

MUNI
PED

Jednopřípadový výzkumný design

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Jaro 2023

BACB TASKLIST

- C-11 Interpret graphed data
- D-5 Use single-subject experimental designs (reversal, multielement - alternating treatment)

Základní charakteristiky chování – OPAKOVÁNÍ

- Umístění v čase (temporal locus)
 - Součástí je latence (čas mezi stimulem a odpovědí)
- Rozsah (temporal extent)
 - Délka trvání
- Opakování v čase
 - Počet

- Pro třídu odpovědi jsou stěžejní KOMBINACE OPAKOVÁNÍ a UMÍSTĚNÍ V ČASE
 - Čas mezi dvěma odpověďmi (IRT)
 - frekvence

Základní charakteristiky změny chování

- Úroveň
- Trend
- Variabilita

Cílové chování

- Chování, které chceme intervencí ovlivnit
- Pozorovatelné
- Měřitelné
- Představuje interakci s okolím
- Znamená změnu v prostředí
- Vždy definujeme příklady a NEpříklady (non-examples)

Co JE a NENÍ chování?

Anorexie

Agrese

Deprese

Kousíní

Pozitivní životní přístup

Plivání na druhé osoby

Slabá emoční kontrola

Neposlušnost

Následování instrukcí učitele

Myšlení

Lenost

Rezistence

Věnování se zadané práci

Nevěnování se zadané práci

Nezdvořilost

- Ve skupině vyberte dva příklady, které nepředstavují chování.
- Proč?
- Definujte a popište tak, aby bylo možné chování měřit a na základě toho formulovat cíl intervence.

- Zamyslete se nad dětmi, se kterými pracujete/pracovali jste a nad jejich problémy, které ale nebyly popisovány jako chování. Přeformulujte.

Třída odpovědi podle topografie a funkce

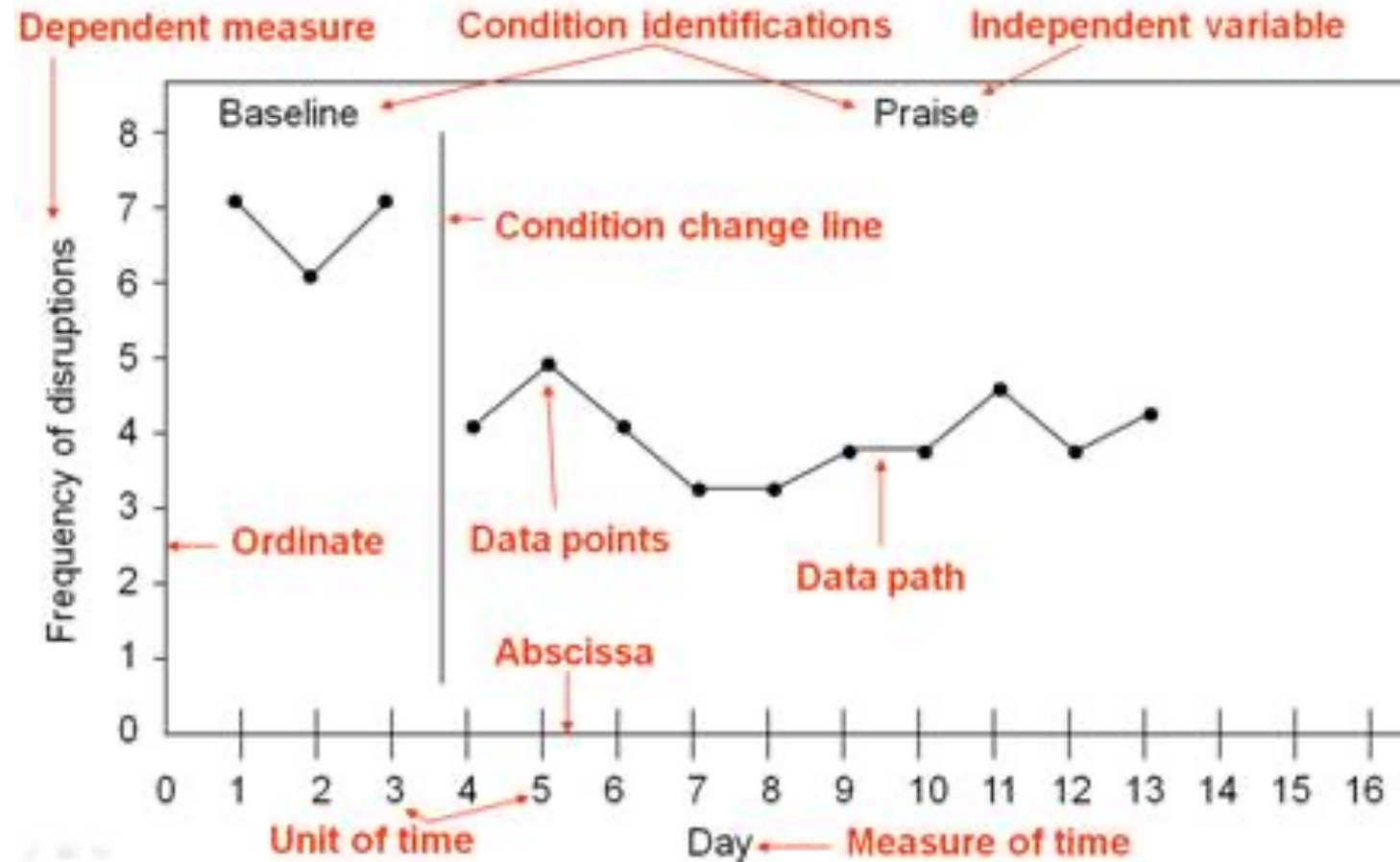
- Třída odpovědi podle funkce = 2 a více odpovědí, které jsou topograficky odlišné, ale plní stejnou funkci.
- Úkol: Ve 3 minutách napište co nejvíce příkladů chování, jehož funkcí je vyhnout se úkolu. Využijte zkušenosti s vašimi klienty.

Vizuální analýza dat

- Rozumím po prohlédnutí grafu základním proměnným, se kterými experiment manipuluje?
- Umožňuje zvolený design hodnocení experimentální kontroly?
- Představují prezentovaná data přesvědčivě to, že intervenující proměnná kontroluje trend, variabilitu atd.?

Popis grafu

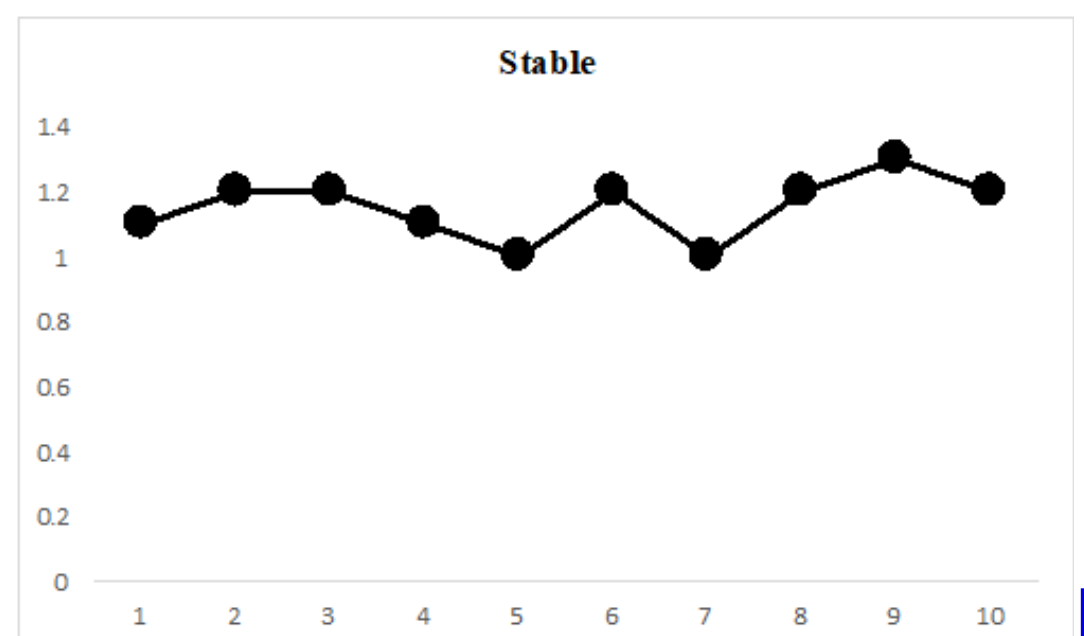
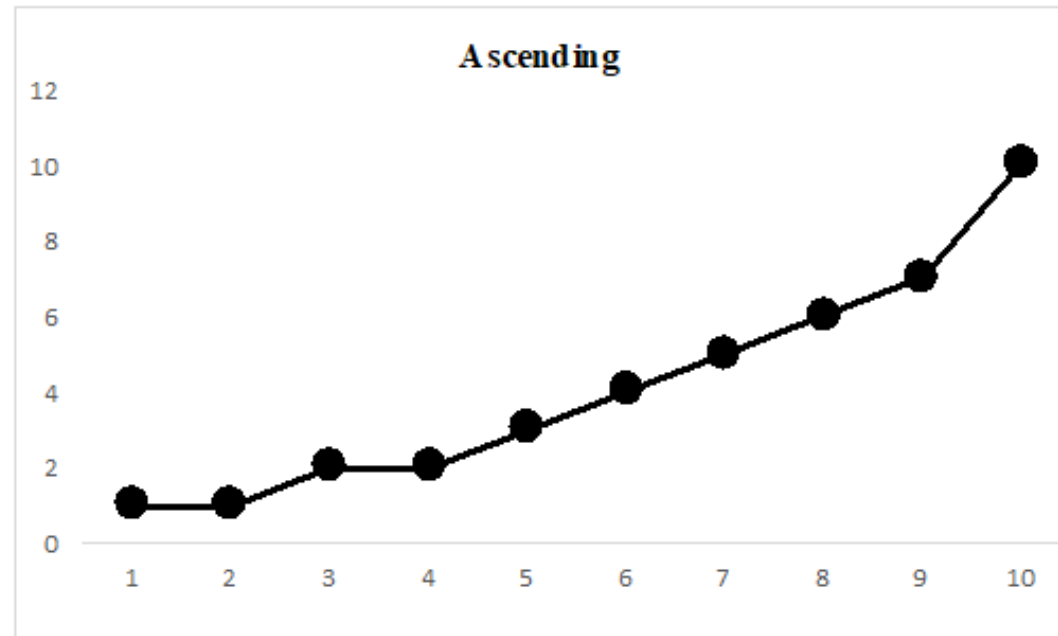
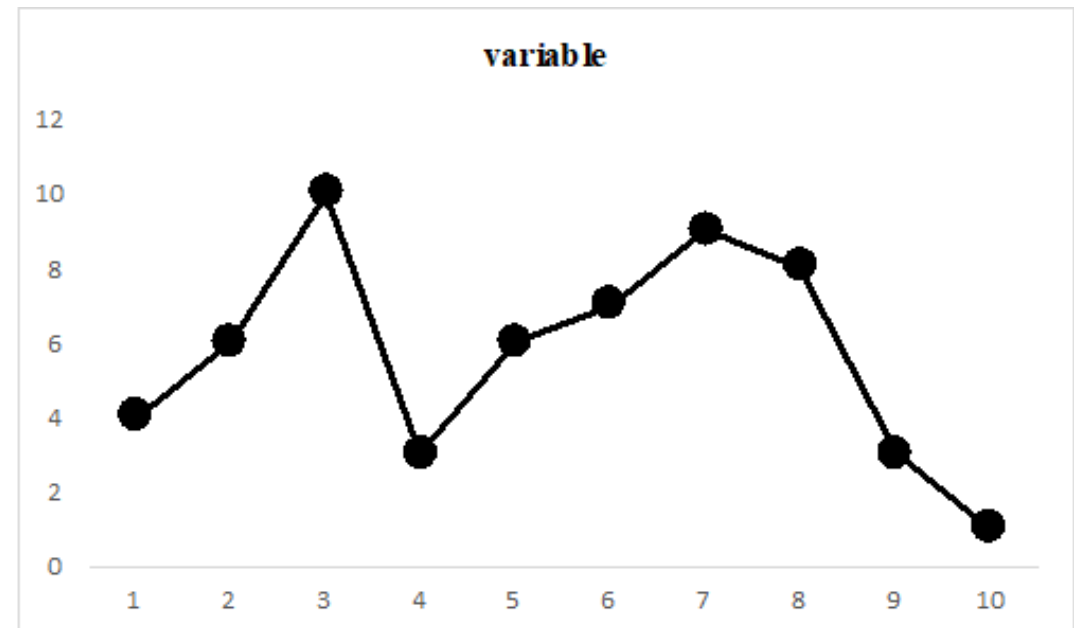
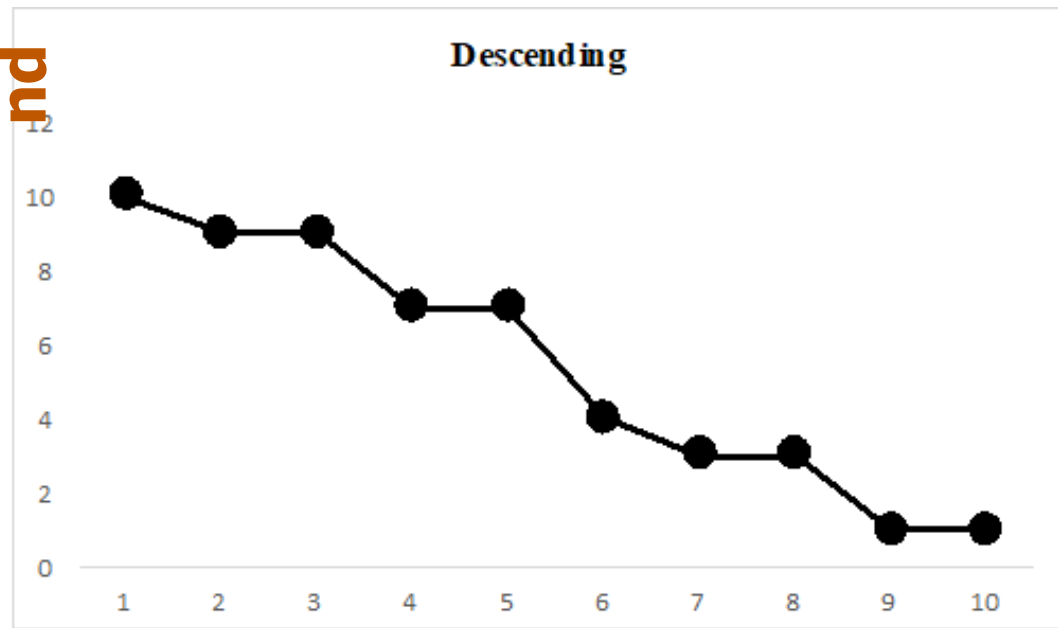
Abscissa – vodorovná osa
Ordinate – svislá osa



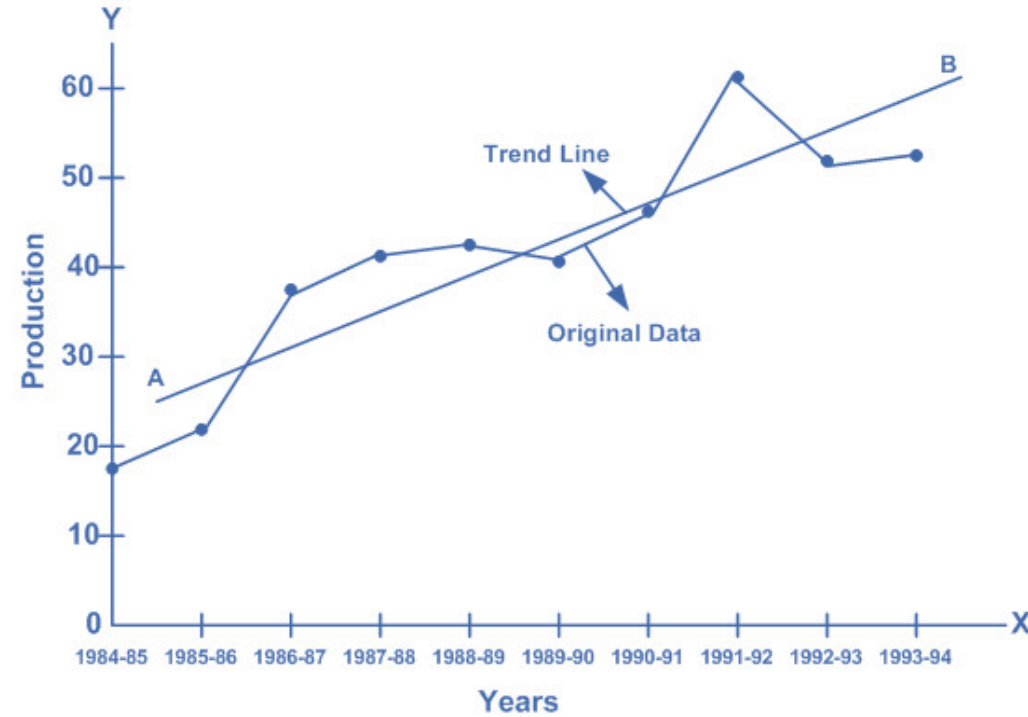
Vizuální analýza

- Úroveň (level)
 - Trend
 - Variabilita
- v rámci jedné fáze
- Překryvy (overlap)
 - Okamžitost účinku
 - Pravidelnost (consistency) napříč jednotlivými fázemi
- mezi fázemi
- Vertikální osa: diferenciální efekt

Trend

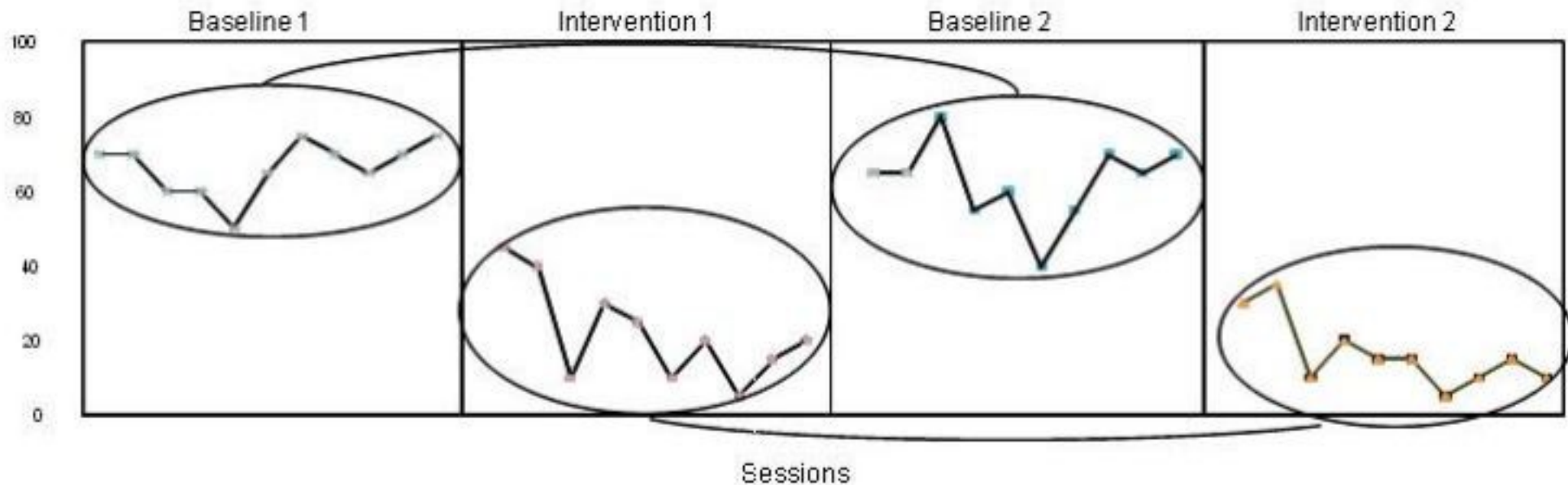


Mean level line



Pravidelnost napříč fázemi:

Figure E.8. Examine Consistency Across Similar Phases



The relationship between the design and analysis! (Clearinghouse, 2014, p.E.10)

Různý počet datových linií

- Obvykle ne více než 3, aby byl graf stále srozumitelný pro vizuální analýzu

Effects of stimulus presentation order during auditory–visual conditional discrimination training for children with autism spectrum disorder

JULIE E. CUBICCIOTTI, JASON C. VLADESCU AND KENNETH F. REEVE

CALDWELL UNIVERSITY

REGINA A. CARROLL

UNIVERSITY OF NEBRASKA MEDICAL CENTER'S MUNROE-MEYER INSTITUTE

LAUREN K. SCHNELL

HUNTER COLLEGE

Children with autism spectrum disorder are typically taught conditional discriminations using a match-to-sample arrangement. Consideration should be given to the temporal order in which antecedent stimuli (the sample and comparison stimuli) are presented during match-to-sample trials, as various arrangements have been used in the extant literature. The purpose of the current study was to compare the effects of four stimulus presentation orders on the acquisition of auditory–visual conditional discriminations. The study included participants from a clinically relevant population (three children with autism spectrum disorder), employed clinically relevant teaching procedures, and included two presentation formats not included in previous comparison evaluations (simultaneous and sample-first with re-presentation conditions). Results were found to be learner-specific; that is, a different stimulus presentation format was most efficient for each participant. We provide suggestions to evaluate stimulus control topographies and enhance experimental control in match-to-sample arrangements.

Key words: autism spectrum disorder, conditional discriminations, discrete trial training, instructional efficiency, matching to sample, stimulus control

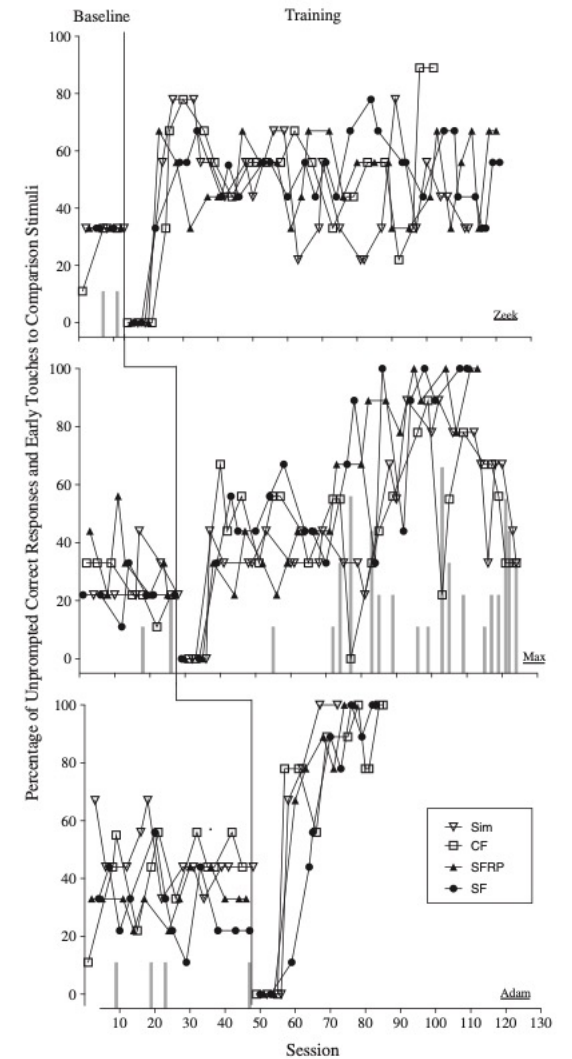
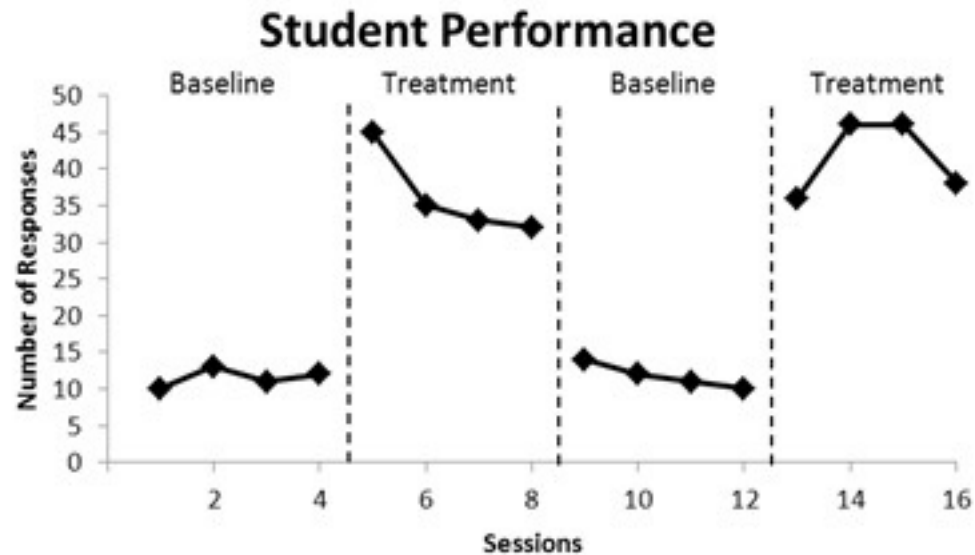
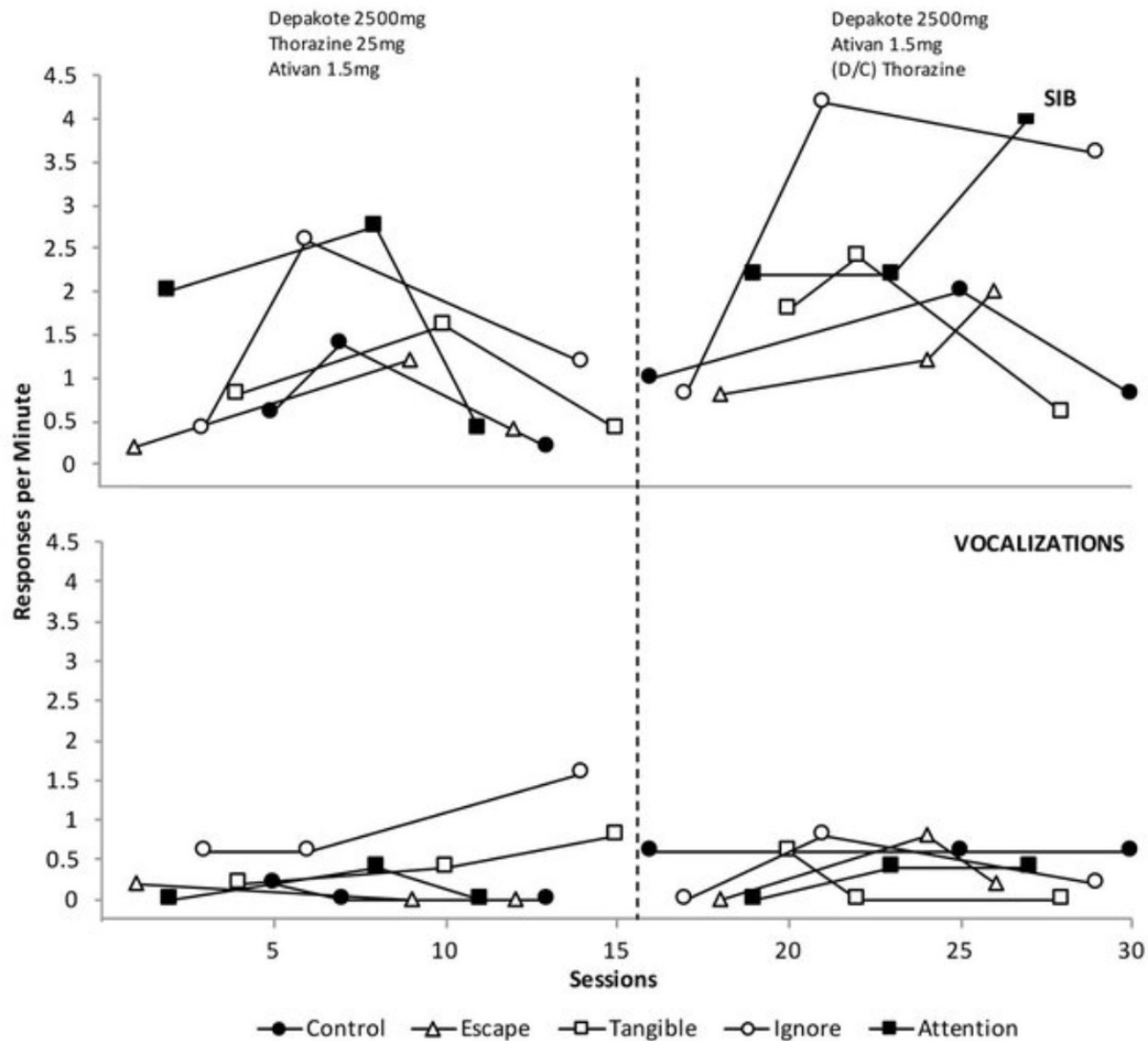


Figure 1. The percentage of unprompted correct responses across the sample-first (SF), sample-first with re-presentation (SFRP), comparison-first (CF), and simultaneous (Sim) treatment conditions. Gray bars represent percentage of trials with early responses to the comparison stimuli in the comparison-first condition.

Jak můžeme vizuálně analyzovat tento graf?

- Variabilita, úroveň, trend, počet datových bodů
- Překryvy, okamžitost účinku, pravidelnost napříč fázemi





Figure

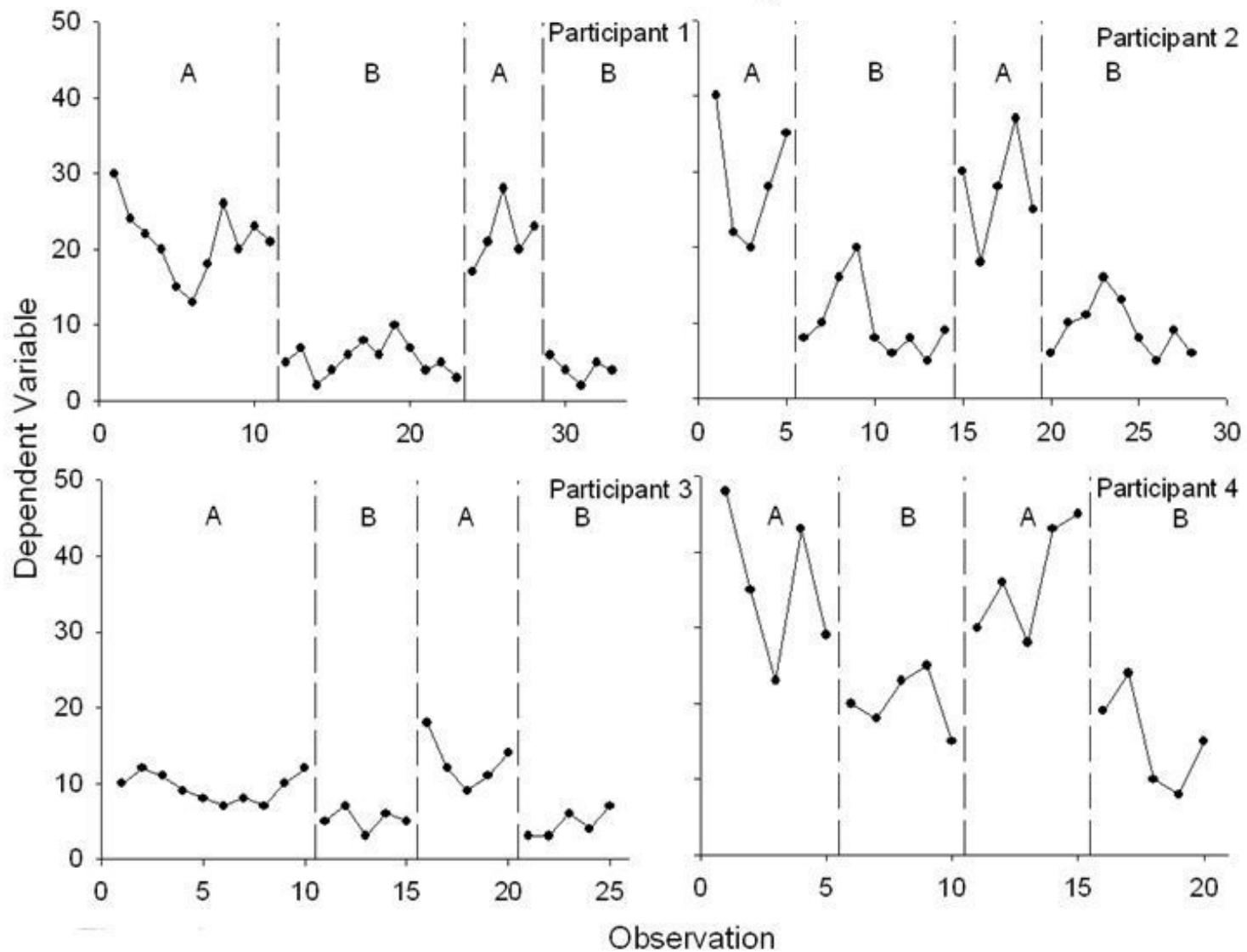
Caption

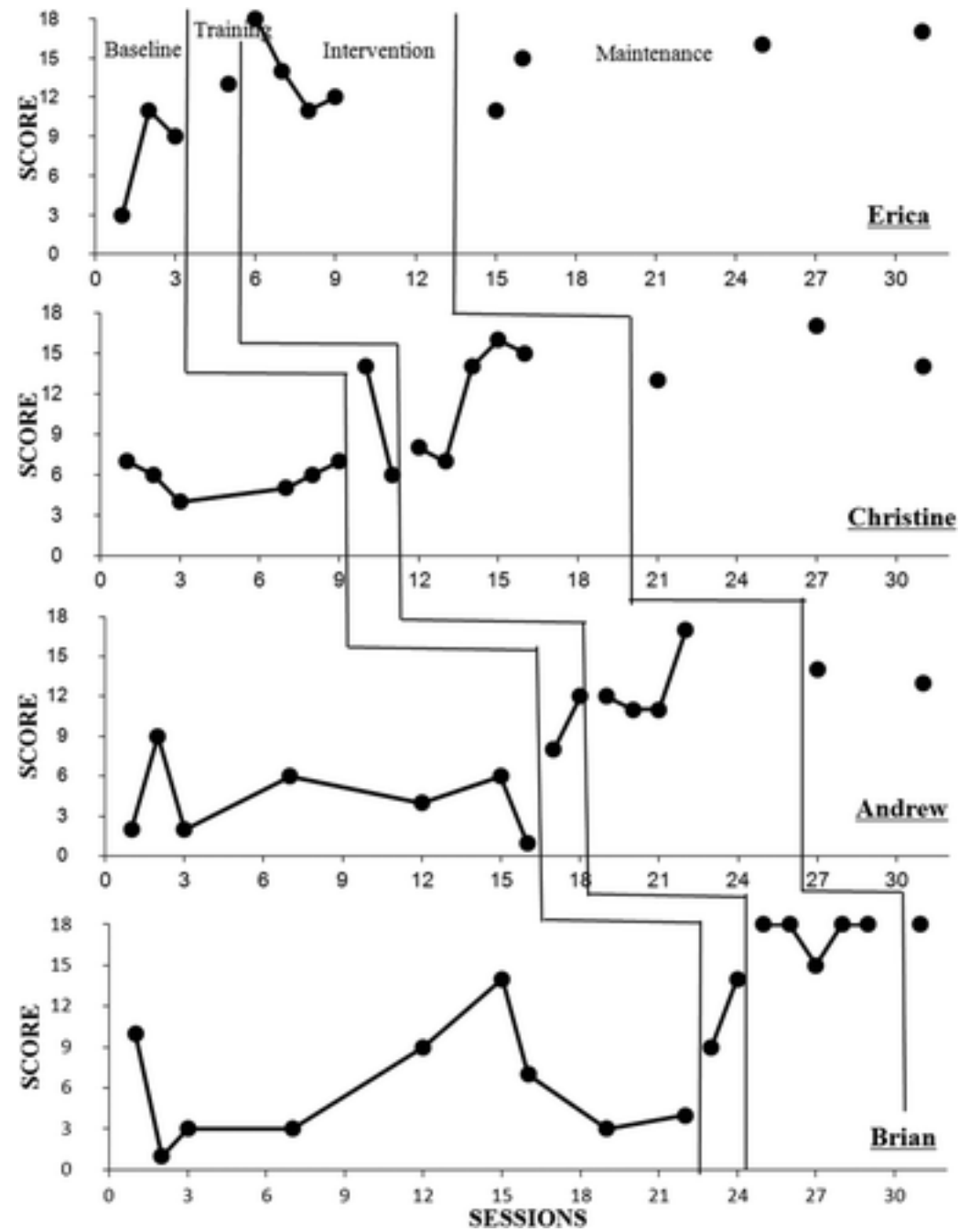
Figure 1. George's FA graphs depicting challenging behaviors per minute (self-injury, top panel; vocalizations, bottom panel). Medication Changes: (D/C)=Discontinued

This figure was uploaded by [Maria G Valdovinos](#)

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Reversal Design





Single-Subject Designs

Reversal or Withdrawal Designs

ABA

ABAB

Multiple-Treatment

BAB

NCR/DRO/
DRI/DRA
Reversals

Multiple-Baseline Designs

Across Behaviors

Across Participants

Across Setting

Changing-Criterion Designs

Alternating Treatment or Multi-Element Designs

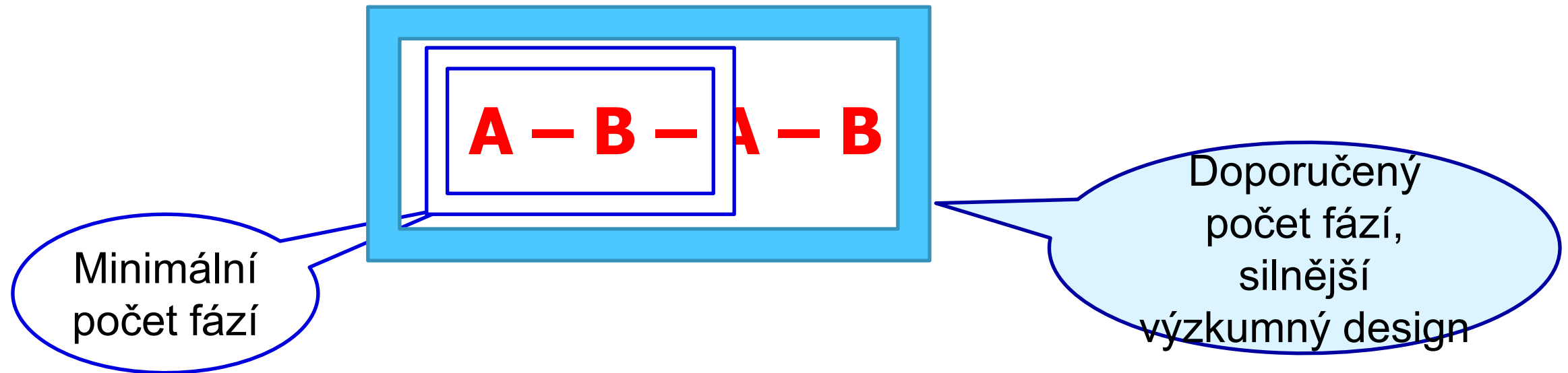
Single-Phase

2 phase:
Baseline
and ATD
Phase

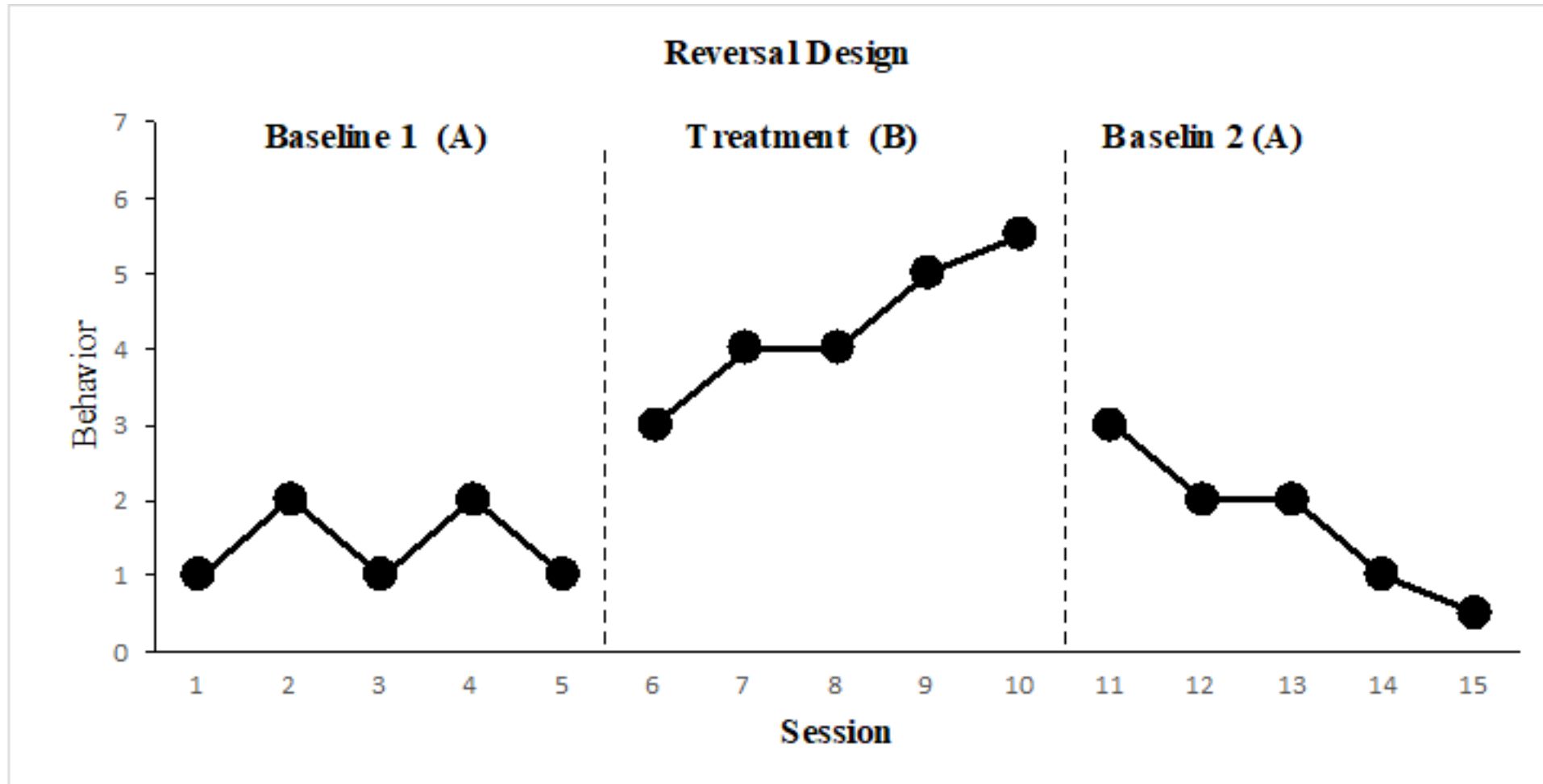
3 phase:
Baseline,
ATD, and
Best
Treatment

Reverzní schéma (reversal design)

- Nejsilnější vnitrosubjektový design k prokázání funkční závislosti
- Nezávislá proměnná (IV) je odstraněna z intervence a opět do intervence přidána



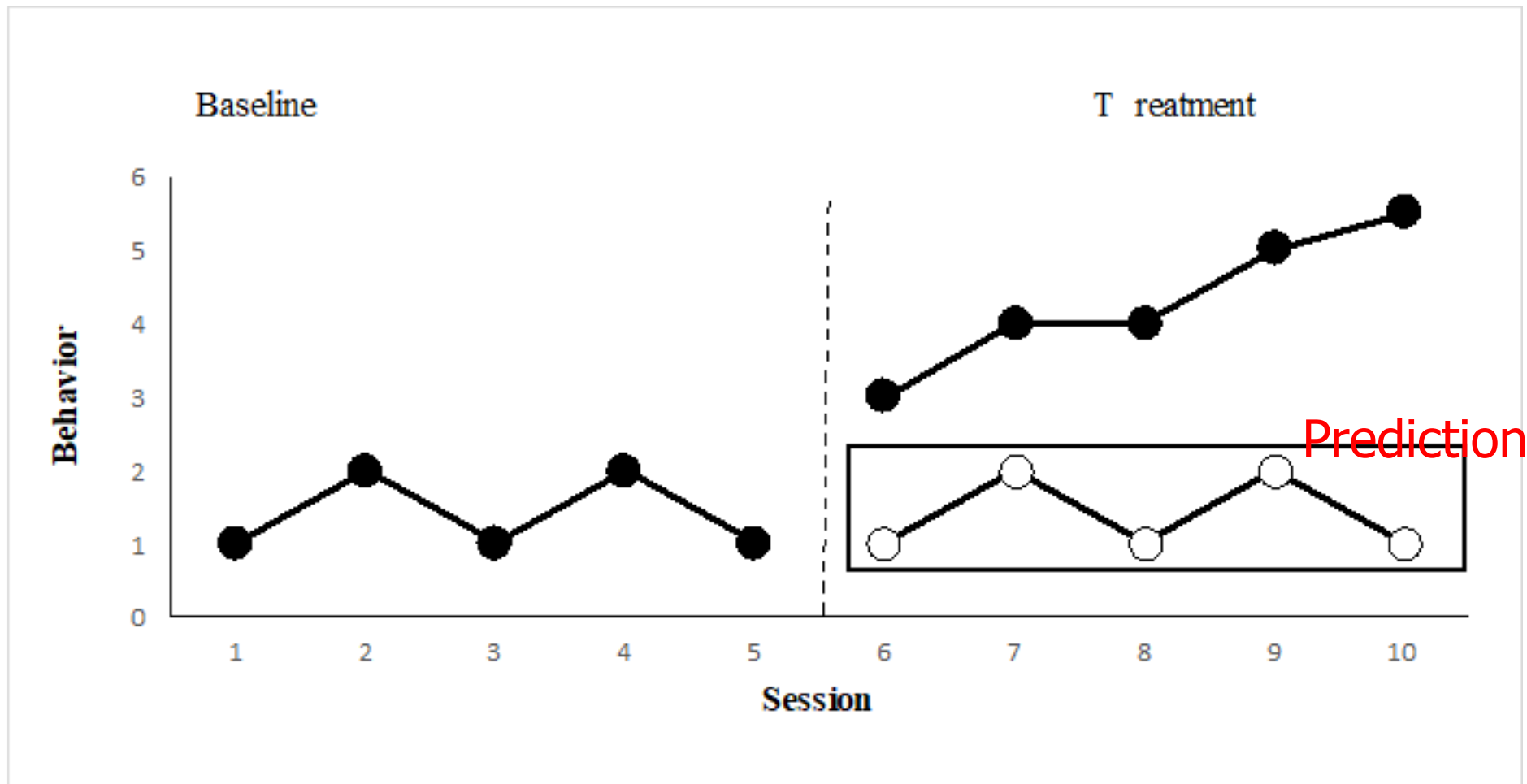
- Vyžaduje minimálně tři po sobě jdoucí fáze:
 - Úroveň výchozích hodnot (baseline) (A)
 - Intervence (B)
 - Návrat k výchozím podmínkám (A)



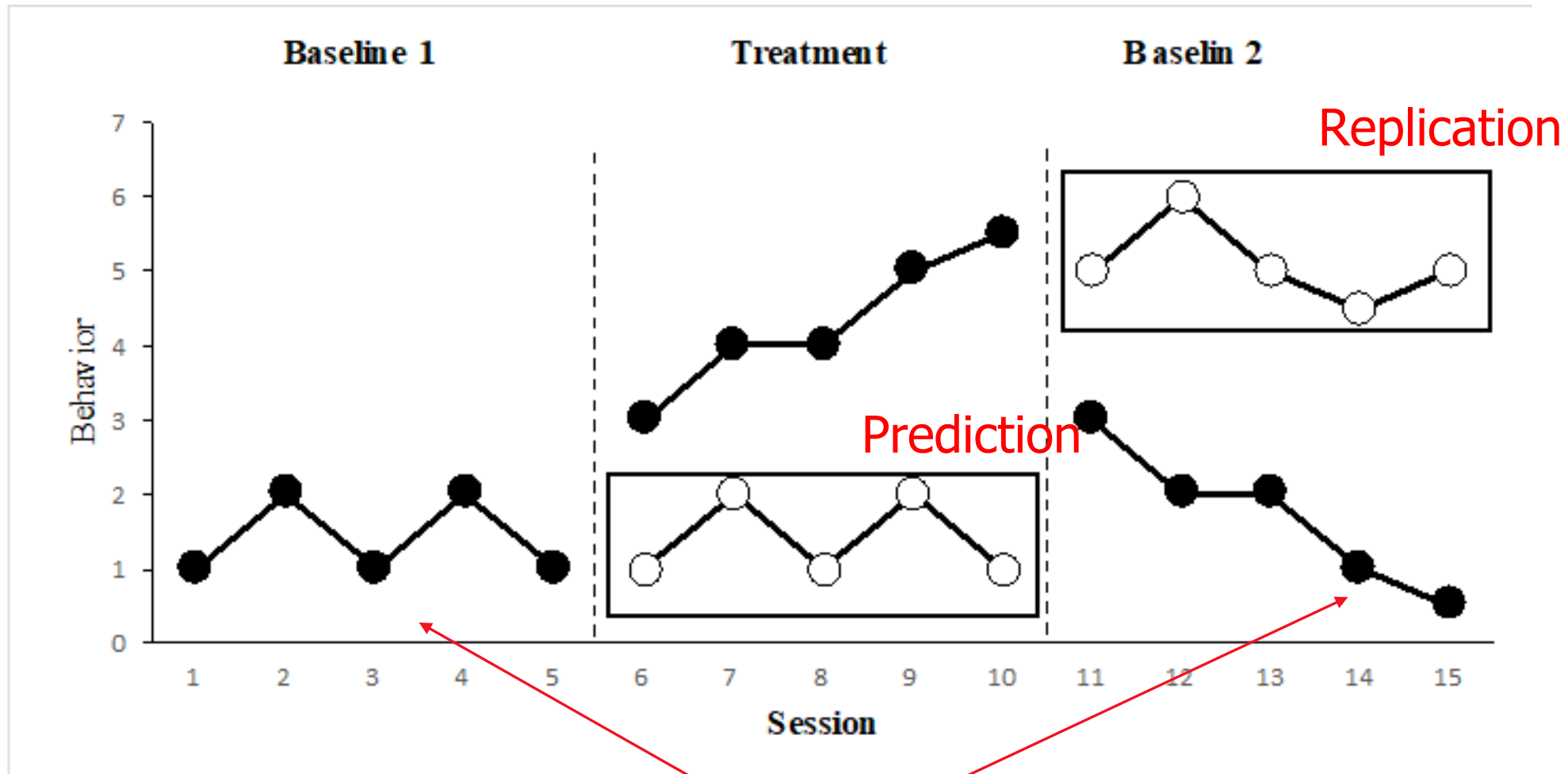
Predikce, verifikace a replikace (Prediction, Verification, Replication)

- IV je zodpovědná za změnu v DV v případě, že opakování výchozí úrovně (baseline) a experimentální fáze vykazuje podobné výsledky jako v předchozí fázi

Predikce a potvrzení konsekventu



Verifikace



Reversal (withdrawal design)

J Behav Educ. 2014 December 1; 23(4): 421–434. doi:10.1007/s10864-014-9204-x.

Implementation of a self-monitoring application to improve on-task behavior: A high school pilot study

Howard P. Wills and **Benjamin A. Mason**

Juniper Gardens Children's Project, University of Kansas, 444 Minnesota Ave, Kansas City, KS 66101

Abstract

Technological innovations offer promise for improving intervention implementation in secondary, inclusive classrooms. A withdrawal design was employed with two high school students in order to assess the effectiveness of a technologically-delivered, self-monitoring intervention in improving on-task behavior in a science classroom. Two students ages 14 and 15 with diagnoses of specific learning disability (student 1) and attention deficit hyperactivity disorder (ADHD: student 2) were selected by case manager referral due to difficulties with on-task behavior despite long-term administration of psychostimulant medication. After baseline data were collected, both students were trained in the use of a self-monitoring application (I-Connect) delivered via a handheld tablet. On-task prompts were delivered at five min intervals in an ABAB withdrawal design. The intervention resulted in positive, stable improvements in the primary dependent variable of on-task behavior for both students and less clear improvement in the generalization variable of disruptive behavior.

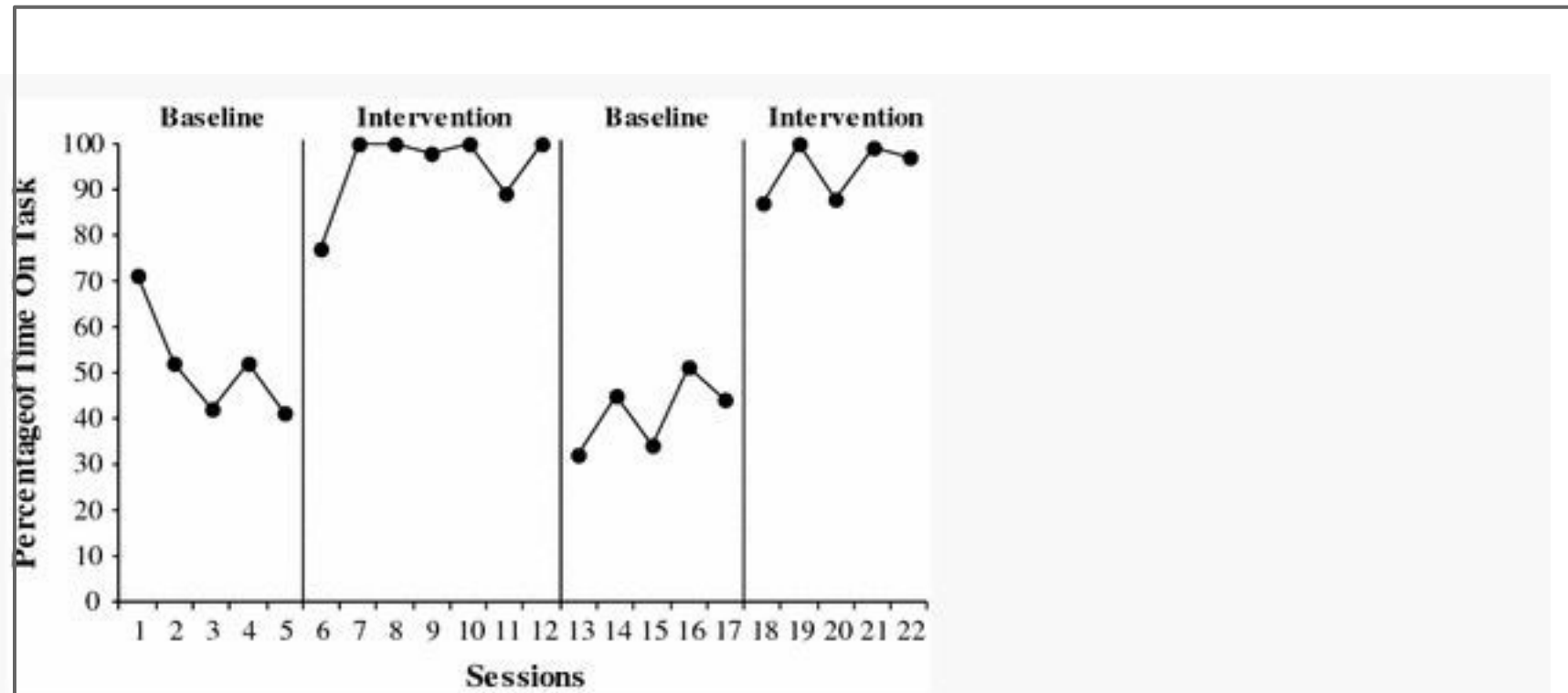


Fig. 1

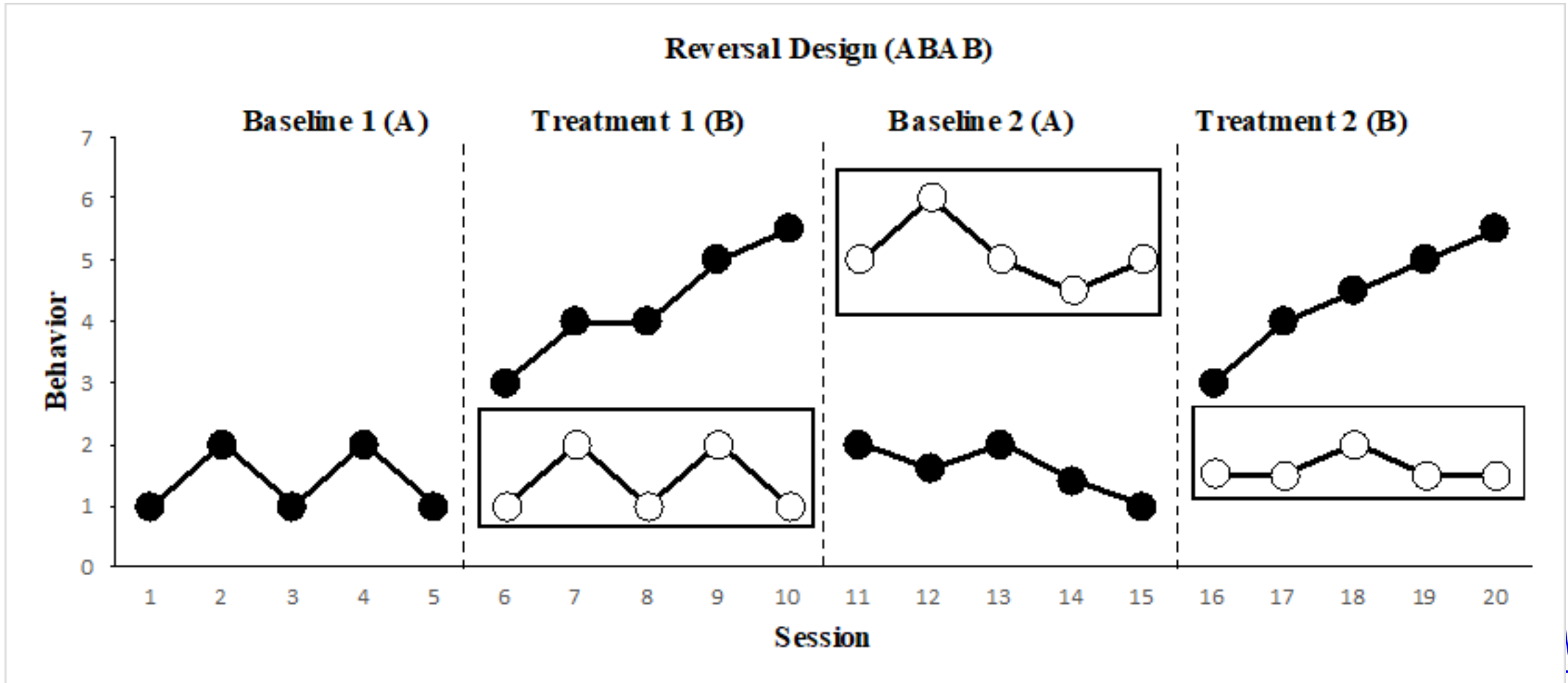
Percentage of time on-task during baseline and intervention conditions for Student 1 (15 min observations)

(Wills & Mason, 2016)

Varianty reverzního designu

- Repeated reversal (Opakované reverzní schéma)
- B-A-B reversal
- Multiple treatment design (Design s více intervencemi)
- NCR reversal technique (Reverzní schéma s posílením nezávislým na chování)
- DRO/DRI/DRA Reversal technique (Reverzní schéma s DRO/DRI/DRA)

Opakované reverzní schéma = A-B-A-B design



Reducing adolescent cell phone usage using an interdependent group contingency

MEGAN E. JONES, R. ALLAN ALLDAY AND ASHANTE' GIVENS

UNIVERSITY OF KENTUCKY

The purpose of this study was to test the effects of an interdependent group contingency on cell phone usage in an alternative high school classroom. We used an ABAB reversal design to test the effects of the contingency on the cell phone usage of the entire class and an individual student. Results showed a reduction in the cell phone use of the class and the individual when the group contingency was in effect, demonstrating a functional relation between the contingency and student cell phone usage. These findings suggest that group contingencies may be efficacious for teachers to use within their classrooms to curb cell phone usage. Further study of this intervention is warranted to determine its generality.

Key words: adolescents, cell phone usage, group contingency

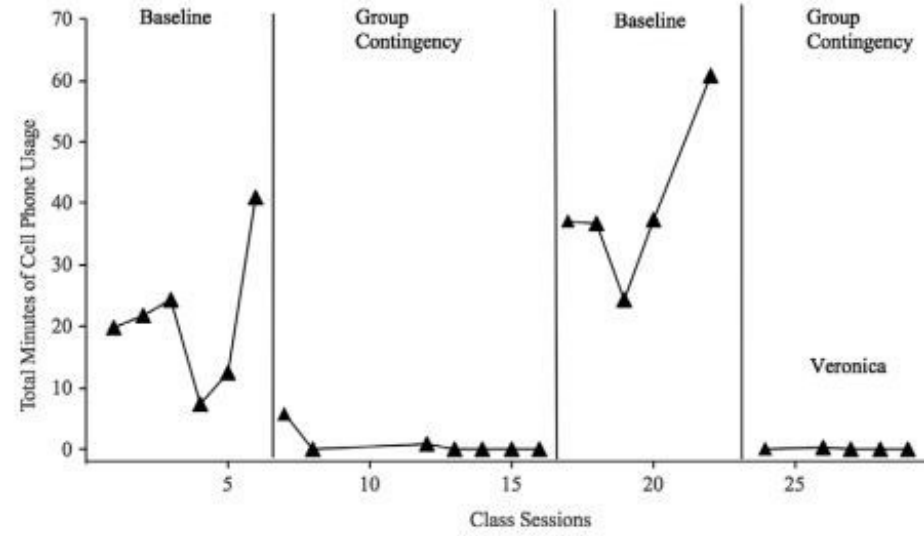


Figure 1. Veronica's total duration of cell phone usage, in minutes, per class session.

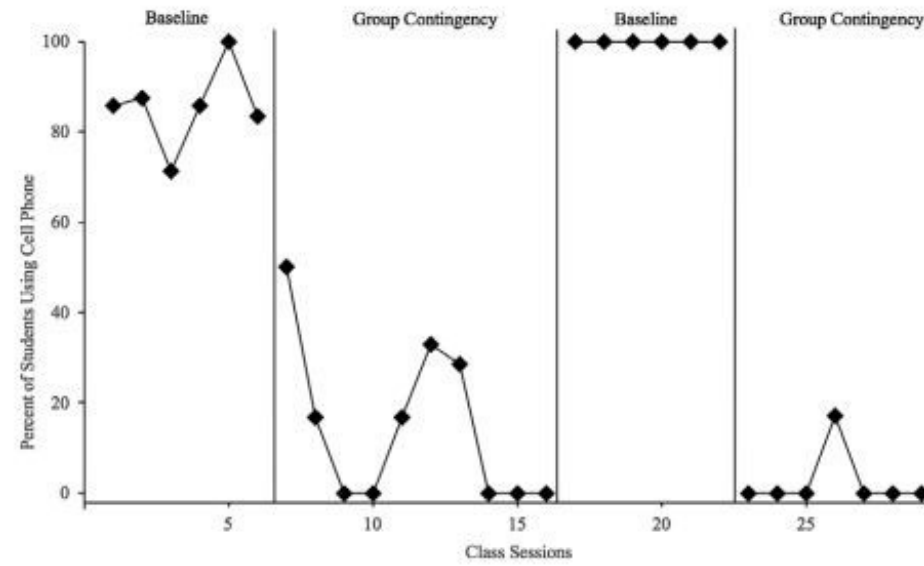
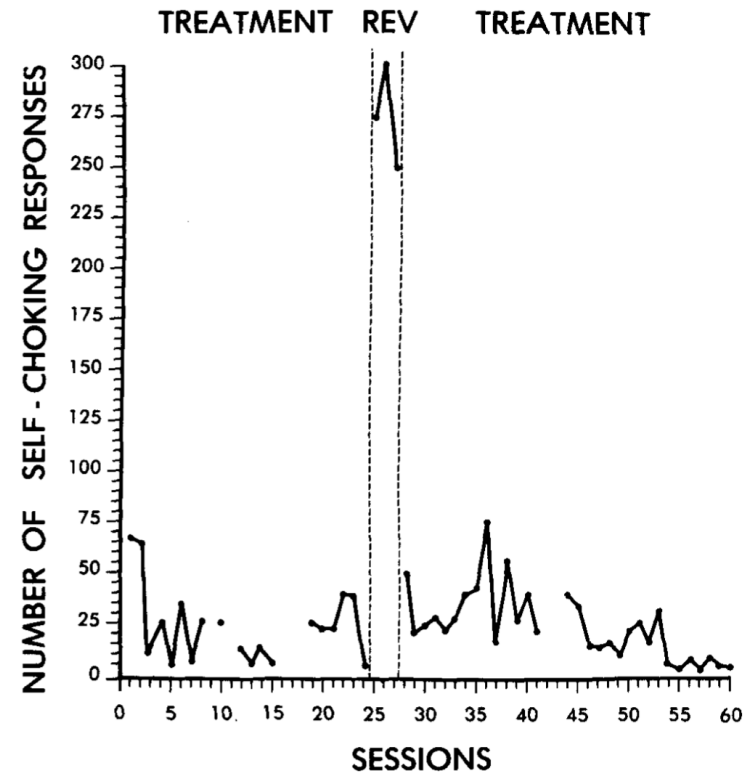


Figure 2. Percentage of students using cell phones in class.

B-A-B reverzní schéma

- Když není možné začít se zjištěním výchozí úrovně odpovědí
- 3 fáze:
 - Nezávislá proměnná – IV (B)
 - Fáze bez IV (A)
 - Obnovení IV (B)
- Slabší design než A-B-A (neumožňuje zjištění efektu IV během intervenční fáze)
- Omezení:
 - **Sekvenční efekt (sequence effect)** – úroveň odpovědí ve fázi (A) může být ovlivněna předchozím působením IV

Figure 1. Self-choking responses exhibited by Peter during each school day across experimental conditions. Missing data points indicate days during which school was not in session.



<https://journals.sagepub.com/doi/10.1177/154079697900400208>

Multiple treatment reversal

- K porovnání efektu 2 a více experimentálních podmínek (proměnných) mezi sebou a vůči výchozím hodnotám
- Poznáme podle toho, že přibude C-D atd.
- Omezení:
 - **Sekvenční efekt (sequence effect)** – úroveň odpovědí ve fázi (A) může být ovlivněna předchozím působením IV
 - A-B-C-A-B-C....A_B-C-A-C-A-C – úprava fází k eliminaci sekvenčního efektu B-C

*FUNCTIONAL ANALYSIS AND TREATMENT OF
EYE POKING*

CRAIG H. KENNEDY AND GERI SOUZA

UNIVERSITY OF HAWAII

In four studies we analyzed the eye poking of a youth with profound disabilities. In Study 1, a functional analysis showed that eye poking occurred during the no-attention condition, but not during demand, attention, or recreation conditions. The analysis did not identify socially mediated variables involved in the maintenance of eye poking; rather, eye poking may have been maintained by consequences produced directly by the response. In Study 2 we had the student wear goggles to prevent potential reinforcement from finger-eye contact. The results of Study 2 indicated that eye-poking attempts were reduced when the student wore goggles. We then tested in Study 3 the effects of two alternative topographies of stimulation. Study 3 demonstrated that eye poking was reduced when a video game was provided as a competing source of visual stimulation, and that scanned image of page 27 reducing eye poking. In Study 4, a contingency analysis using the video game was conducted in an attempt to (a) reduce the frequency of eye poking and (b) study whether the video game functioned as a reinforcer. The results of Study 4 demonstrated substantive reductions in the frequency of eye poking, and suggested that the video game served as a reinforcer.

DESCRIPTORS: self-injury, functional analysis, maintaining variables, private events, students with severe disabilities

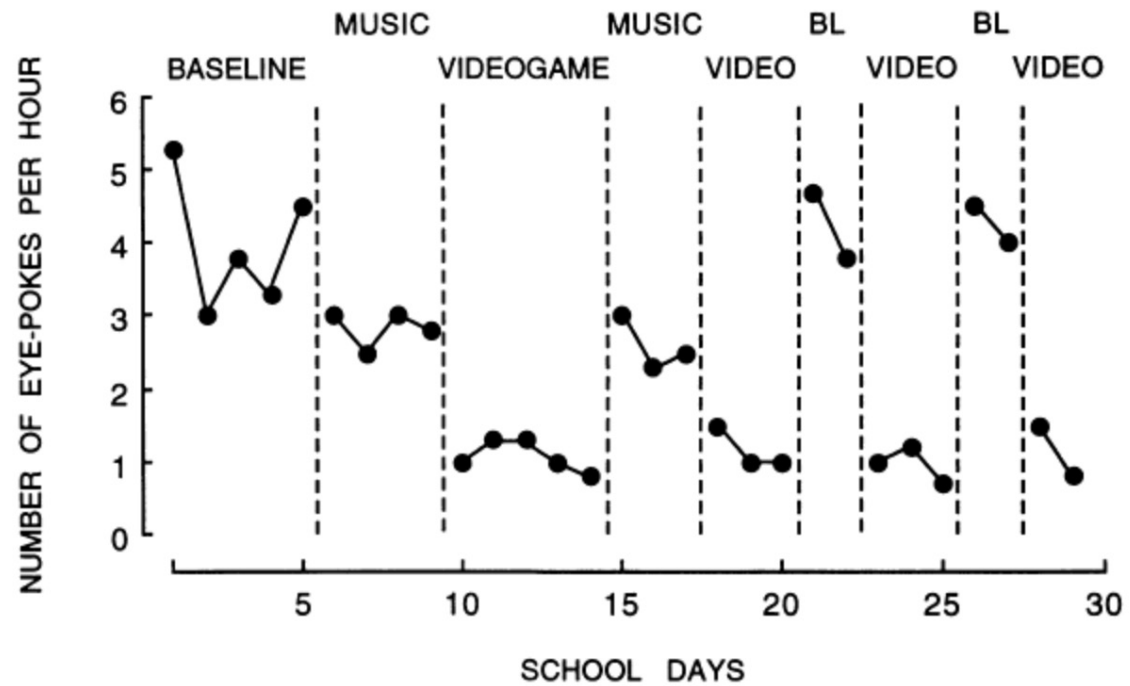


Figure 3. Number of eye pokes per hour across the baseline, noncontingent music, and noncontingent video game conditions.

NCR Reversal Technique

- Místo BL je poskytováno posílení nezávisle na chování jedince (NCR)
- Prokazuje efekt posílení závislého na chování (CR)
- Používá se v situacích, kdy není možné eliminovat aktivitu, která je využívána jako posílení
- NCR – doručeno dle rozvrhu (variabilního nebo fixního) bez ohled na chování

Behavioral skills training to increase interview skills of adolescent males in a juvenile residential treatment facility

Anna Kate Edgemon, John T. Rapp, Kristen M. Brogan, Sarah M. Richling, Sally A. Hamrick, Rachel J. Peters and Soracha A. O'Rourke

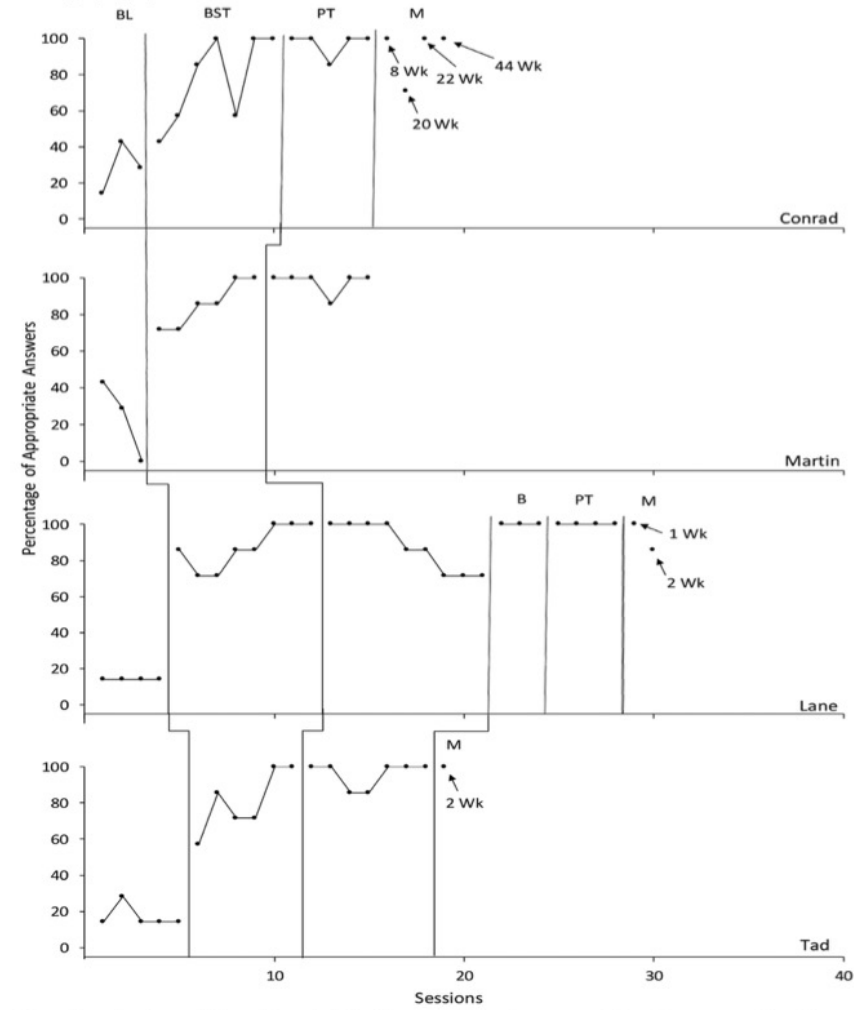
Auburn University

Some studies suggest that acquiring employment following release from prison may reduce recidivism; however, few studies have evaluated procedures for teaching job-related skills to adolescents in residential detention facilities. Stocco et al. (2017) used behavioral skills training (BST) to improve interview skills of college students. The current study used a nonconcurrent multiple baseline design across participants to evaluate the extent to which BST improved interview skills for 7 adolescents who had been adjudicated for sexual offenses. Results show that BST increased appropriate responses to interview questions for 4 students and BST plus modifications (i.e., stimulus and response prompts) increased correct responding to questions for the other 3. In addition, BST increased appropriate questions, correct posture, and smiling, and decreased fidgeting for all 7 students. We briefly discuss the social implications of teaching interview skills to adjudicated adolescents, as well as the limitations of the findings.

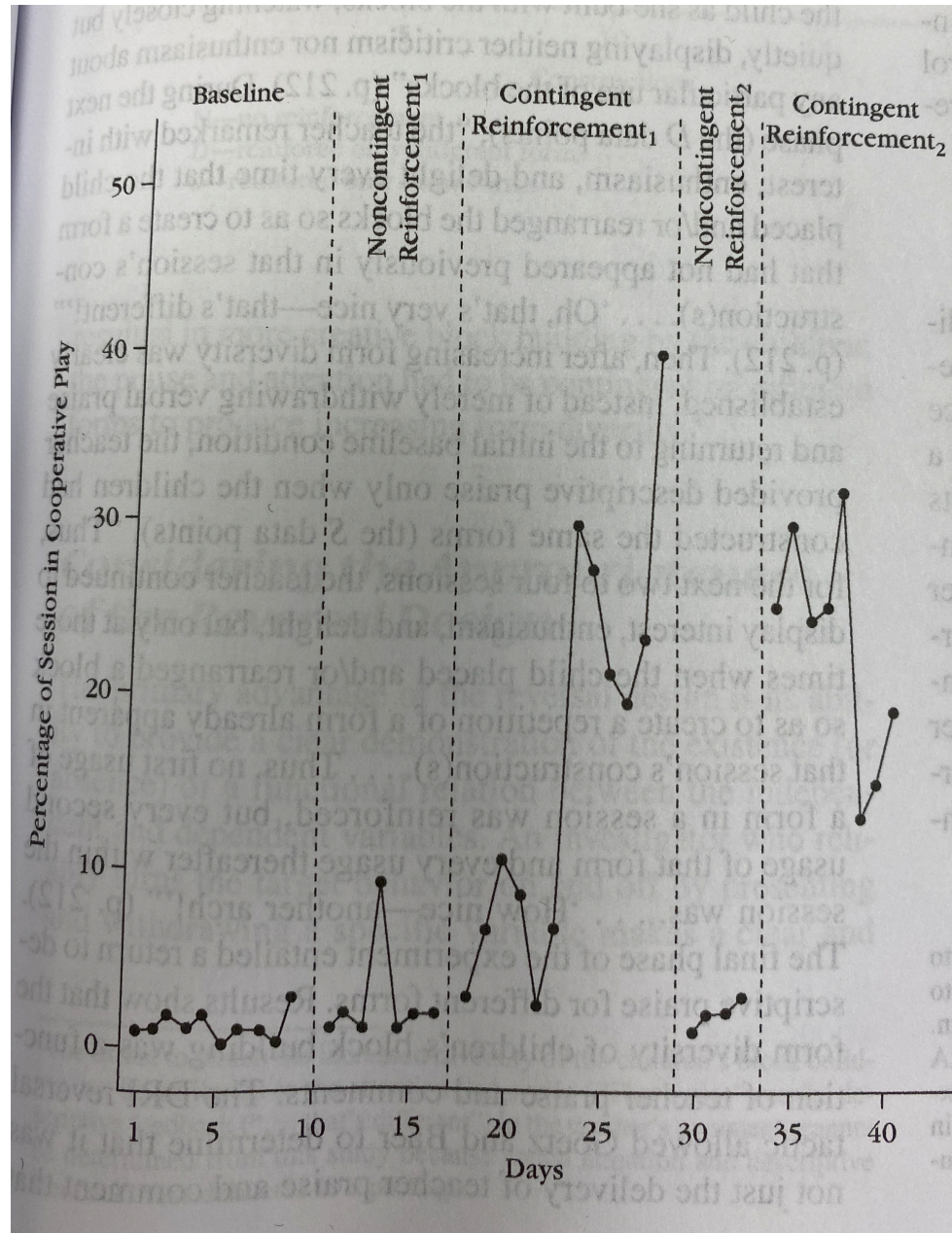
Key words: adolescents, behavior cusps, behavioral skills training, interview skills, juvenile justice

Figure 1

Percentage of Appropriate Answers



Note. BL = Baseline, BST = Behavioral Skills Training, PT = Posttraining, M = Maintenance, B = Booster, Wk = Weeks.



DRO/DRI/DRA reversal technique

- V kontrolní fázi je využíváno:
- DRO posílení následuje jakékoli jiné než cílové chování
- DRI posílení následuje chování nekompatibilní s cílovým
- DRA posílení následuje chování, které je alternativou k cílovému chování

- Ukazuje efektivitu posílení závislého na chování (contingent reinforcement)

The Effects of Using a Conditioned Stimulus to Cue DRO Schedules

[Kelly A. Della Rosa](#), [Daniel Fellman](#), +2 authors [B. A. Taylor](#) • Published 1 July 2015 • Psychology • Behavioral Interventions

A reversal design was used to examine the effects of a differential reinforcement of other behavior (DRO) procedure and the presence of a stimulus (i.e., a bracelet), conditioned via discrimination training, on reducing socially maintained non-contextual vocalizations in an adolescent girl with autism. Initially, a functional analysis determined that non-contextual vocalizations were maintained by social attention. Then, discrimination training was used to establish the presence of the bracelet as a discriminative stimulus for the absence of vocalizations. Specifically, when the bracelet was on, noncontextual vocalizations were interrupted, and edible reinforcement was provided for the absence of vocalizations. When the bracelet was off, vocalizations were not interrupted and the teacher provided social attention to the participant (i.e., reciprocated conversation with the participant about the topic). During intervention, a DRO procedure was used. The participant was presented with the bracelet, a timer set for a specified interval, and the instruction to work quietly. If vocalizations did not occur for the entire duration of the interval, the bracelet was removed and the learner was given the opportunity to engage in vocalizations. The DRO interval was systematically increased throughout the intervention. Results are discussed in terms of discrimination training as an effective addition to differential reinforcement procedure. Copyright © 2015 John Wiley & Sons, Ltd. Problem behavior, as any behavior, is emitted in the presence of particular environmental stimuli; as such, these stimuli may be altered to reduce the probability of problem behavior (Luiselli et al., 2008). Recent studies have demonstrated the effectiveness of antecedent interventions, particularly stimulus control procedures, to decrease automatically maintained problem behavior (Brusa & Richman, 2008; Doughty et al., 2007; McKenzie et al., 2008; Rapp et al., 2009). Antecedent interventions are beneficial because these procedures are implemented prior to an occurrence of problem behavior often preventing its occurrence, as opposed to applying [Collapse](#)

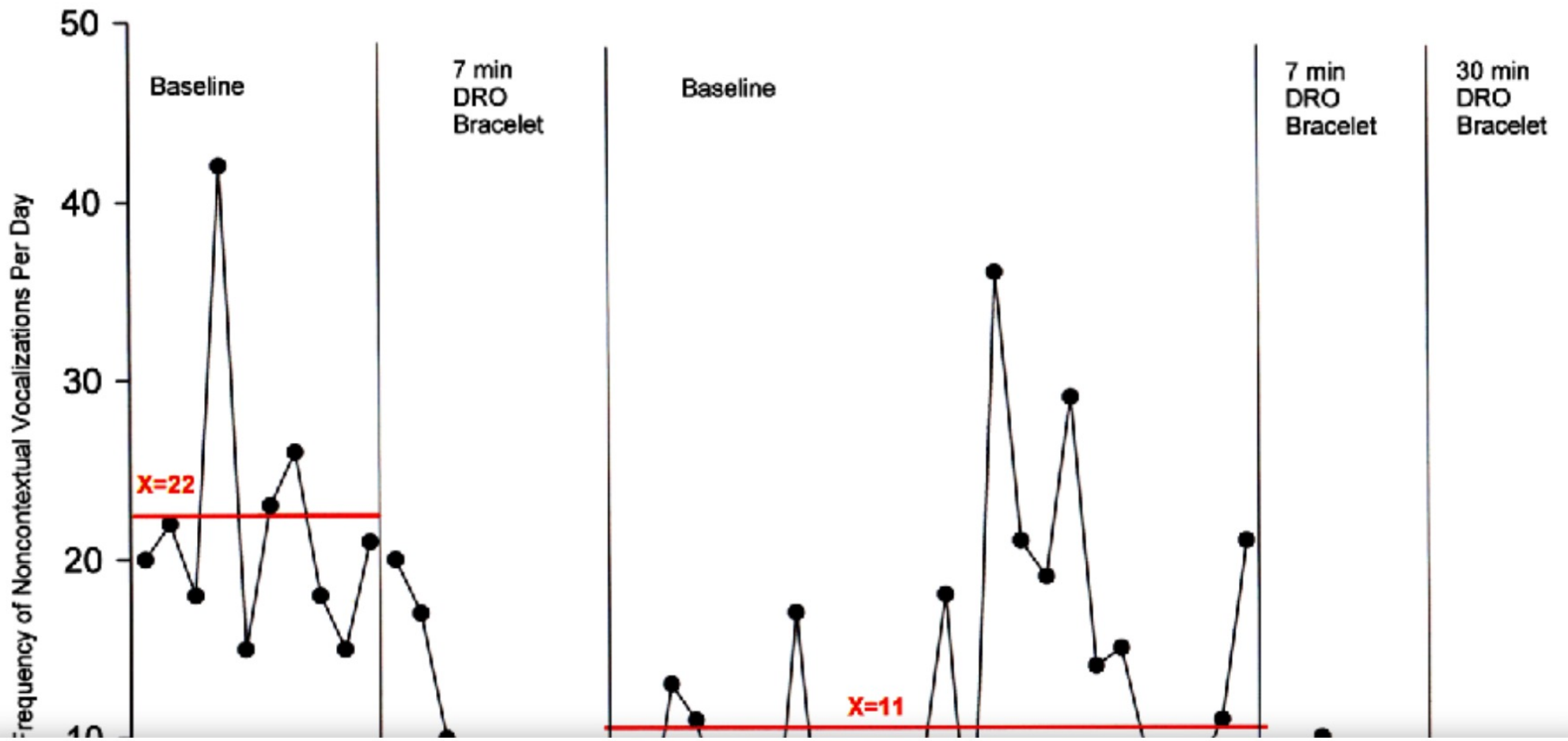


Figure 3. The frequency of non-contextual vocalizations during baseline and differential reinforcement of other behavior (DRO) conditions within the reversal design. Solid horizontal lines represent the mean frequency for each condition. [Collapse](#)

<

Reverzní schéma/design

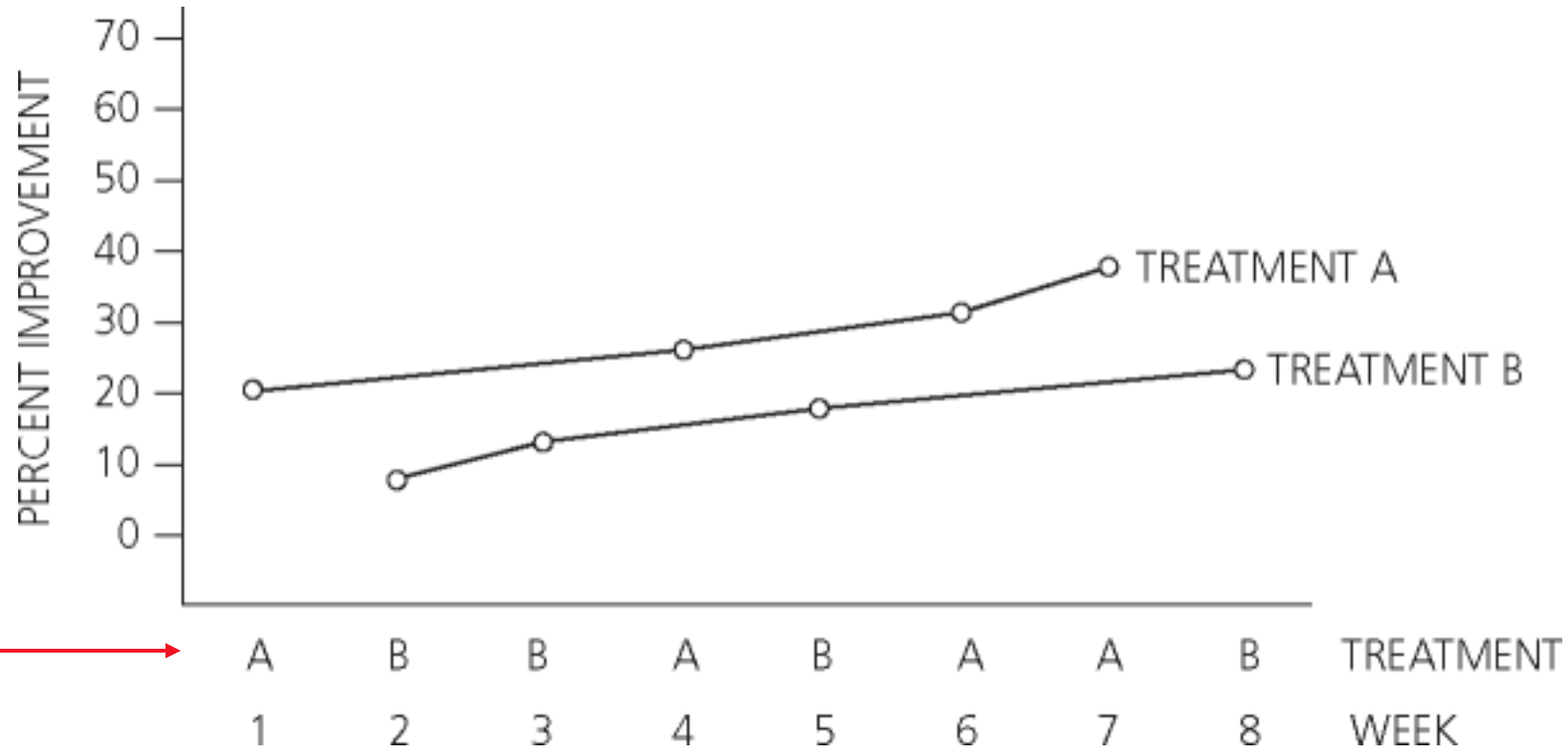
- Výhody:
- Jasně prokázání funkčního vztahu mezi IV a DV
- Návrat k výchozím hodnotám ukazuje potřebu plánovat udržení dovednosti v repertoáru
- Nevýhody:
- **Nevratnost** (irreversibility) – některá chování, jakmile osvojena, již repertoár neopustí (např. jízda na kole)
- **ETICKÁ otázka** odejmutí fungující intervence

Alternating treatment design

- Pro porovnání efektu 2 a více intervencí (IV)
- Založeno na diskriminačním stimulu – každá IV má jasný SD
- SD signalizuje, která intervence je uplatňována
- Pro každou IV zaznamenáváme data zvlášť, avšak do jednoho grafu

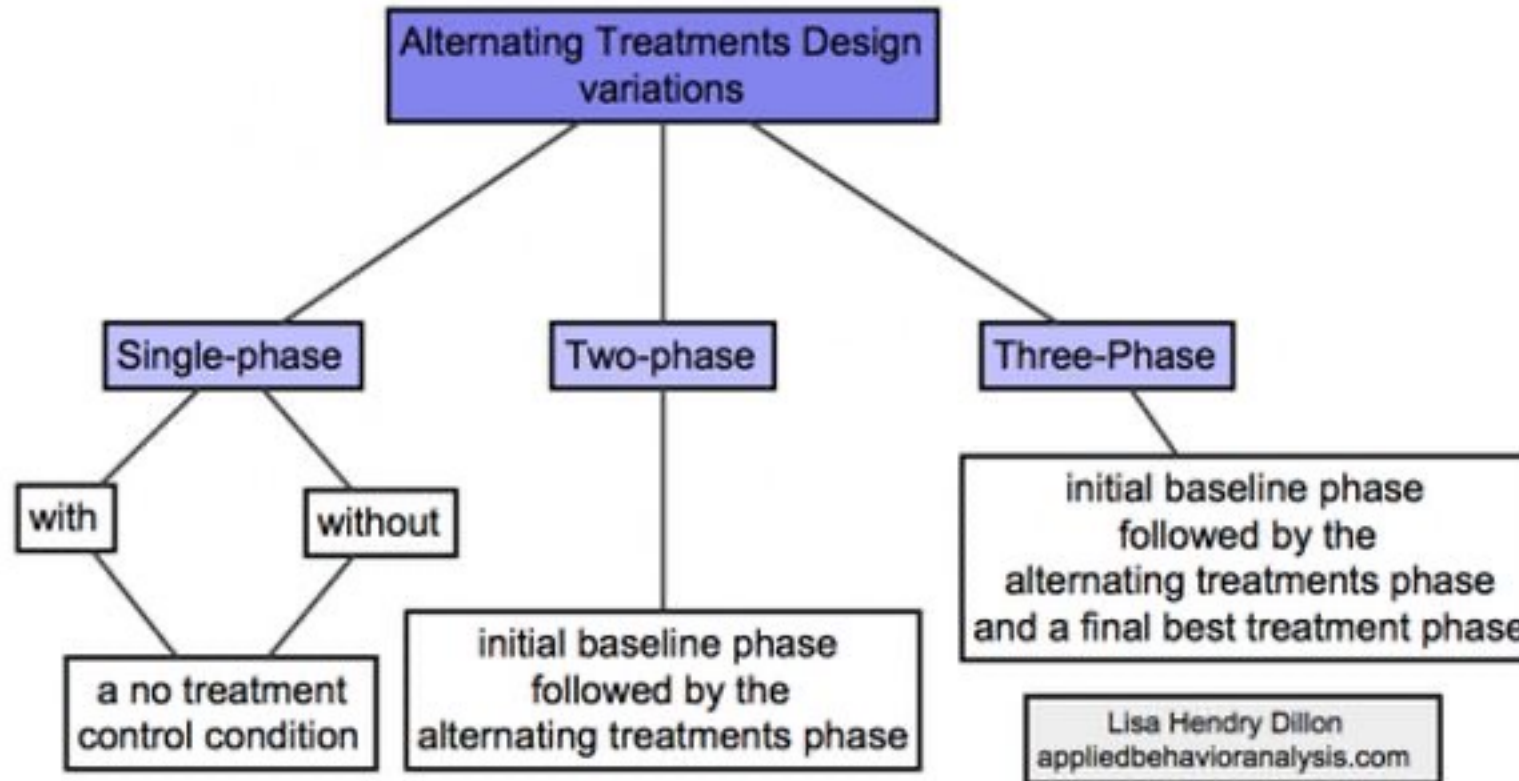
- IV se střídají:
 - V průběhu dne
 - V průběhu jednoho sezení

- IV se střídají bez ohledu na úroveň odpovědi (vs. reverzní design)
- Predikce, verifikace, replikace:
 - Nemají samostatné fáze, každý bod plní všechny tři role

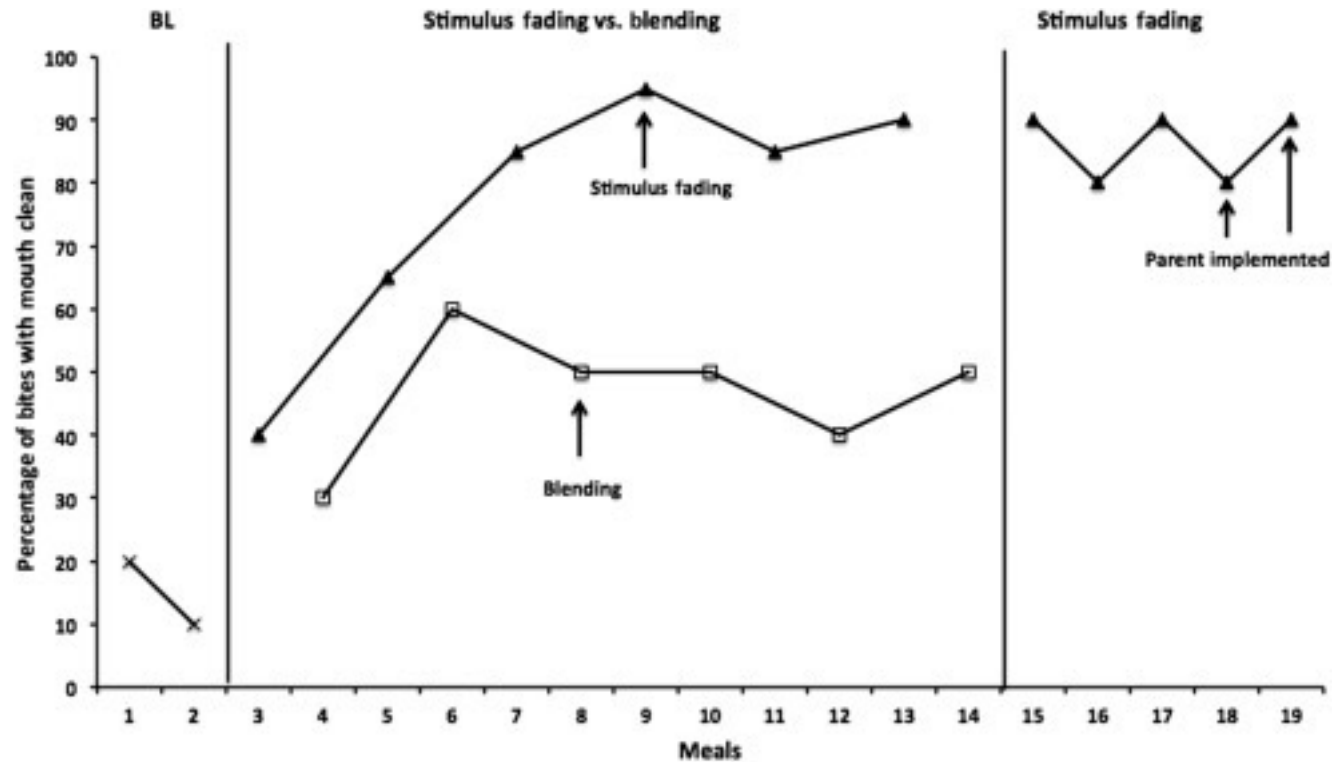


– Varianty:

- Jedna fáze: bez výchozích hodnot
- Dvě fáze: s výchozími hodnotami
- **Tři fáze: s výchozími hodnotami a fází nejefektivnější intervence**



O kterou variantu se jedná?



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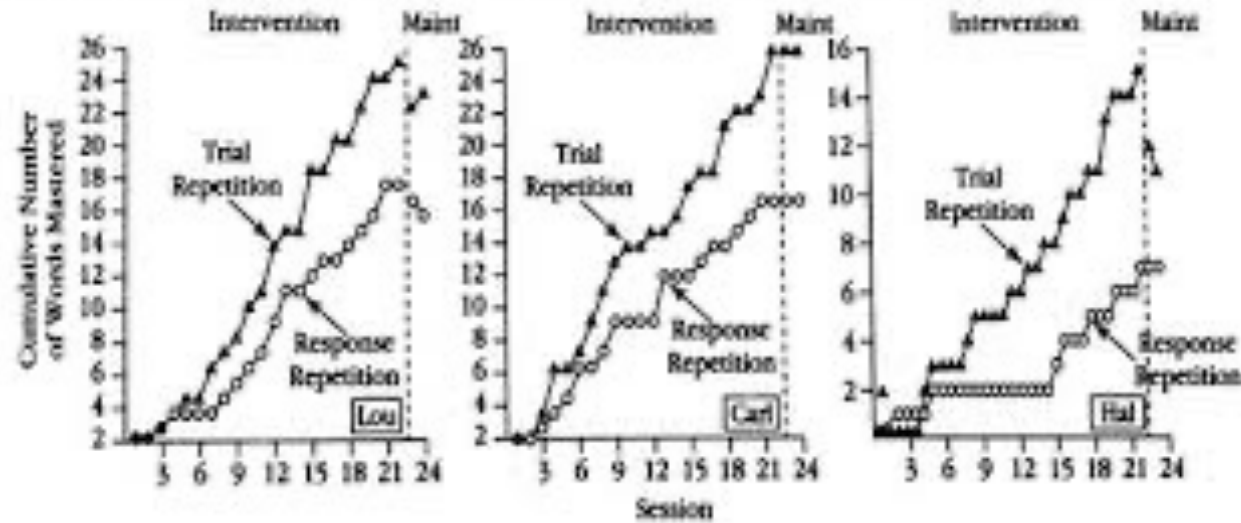
AND TRIAL REPETITION ON SIGHT-WORD TRAINING FOR
STUDENTS WITH LEARNING DISABILITIES

Phillip J. Belfiore, Christopher H. Skinner, and Mary Ann Ferkis
Mercyhurst College, Mississippi State University, and Purdue University

Alternating treatments designs were used to compare the effects of trial repetition (one response within five trials per word) versus response repetition (five response repetitions within one trial per word) on sight-word acquisition for 3 elementary students diagnosed with specific learning disabilities in reading. Although both interventions occasioned the same number of accurate responses per word during training, the trial-repetition condition, which involved complete antecedent-response-feedback sequences, resulted in more words mastered for all 3 students.

DESCRIPTORS: learning disabled, response distribution, academic behavior

a. Alternating Treatments Design Single Phase Without Baseline



— Výhody:

- Nevyžaduje odejmutí intervence
- Rychlá možnost srovnání intervencí
- Minimalizuje problém s nevratností (irreversibility)
- Může být využit s nestabilními daty
- Může začít bez výchozích hodnot

— Nevýhody:

- Interference více intervencí - Byl by výsledek stejný, kdybychom ne/střídali jiné intervence?
- Nepřirozeně rychlé tempo střídání intervencí

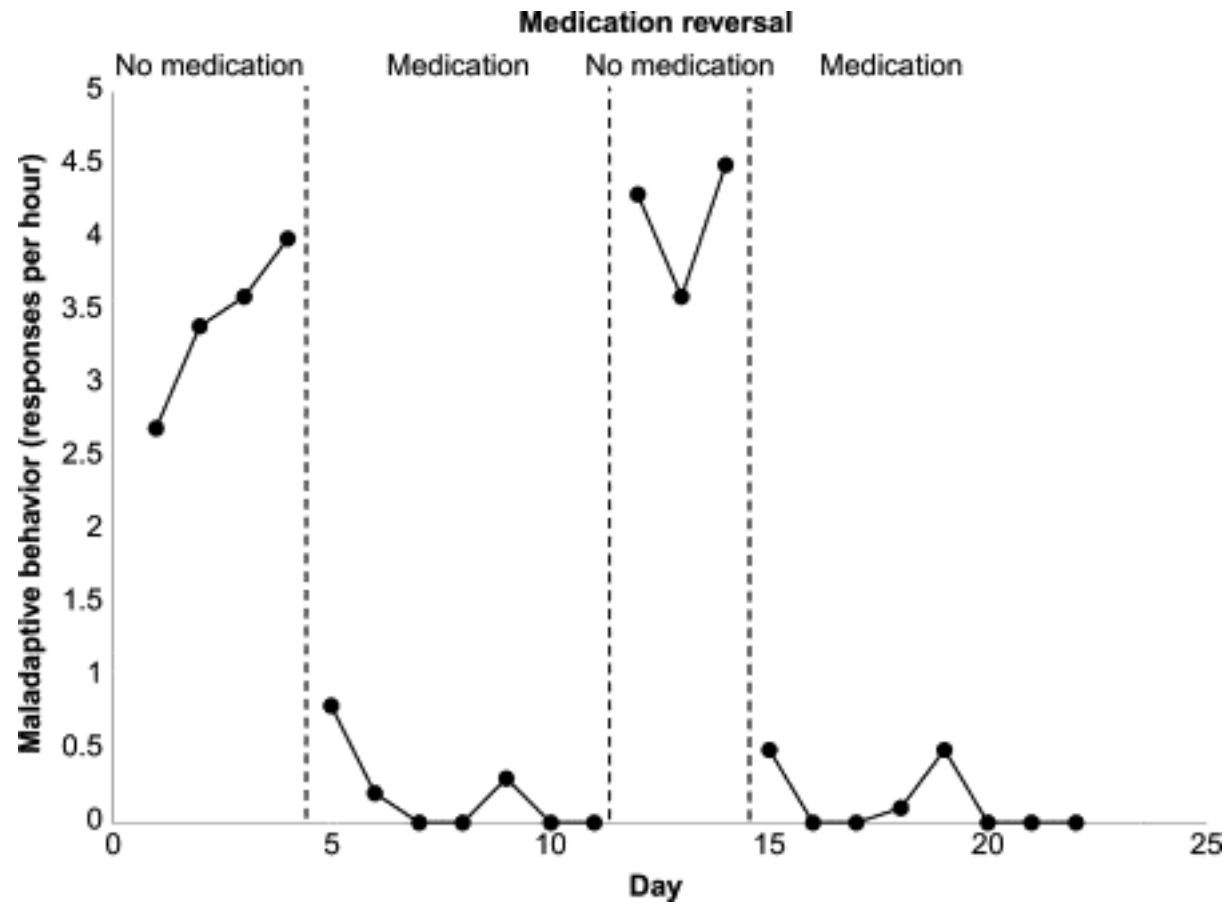
Publikované studie:

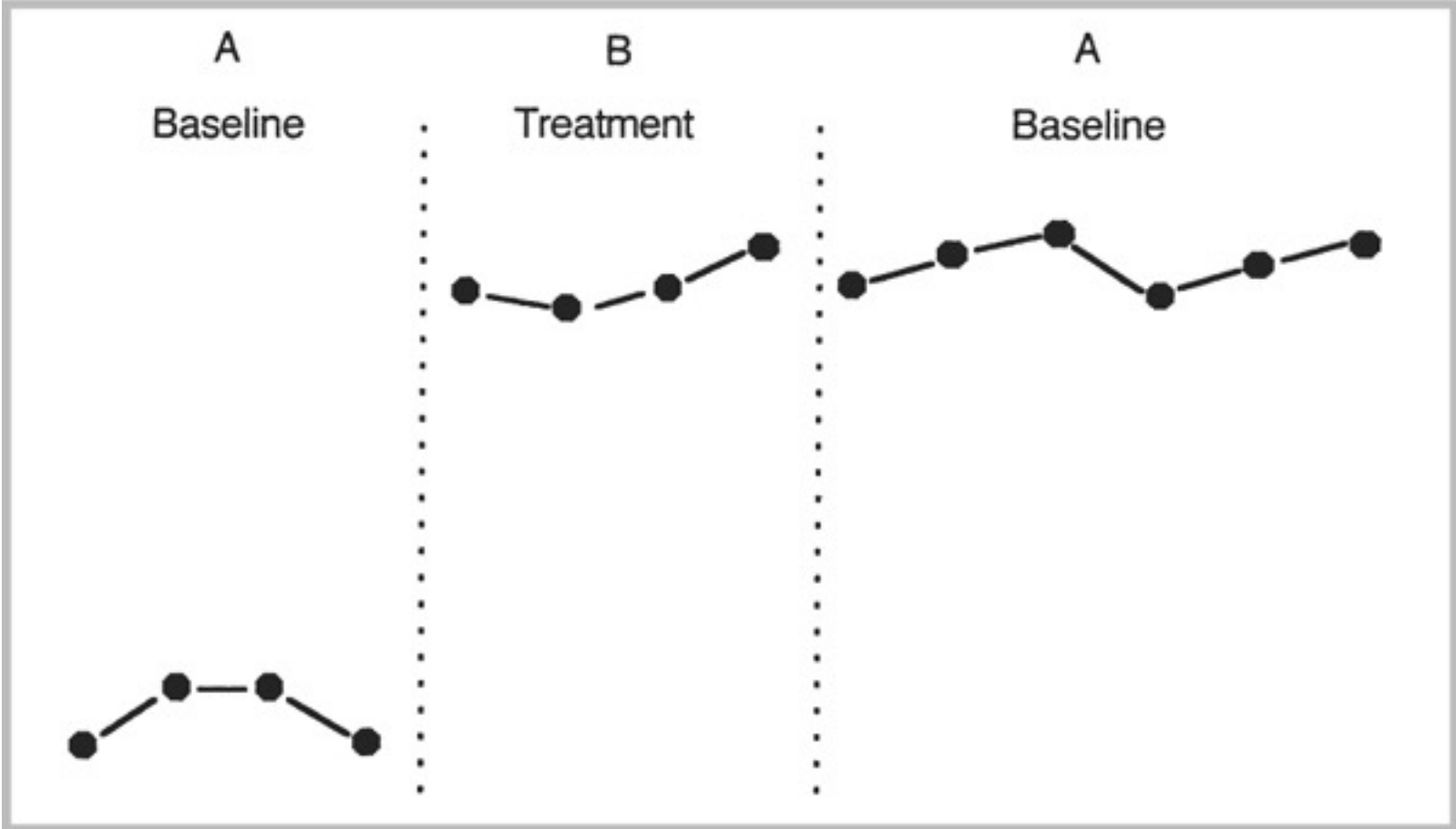
- Kennedy CH, Souza G. (1995) Functional analysis and treatment of eye poking. *Journal of Applied Behavior Analysis*. 28(1):27-37
- Jones, M. E., Allday, R. A. & Givens A. (2019) Reducing adolescent cell phone usage using an interdependent group contingency. *Journal of Applied Behavior Analysis*. 52(2), 386-393.
- A další uvedené přímo v prezentaci

Studijní zdroje:

– <https://learningbehavioranalysis.com/d-5-use-single-subject/>

Opakování





Student Behavior

