TOOLS FOR IMPLEMENTING RESEARCH-ORIENTED SINGLE SUBJECT DESIGNS IN EVERY-DAY CLINICAL SETTINGS

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BACKGROUND

There is a **limited scope** of **research-proven treatment methods** that have received a certain "*threshold of research evidence*", in order to be considered as being "*empirically validated*" ([1], p. 61)

AIM

- To provide **practical tools** by which a research-oriented and evidence-based intervention design can be embedded in **everyday clinical settings**
- To **systematically collect** empirical support for specific intervention methods and materials

PROCEDURE for evaluating therapies [2,3]

- Use **same assessments** before and after therapy → *testing skills to be treated.*
- Perform **more than one assessment** before therapy → *testing stability of pre-treatment behavior*
- Use a **control task** before and after therapy → *testing skills not being affected by the treatment*
- Divide assessed items in **comparable subsets** → *Set 1: "to-be-treated" items,* Set 2: *"control" items*
- Evaluate the results **objectively** after therapy → *compare pre-/post testing statistically*

How can I implement this into my day-to-day clinical setting???

TREATMENT PROTOCOLS[4] (regularly used within supervised internship, BSc Patholinguistics, Potsdam University)

Templates for developing, conducting and evaluating an evidence-based treatment

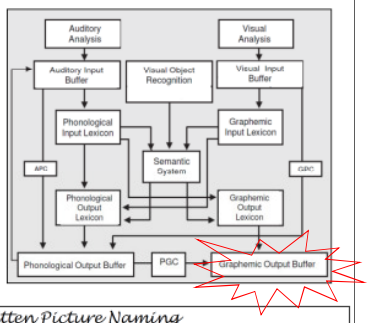
(1) **Therapeutic methods** (goals, task and method, scoring)
(2) **Predicted outcome** (based on empirical evidence)
(3) **Structure of material** (treated/untreated items, control task, related/unrelated tasks for measuring generalization)
(4) **Course of therapy** (quantitative and qualitative analyses)
(5) **Evaluation of results** (preparing data for statistical analyses)
(6) **Main overview of results** (item-specific treatment effects, generalization to untreated items/tasks)

EXAMPLE: Templates used for a step-by-step documentation of a remediation focusing the graphemic output buffer

1 PROCEDURE OF THERAPY

Patient:	Mr. K.S.
Date:	January 2011

FOCUS OF THERAPY	
Cognitive Functions:	Graphemic Output Buffer
Language activities:	Spelling
Participation:	Making Grocery Lists



Evidence- Based Methods & Tasks	
after:	Written Picture Naming Delayed Copying (Rapp & Kane, 2002)

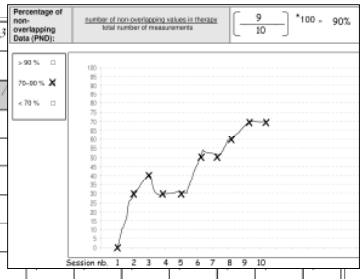
2 THERAPY MATERIAL FOR EVALUATION OF TRAINING EFFECTS

Structure	Description (e.g., Set 1, Set 2, controlled variables, task)	n =	Examples
Trained items	SET 1: Items from category: FOOD, word length: 4 – 11 letters	10	BROT, APFEL, MELONE, KARTOFFEL (bread, apple, melon, potato)

CONTROL MATERIAL FOR EVALUATION OF GENERALIZATION EFFECTS

Structure	Description (e.g., Set 1, Set 2, controlled variables, task)	n =	Examples
Untrained items (comparable totrained items)	SET 2: Items from category: FOOD, word length: 4 – 11 letters	10	PILZ, BIRNE, TOMATE, ERDBEERE (mushroom, pear, tomato, strawberry)
Other comparable tasks	Written Picture Naming (LEMO)	20	Items from LEMO (De Bleser et al., 2004)
Comparable ability (in other setting)	Written Spelling: Grocery List	20	10 trained, 10 untrained items
Control task	Auditory lexical decision	72	Items from LEMO (De Bleser et al., 2004)

3



Nr. of therapy session		1	2	3							
Date											
Nr.	Trained item	+/-	+/-	+/-							
1	Fisch (fish)	-	+	-							
2	Kartoffel (potato)	-	-	-							
3	Melone (melon)	-	-	-							
4	Torte (cake)	-	+	-							
5	Apfel (apple)	-	-	+							
6	Brot (bread)	-	-	+							
7	Banane (banana)	-	+	+	-	-	+	+	+	-	+
8	Zitrone (lemon)	-	-	-	-	-	-	+	+	+	+
9	Artischocke (artichoke)	-	-	-	-	-	-	-	-	-	-
10	Erdnuss (peanut)	-	-	+	-	-	-	-	-	+	+
	Total (Σ)	0	3	4	3	3	5	5	6	7	7

4 RESULTS

		Before	After	Follow-Up (FU)	Statistical comparisons (Test)
	Date	Jan 2011	Apr 2011	--	McNemar (2-sided)
Material	Description (e.g. task)	n =	Number of correct responses		Result (e.g., p-value/significance)
Control task	LEMO Auditory Lexical Decision	72	58/72	62/72	n.s.
Trained items	Written Picture Naming	10	0/20	7/10	p = .023
Untrained items	Written Picture Naming	10	1/10	7/10	p = .041
Other comparable tasks	LEMO Written Picture Naming	20	2/20	16/20	p = .001
Comparable ability (in another setting)	Written spelling: Grocery List	20	0/20	8/20	n.s.

CHANGE	Yes	No	INTERPRETATION	Yes	No
Control task	□	√	Therapy-specific effect	√	□
Trained items	√	□	Training effect	√	□
Untrained items	√	□	Generalization effect	√	□
Other comparable tasks	□	□		□	□
Comparable ability (in another setting)	□	√	Transfer effect	□	√

CONCLUSION: TREATMENT PROTOCOLS

- **Very useful guideline** for the **step-wise evaluation** of a language intervention
- **Easy handling** of **monitoring** the process of intervention and the **documentation** of the results
- **Necessary** for replicating and extending **empirically validated treatments** based on **empirically supported materials**

REFERENCES
[1] Schlosser, R.W., & Sigafoos, J. (2008). Identifying 'evidence-based practice' versus 'empirically supported treatment'. *Evidence-Based Communication Assessment and Intervention, 2,* 61 – 62. [2] Franklin, S.E. (1997). Designing single case treatment studies for aphasic patients. *Neuropsychological Rehabilitation, 7,* 401–418. [3] Nickels, L. (2002). Therapy for naming disorders: Revisiting, revising, and reviewing. *Aphasiology, 16,* 935-980. [4] Stadie, N., & Schröder, A. (2009). *Kognitiv orientierte Sprachtherapie. Methoden und Material für Aphasie, Dyslexie und Dysgraphie.* München: Elsevier, Urban & Fischer.
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