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Investigating the effectiveness of word level therapy in two different approaches

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Disclosures

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Overview

- Thales Aphasia Project
- Research Aims
- Word Level Therapy – elaborated SFA
- Methods of the Study
- Results (RQ1 & RQ2)
- Conclusion

Thales Aphasia Project

Thales Aphasia project was:

- 47 months project
- Took place in Greece
- Host institution: University of Athens

3 different research streams:

a. Neurolinguistics

b. Neuropsychology

c. Speech and Language Therapy

Speech and Language Therapy Stream

- Efficacy of SLT

- Two interventions were evaluated:

  - Sentence level: Mapping Therapy
  - Word level: Elaborated Semantic Feature Analysis (ESFA)

Research Aims

a) Efficacy of ESFA therapy versus no therapy. There was a control / delayed treatment group.

b) Relative efficacy of ESFA delivered through different therapy approaches:

- direct therapy (one-to-one therapy),
- combination therapy (one-to-one and group).

Outcomes tapped WHO ICF framework levels and quality of life.

Word Level Therapy

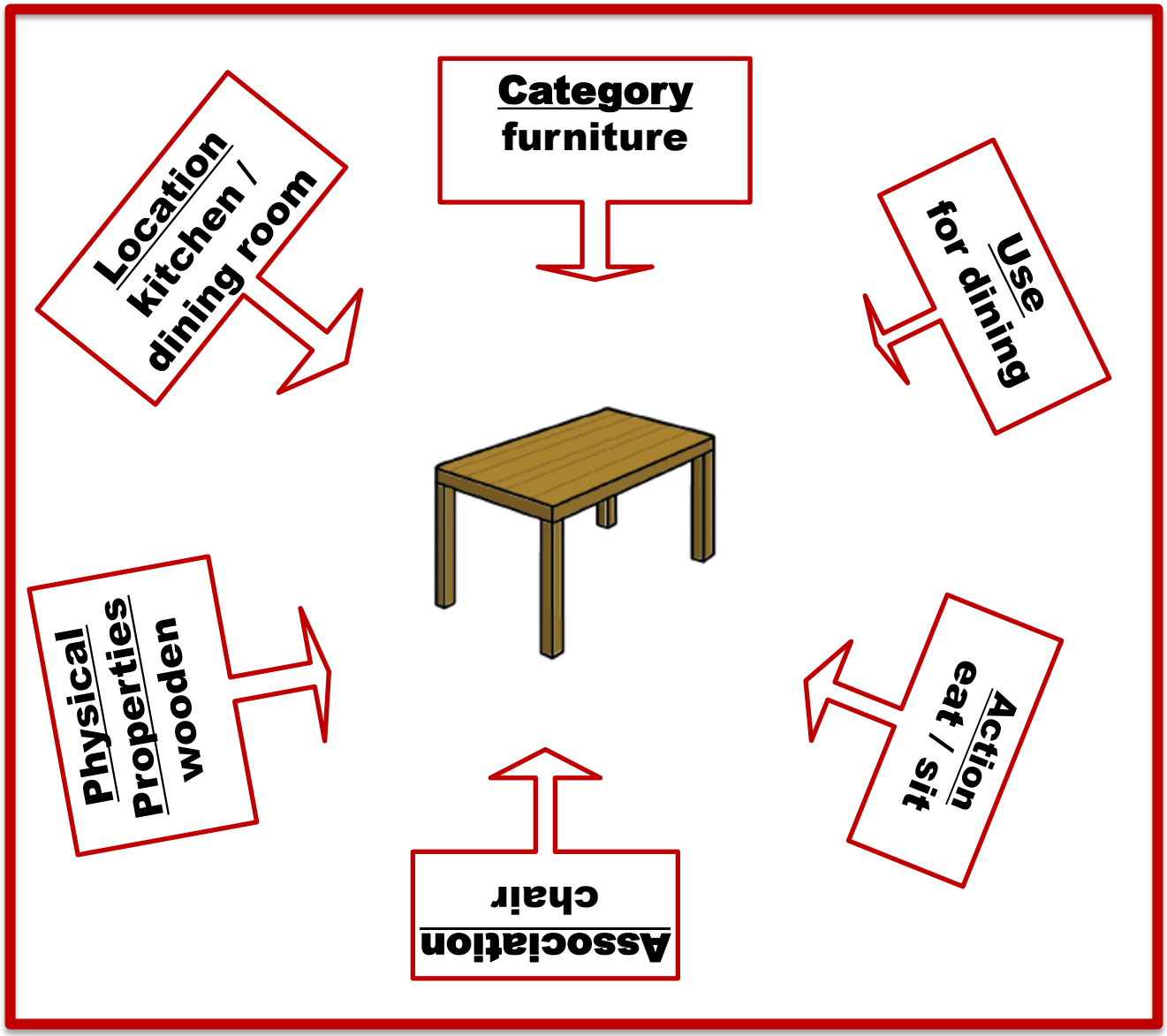
- Semantic Features Analysis (SFA)[1] aims to improve word retrieval, by strengthening the connections between the target word and its semantic network

- Elaborated Semantic Features Analysis (ESFA)[2]

  - modified version of SFA, which prompts the participant to elaborate the features described into a sentence.
  - Purpose: transferring naming ability to connected speech

[1] Boyle & Coelho, 1995; Coelho et al, 2000; Boyle, 2004
[2] Papathanasiou, 2006

Procedure of ESFA[3]



Sentence: e.g. The table is a piece of furniture in the kitchen.

[3] Kladouchou et al (2017) Treatment Integrity of Elaborated Semantic Feature Analysis Aphasia Therapy Delivered One-to-one and In-group Settings. *International Journal of Language and Communication Disorders*

Methods: RCT

Double Baseline Pre – Therapy Assessment
BL1:Week 1
BL2: Week 6

Direct Approach Week 7 to 18	Combination Approach Week 7 to 18	Delayed Tx/ Control Group Week 7 to 18
Post – Therapy Assessment Week 19	Post – Therapy Assessment Week 19	Third – Baseline Assessment Week 19
Follow – Up Assessment Week 32	Follow – Up Assessment Week 32	Allocation to Approach
		Post – Therapy Assessment Week 32

Duration of intervention

12 weeks / 3 hours per week

Direct therapy

3 * 1-hr

one – to – one

sessions

per week

Combination therapy

1 * 1½-hr group

2 * 45-min

one – to – one

sessions

per week

Control/ Delayed treatment Group

12 weeks no

intervention

Methodology

RQ1
38 individuals with aphasia

RQ2
36 individuals with aphasia

Therapy Group
26 Participants

Control/ Delayed Treatment Group
12 Participants

Direct Therapy
22 Participants

Combination Therapy
14 Participants

Assessments

- **Profiling measure:**

Greek version of the Boston Diagnostic Aphasia Examination (BDAE)[4]

- **Primary outcome measure:**

Oral - Confrontation naming task of 260 colorized Snodgrass and Vanderwart nouns pictures[5] .

[4] Papathanasiou et al., 2008

[5] Rossion & Pourtois, 2004

Assessments

Secondary outcome measures

- Impairment Level:
  a) Boston Naming Test for word recall (BNT) Greek version[6]

- Activity & Participation Level:
  a) Greek version of ASHA FACS[7]
  b) Discourse scores from the BDAE Cookie Theft Picture

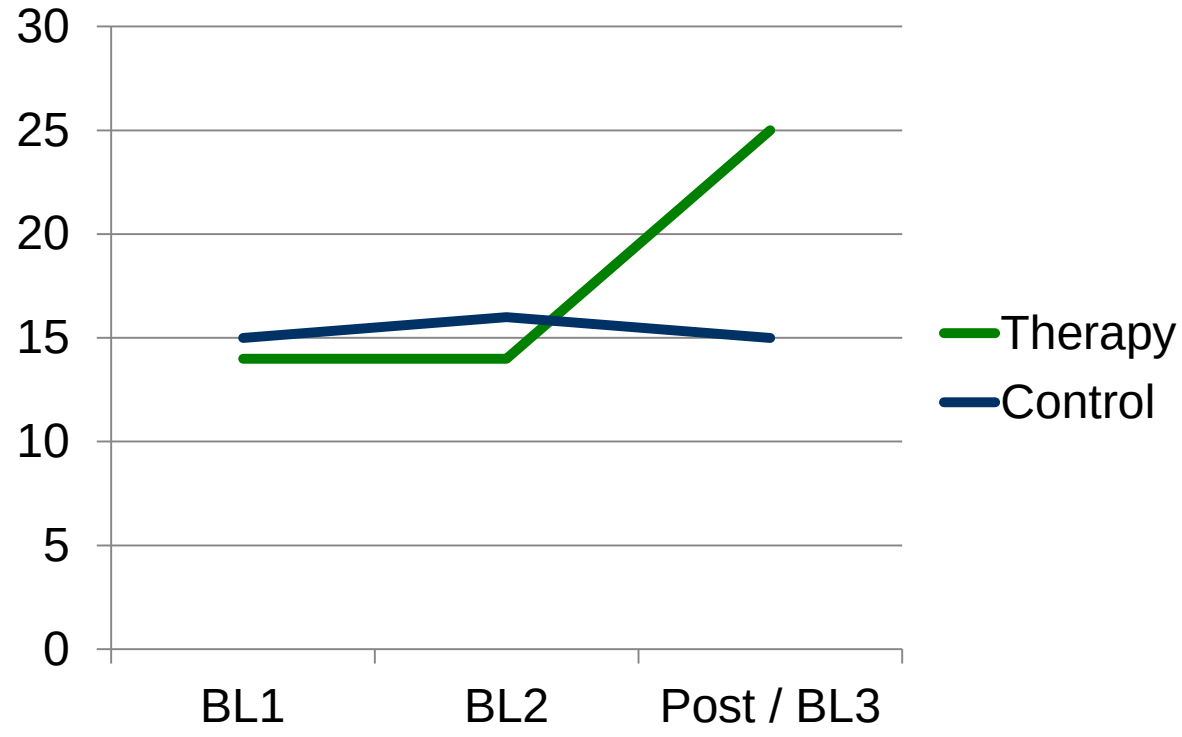
- Well being and Quality of Life measures:
  a) General health questionnaire -12 (GHQ-12) Greek version[8]
  b) Greek version EQ-5D[9]
  c) Greek version SAQOL-39g[10,11]

[6] Simos et al., 2011; [7] Frattali *et al*., 1995; [8] Garifalos et al., 2001; [9] Kontodimopoulos, 2008; [10] Kartsona & Hilari, 2007; [11] Efstratiadou *et al.,* 2012

Results

RQ1: ESFA versus waitlist control group

E.g. if therapy works and control does not -> sig. interaction effect



Participants Characteristics RQ1

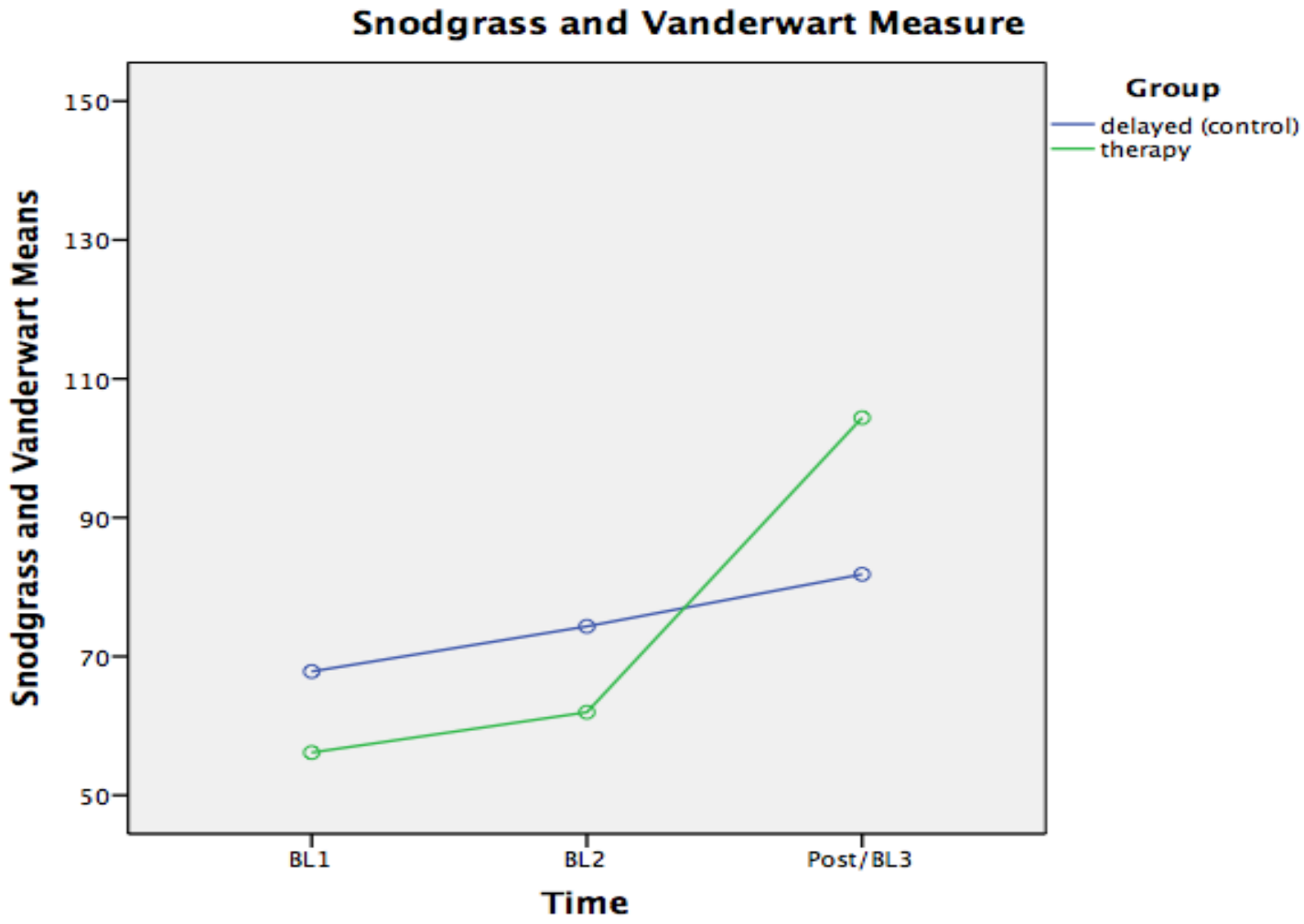
Variable	Therapy Group (n = 26)	Control/ Delayed Therapy Group (n = 12)
Gender	20 Male, 6 Female	6 Male, 6 Female
Age (yrs) Mean(SD) Range	58.38(11.26) 38-84	58.42 (11.99) 44-79
Stroke Type Ischaemic Haemorrhagic	26	11 1
Time post stroke (months) Mean (SD) Range	36.73 (49.30) 4 - 207	16.00 (21.89) 4-78

Participants' aphasia
(based on BDAE)

Variable	Therapy Group (n = 26)	Control/ Delayed Therapy Group (n = 12)
Aphasia Severity		
Mild	5	3
Moderate	7	4
Severe	14	5
Aphasia Type		
Broca	9	5
Wernicke	1	-
Anomic	5	1
Global	7	3
Conduction	-	2
Unclassified	4	1
Fluency Status		
Fluent	5	5
Non Fluent	21	7

Primary Outcome Measure

Oral – Confrontation naming Task (Snodgrass Pictures)



Primary Outcome Measure

Oral – Confrontation naming Task (Snodgrass Pictures)

- Significant main effect of time:

F (1.09, 39.38) = 26.04, p< .001, large effect size η_p^2= .42

- Significant interaction effect:

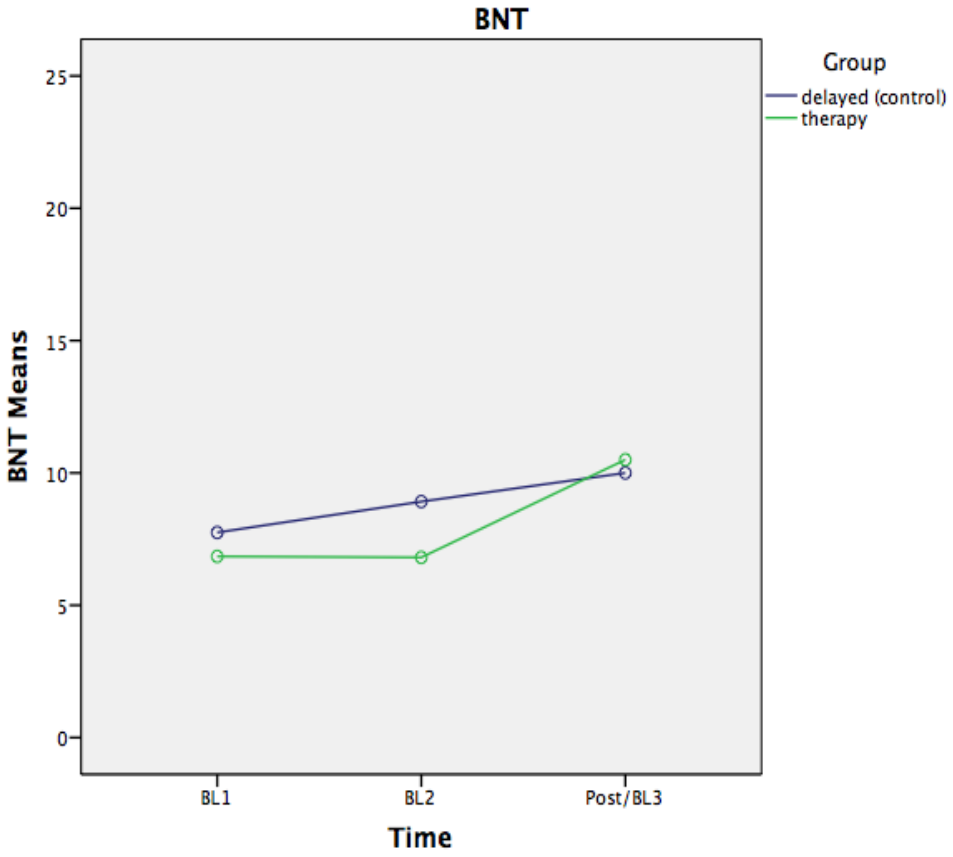
F (1.09, 39.38) = 9.56, p = .003, large effect size η^2_p= .21

- No significant group effect

η_p^2 Cohen's guidelines (1988): 0.01 = small, 0.06 = medium, 0.14 = large

Secondary Outcome Measure

BNT



- Significant main effect of time:

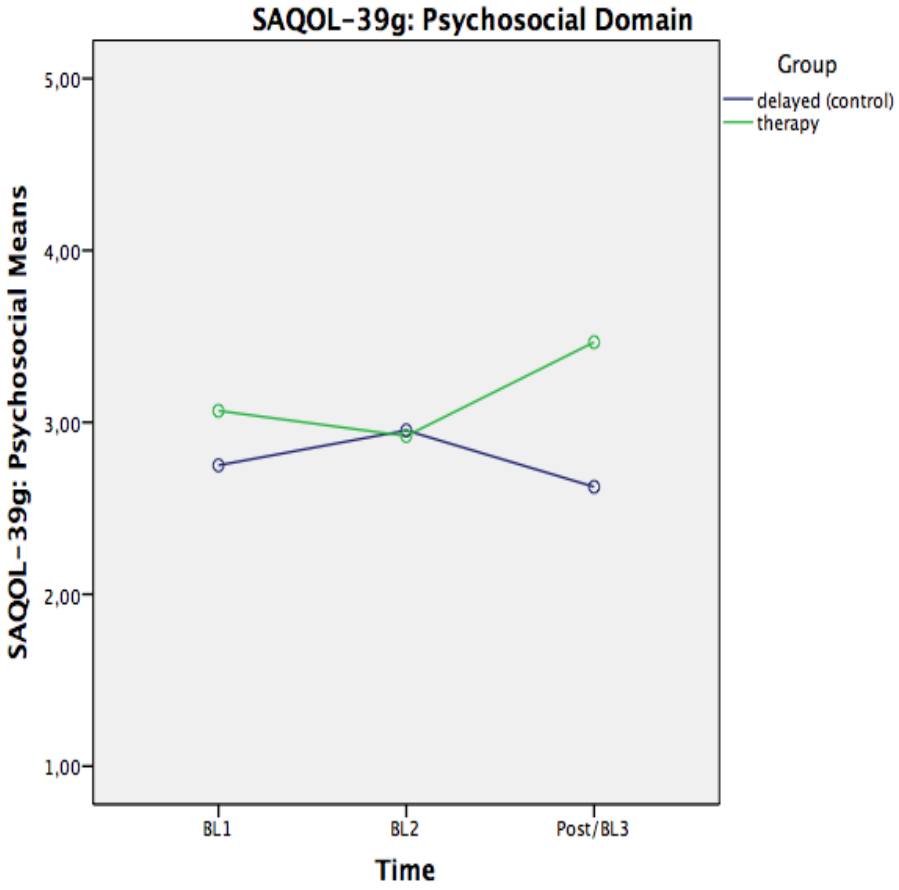
  $F(1.45, 52.14) = 8.37$, $p = .002$

  $\eta_p^2 = .19$

- No significant interaction or group effect

Secondary Outcome Measure

SAQOL-39g Psychosocial Domain



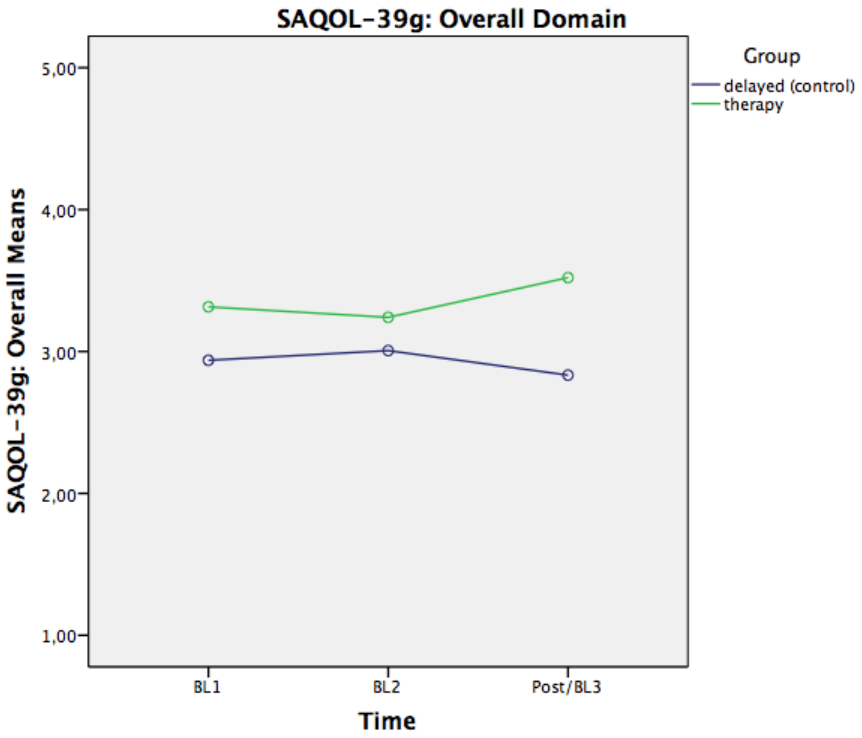
- Significant interaction effect:

F (1.72,61.87) = 5.00, p = .013 with a medium effect size (η^2_p= .12)

- No significant time or group effect

Secondary Outcome Measure

SAQOL-39g Overall score



- Significant interaction effect:

  F (2, 72) = 4.47, p = .015,

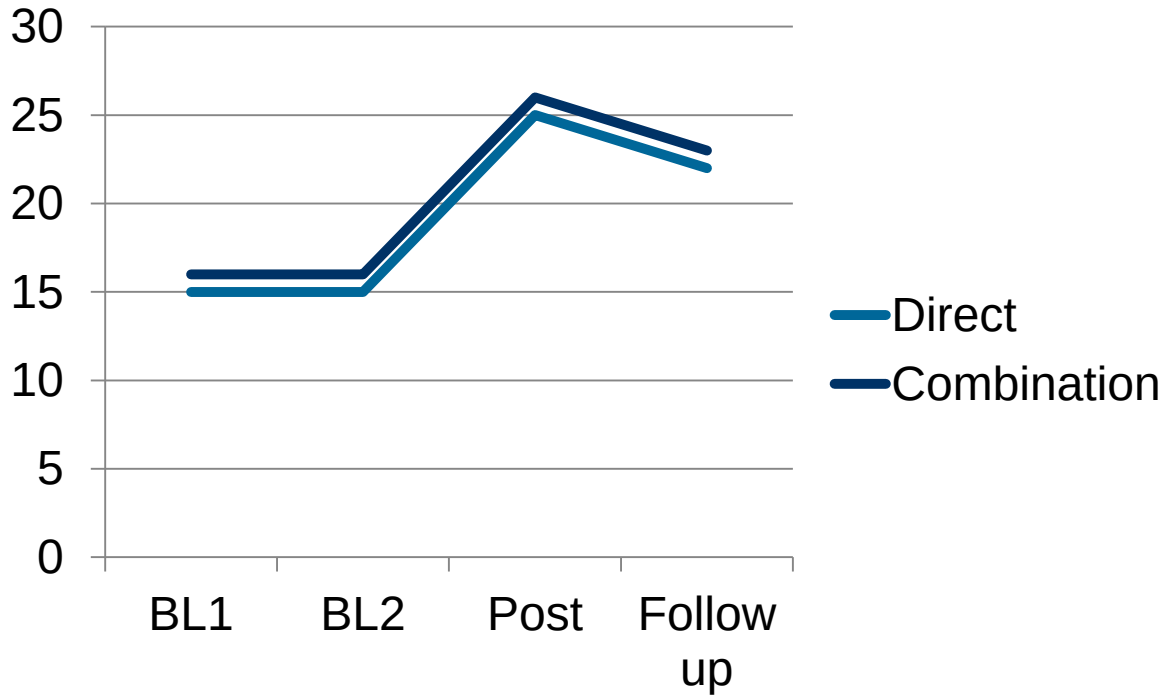
  medium effect size (η^2_p= .11)

- No significant time or group effect

Results

RQ2: Direct ESFA versus combination ESFA

E.g. if both therapies work similarly -> significant time effect



Participants Characteristics RQ2

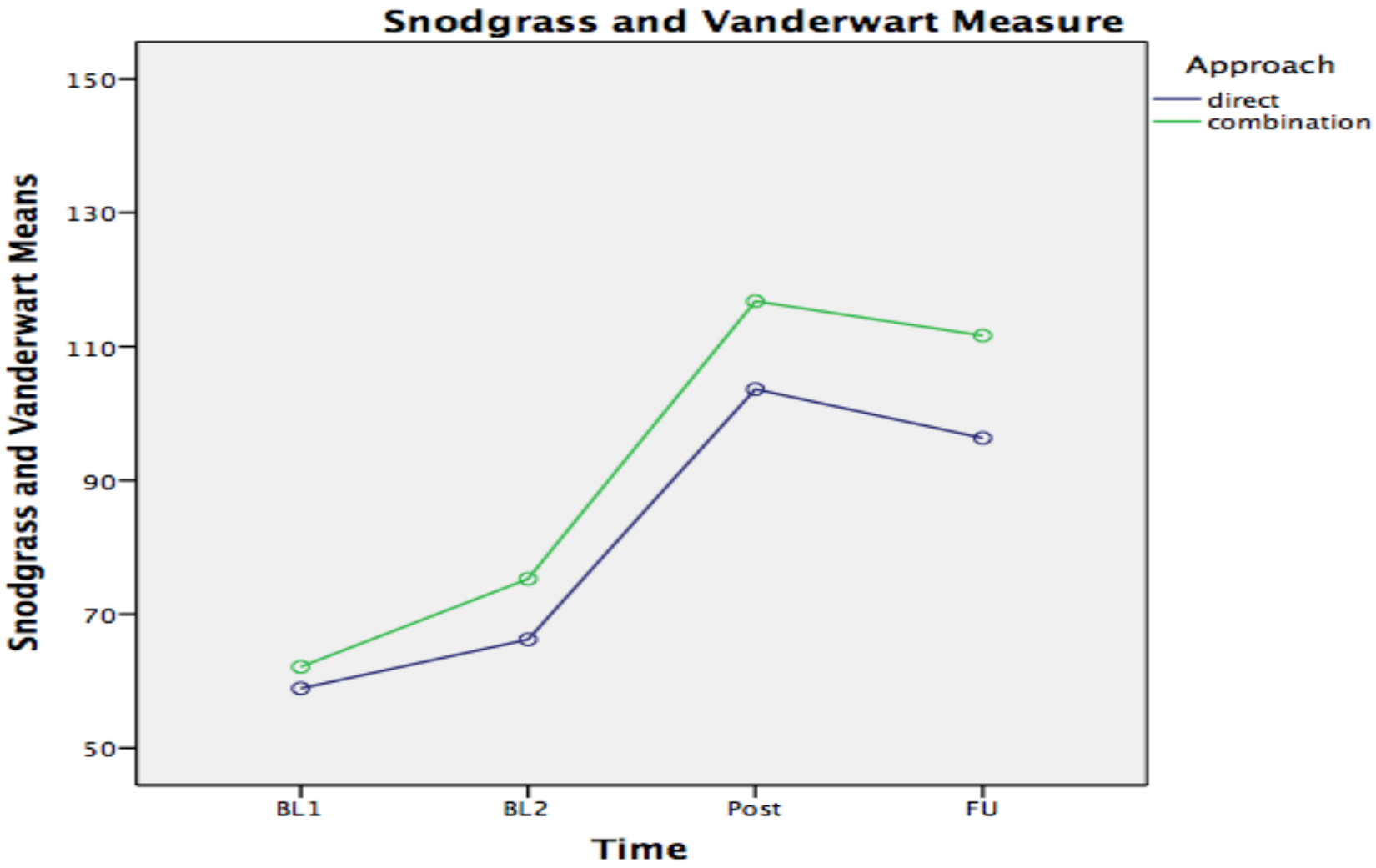
Variable	Direct Approach (n = 22)	Combination Approach (n = 14)
Gender	16 Male, 6 Female	8 Male, 6 Female
Age (yrs) Mean(SD) Range	58.23(11.45) 38-84	58.36 (11.67) 40-79
Stroke Type Ischaemic Haemorrhagic	22	14
Time post stroke (months) Mean (SD) Range	30.55 (45.99) 4 - 207	33.29 (42.68) 4-127

Participants' aphasia
(based on BDAE)

Variable	Direct Approach (22)	Combination Approach(14)
Aphasia Severity		
Mild	4	4
Moderate	6	4
Severe	12	6
Aphasia Type		
Broca	-	6
Wernicke	8	1
Anomic	5	1
Global	6	3
Conduction	-	1
Unclassified	3	2
Fluency Status		
Fluent	4	5
Non Fluent	18	9

Primary Outcome Measure

Oral – Confrontation naming Task (Snodgrass Pictures)



Primary Outcome Measure

Oral – Confrontation naming Task (Snodgrass Pictures)

- Significant main effect of time:

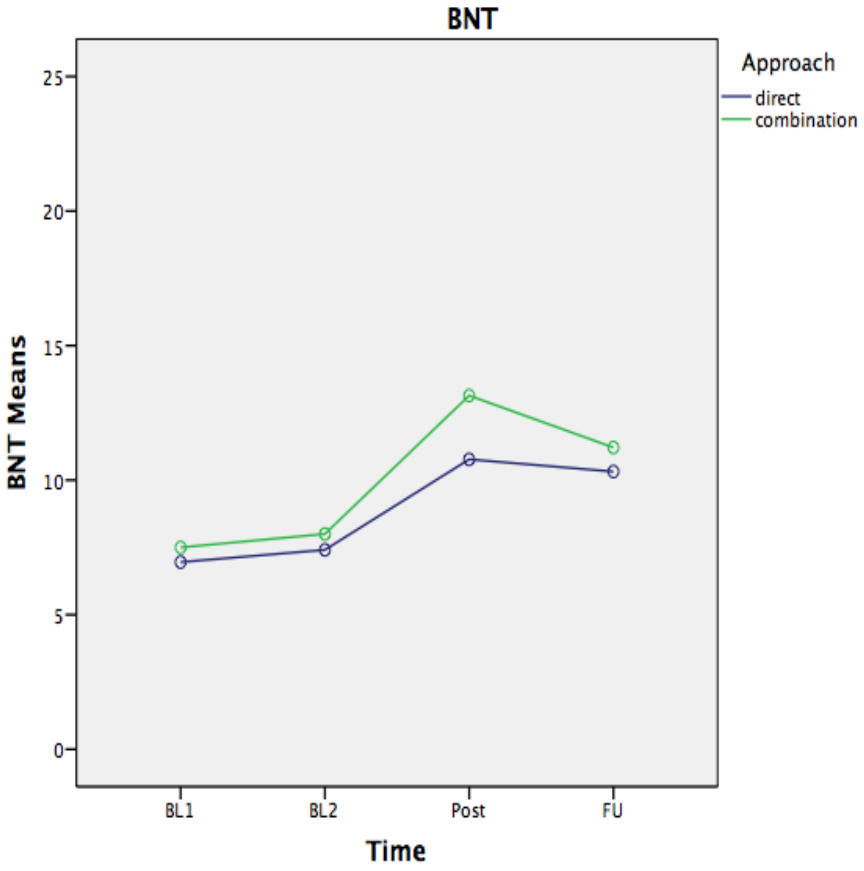
F (1.90, 64.53) = 32.95, p< .001 with large effect size (η^2_p= .49)

- No significant interaction effect between time and approach:

- No significant group effect:

Secondary Outcome Measure

BNT

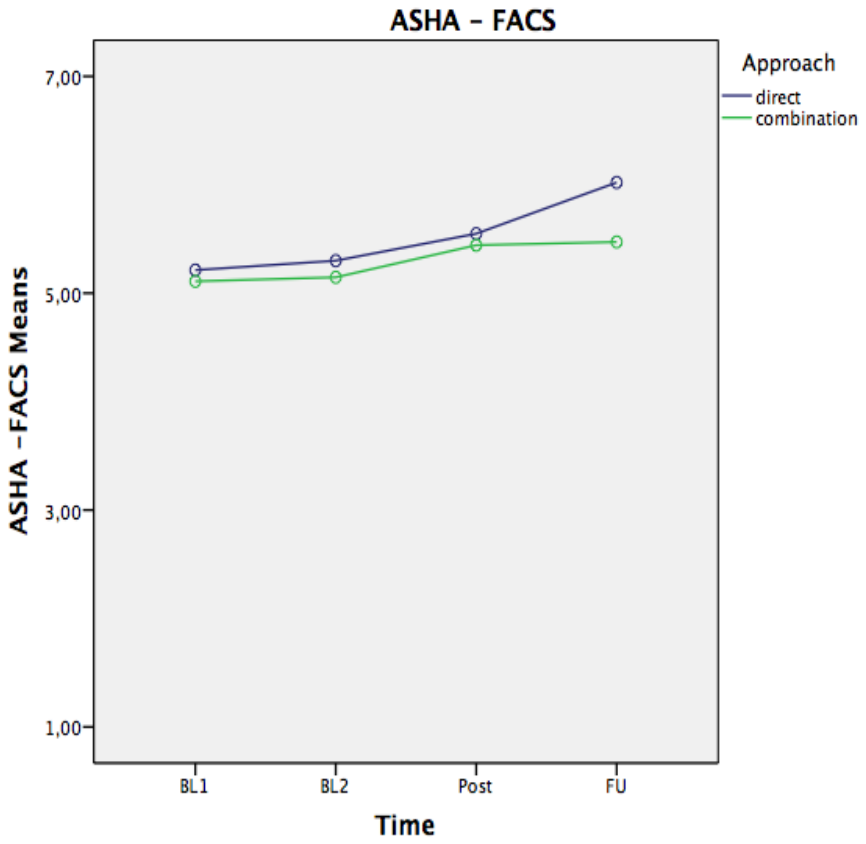


- Significant main effect of time:

F (1.91, 64.77) = 13.88, p< .001 with large effect size (η_p^2 = .29)

- No significant interaction or group

Secondary Outcome Measure
ASHA -FACS



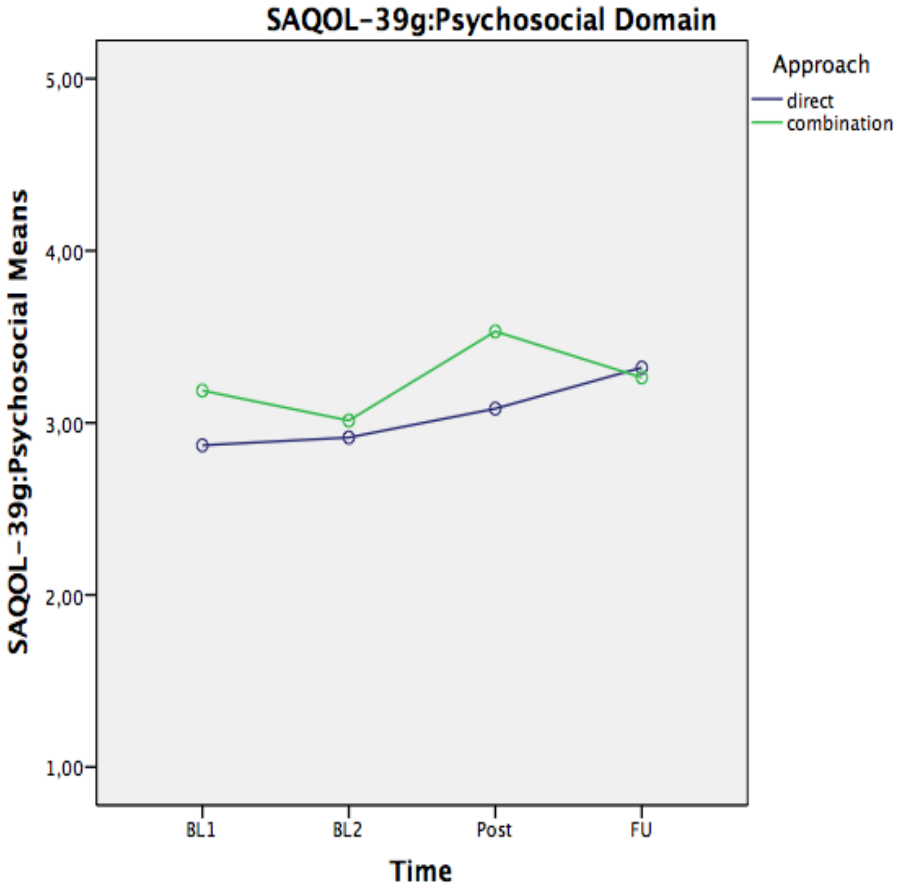
- Significant main effect of time:

F (2.16, 73.26) = 7.26, p = .001 with a large effect size (η_p^2 = .176)

- No significant interaction or group effect

Secondary Outcome Measure

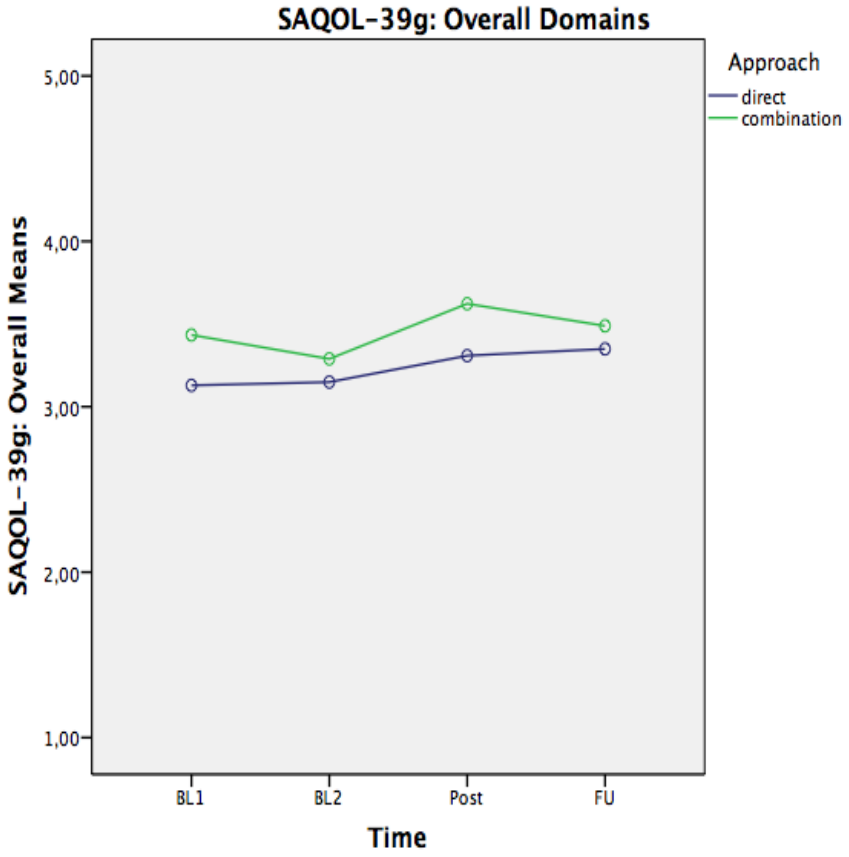
- SAOOL-39g



- No significant time, interaction, or group effect.
- The effect size for time was large (η^2_p= .50)

Secondary Outcome Measure

- SAQOL-39g



- Significant main effect of time: F (2.06, 70.17) = 3.18, p =.046, with a medium effect size (η^2_p= .09).

- No significant group or interaction effect

Conclusion RQ1 & RQ2

- Limitation of the study: small number of participants; issues of power.

- This study is the first which explored and provided evidence of the efficacy of ESFA in a randomised design.

Conclusion for RQ1: therapy vs. control

- ESFA therapy was effective in increasing naming ability in people with varying degrees of aphasia severity, different aphasia types, and at different times post onset.
- Therapy group participants showed therapy gains on the primary outcome measure, in contrast to the control / delayed treatment group
- No gains in measures of communication and emotional wellbeing,
- Gains in psychosocial and overall health-related quality of life

Conclusion for RQ2: direct vs. combination

- Both groups of participants that received ESFA therapy increased their naming ability, maintained this ability, and generalised their naming skills to untrained words
- Positive change in how their functional communication skills were perceived by their significant others.
- Patterns of change and effect sizes in psychosocial and overall health-related quality of life (large - medium) suggest a larger study is needed to explore these meaningfully

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Thank you!
Questions?