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# Investigating the effectiveness of word level therapy in two different approaches

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RCSLT, Glasgow 2017

# Disclosures

## Research Funding

This research has been co-financed by the European Union (European Social Fund – ESF) and Greek national funds through the Operational Program "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF) –

Research Funding Program: THALES – UOA - "Levels of impairment in Greek aphasia: Relationship with processing deficits, brain region, and therapeutic implications”

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Receive a salary from their employing institutions

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Co-financed by Greece and the European Union

# 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)**<sup>1</sup> aims to improve word retrieval, by strengthening the connections between the target word and its semantic network
- **Elaborated Semantic Features Analysis (ESFA)**<sup>2</sup>
  - modified version of SFA, which prompts the participant to elaborate the features described into a sentence.
  - **Purpose:** transferring naming ability to connected speech

<sup>1</sup> Boyle & Coelho, 1995; Coelho et al, 2000; Boyle, 2004

<sup>2</sup> Papathanasiou, 2006

# Procedure of ESFA<sup>3</sup>

Location  
kitchen /  
dining room

Category  
furniture

Use  
for dining



Physical Properties  
wooden

Action  
eat / sit

Association  
chair

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

<sup>3</sup> 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)<sup>4</sup>

## ■ Primary outcome measure:

Oral - Confrontation naming task of 260 colorized Snodgrass and Vanderwart nouns pictures<sup>5</sup> .

<sup>4</sup> Papathanasiou et al., 2008

<sup>5</sup> Rossion & Pourtois, 2004

# Assessments

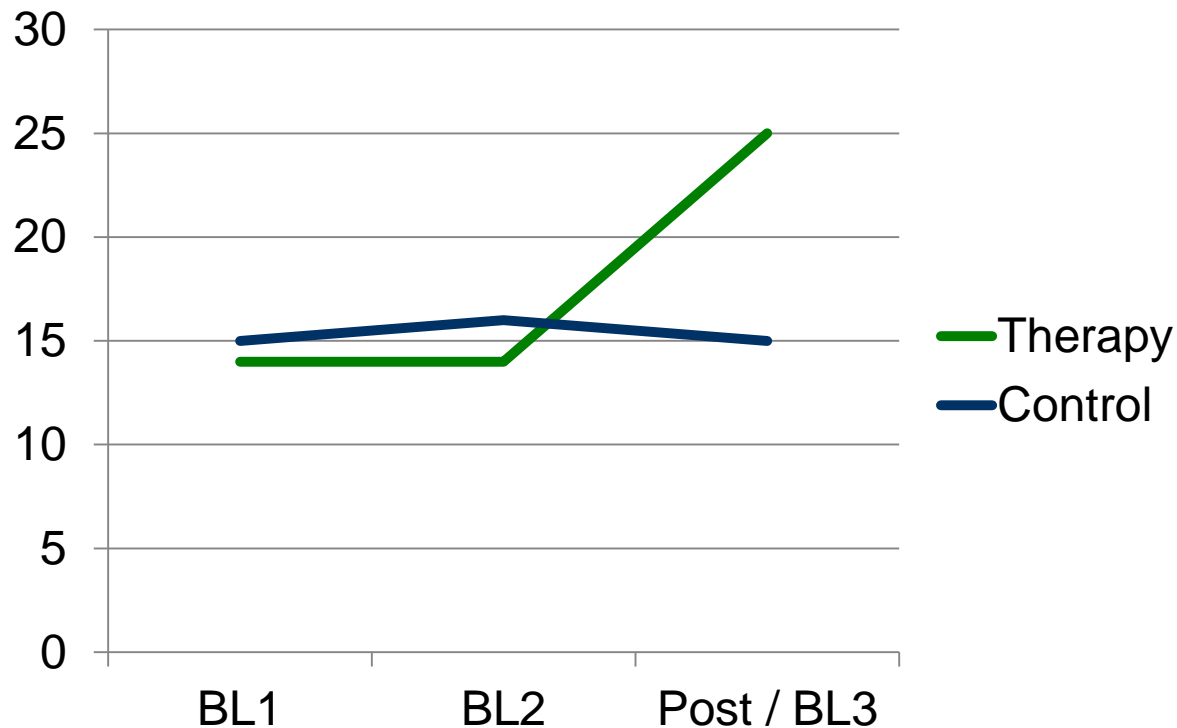
## Secondary outcome measures

- Impairment Level:
  - a) Boston Naming Test for word recall (BNT) Greek version<sup>6</sup>
  
- Activity & Participation Level:
  - a) Greek version of ASHA FACS<sup>7</sup>
  - 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<sup>8</sup>
  - b) Greek version EQ-5D<sup>9</sup>
  - c) Greek version SAQOL-39g<sup>10,11</sup>

# Results

## RQ1: ESFA versus waitlist control group

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



# Participants Characteristics RQ1

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

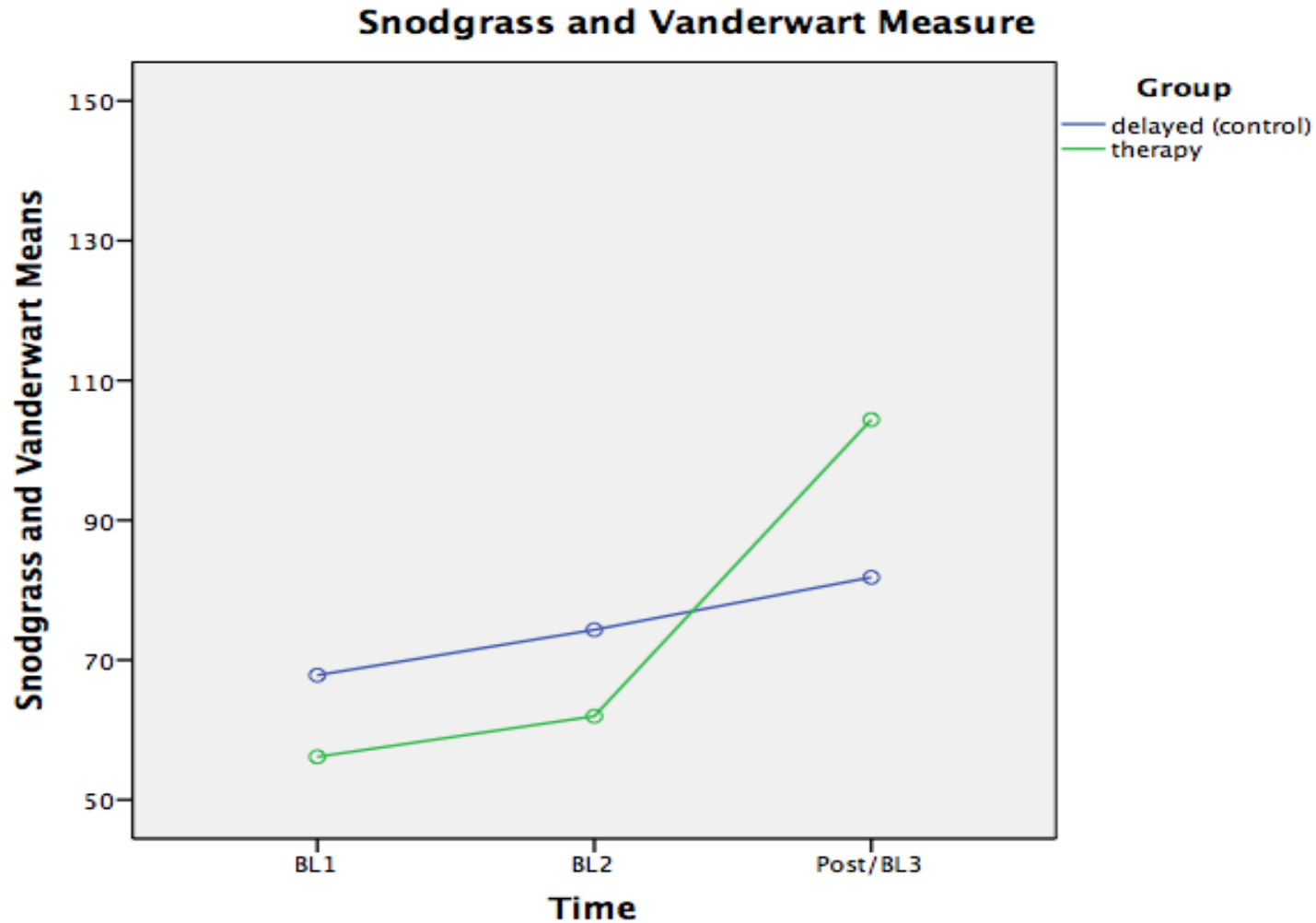
# Participants' aphasia (based on BDAE)

Variable	Therapy Group (n = 26)	Control/ Delayed Therapy Group (n = 12)
<b>Aphasia Severity</b>		
Mild	5	3
Moderate	7	4
Severe	14	5
<b>Aphasia Type</b>		
Broca	9	5
Wernicke	1	-
Anomic	5	1
Global	7	3
Conduction	-	2
Unclassified	4	1
<b>Fluency Status</b>		
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  $\eta_p^2 = .42$

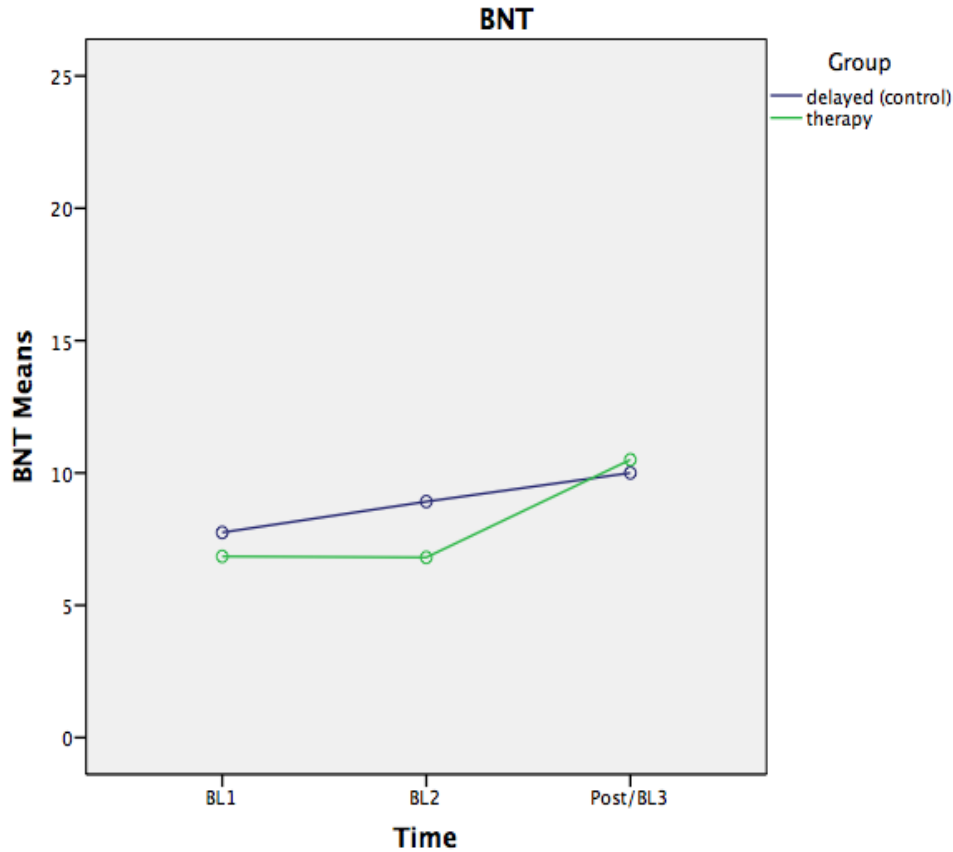
- Significant interaction effect:

$F(1.09, 39.38) = 9.56, p = .003$ , large effect size  $\eta_p^2 = .21$

- No significant group effect

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

# Secondary Outcome Measure BNT



■ Significant main effect of time:

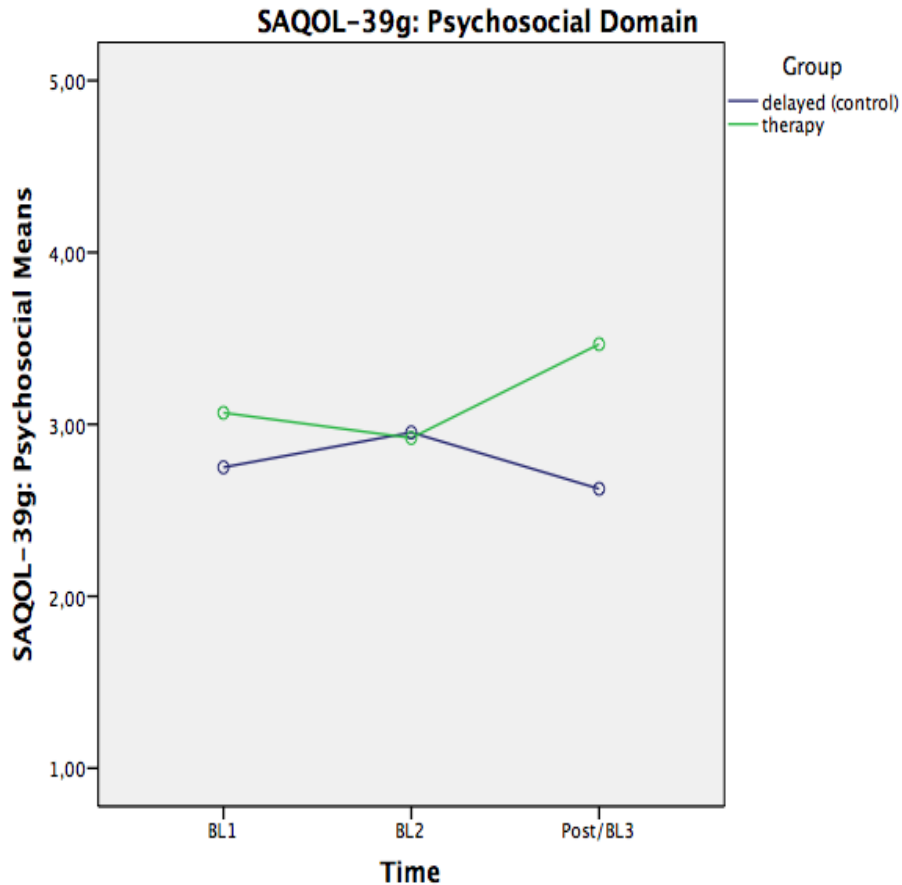
$F(1.45, 52.14) = 8.37, p = .002$

$\eta_p^2 = .19$

■ No significant interaction or group effect

# Secondary Outcome Measure

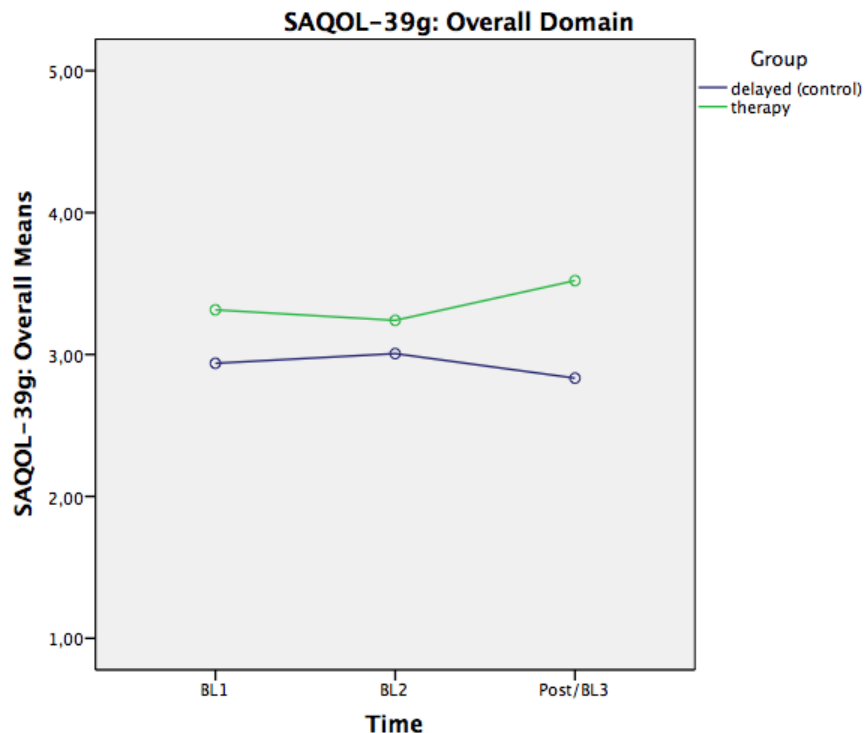
## SAQOL-39g Psychosocial Domain



- Significant interaction effect:  
 $F(1.72, 61.87) = 5.00, p = .013$   
with a medium effect size ( $\eta^2_p = .12$ )
- No significant time or group effect

# Secondary Outcome Measure

## SAQOL-39g Overall score



■ Significant interaction effect:

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

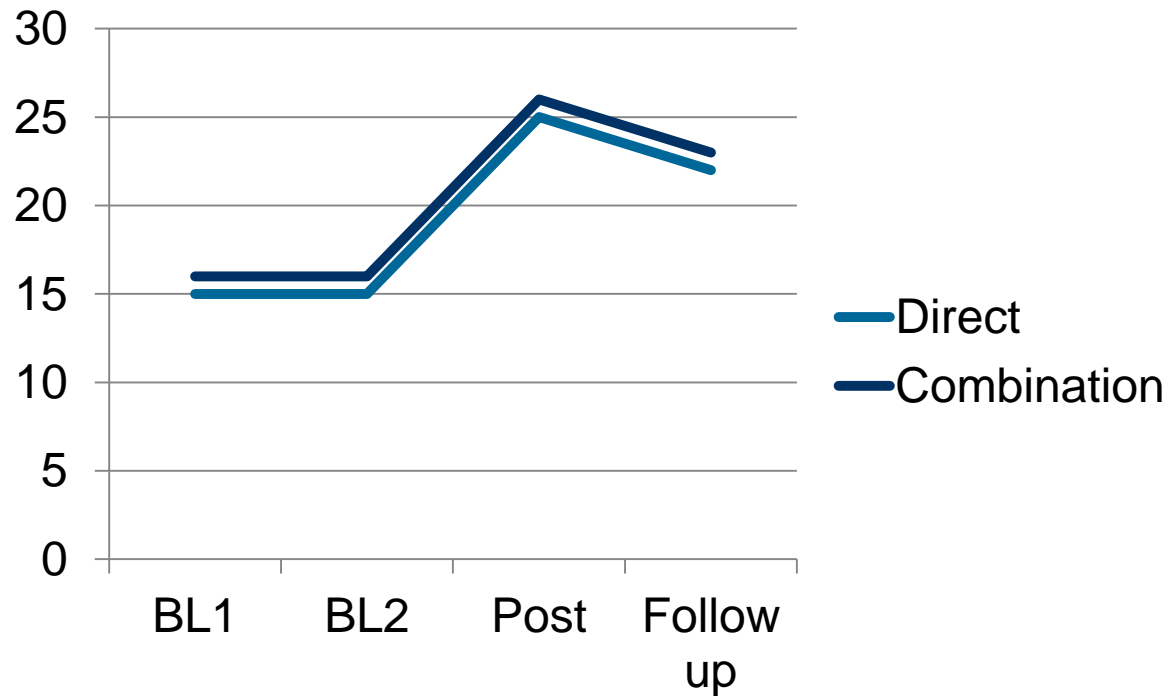
medium effect size ( $\eta^2_p = .11$ )

■ 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

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

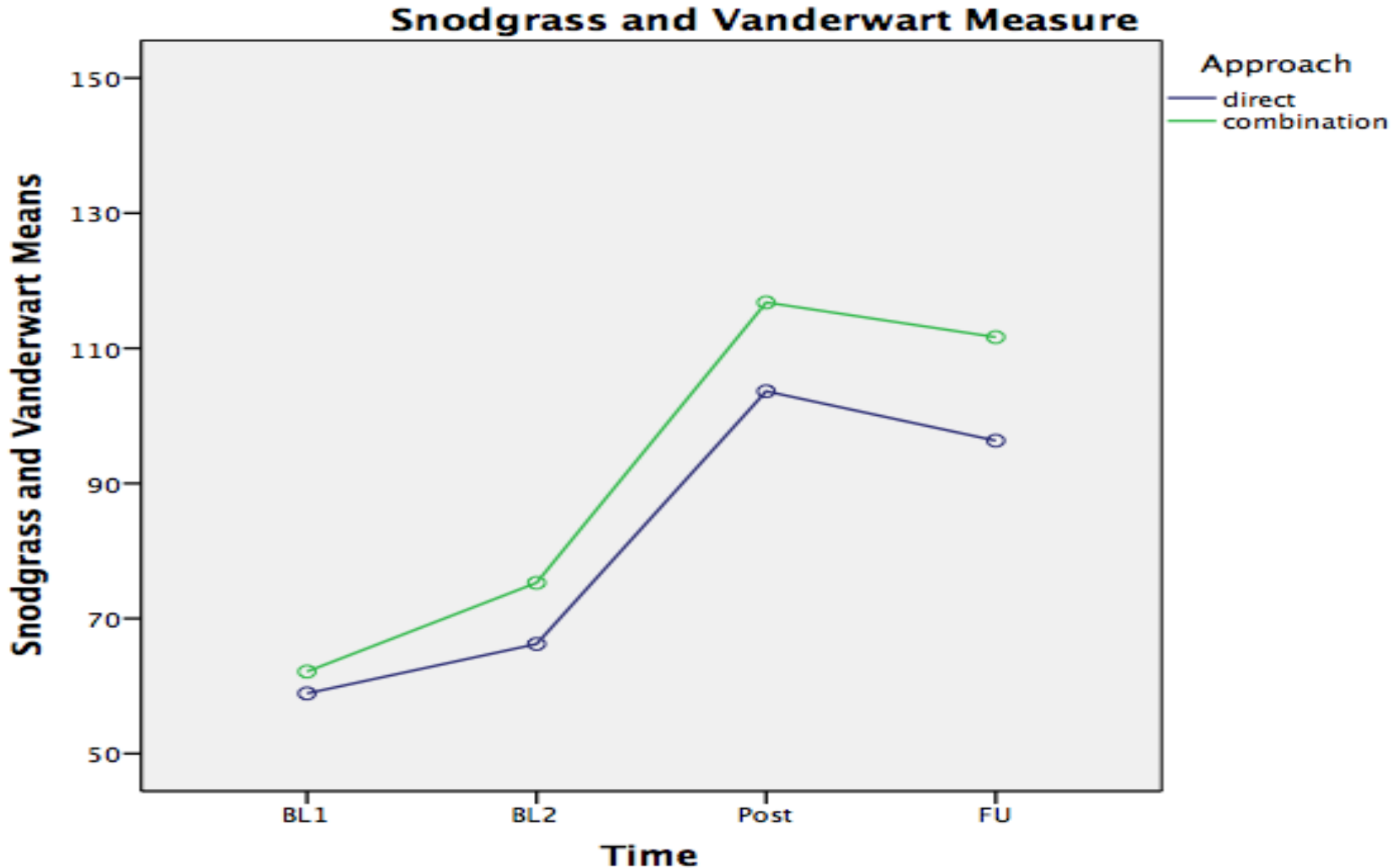
# Participants' aphasia (based on BDAE)

Variable	Direct Approach (22)	Combination Approach(14)
<b>Aphasia Severity</b>		
Mild	4	4
Moderate	6	4
Severe	12	6
<b>Aphasia Type</b>		
Broca	-	6
Wernicke	8	1
Anomic	5	1
Global	6	3
Conduction	-	1
Unclassified	3	2
<b>Fluency Status</b>		
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)

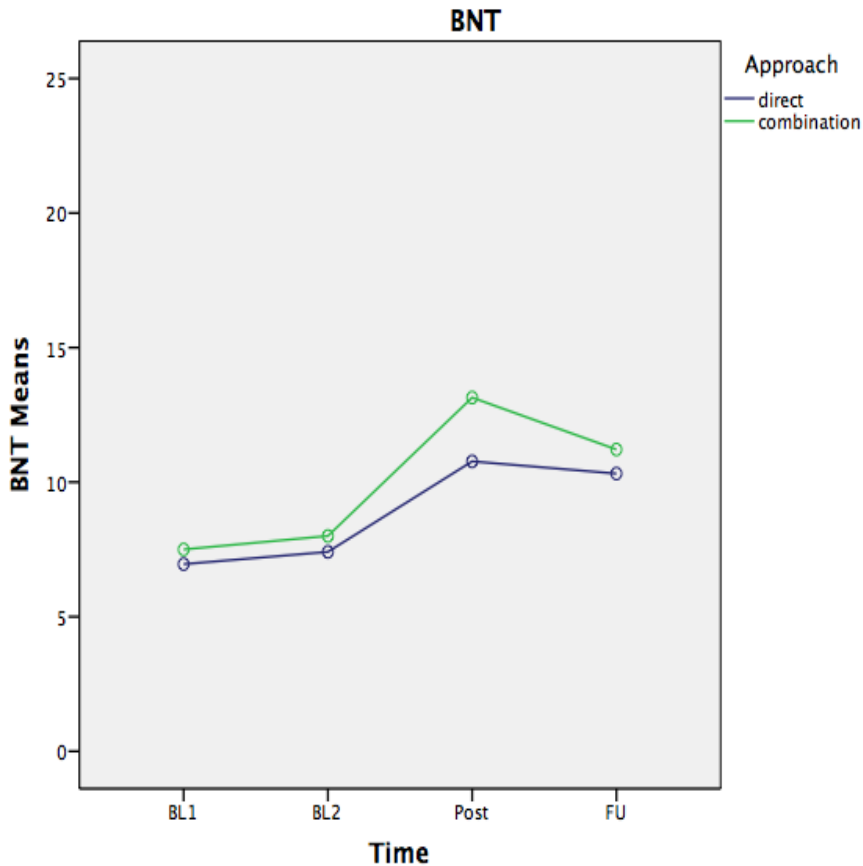
- Significant main effect of time:

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

- No significant interaction effect between time and approach:

- No significant group effect:

# Secondary Outcome Measure BNT

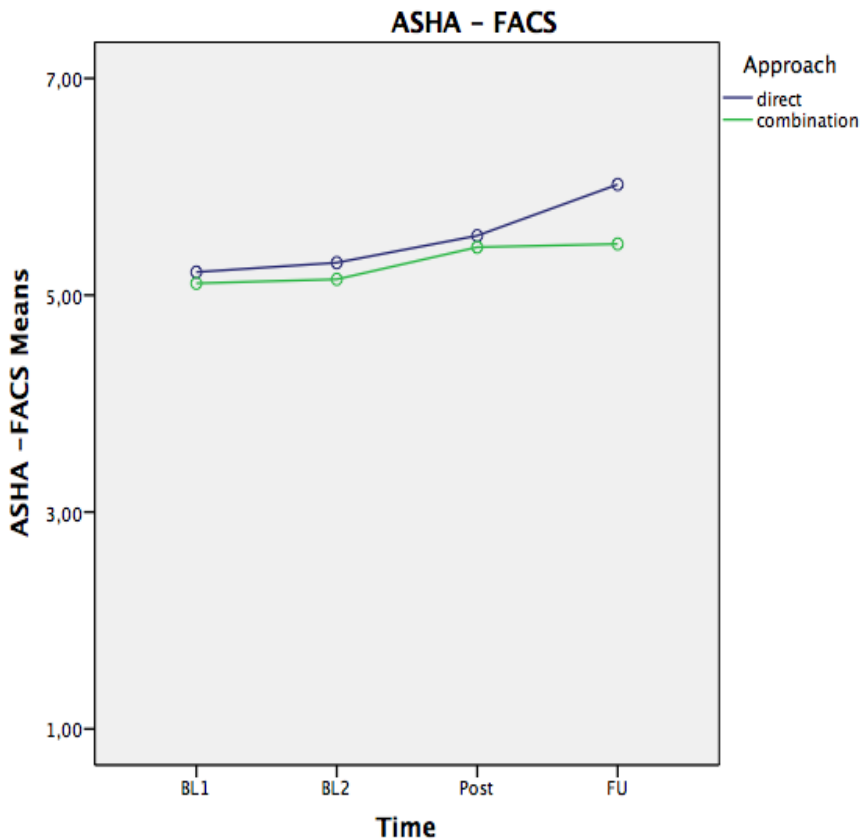


■ Significant main effect of time:

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

■ No significant interaction or group

# Secondary Outcome Measure ASHA -FACS



■ Significant main effect of time:

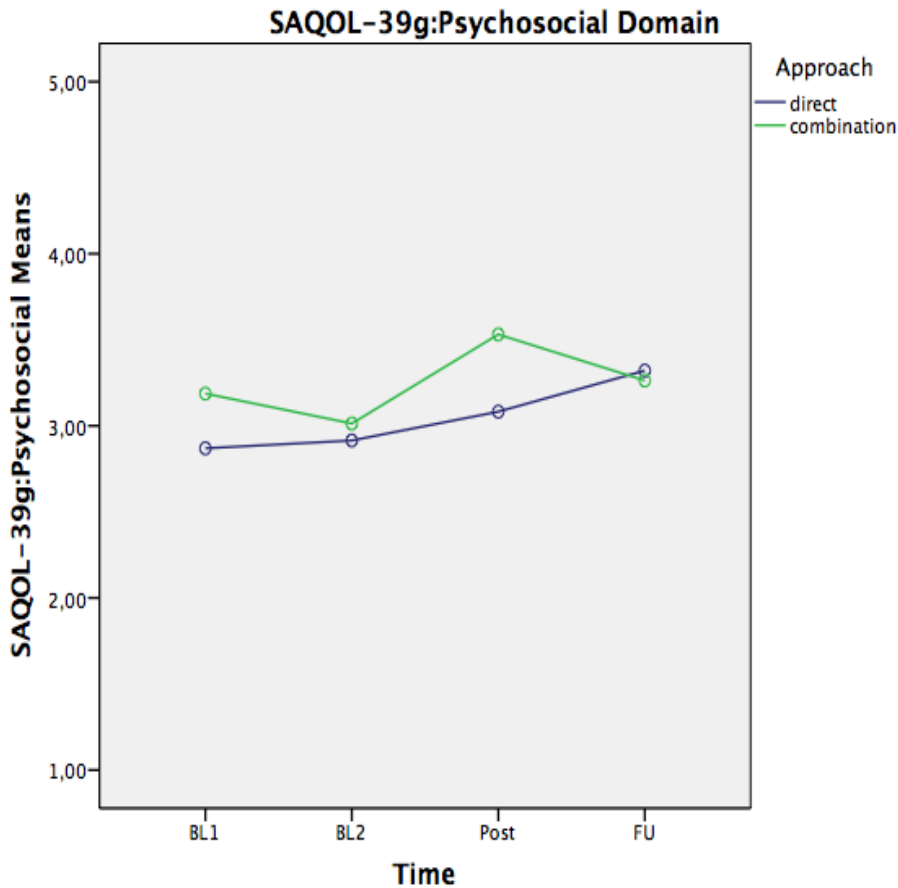
$F(2.16, 73.26) = 7.26, p = .001$

with a large effect size ( $\eta_p^2 = .176$ )

■ No significant interaction or group effect

# Secondary Outcome Measure

- SAQOL-39g

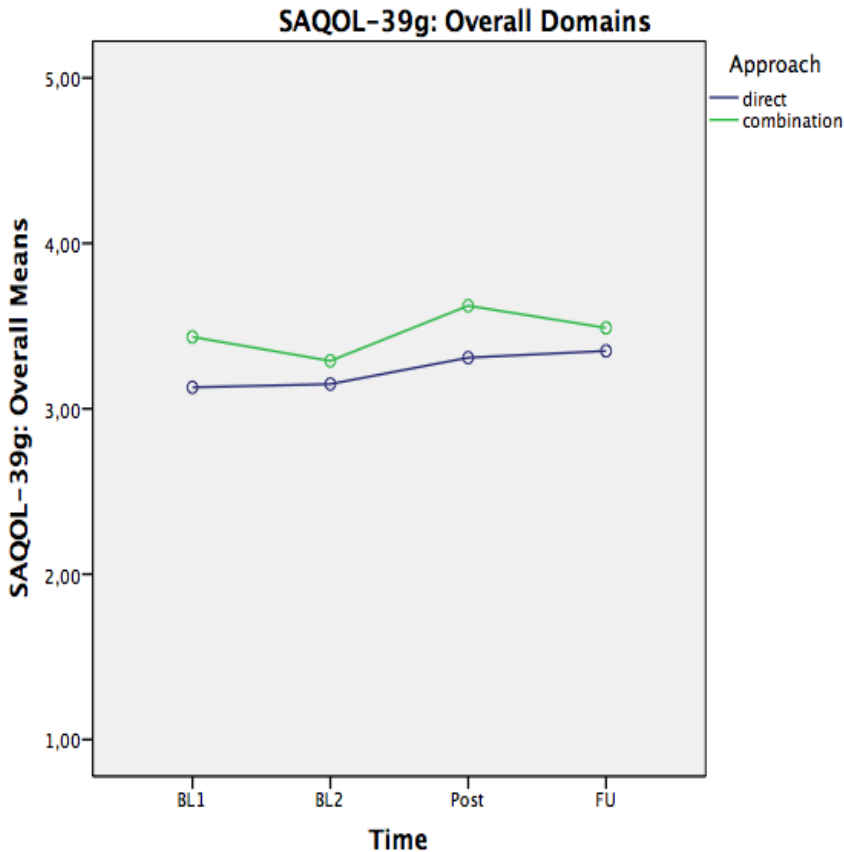


- No significant time, interaction, or group effect.

- The effect size for time was large ( $\eta^2_p = .50$ )

# Secondary Outcome Measure

- SAQOL-39g



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

- 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?

