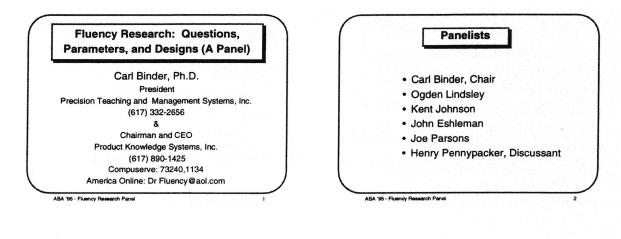
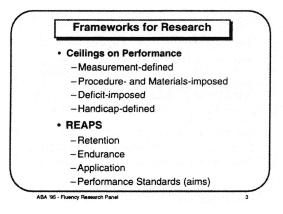
# ABA 1995 – Panel: Fluency Research







- What difference does time add to the sensitivity of skill/knowledge assessment? (assessment research)
- What are the least restrictive and most efficient procedures and materials for building fluency for different types of behaviors? (methods research)
- What component behaviors contribute to the fluency or dysfluency of specific composite behaviors, and what are the ratios between their behavior frequencies? (fluency-based curriculum research)
- What component frequencies characterize what types of handicap, and how can we best remediate or compensate for them? (prosthetics research)

ABA '95 - Fluency Research Panel

### Retention- and Maintenance-related Research Questions

- How much, if any, does achieving a given performance frequency affect performance levels after various periods of non-use (retention)?
- What levels of performance frequency (aims) produce optimal retention after various periods of non-use? Where is the point of diminishing return?
- How do the effects of achieving high performance frequencies on retention vary by type of behavior?
- How does behavior frequency contribute to maintenance of behavior in the natural environment?

ABA '95 - Fluency Research Panel

## Endurance-related Research Questions

- What is the effect on performance frequency of requiring longer performance durations? How does this effect vary by initial performance level and by different performance duration requirements?
- What is the effect on learning rate or celeration of requiring longer or shorter performance durations?
- What are the most effective and efficient procedures for ensuring optimal endurance of different types of behaviors?
- How does initial performance level and performance duration affect distractibility?

ABA '95 - Fluency Research Panel

© 1995 Carl Binder

Page 1

# ABA 1995 – Panel: Fluency Research

### **Application-related Research** Questions

- How does performance frequency of component behaviors contribute to performance and celeration of composite behaviors?
- Which components are critical in specific curriculum areas or behavior domains?
- What levels of performance of component behaviors (aims) are needed to produce optimal acceleration and performance of composite behaviors?
- What component behaviors at what levels produce creative or novel behavior in specific domains? (generativity)

ABA '95 - Fluency Research Panel

## Selected Fluency Research Paradigms

Application

- -Component / composite relationships
- -Mediated transfer & stimulus equivalence
- Endurance
  - -Single-subject

ABA '95 - Fluency Research Panel

- -Parametric group studies
- · Distractibility or free operant "automaticity"

Application: Component/Composite **Application: Mediated Transfer** Paradigm # 1 (Haughton, et al) 1 - Establish two paired-associates (see/say, hear/tap, 1 - Assess/establish rate of component behavior or other types of responses) for mediated transfer. 2 - Assess/attempt to build rate of composite behavior 2 - If the acquisition procedure is a controlled operant, 3 - Return to building rate of component fade materials & procedure to eliminate rate ceiling. 4 - Re-assess/attempt to build rate of composite 3 - Assess free rates and accuracy ratios for the two Paradigm #2 (Van Houten) paired associates. 1 - Practice composite until rate flattens 4 - Test the emergent, using free rate measures. 2 - Build component rate, monitor composite rate 5 - Build rate on one or both original paired-associates. 3 - Stop component practice, monitor composite 6 - Test emergent for changes in rate and/or accuracy. 4 - Alternate practice and non-practice of component Note: Calculate component/composite ratios. ABA '95 - Fluency Research Panel



## Endurance: Parametric / Group Design 1 - Select behavior in which the subject group has x5 to x10 range of beginning frequencies. 2 - Schedule randomly sequenced "snapshot" measures of performance at wide range of durations (e.g., 15 sec, 30 sec, 1, 2, 4, 8, and 16 min.) Analyze rate of decline in performance over the range of durations sorted by bins of starting rates. Display with log scale on left and durations equally spaced across bottom and draw best-fit lines.

ABA '95 - Fluency Research Panel

Endurance: Single-subject Design

- 1 Select behavior that has space to accelerate (is well below any ceiling due to components or physical limits)
- 2 Conduct daily timings for 7-10 days to assess splitmiddle celeration and median rate.
- 3 Shorten or lengthen timings and continue 7-10 days.
- 4 -Look for changes in average frequency, error rate, variability ("bounce"), and/ or celeration.
- 5 -If there is still space beneath the ceiling, reverse procedure to original practice duration.

Option: Use subjects or behaviors with different starting rates and check for related differences in effect.

ABA '95 - Fluency Research Panel

© 1995 Carl Binder

Page 2

# ABA 1995 – Panel: Fluency Research

### Distractibility / Free Operant Analog of "Automaticity" Experiments

- 1 Select see/say paired associate response class (e.g., naming unfamiliar patterns).
- 2 Identify individuals or specific instances of the response class at different performance levels relative to maximum possible performance, and without component or physical ceilings.
- 3 Use voice-operated relay and cumulative recorder to monitor within-session performance.
- 4 Introduce distracting auditory stimulus for intervals (e.g., 30 seconds) during ongoing performance .
- 5 Look for rate suppression (graphic, & sup. ratio).

ABA '95 - Fluency Research Panel

### Free Operant Distractibility / Automaticity Paradigm with Mediated Transfer or Stimulus Equivalence

- Select see/say elements for a 2- or 3-level free operant mediated transfer paradigm (requires a lot of "attention" to perform 3-level).
- 2 Conduct sessions with subjects and/or sets of responses at range of performance levels.
- 3 Use free-operant, voice operated relay distractibility procedure with each of the original elements in the mediated transfer and each level of emergent.
- 4 Look for differences in suppression across subjects, performance levels, and behaviors.

ABA '95 - Fluency Research Panel

## Some Cautions and Rules of Thumb

- Exploit the quantitative analytical power of the Standard Celeration Chart: jumps and turns, bounce, projection of straight-line trends and envelopes, frequency multipliers, celeration multipliers, accuracy ratios, deficit ratios, etc.
- Avoid controlled operants and latency measures: unless you're trying to demonstrate the negative effects of procedure-imposed ceilings or replicate cognitive research paradigms. Fluency is *free*!
- Avoid unexpected frequency ceilings: be sure you have enough response frequency "headroom" if you're studying variables expected to increase frequency. Ceilings truncate celeration.
- Calculate component/composite frequency ratios: use them to estimate potential for improvement of composites.

16

ABA '95 - Fluency Research Panel