Behaviour Change in Behaviour Analysts: Three Self-Management Strategies

DISCUSSANT: SHARON BAXTER

Self-Management

"The personal application of behavior change tactics that produces a desired change in behavior" (Cooper, Heron, & Heward, 2007, p. 578)

Self-Management

- Self-management involves two behaviours (Cooper et al., 2007):
  - The behaviour targeted for change
  - The self-management behaviour(s)

Self-Management

- Examples of behaviour targeted for change:
  - Exercise frequency
  - Study habits
  - Practicing a new skill
  - Stereotypic behaviours (e.g., nail biting)
  - Smoking cessation
  - Task completion
  - Etc.

Self-Management

- Examples of self-management behaviours
  - Writing a shopping list
  - Self monitoring
    - Observing and recording own behaviour
  - Public posting
  - Increasing response effort for target behaviour
  - Restricting access to stimuli associated with problematic behaviour
  - Goal setting
  - Presentation of aversive stimulus
  - Etc.

Benefits of Self-Management
Cooper et al. (2007)

- Ability to target covert behaviours (e.g., thoughts)
- Ability to observe most/all instances of behaviour
- Generalization and maintenance more likely
- Ability to apply self-management skills to other behaviours

Top 6 Self-Management Tactics
Cooper et al. (2007)

- Specify goal and define target behaviour
- Self-monitor target behaviour
- Modify environmental contingencies
- Go public
- Recruit a friend
- Monitor, evaluate, and modify program as necessary

References

Cooper J. O, Heron T. E, & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.) Upper Saddle River, NJ: Pearson.

Goal Setting and Public Posting to Increase Compliance with Exercise Routines
KATIE ALLEN, MS, BCBA, TYLA FREWING MS, BCBA, & SARA WHITE, PHD, BCBA-D

Katie Allen

Considerations –Goal-Setting

- Process goal vs. performance goal vs. outcome goal
  - Score 20 points in basketball game
  - Make 80% of shots taken in basketball game
  - Practice shooting basketballs 1 hr. every day
- Objective vs. subjective goals
  - I'm going to increase my healthy habits this year
  - I'm going to take a multivitamin every day for the next 6 months.

Process goals → Habit

- Habit forming
  - UCL habit study: 96 participants (eating, drinking, activity goal)
    - 66 days average to automaticity
   - Range 18 – 254 days : Varied on difficulty of behavior

Procedures - Katie

- Independent variables
  - Goal setting
    - × Definition of "exercise"
  - Self-monitoring
  - Group posting via email
- Dependent variables
  - Exercise– # of days exercise occurred per 7 day period
- Design
  - A-B Design

Operational Definition

- Goal : Exercise 5 days per week
- Exercise is defined as engaging in and completing any of the following:
  - 90 minute soccer game
  - Variety of Insanity™ Workout (minimum 25 minutes)
  - Blogilates Ab-focused Video (minimum 10 minutes)
  - Yoga sequence DVD (minimum 15 minutes)
  - Organized group exercise class (Bikram yoga)
- Non-examples include:
  - Walking/hiking as part of family leisure/commute/work
  - Doing 25-50 squat hops as my toddler insists (Mama, more, hop, big!)

Frequency Exercise per Week
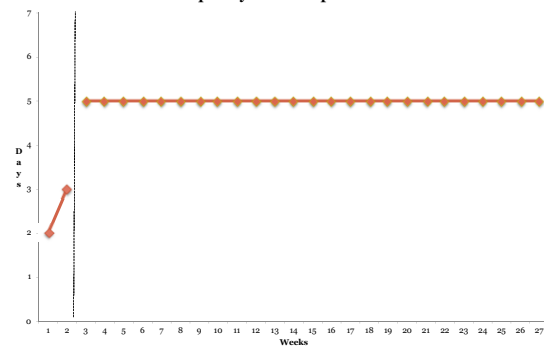
Discussion - Katie

- Extraneous variable:
  - Presenting data at conference
- Process goal results
  - Increase in exercise habit
  - No weight or inch loss
  - Increased sleep and general mood improvement
- Goal selection
  - Was the goal too easy?
  - Is it sustainable?
  - What did I do after the contingency was removed????

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Sara White

Goal Setting

- Setting goals alone is not a sufficient condition for behavior change (Weinberg, 2010)
- Consistent findings within the sports psychology literature
  - Enhanced performance with moderately difficult but realistic goals
  - Goals plus feedback produce better results than either component alone
  - Performance and process (rather than outcome) goals should be emphasized because they are more under the athlete's control
  - Both short-term and long-term goals are important. Long-term provide direction, short-term provide motivation
 - Planning on how to meet goals increases the likelihood of reaching them (Bycura, 2009)

Principles of Goal Setting

- Set specific, measurable goals
- Use short-term and long-term goals
- Make goals challenging but realistic
- Write goals down
- Use a combination of outcome, process and performance goals
- Use individual and team goals
- Set practice goals
- Develop plans to reach the goal

Weinberg, 2010

Other Components of Successful Intervention to Increase Exercise

- Mo-Vo LISA (Fuchs, Goehner, & Seelig, 2011)
  - Goal setting
  - Action planning
  - Barrier management
  - Self-monitoring
- Project CHANGE (Hsu, 20110)
  - Goal setting AND goal commitment were more effecting than goal setting alone
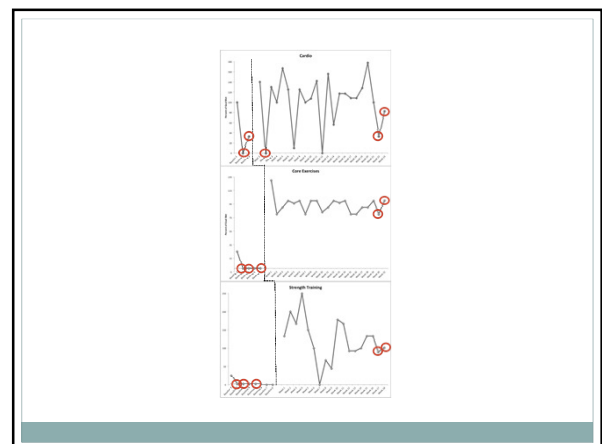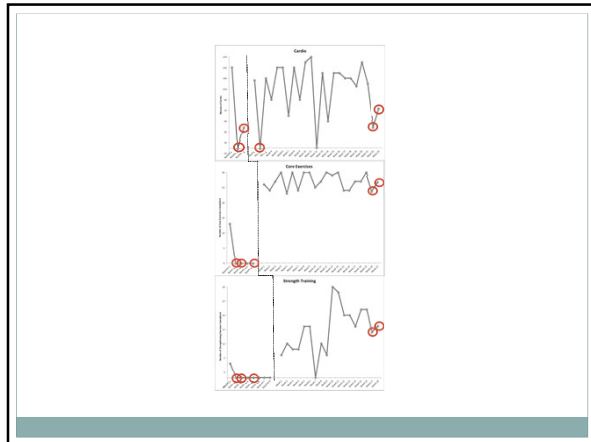
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- Weinberg, R (2010). Making Goals Effective: A Primer for Coaches. Journal of Sports Psychology in Action, 1, 57-65.

Tyla Frewing

Considerations –Goal-Setting

- Goals are antecedents for reinforcement contingencies (Daniels, 2000)
- Unrealistic goals (Brusso & Orvis, 2013).
  - Goal-performance discrepancy
  - Negative impact on performance
- Guidelines for goal setting (Daniels, 2000)
  - Frequent goal setting – increasing opportunities to respond
    - Increases opportunities for reinforcement
  - Shaping

Public Posting

- Used to improve sports performance
  - Swimming (Critchfield & Vargas, 1991)
  - Skill execution in football (Ward & Carnes, 2002)
  - Soccer skills (Brobst & Ward, 2002)
- Public statement of performance results
- Public statement of goals
  - Improved effects of goals (Brobst & Ward, 2002)

Procedures - Tyla

- Independent variables
  - Goal setting
  - Self-monitoring
  - Group posting via email
- Dependent variables
  - Cardio exercise – Number of minutes per week of exercise completed.
  - Strength training exercises – Frequency of target exercise per week.
- Design
  - Cardio – changing criterion design
  - Strength exercises – Multiple baseline across behaviors
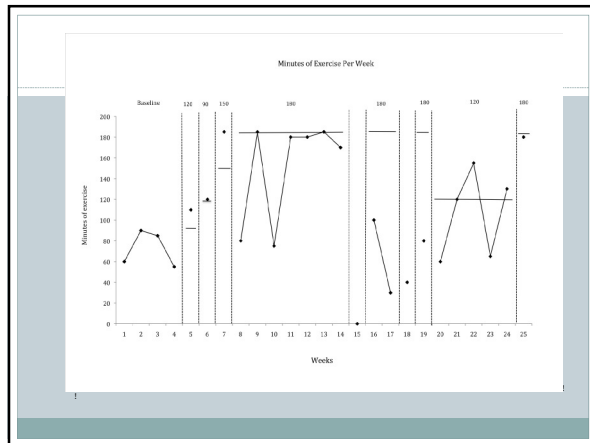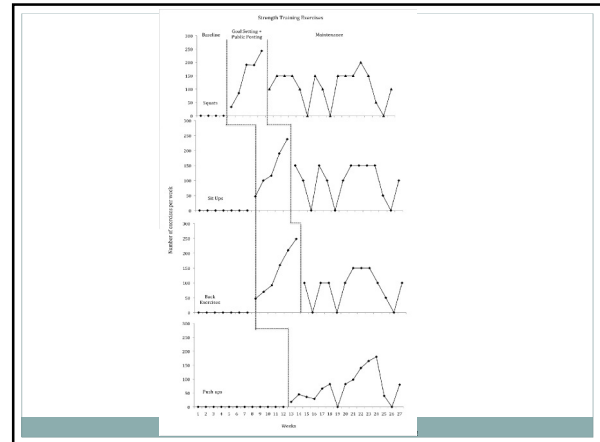
Discussion - Tyla

- Maintenance was not completed for push ups during the course of intervention
- Data was variable in maintenance
  - Realistic goals?
  - Illness/injury
    - Recovery – getting back on track
- Reinforcement contingency?
  - Would this have improved performance?
- No professionals consulted about exercises/goals

References

Brobst, B., & Ward, P. (2002). Effects of public posting, goal setting,and oral feedback on the skills of female soccer players. *Journal of Applied Behavior Analysis, 35,* 247-257.

Brusso, R. C. & Orvis, K. A. (2013). The impeding role fo initial unrealiztic goal-setting on videogame-based training performance: Identifying underpinning processes and a solution. *Computers in Human Behavior, 29,* (1686-1694

Critchfield, T. S., & Vargas, E. A. (1991). Self-recording, instructions, and public self-graphing: Effects on swimming in the absence of coach verbal interaction. *Behavior Modification, 15,* 95-112.

Daniels, A. C. (2000). *Bringing out the best in people: How to apply the astonishing power of positive reinforcement,* USA: McGraw-Hill

Ward, P., & Carnes, M. (2002). Effects of posting goals on collegiate football players' skill execution during practice and games. *Journal of Applied Behavior Analysis, 35,* 1-12.

General Discussion

- Goal setting and public posting were effective at increasing exercise behaviors across all three participants similar to Similar to Ward & Carnes (2002) and Brobst & Ward (2002)
- Variability in results
  - No "manager" of the intervention – experimenter as participant
  - Self-managed
  - Knowledge of what behaviors are being targeted
  - Motivation to produce good data
- Component treatment package
  - Unclear which component was responsible for change
  - Policies not in place for adherence to public posting

Conclusions

- Goal setting and public posting
  - Effective
  - Required minimal resources and time
  - Self-managed
  - Individualized per participant
  - Flexible

Using Self-Management Tactics to Increase Reading Fluency and Writing Productivity

EXPERIMENT #1: INCREASING READING FLUENCY
HARLEY LANG & SARAH PASTRANA, MSC, BCBA
EXPERIMENT #2: INCREASING WRITING PRODUCTIVITY
JOAN BROTO, PH.D., BCBA-D

Increasing Reading Fluency

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- Purpose
- Literature
- Design
- Methods
- Results
- Implications
- Limitations

Harley's Challenge

40

At onset of this project, Harley believed that he read slowly.

Harley was also filing graduate program applications.

Harley realized that graduate programs assign a lot of readings.

To prepare, Harley wanted to learn to read faster.

Breaking It Down

41

Skinner (1957) on the textual operant:
"a vocal response ... under the control the a non-auditory verbal stimulus"

Vocal responses can be private or public.

The vocal response of interest is private/covert.

Self-monitoring has to form part of the experimental apparatus.

Literature Review

42

Oral reading fluency has been increased with success.
e.g., Tenenbaum & Wolking, 1989; Daly & Martens, 1994; Hofstadter-Duke & Daly, 2011.

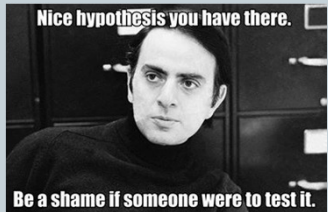BA literature lacks research examining self-taught reading skills.

BA literature lacks research examining private verbal responding.
Is this really a surprise? Is this research necessary?

Is Spreeder® a viable option?

(43)

http://www.spreeder.com/app.php

Increasing Reading Fluency: Purpose

(44)

Objectives:

To silently read behavior analytic articles to a rate of 600 wpm, and answer comprehension questions 100% accurately across three consecutive readings.

To provide one evaluation of the efficacy of the Spreeder® application as a tool to increase an individuals silent reading fluency.

Method: Overview

(45)

Multiple Treatment/Changing Criterion Design
1) Baseline
2) Treatment #1 with Probes
3) Treatment #2

Internet calendar event prompted participant to read daily.

Took place at a local library, or at home.

Articles were prepared in word documents before reading.

Method: Baseline/Probe STOs

(46)

Prepare article in word.

Record the word count of the article.

Start timer and begin reading each word silently.

Stop timer when done.

Calculate wpm (#words/(seconds to read/60)).

Method: Spreeder® STOs

(47)

Prepare article in word.

Record the word count of the article.

Copy the article into Spreeder® and set the appropriate rate.
-> Initial rate: (baseline + 50wpm)
-> If probe was lower than rate, (previous rate +50wpm)
-> If probe was higher than rate, (probe average +50wpm)

Read, and click each errors.

If 2 or less errors occurred, fruit snacks were consumed.

Method: Fluency STOs

(48)

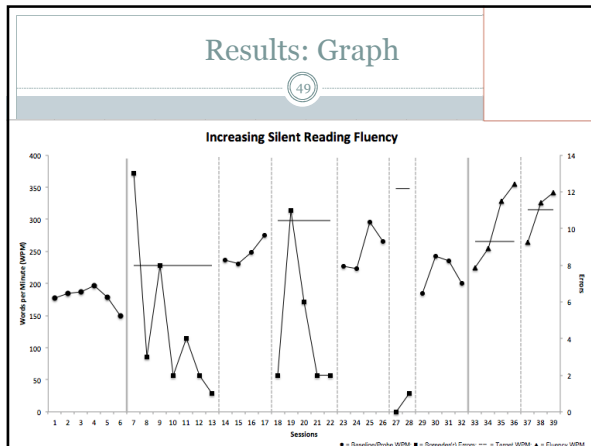Prepare article in word.

Record the word count of the article.

Start timer and begin reading each word silently.

Stop the timer when done.

Calculate wpm(#words/(seconds to read/60)).

If wpm were => rate, fruit snacks were consumed.

Results: Graph
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Results: Self-Report (Actual Thoughts)
50

"There is a lot of interesting BA literature"

"It is hard to read technical articles this fast"

"My eyes are stinging; the words are coming too fast"

"I think I just need to read to completion, not to rate"

"This article has 5000 words... I'll find something different"

"It's the probe phase! I can have a fruit treat..."

Implications
51

Additional research evaluating the Spreeder® application

Additional research evaluating increasing silent reading fluency.

Rethink the challenge – is it fluency, or *completion* of reading?

Limitations
52

Lack of control of deprivation.

Lack of control of article variety.

No test for comprehension.

Reactivity is a possibility.

Using Public Posting to Increase Writing Productivity
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- Purpose
- Literature
- Procedure
- Results
- Discussion

Purpose
54

Working on a manuscript with the hope of submitting for publication.

Responsible for Literature Review (non-preferred) and the other author is responsible for the Methods section (more preferred).

No set deadline so project had been "on hold."

MO to publish is high.

Needed a self-management strategy to start this manuscript.

Literature Review

Public posting is a tactic or strategy that has been implemented across a variety of settings.

In classrooms: increase attendance, work completion, and/or work performance, as well as increasing and maintaining teacher praise.

e.g. Gross & Ekstrand, 1987; Houten & Houten, 1977; Houten, et.al., 1975

Speed control on highway, performance in sports, and increase productivity in work settings.

e.g. Brobst & Ward, 2002; Nordstrom, et.al., 2008; Ragnarsson & Throstur, 1991; Houten et.al., 1980; Houten & Nau, 1981; 1983; Smith & Ward, 2006; Ward & Carnes, 2002.
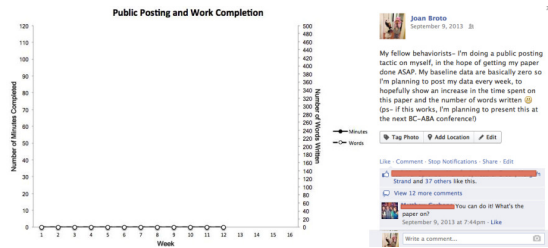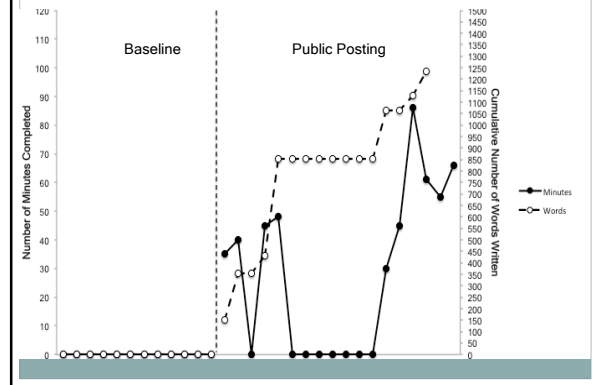
Method

A-B Design

Dependent Variable:

- Time spent on the manuscript per week, recorded in minutes.

- Number of words written per week.
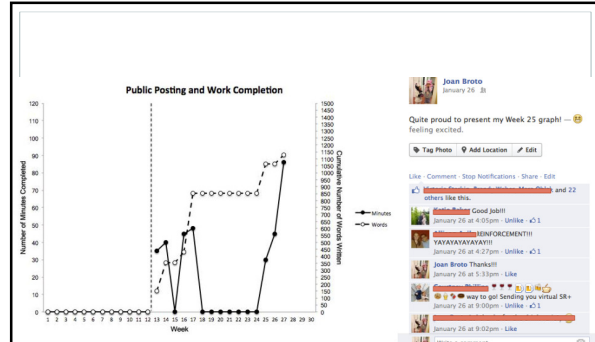
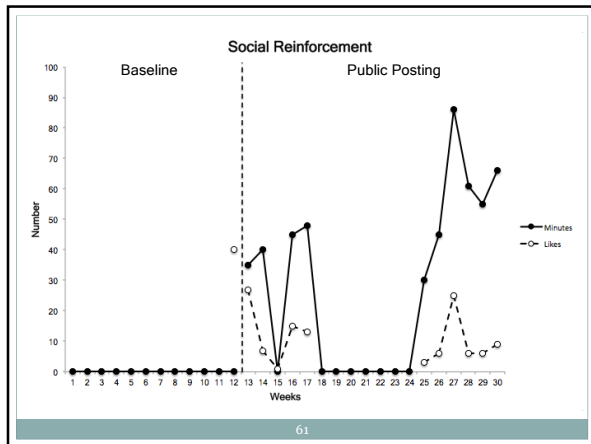## Method

Independent Variable:

- Self-monitoring (graphing own's responses), and weekly public posting of the time spent on the manuscript and the number of words written.

- The weekly graphs were posted on Facebook.

Social Reinforcement

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Discussion

The results showed public posting increased the time spent on writing the paper and the number of words written, for majority of the time.

Reinforcement from the audience (Facebook "Likes" and praise, "Way to go!" from friends) and avoidance of "punishment" from audience (e.g. "shame" or lack of reinforcement).

Higher number of "Likes" when there was an ascending trend, fewer number of "Likes" when data were not that great.

Schedule of reinforcement: Fixed interval.

Social media is a powerful tool and readily available for public postings.

Limitations

Went away for 2 weeks and it was difficult to go back to the project, due to work and life demands.

Self-reported data, i.e. no IOA.

Could not claim functional relation as I did not go back to baseline.

Only "friends" with ABA background commented or "liked" the postings.

References

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Houten, R.V., Nau, P., & Zopito, M. (1980). An analysis of public posting in reducing speeding behavior on an urban highway. *Journal of Applied Behavior Analysis*, 13(3), 383-395.

Nordstrom, Rodney, Peter Lorenzi, and R. Vance Hall. "A review of public posting of performance feedback in work settings." *Journal of Organizational Behavior Management* 11.2 (1991): 101-124.

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Tenenbaum, H. A. & Wolking, W. D. (1989). Effects of oral reading rate and inflection on intraverbal responding. *The Analysis of Verbal Behavior*, 7, 83-89.

Ward, P. & Carnes, M. (2002). Effects of posting self-set goals on collegiate football players' skill execution during practice and games. *Journal of Applied Behavior Analysis, 35(1)*, 1-12.

The Effects of a Systematic Desensitization Procedure on Arachnophobia

Sarah Pastrana
University of British Columbia &
Semiahmoo Behaviour Analysts, Inc.

Word of Warning

- There will be pictures of spiders in this presentation.

Specific Phobia

- Unreasonable or irrational fear
- Specific object or situation
  - (American Psychiatric Association, 2013)
- Most common psychiatric disorder
  - Estimated 6.2% of the population
  - (Boyd et al., 1990)
- Less than 25% of individuals with a phobia receive treatment
 - (Boyd et al., 1990)

Phobias

- Classical and operant conditioning:
  - Previously neutral stimulus paired with aversive, fear-arousing event (Barlow, 2002)
  - Presentation of conditioned stimulus elicits fear response
  - Avoidance behaviour reinforced by reduction in anxiety (Buchanan & Houlihan, 2008)
  - Avoidance may also be socially reinforced (Buchanan & Houlihan, 2008)
- Treatment involves:
  - Exposure to conditioned stimulus
  - Prevention of escape or avoidance

Systematic Desensitization

- Construct fear heirarchy
- Exposure to items on fear hierarchy
- Move up fear hierarchy in absence of fear response at each level
- (Buchanan & Houlihan, 2008)

My Phobia
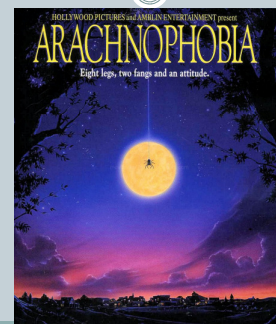
A bit about me…

- BCBA
- I design systematic desensitization programs for clients
- I have had a fear of spiders since I was a child
- I do not want my daughter to fear spiders
- Pressure from family to target fear response
- I was ready!

My Phobia

- Behaviour
  - Avoidance of sheds, downstairs bedroom at cabin
  - Overt fear response while at work
- Thoughts
  - Repeated, restricted thought patterns
  - High anxiety
- Physiology
  - Difficulty sleeping
  - Pounding heart
  - Muscle tension
  - Crying

Example

Remember when you threw a shoe at me and I fell somewhere behind the bed?

I remember too.

Function of Behaviour

- Fear responses (e.g., avoidance, escape) negatively reinforced
  - Reduction in anxiety and physiological responses

- Social reinforcement
  - Speaking about it with friends?

- Social disapproval
  - Husband, family

Previous Attempts

- Mom brought me books
- Full exposure in cabin basement
- Both unsuccessful

Long Term Objective (LTO)

- To sleep calmly and comfortably, with the absence of a fear response, in the lower bedroom at the cabin, for 3 consecutive trips.

- LTO was broken into a series of short term objectives (STOs) targeting each level in a fear hierarchy
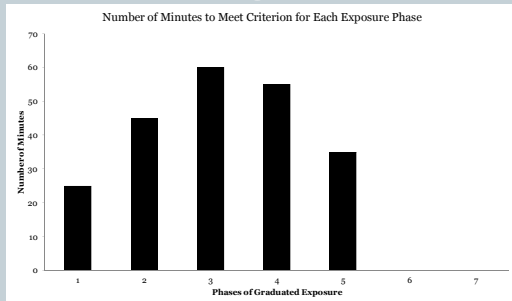
Fear Hierarchy

- Observe text for 'spider'
- Observe still cartoon images
- Observe pictures of real spiders and read facts*
- Observe spiders in a pet shop
- View videos of spiders on YouTube
- Use visual imagining to view spiders in house, cabin, shed, and other closed spaces
- Enter sheds
- Sleep in lower bedroom at cabin

Procedures and Response Measurement

- 5-min sessions; 1-6 sessions per day
- Level in fear hierarchy mastered when no fear response
  - Behaviour
  - Physiology
  - Thoughts
- Recorded number of sessions/minutes to meet criterion for each STO

Results

Number of Minutes to Meet Criterion for Each Exposure Phase

Results

- Minutes to master a level on fear hierarchy
  - M=44; Range, 25-60 minutes
  - Total time: 220 minutes

- Most difficult steps so far
  - STO C: pictures and facts
  - STO D: videos

- Have not yet completed final two steps
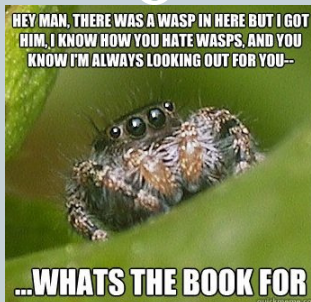
Spider Myths

- You're never more than 3 feet away from a spider
- The daddy longlegs has the most powerful venom but it can't bite you
- In a lifetime, the average human swallows 3/7/9 spiders while sleeping
- You can always tell a spider bite because it leaves two punctures
- Spiders in bathtubs or sinks come up through the sewers

Discussion

- Partial replication of previous research (e.g., Buchanan & Houlihan, 2008)
  - Phobias can be treated in a single session (Sturges & Sturges, 1998)
- Has made a difference in my life

Limitations

- Non-experimental
  - A-B design may be sufficient for self-management projects (Cooper et al., 2007)
  - Changing behaviour primary goal

- Not yet completed

- Picture, video exposure may be less effective than in-vivo exposure (Gunnar, 2002)
  - Next step: sheds and cabin!

Conclusions

- What behaviours do you want to change in yourself?
- Practice good self-management:
  - Specify goal and define target behaviour
  - Self-monitor target behaviour
  - Modify environmental contingencies
  - Go public
  - Recruit a friend
  - Monitor, evaluate, and modify program as necessary
  - (Cooper et al., 2007)

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Questions?

- Sarah Pastrana – sarahpastrana@hotmail.com

Discussant's Notes

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Main Themes

- 1) ABA is not just for treating autism.
- 2) Goal setting for self-management purposes is similar to designing comprehensive curriculum for children with autism.
- 3) It always comes down to reinforcement.

ABA doesn't = Autism

- Common misconception that ABA is only a treatment for autism.

- Many, many examples of the principles of ABA used in many aspects of our lives.
  - Public Health eg. Anti-smoking programs
  - Organizational Management eg. Absenteeism
  - Public Safety eg. Traffic fines

- Miltenberger text, 'Behaviour Modification: Principles and Procedures' has many good examples.

Similarity With Designing Curriculum for Children with ASD

- LTO and STO planning.
- Scripted / The 'How' should be planned.
- Realistic goals based on prerequisite skills, antecedent conditions and the motivational context of the individual.
- Consistent implementation important, "Commitment" is an important variable.
- Frequent opportunities for reinforcement.

......These are the tenants of behaviour change, they work with everyone !

Reinforcement

- Most importantly we know that we need reinforcement for behaviour change.
- Negative or positive ?
- It is my observation that in our daily lives we are highly motivated by negative reinforcement, it would be an interesting research question to compare the results of self-monitoring goals contingent on positive vs. negative reinforcement.

Reference

- Miltenberger, R. (2012). *Behaviour Modification: Principles and Procedures*. CA: Wadsworth.