

# A Clinician's Path to Research: Conducting Small n Studies and Exploratory Projects

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## Objectives

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- ❖ Overview
- ❖ Informal vs. Formal Research
- ❖ Choosing a Design
- ❖ Considerations for Conducting the Study

## The Clinician Researcher

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- ❖ An individual who both conducts research and provides direct services
- ❖ Can make an important contribution to the quality of clinical services, can provide insight beyond what has already been explored
- ❖ Referred to by Yanos & Ziedonis (2006) as the double-agent

## Informal Research

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- ❖ Determine best treatment intervention for your clients
- ❖ Determine what impacts treatment
- ❖ Trying out new treatments

## Formal Research

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- ❖ Systematic study
- ❖ Intent to inform others
- ❖ Intent to disseminate

## Why?

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- ❖ Advance treatment for clients
- ❖ Advance your skills
- ❖ Advance the profession
- ❖ Advance career opportunities
- ❖ Better understand therapeutic process

## Choice in Project: Subject

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- ❖ Area of knowledge
- ❖ Area of experience
- ❖ Area of practicality



## Choice in Project: Resources

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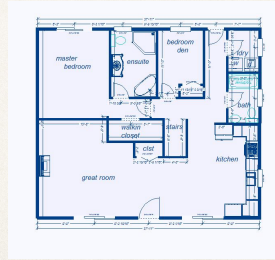
- ❖ Supervision/mentorship
- ❖ Money
- ❖ Equipment/test/supplies



# Design

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- ❖ The “blue print” of the study
- ❖ Exploratory
- ❖ Case
- ❖ Single System Design



# Resource 101

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# Exploratory Research

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- ❖ Initial research into a hypothetical or theoretical idea
- ❖ Seek to better understand a new area
- ❖ Lay the groundwork for future studies

# Exploratory Research

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- ❖ New topic
- ❖ New area
  - ❖ New theoretical perspective
  - ❖ New way of looking at something

## Exploratory Research

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- ❖ Collection of information
- ❖ Interviews, focus groups, case studies, pilot/feasibility studies
- ❖ Define problems or constructs to suggest hypotheses
- ❖ Exploration of collected data to develop theory or hypotheses (Grounded Theory)

Schwantes, M. (2009) The Use of Music Therapy with Children who Speak English as a Second Language: An Exploratory Study, *Music Therapy Perspectives*

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- ❖ “The original purpose of the following project was to explore the use of Latino children's music from Mexico and Central America in ESL programs to develop English skills in Latino children... English acquisition was operationally defined for this group as correctly responding to "wh-questions" (i.e., what, where, who, why, when) and accurately sequencing events in a song or sound story.”

Schwantes, M. (2009) The Use of Music Therapy with Children who Speak English as a Second Language: An Exploratory Study, *Music Therapy Perspectives*

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- ❖ “With the introduction of 2 additional students to the music therapy program, it was necessary to change the approach based on their ages, music preferences, social needs, and English language abilities... It was determined based on their ages that this group would actually benefit from music therapy services that used Western, pop-culture music...”

## Case Study

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- ❖ Study of treatment with one individual
- ❖ Usually a more in-depth exploration of this individual in therapy
- ❖ Multiple case studies can be compared

Heiderscheit & Madson (2015). Use of the Iso Principle as a Central Method in Mood Management: A Music Psychotherapy Clinical Case Study. *Music Therapy Perspectives*.

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- ❖ “This article traces the use of the iso principle as a means for mood management from its origins through contemporary clinical uses. It then poses a method of mood management utilizing the iso principle as a central concept and reviews its implementation and efficacy through the presentation of a case study with a female client battling a compulsive overeating disorder, depression, and anxiety.”

## Examples From the Literature

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- ❖ LaGasse & Hardy (2013). *Music Therapy Perspectives*.
- ❖ The purpose of this paper is to review evidence of motor differences in ASD, present clinical findings within motor research, and then to draw parallels from existing music therapy sensorimotor treatment to maximize the benefits of music therapy. Concepts are illustrated in a case example of a boy with ASD and motor dyspraxia.

## Single-System Designs

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- ❖ ABAB Designs (Sometimes referred to as reversal designs)
- ❖ Multiple Baseline Designs (MBD)
- ❖ Alternating Treatment Designs (MTD)
- ❖ Other: Combined, Probe, Withdrawal, Between Group

## ABAB Design

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- ❖ A = Baseline
  - ❖ Until stable
- ❖ B = Treatment

# ABAB Design

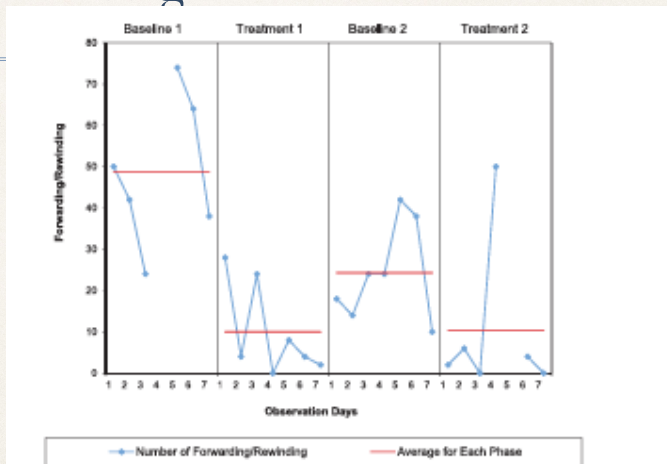


FIGURE 1.  
An example of ABAB results (Pasioli, 2004, p. 15). Reprinted with permission from *Music Therapy Perspectives*.

# ABAC

- ❖ Or ABCABC or ABCBCA or ABABC
- ❖ Testing two interventions with the same participant
- ❖ Used when first does not alter behavior or to compare two

# ABCBCB

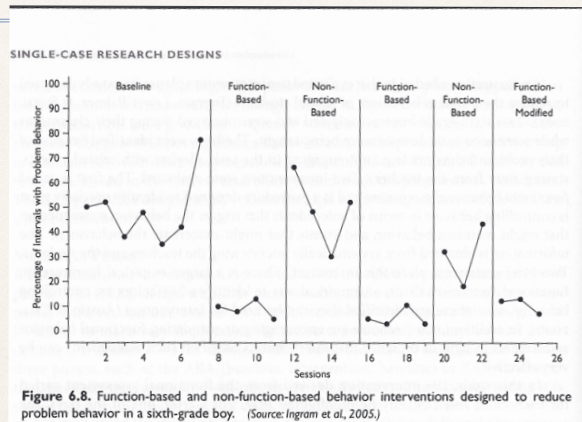


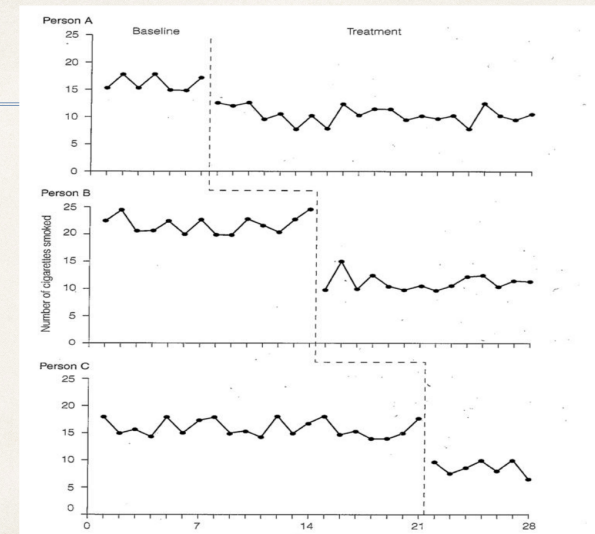
Figure 6.8. Function-based and non-function-based behavior interventions designed to reduce problem behavior in a sixth-grade boy. (Source: Ingram et al., 2005.)

# Considerations

- ❖ Unacceptable if loss of treatment makes the client worse
- ❖ Takes time - many sessions in each phase
- ❖ Difficult without stable data
- ❖ Minimum is ABA or BAB
- ❖ Carryover

# Multiple Baseline

- ❖ Each client has a different length of baseline vs. treatment
- ❖ AKA Staggered baseline
- ❖ Can be conducted concurrently or non-concurrently



Geist & Hitchcock, 2014

# Multiple Baseline

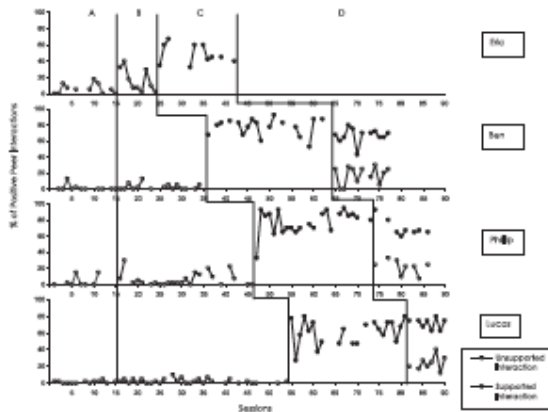


FIGURE 2.  
An example of a Multiple Baseline Design (Kern & Aldridge, 2006, p. 285).  
Reprinted with permission from the *Journal of Music Therapy*.

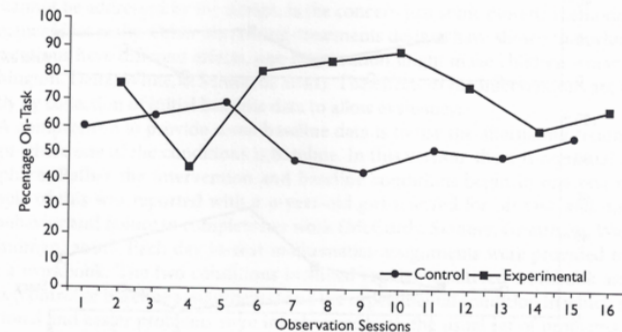
# Multiple Baseline

- ❖ Must choose behavior(s) to track
  - ❖ Kept consistent and systematic
- ❖ Probe assessments
- ❖ Look for trends vs. other possible explanations

## Alternating Treatment Design

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- ❖ Alternate two treatments rapidly
- ❖ Data plotted separately
- ❖ Can be randomized in order
- ❖ Often the more successful treatment is maintained in third phase



**Figure 9.6.** Percentage of intervals of on task behavior in an alternating-treatments design in which experimental and control (no intervention) conditions were compared. The student worked on mathematics assignments. The experimental assignments interspersed some easy problems to make the task more rewarding. (Source: McCurdy et al., 2001.)

## Evaluation of SSD

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- ❖ Visual inspection
  - ❖ Averages
  - ❖ Standard deviation

## Finnigan & Star (2010) Increasing Social Responsiveness in a Child with ASD

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- ❖ This study sought to determine the effects of using music and non-music interventions on the social responsive and avoidant behaviours of a preschool child with autism. A single-subject alternating treatment design was used in which two interventions were presented in a similar fashion except for the addition of music during the music condition. Four phases took place: baseline (Phase A), alternating treatments (Phase B), a second treatment phase (Phase C) using the condition that proved to be more effective in Phase B, and followup (Phase D). Data were collected over a total of 12 treatment sessions for various social responsive and avoidant behaviours.



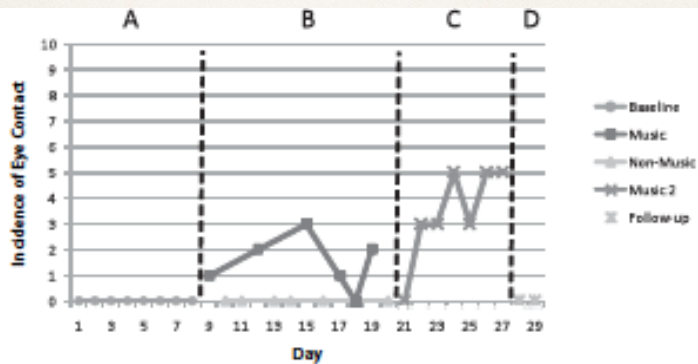


Figure 1 Incidence of eye contact

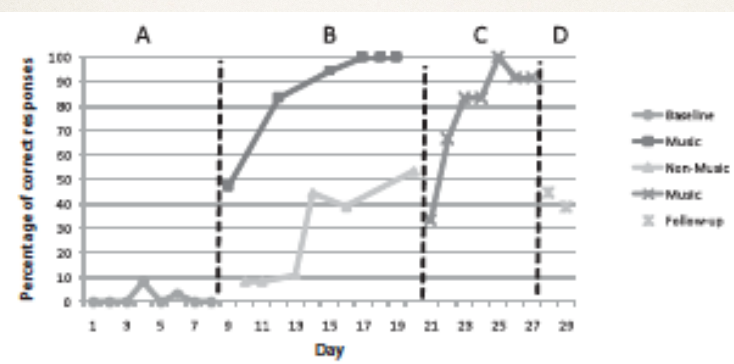


Figure 3 Percentage of correct responses for turn-taking

## Some Considerations

- ❖ Institutional Review Board (IRB)
  - ❖ Private
  - ❖ University-affiliated
- ❖ Permissions/Consent

## N=1 Clinical Study

- ❖ Most common in behavioral and psychological settings (Guyatt et al., 1990).
- ❖ Explore the variability of treatment in an objective way
- ❖ Help to make informed decisions about the best treatment for the individual, using their own data
- ❖ Can minimize time on suboptimal interventions

## Ethical Concerns

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- ❖ Conflict between interest of the individual and scientific aims of the study
- ❖ Clinical mandate and patient need
- ❖ Therapeutic misconception (patients may assume all conditions will improve)

## Ethical Considerations

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- ❖ Some researchers suggest clinician-researchers avoid having research contract with individual in which therapy have a therapeutic relationship (Sales et al. 2000).
- ❖ Fully disclose conflicts of interest to participants.
- ❖ Seek integration of dual roles and consider the best ethical judgements

Yanos & Ziedonis, 2006

## References

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- ❖ Yanos, P. & Ziedonis, D. (2006). The patient-oriented clinician-researcher: Advantages and challenges of being a double agent.