

Fabrizio/Moors
CONSULTING

Establishing Frequency Aims
for Children with Autism


Michael A. Fabrizio
Sara J. Pahl
Kristin N. Schirmer
Alison L. Moors

Fabrizio/Moors Consulting

**“Stand on my shoulders as I stood on Fred Skinner’s
shoulders. You see more big things from up here and you
see further.”**

in very loving
memory of
Ogden R. Lindsley

**Thank you,
Og!**



Fabrizio/Moors
CONSULTING

About
Fabrizio/Moors
Consulting

- 11 professional staff members
- 3 support staff members

Fabrizio/Moors
CONSULTING

About
Fabrizio/Moors
Consulting

- 11 professional staff members
 - Most dually certified as behavior analysts and teachers
- 3 support staff members
 - 2 research assistants
 - University of North Texas
 - Evergreen State College
 - 1 administrative assistant

Fabrizio/Moors
CONSULTING

About
Fabrizio/Moors
Consulting

- 2 divisions:
 - Private practice
 - Outreach

Fabrizio/Moors CONSULTING About Fabrizio/Moors Consulting

- 2 divisions
 - **Private practice**
 - 60 clients
 - 18-months to 16-years old
 - All levels and diagnoses associated with ASD
 - www.fabriziomoores.com
 - Outreach

Fabrizio/Moors CONSULTING About Fabrizio/Moors Consulting

- 2 divisions
 - Private practice
 - **Outreach**
 - Emphasis on systems change
 - Toronto to Ghana
 - Inquiry data NOT collected from outreach clients

Fabrizio/Moors CONSULTING About Fabrizio/Moors Consulting

- Main lines of inquiry
 - Data-based decision making
 - Error correction
 - Effectiveness
 - Efficiency
 - Relationship to previous learning history
 - Applying PT to wide range of skills
 - Social skills
 - Pragmatic language
 - Augmentative/adaptive communication
 - Shaping & directly measuring critical staff repertoires
 - Frequency aims

Fabrizio/Moors CONSULTING A note on my diction...

- Frequency = count per unit of time
- Rate = A quantity measured with respect to another measured quantity
 - *Example:* a rate of speed of 60 miles an hour

Fabrizio/Moors CONSULTING A bit of history

- Michael & Alison work at Morningside Academy
- Formed Fabrizio/Moors in 1998
- Started working with four children
- Began shaping higher frequencies of responding
- Couldn't get kids' performance to reach few relevant published frequency aims

Fabrizio/Moors CONSULTING A bit of history

- Panic sets in

Fabrizio/Moors CONSULTING

A bit of history

- Panic sets in
- Measurement replaces panic
- Switch in focus from frequency attained to outcomes achieved

Fabrizio/Moors CONSULTING

How aims have been set

- Norming
- Super frequency
- Empirical validation

Fabrizio/Moors CONSULTING

How aims have been set

- Norming
 - Sample data collected from some comparison group of children
- Super frequency
- Empirical validation

Fabrizio/Moors CONSULTING

How aims have been set

- Norming
- Super frequency
 - Highest attained frequencies used as performance criteria
- Empirical validation

Fabrizio/Moors CONSULTING

How aims have been set

- Norming
- Super frequency
- Empirical validation
 - Aims directly tested
 - Least often used

Fabrizio/Moors CONSULTING

Outcomes

- REAPS (Houghton, 1980)
 - Retention
 - Endurance
 - Application
 - Performance Standards
- Combined endurance and stability
- Advocated for empirical derivation of aims
- Binder (1996) repeats this call for empirical derivation

Fabrizio/Moors CONSULTING Outcomes

- RESA (Johnson & Layng, 1992)
 - Retention
 - Endurance
 - Stability
 - Application
- Separated endurance and stability
- Described functional independence of frequency and each outcome
- Offered no measurement procedures
- Offered no description of how they derived their aims

Fabrizio/Moors CONSULTING Outcomes

- Skill
 - Retention
 - Endurance
 - Stability
 - Application
- Measurement procedures designed to extend beyond what was taught (Fabrizio & Moors, 2003)

Fabrizio/Moors CONSULTING Retention

- Retention:
 - Maintenance of performance quality and frequency following periods without practice
- Retention check procedures:
 - Same materials
 - Same level of distraction
 - Last used timing length
 - Following one month without practice

Fabrizio/Moors CONSULTING Endurance

- Endurance:
 - Maintenance of performance quality and frequency across long durations without fatiguing
- Endurance check procedures:
 - Same materials
 - Same level of distraction
 - Triple length of previous longest timing

Fabrizio/Moors CONSULTING Stability

- Stability:
 - Maintenance of performance quality and frequency in the presence of highly distracting stimuli
- Stability check procedures:
 - Same materials
 - Very high level of distraction
 - Last used timing length

Fabrizio/Moors CONSULTING Application

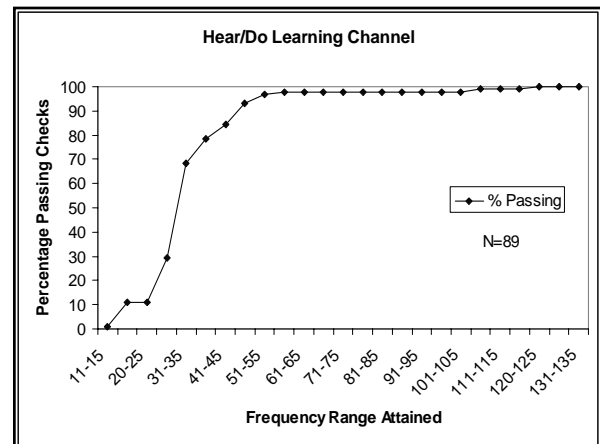
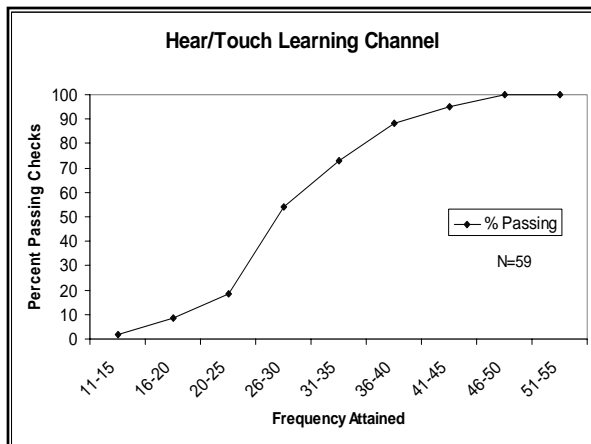
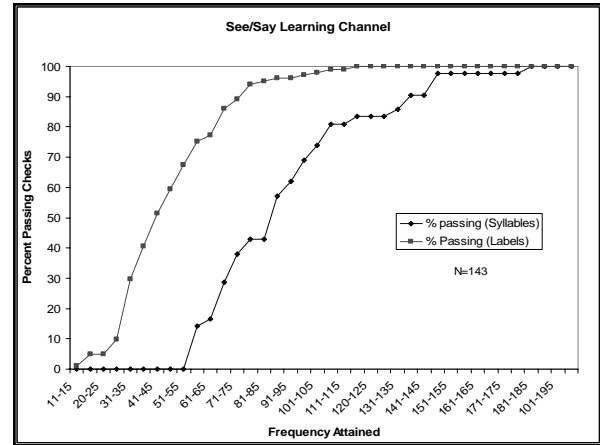
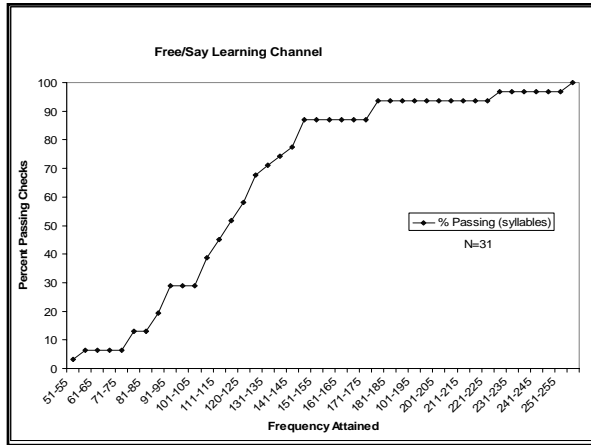
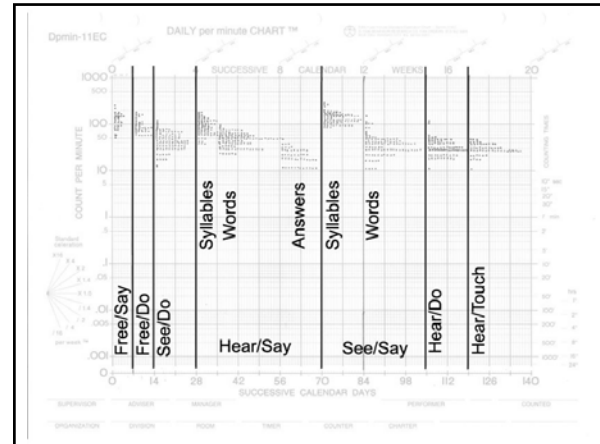
- Application:
 - Maintenance of performance quality and frequency in response to previously untaught examples
- Application check procedures:
 - All new examples of materials
 - Same level of distraction
 - Last used timing length

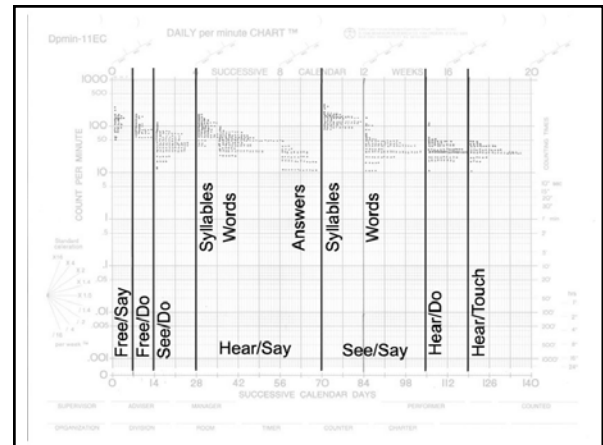
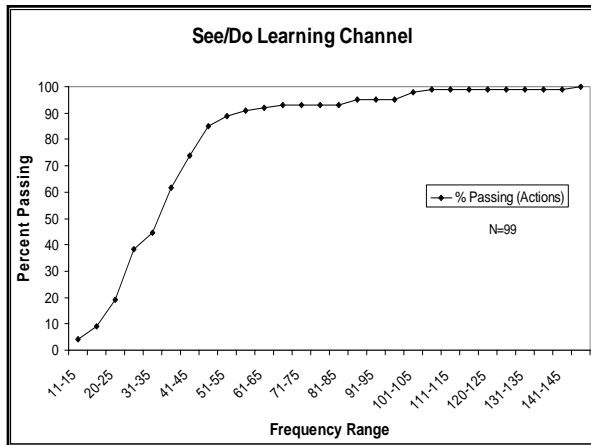
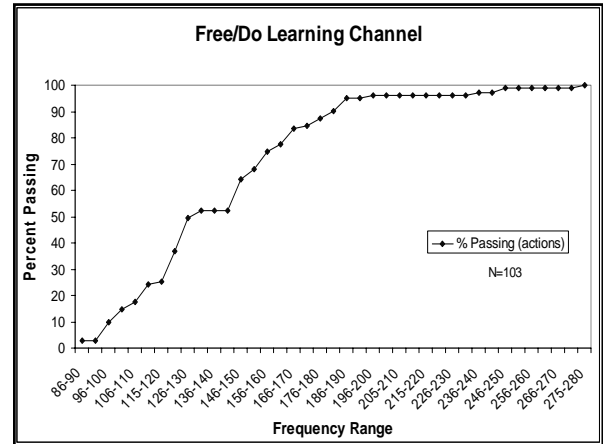
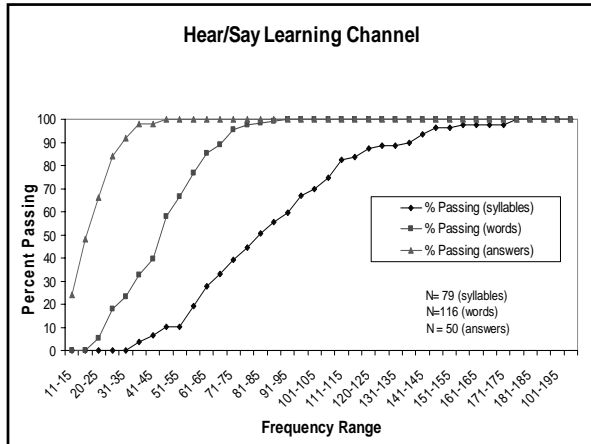
Fabrizio/Moors CONSULTING

Suggested Frequency Aim Ranges by Learning Channel

Learning Channel	Suggested Frequency Aim Range	Example Skills
Hear/Do	35-50	Hear/Do directions
Hear/Say	40-60, 70-90 ₂	Hear/Say Sounds Hear/Say Sentences
Hear/Touch	35-40	Hear/Touch animals by name Hear/Touch colors
See/Do	35-50	See/Do gross motor imitation See/Do oral motor imitation
See/Say	55-70, 80-100 ₂	See/Say animals by name See/Say size comparisons
Free/Do	150-200	Free/Do grasp-reach-release Free/Do squeeze
Free/Say	180-200 ₂	Free/Say steps in a process Free/Say things you did in school

1. suggested frequency aim ranges when counting words as the movement cycle
 2. suggested frequency aim ranges when counting syllables as the movement cycle





Fabrizio/Moors CONSULTING

Some Limitations of the Data

- No control for children's histories
 - General control in skills targeted
 - Doer, Watcher, Listener, Speaker, Speaker-Own-Listener
 - No control for practice frequencies, # responses emitted, or amount of reinforcement
- Only focuses on one dimension of charted performance
 - Development of agility

Fabrizio/Moors CONSULTING

Next Steps

- Control for practice frequencies and number of responses emitted
- Start counting "uses"

References

- Binder, C. (1996). Behavioral fluency: Evolution of a new paradigm. *The Behavior Analyst, 19*, 163-197.
- Fabrizio, M. & Moors, A. (2003). Evaluating mastery: Measuring instructional outcomes for children with autism. *European Journal of Behavior Analysis, 4*(1), 23-36.
- Fabrizio, M., Moors, A., Pahl, S., & King, A. (May 2002). Precisely evaluating learning outcomes in children with autism: Empirically validating instruction. Paper presented at the annual convention of the Association for Behavior Analysis, Toronto, Canada
- Houghton, E.C. (1980). Practicing practices: Learning by activity. *Journal of Precision Teaching, 1*(3), 3-20.
- Johnson, K.R. & Layng, T.V.J. (1992). Breaking the Structuralist barrier: Literacy and numeracy with fluency. *American Psychologist, 47*, 1475-1490.
- Moors, A. & Fabrizio, M. (May 2001). Setting performance criteria as a function of task type: The role of learning channels in establishing frequency aims. Paper presented at the annual convention of the Association for Behavior Analysis, New Orleans, Louisiana
- Moors, A., Fabrizio, M., Pahl, S., King, A., Ferris, K., & Schirmer, K. (May 2003). Empirically validating frequency aims for children with autism. Data-based poster presented at the annual convention of the Association for Behavior Analysis, San Francisco.
- Moors, A., Fabrizio, M., Pahl, S., King, A., Ferris, K., Schirmer, K., Almon, H. Empirically validating frequency aims for children with autism. Data-based poster presented at the annual conference of the Association for Behavior Analysis, Boston, Massachusetts, May 2004
- Moors, A., Fabrizio, M., Schirmer, K., King, A., & Pahl, S. (August 2004). Evaluating learning outcomes for children with autism and related disabilities. Paper presented at the second international conference of the Association for Behavior Analysis, Campinas, Brazil.