on motivation
- Behaviorists are rarely credited for any positive contribution to the study of motivation
- A search of "motivation" on Google produced 227 million hits
- Often pejorative, for example, Dan Pink's TED presentation on "Intrinsic and extrinsic motivation," or ABA vs. Son-Rise
- www.ted.com/talks/dan_pink_on_motivation.html
- http://www.youtube.com/watch?v=fy6T7FXmnJI

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- Unfortunately, the experimental analysis of motivation is mostly absent from the 55 years of research in JEAB
- Research has only recently begun to appear in JABA, but it too has been historically absent from that journal
- However, Skinner made it clear (1938, 1953, 1957) that antecedent motivational variables were separate from stimulus variables, and consequences
- Keller and Schoenfeld (1950) state, "A drive is not a stimulus…a drive has neither the status, nor the functions, nor the place in a reflex that a stimulus has…it is not, in itself either eliciting, reinforcing, or discriminative" (p. 276)
- Keller and Schoenfeld suggest the term "establishing operation"

Motivation as an Antecedent Variable, Different from Stimulus Control

Basic behavioral three (four) term contingency

Antecedent	Behavior	Consequence
Stimulus (S^D)	Behavior (all kinds)	Reinforcement
Motivation (MO)		Punishment
		Extinction

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- Michael and colleagues (Laraway, Snycerski, Michael, & Poling, 2003; Michael, 1982, 1988, 1993, 2000, 2004, 2007) further developed the concept of establishing operations
- In his most recent treatment of motivation, Michael (2007) uses the term "motivating operations" (MOs) as an omnibus term for establishing operations (EOs) and abolishing operations (AOs), and distinguishes between the EO and AO in terms of their respective **value-altering** and **behavior-altering** effects.
- MO examples: (The current *value* of consequences)
- EO: Help with a juice box straw (mand)
- AO: Juice consumed (manding stops)
- EO: Task demand (mand, negative behavior)
- AO: Demand removed (escape from demand, negative behavior ceases)

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- The **value-altering effect** is either (defined by Michael, 2007)
- (a) an increase in the reinforcing effectiveness of some stimulus, object, or event, in which case the MO is an **EO** (e.g., iPad charger)
- (b) a decrease in the reinforcing effectiveness, in which case the MO is an **AO** (e.g., iPad fully charged)
- The **behavior-altering effect** is either
- (a) an increase in the current frequency of the behavior that has been reinforced by some stimulus, object, or event called an **evocative effect** (e.g., looking for the iPad charger, mands)
- (b) a decrease in the current frequency of behavior that has been reinforced by some stimulus, object, or event called an **abative effect** (Michael, 2007, p. 375) (e.g., charger obtained, iPad charged)

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- Point #1: Skinner completes his replacement of the term "drive" and related conceptualization of motivation with "deprivation, satiation, and aversive stimulation" in *Verbal Behavior*
- "Such operations (drives) are said by the layman to create or allay a "state of thirst."…**The important events are the operations which are said to change the state of thirst**. In predicting and controlling the verbal response *Water!* we do not change thirst directly; we engage in certain operations which are said to change it. It is simpler to omit any reference to a "drive" and say that the probability of the response *Water!* can be changed through (deprivation, satiation, and aversive stimulation)." (p. 32) (**Bold emphasis added**)

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- Point #2: The term "motivation" has etymological sanctions that complicate its use as a technical term
- "When an individual exhibits behavior in a sustained state of strength, it is common to describe him as "highly motivated." But a condition of strength may be the result of many different kinds of variables, and the term motivation is not appropriately applied to all of them….**The term (motivation) will be used here as a convenient classification for such variables as satiation and deprivation, the aversive stimulation used in generating avoidance and escape behavior**, the effects of certain drugs, and certain uncontrolled processes of maturation or of aging in general." (p. 212)
- **Applications:** Value of keeping the term "motivation (MO)"

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- Point #3: MOs constitute a separate basic principle of behavior
- "A functional relation is more than a mere connection. The stimuli which control a verbal response not only determine its form and thus supply an equivalent for meaning, they increase the probability that the response will be emitted. **Other variables having the same effect include reinforcement, deprivation, aversive stimulation**, and certain emotional conditions (MOs). These are all independently manipulable events." (p. 199)
- **Applications:** More tools for working with children with autism
- Mand training
- Reduce negative behavior (functional assessment)
- Develop social skills
- Functional living skills and vocational skills

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- Point #4: MOs are typically private events
- "The response *My tooth aches* is controlled by a state of affairs with which no one but the speaker can establish a certain kind of connection. A small but important part of the universe is enclosed within the skin of each individual and, so far as we know, is uniquely accessible to him….**Responses to private stimuli do not appear to differ from responses to public events**." (p. 130)
- **Applications:** Issues relating to access to MOs for nonverbal children. Better understanding of how and when to teach a child to talk about feelings, emotions, desires, etc.

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- Point #5: All types of MOs are separate from stimulus control
- "A 'mand,' then, may be defined as a verbal operant in which the response is reinforced by a characteristic consequence and **is therefore under the functional control of relevant conditions of deprivation or aversive stimulation**…in contrast with other types of verbal operants…the response has no specified relation to a prior stimulus." (p. 36)
- "In a very large part of verbal behavior a given form of response does not yield a specific reinforcement and hence is relatively independent of any special state of deprivation or aversive stimulation. **Instead, the control is exercised by prior stimuli**." (p. 53)
- **Applications:** A response under S^D control may not transfer to MOs

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- Point #6: All types of MOs are separate from reinforcement
- "Although reinforcement provides for the control of a response, we do not use reinforcement as such when we later exercise control. By reinforcing with candy we strengthen the response *Candy!* but the response will be emitted only when the child is, as we say, hungry for candy. **Subsequently we control the response, not by further reinforcement, but by depriving or satiating the child with candy**." (p. 31)
- "The response *Quiet!* is reinforced through the reduction of an aversive condition, and **we can increase the probability of its occurrence by creating such a condition—that is, by making a noise**." (p. 35)
- **Applications:** "Motivation" does not equal "reinforcement"

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- Point #7: Aversive stimulation as an antecedent is different from punishment
- "**Punishment is not to be confused with the use of aversive stimulation in generating avoidance or escape**. The same kind of stimuli are used, but in punishment they are made contingent upon a response in the same temporal relation as positive reinforcement." (p. 166)
- "There are other types of consequences which alter the strength of a verbal response. Behavior may be reinforced by the reduction of aversive stimulation." (p. 33)
- **Applications:** Aversive MOs are unavoidable (e.g., disruptions in routine, cold air, waiting), learning how to deal with them is critical

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- Point #8: Escape and avoidance are MO effects, not S^D effects
- "**When an aversive stimulus itself is reduced, we call the behavior *escape*. When some condition which characteristically precedes an aversive stimulus is reduced, we speak of *avoidance*.** When a speaker has had a history of…. (negative) reinforcement, we control his verbal behavior by creating appropriate circumstances. We make him say *Stop it!* by pummeling him, or *Don't touch me!* by threatening to do so." (p. 33)

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- Point #8: Escape and avoidance are MO effects, not S^D effects
- Michael (1993) argues that, "In the traditional discriminated avoidance procedure, the warning stimulus as a CEO evokes the so called avoidance response, just as the painful stimulation as a UEO evokes the escape response. **In neither case is the relevant stimulus correlated with the availability of the response consequence, but rather with its reinforcing effectiveness**" (p. 202).
- **Applications:** Aggression, SIB, withdrawal, refusal, etc. can be better assessed and treated when conceptualized as MO effects

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- Point #9: MOs are separate from schedules of reinforcement
- "When reinforcements are abundant, the individual is likely to be called energetic, enthusiastic, interested, or, in the case of verbal behavior, voluble or talkative. When reinforcements are scarce, he is likely to be called phlegmatic, uninspired, lethargic, dull, discouraged, or, in the case of verbal behavior, taciturn or silent. **These differences are often thought of as motivational, but insofar as they are due to differences in amounts or schedules of reinforcement, they may be distinguished from the effects of changes in the level of deprivation or aversive stimulation**." (p. 204)
- **Applications:** A different way to obtain persistence or a high rate responding (e.g., make it fun, games, capture individual MOs)

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- Point #10: MOs may involve unconditioned or conditioned variables
- "**To strengthen a mand of this form ("pencil"), we could make sure that no pencil or writing instrument is available, then hand our subject a pad of paper appropriate to pencil sketching, and offer him a handsome reward for a recognizable picture of a cat**….Simultaneously we could strengthen other responses of the same form by providing echoic…and textual stimuli….We scatter other verbal stimuli among these to produce intraverbal responses…. We set up an occasion for a tact with the form *pencil* by putting a very large or unusual pencil in an unusual place clearly in sight….Under such circumstances it is highly probable that our subject will say *pencil*." (pp. 253-254)
- **Applications:** Mand training for learned motivators (CMOs)

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- Point #11: MOs may generalize in the same way that stimuli generalize
- *"So!, Now!, Now, then!,* and *Here!* where the common consequence is the response of the listener in paying attention. **Since the listener's subsequent behavior may be relevant to many states of deprivation, these responses come under a rather broad control.** Generalized mands reinforced by the attention of the listener are often used in conjunction with other types of verbal behavior." (p. 42)
- **Applications:** Positive MO generalization may need to be directly taught (e.g., mands for attention, social play, turn taking). Aversive MOs may generalize to new situations (hitting, hair pulling).

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- Point #12: Drugs, alcohol, sleep deprivation, illness, physical exhaustion, and aging can be MOs
- "Verbal behavior in illness or great fatigue is less likely to be edited, not only because it is not clearly enough characterized, but because the editing function is also weakened. **Something of the same effect is produced by various drugs, including alcohol and the so-called truth serums, which have in addition the effect of allaying the anxiety associated with punished behavior and therefore reducing the tendency to withhold responses**." (p. 390)
- **Applications:** These variables must be considered in a behavioral intervention plan, especially when there are changes in medication, sleep patterns, and health

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- Point #13: Much of what is termed "emotion" involves an MO effect
- "Emotional stimuli not only elicit responses, they establish dispositions to behave which comprise a more practical part of the field of emotion." (p. 158)
- "When we "arouse an emotion," we alter the probabilities of certain types of responses. Thus, when we make a man angry we increase the probability of abusive, bitter, or other aggressive behavior and decrease the probability of generous or helpful behavior. **The effect resembles that of a state of deprivation or satiation or a condition of aversive stimulation. The only difference is in the composition of the classes of responses affected.**" (p. 216)
- **Applications:** Learning to talk about anger, pain, fear, happiness, etc.

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- Point #14: Most behavioral relations involve a four-term contingency that includes MOs
- "A given form is brought under stimulus control through the differential reinforcement of our three-term contingency. **The result is simply the probability that the speaker will emit a response of a given form in the presence of a stimulus having specified properties under certain broad conditions of deprivation or aversive stimulation**." (p. 115)

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- Point #14: Most behavioral relations involve a four-term contingency that includes MOs
- "The necessary conditions for the development of an S^D relation are as follows. **With S^D present a type of R must have been followed by reinforcement relevant to some particular MO which was in effect at that time (otherwise the response consequence would not have been effective as reinforcement)**; with S^D absent (the S-delta condition) the response must have occurred without reinforcement, and the MO relevant to the unavailable reinforcement must also have been in effect during this extinction responding." (Michael, 2004, p. 59)
- **Applications:** "Good job!" may have no reinforcing value if there is no MO at strength for a staff member's praise

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- Point #15: There can be many different levels of any single MO
- "The energy level of the mand may vary from very faint to very loud, and the speed with which it is emitted when the occasion arises may vary from very fast to very slow….**These properties vary as the result of many conditions in the past and present history of the speaker. Particularly relevant are level of deprivation and intensity of aversive stimulation** and the extent to which a given listener or someone like him has reinforced similar responses in the past (or has refused to do so)" (p. 43)
- **Applications:** There is immense clinical value in learning to read (tact) the levels of a child's MOs

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- Point #16: MOs can control large and long-lasting behavioral repertoires
- **"Emotional responses do not involve precise timing. They tend to be slow and long-lasting**. The effect of a verbal stimulus in generating emotional behavior is relatively independent of time and seldom leads to fatigue." (p. 158)
- "Holding the floor is an example of behavior under aversive control. The reinforcement of a **filibuster** is the avoidance of legislative action by the opposition." (p. 200)
- **Applications:** Some MOs produce behaviors that last too long. How do we teach children with disabilities to "Get over it," or "Let it go?"

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- Point #17: The response requirement may alter the strength of an MO
- "A "resolution"…can be made now when appropriate contingencies, possibly involving aversive events, are powerful, whereas "**not smoking for three months" requires three months for its execution, during which time the underlying deprivation or aversive stimulation may change**." (p. 44)
- **Applications:** There are many situations in almost all aspects of ABA/VB intervention programs where demand reduces the MO. This requires careful monitoring and adjustment

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- Point #18: Generalized conditioned reinforcement provides for a way to break a response free from MO control
- **"But generalized reinforcement destroys the possibility of control *via* specific deprivations**." (p. 212)
- "In the tact, however, (as well as in echoic, textual, and intraverbal behavior) we weaken the relation to any specific deprivation or aversive stimulation and set up a unique relation to a discriminative stimulus. **We do this by reinforcing the response as consistently as possible in the presence of one stimulus with many different reinforcers or with a generalized reinforcer. The resulting control is through the stimulus**." (p. 84)
- **Applications:** A child must learn to talk about things that he may not want, language is not just manding, but a combination verbal operants

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- Point #19: MOs associated with specific reinforcement are different from those associated with generalized reinforcement
- **"A verbal response may change the level of the appropriate deprivation. The reinforcement of a mand, for example, usually has this effect….The states of deprivation associated with generalized reinforcement cannot be altered in this way**. The listener may instantly reduce a threat or other form of aversive stimulation as the consequence of a single response, but a single instance of *positive* generalized reinforcement must have only a negligible satiating effect." (p. 220)

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- Point #19: MOs associated with specific reinforcement are different from those associated with generalized reinforcement
- "When a neutral stimulus is paired with several different kinds of reinforcement or punishment under several different relevant motivating operations, **the stimulus will function as a conditioned reinforcer so long as any one of the original motivating operations is in effect**" (Michael, 2004, p. 67)
- **Applications:** MOs related to generalized reinforcement can be powerful and need to be developed, they resist any specific form of satiation

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- Point #20: MOs control nonverbal behavior
- "**We control the response, not by further reinforcement, but by depriving or satiating the child….Nonverbal responses are controlled in the same way**. Whether a door is opened with a "twist-and-push" or with an *Out!,* we make the response more or less likely by altering the deprivation associated with the reinforcement of getting through the door." (p. 32)
- **Applications:** Many possibilities for creating MOs for nonverbal behaviors such as self-care, exercise, social behaviors, etc.

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- Point #21: MOs participate in many different ways in multiple causation
- "**Two facts emerge from our survey of the basic functional relations in verbal behavior: (1) the strength of a single response may be, and usually is, a function of more than one variable and (2) a single variable usually affects more than one response**." (p. 227)
- **Applications:** We all occasionally need an additional MO push to get things done (many times that additional push comes from aversive MOs such as deadlines and commitments)

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- Point #22: Convergent multiple control can involve MOs
- "Under a carefully generalized reinforcement, the type of verbal operant called the tact approaches the condition in which its form is determined by only one variable. **But insofar as the response is likely to have a special effect upon the listener, it varies in strength with the states of deprivation or aversive stimulation associated with that effect**. Stimulus control is reduced…and in pure fiction may be altogether lacking….The function of the mand in coercing the listener to react "with greater belief" to the tact may be carried by a more urgent form of the tact *(It's TRUE!)* which must be attributed to multiple sources." (p. 234)
- **Applications:** MOs can be used as a multiple source of control for imitation, echoic, tact, intraverbal, textual, and transcriptive training

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- Point #23: Divergent multiple control can involve MOs
- "**When an operant is acquired it becomes a member of a group of responses which vary together with the relevant deprivation**. A man gets a drink of water in many ways—by reaching for a glass of water, by opening a faucet, by pouring water from a pitcher, and so on. The verbal operant *Water!* becomes a member of this group when it is reinforced with water." (p. 32)
- **Applications:** Directly teaching response variation is very important for many learners, and is a natural and critical step in teaching independence

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- Point #24: Different MOs may control the same behavior and be related to the same form of reinforcement (MO functional independence)
- "Suppose, however, that in addition to drinking water our speaker has also used water to extinguish fires. **Until we have tested the point, we cannot be sure that a response acquired when he has been reinforced with water while thirsty will be emitted when the wastebasket catches fire**. If there is any functional connection, it must be found in certain events common to drinking water and extinguishing a fire." (p. 32)
- **Applications:** Generalization of behavior across different MOs is at least as important as generalizing behavior across different stimuli

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- Point #25: MOs can participate in conditional discriminations and in joint control
- "**We use a self-echoic prompt to strengthen textual behavior when, in looking for a name in a telephone directory, we keep repeating the name as we run down the list….it is primarily effective in making it more likely that we will read the appropriate name, possibly 'out of the corner of our eye.'**" (p. 406)
- **Applications:** Many types of problem solving skills require joint control, such as finding a video at a video store, or an item at a drug store

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- Point #26: MOs can be multiple, and can compete with other MOs
- "Multiple audiences which control different responses or the same response in different ways produce more interesting effects….For example, it is "hard" to discuss a topic before technical and nontechnical audiences at the same time….**the speaker is subject to criticism from the technical audience if his responses are inaccurate or inefficient and from the nontechnical audience if his responses are obscure or unintelligible**" (p. 230)
- **Applications:** Learning how to control competing MOs is hard for all of us, and especially difficult for individuals with ASD

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- Point #27: MO control can block, overshadow, or distort stimulus control
- "The *manner* in which behavior is executed depends upon its strength. **Some emotions, like extreme conditions of deprivation or aversive stimulation, are characterized by uncoordinated behavior**. The speaker may stammer, mispronounce, make mistakes in grammar, show solecistic extensions of the tact, and exhibit other signs of being 'flustered.'" (p. 217)
- **Applications**: Obsessions, self-stimulation, preoccupation, self-centeredness, etc. A person needs to learn to control their own MOs., see other's points of view. A major part of social skills involves learning to control and balance one's own MOs, and consider their effect on other individuals

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- Point #28: MOs can be manipulated as an independent variable
- "**Levels of deprivation and satiation are occasionally manipulated by the speaker in order to strengthen his own verbal behavior**….A man may also generate aversive conditions from which he can escape only by engaging in verbal behavior, as by accepting an invitation to speak or an advance royalty." (p. 412)
- **Applications:** Manipulate the MO to teach mands (e.g., manding for missing items, mands for information), tacts (tacting interesting things), intraverbals (talking about interesting subjects), reading (reading interesting books like Harry Potter, or 50 Shades of Gray), etc.

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- Point #29: Many of society's problems and individual negative behaviors are a result of MOs
- "**When special consequences produce a complete break with the stimulus, we say that the response is invented or "made up**." Let us suppose that a small child has lost a penny, that he emits the response *I lost my penny,* and that, as a result, a listener gives him a penny. This special action strengthens the response, possibly to such an extent that it will be emitted again when no penny has been lost." (p. 153)
- **Applications:** Consider the role of the MO in behavior intervention plans, prevention

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- Point #30: MOs are responsible for the emergence of human language
- **We can account for the origin of a verbal response in the form of a mand if any behavior associated with a state of deprivation is an important stimulus for a "listener"** who is disposed to reinforce the "speaker" with respect to that state of deprivation. Consider, for example, a nursing mother and her baby….Where the baby first cried as a reflex response to painful stimulation, it may now cry as an operant….The controlling relation which survives is characteristic of a full-fledged mand. (p. 464)
- **Applications:** Direction for early language intervention programs, including infant and child development, as well as parent training

Conclusions

- Motivation, from Skinner's point of view, is a basic principle of behavior that has the same causal status as the other principles such as stimulus control, reinforcement, punishment, and extinction
- Motivation has not received the basic and applied foundation of empirical research enjoyed by the other principles of behavior
- The topic of motivation is gradually gaining traction in behavior analysis, primarily due to the long-term efforts of Jack Michael
- Most of the 30 points about motivation abstracted from *Verbal Behavior* were regular topics of discussion in Michael's classes, presentations, and writings
- Skinner's book *Verbal Behavior* accomplishes many things, which is probably why it has stood the test of time (Schlinger, 2008)

Conclusions

- Applications to language assessment and intervention programs for children with autism have proven valuable
- *Verbal Behavior* can be used to teach the reader how to be a more thorough behavior analyst
- Skinner demonstrated how the basic principles of behavior can be applied to the analysis of virtually any aspect of complex human behavior (e.g., thinking, epistemology, literature, emerging relations)
- Nowhere else in his writings does he more thoroughly demonstrate how the principles of behavior work, especially motivation

Conclusions

- Skinner (1978) stated
- "*Verbal Behavior*…will, I believe, prove to be my most important work" (p. 122)