Investigating the effectiveness of word level therapy in two different approaches

Evangelia – Antonia Efstratiadou

E. Efstratiadou, I. Papathanasiou, R. Holland, & K. Hilari

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Overview

- Thales Aphasia Project
- Research Aims
- Word Level Therapy
- 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

This study ran within the framework of Thales Aphasia project - c.
Speech and Language Therapy Stream

Two interventions were evaluated:

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

This study reports on the efficacy of 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 / individual therapy),
- combination therapy (individual and group).

Outcomes tapped WHO ICF framework levels and quality of life. Primary outcome to be reported here
Word Level Therapy

Focus: Improve the recalling ability of words by accessing semantic networks.

Applied Therapy Type: Elaborated Semantic Feature Analysis (ESFA) (Papathanasiou, 2006)

ESFA is based on SFA approach (Boyle & Coelho, 1995; Coelho et al, 2000; Boyle, 2004), but also allows the participant to elaborate the described features to a sentence.

Purpose: transferring naming ability to connected speech (Papathanasiou, 2006)
Sentence: e.g. The table is a piece of furniture in the kitchen.
Methodology Chart

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

ESFA Therapy Group
Direct Approach
Week 7 to 18
Post – Therapy Assessment
Week 19
Follow – Up Assessment
Week 32

ESFA Control Group
Delayed Tx/ Control Group
Week 7 to 18
Third – Baseline Assessment
Week 19
Allocation to Approach

Combination Approach
Week 7 to 18
Post – Therapy Assessment
Week 19
Follow – Up 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

■ Participants:

**RQ1:** 38 individuals with aphasia, meeting pre determined selection criteria.  
12 control / delayed treatment group versus 26 therapy group

**RQ2:** 36 individuals with aphasia, meeting pre determined selection criteria.  
22 direct versus 14 combination approach therapy

■ Design:

Repeated measure within and between group design.  
Assessments: BL1, BL2(double baseline), post-tx or BL3 and follow - up.
Assessments

■ Profiling measure:
Greek version of the Boston Diagnostic Aphasia Examination (BDAE) (Papathanasiou et al., 2008)

■ Primary outcome measure:
Oral - Confrontation naming task of 260 colorized Snodgrass and Vanderwart nouns pictures (Rossion & Pourtois, 2004).
Assessments

Secondary outcome measures

■ Impairment Level:
  a) Boston Naming Test for word recall (BNT) (Simos et al., 2011)

■ Activity & Participation Level:
  a) Greek version of ASHA FACS (Frattali et al., 1995)
  b) Discourse scores from the BDAE Cookie Theft Picture

■ Well being and Quality of Life measures:
  a) General health questionnaire -12 (GHQ-12) (Garifalos et al., 2001)
  b) EQ-5D (Kontodimopoulo, 2008)
  c) Greek SAQOL-39g (Kartsona & Hilari, 2007; Efstratiadou et al., 2012)
Results

RQ1: ESFA versus waitlist control group
## Participants Characteristics RQ1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Therapy Group (n = 26)</th>
<th>Control/ Delayed Therapy Group (n = 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>20 Male, 6 Female</td>
<td>6 Male, 6 Female</td>
</tr>
<tr>
<td>Age (yrs) Mean(SD) Range</td>
<td>58.38(11.26) 38-84</td>
<td>58.42 (11.99) 44-79</td>
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<tr>
<td>Stroke Type</td>
<td>26</td>
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<tr>
<td>Ischaemic</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Haemorrhagic</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Time post stroke (months)</td>
<td>36.73 (49.30) 4 - 207</td>
<td>16.00 (21.89) 4-78</td>
</tr>
</tbody>
</table>
### Participants’ aphasia
(based on BDAE)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Therapy Group (n = 26)</th>
<th>Control/ Delayed Therapy Group (n = 12)</th>
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</thead>
<tbody>
<tr>
<td><strong>Aphasia Severity</strong></td>
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<td></td>
</tr>
<tr>
<td>Mild</td>
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<td>3</td>
</tr>
<tr>
<td>Moderate</td>
<td>7</td>
<td>4</td>
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<tr>
<td>Severe</td>
<td>14</td>
<td>5</td>
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<tr>
<td><strong>Aphasia Type</strong></td>
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<tr>
<td>Broca</td>
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<td>5</td>
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<tr>
<td>Wernicke</td>
<td>1</td>
<td>-</td>
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<tr>
<td>Anomic</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Global</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Conduction</td>
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<td>2</td>
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<tr>
<td>Unclassified</td>
<td>4</td>
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<tr>
<td><strong>Fluency Status</strong></td>
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<tr>
<td>Fluent</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Non Fluent</td>
<td>21</td>
<td>7</td>
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</tbody>
</table>
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 with large effect size ($\eta_p^2 = .42$)

■ Significant interaction effect between time and group:
F (1.09, 39.38) = 9.56, p = .003

■ No significant group effect:
F (1, 36) = .001, p = .980

$\eta_p^2$ Cohen's guidelines (1988): 0.01 = small, 0.06 = medium, 0.14 = large
Primary Outcome Measure
Oral – Confrontation naming Task (Snodgrass Pictures)
Results

RQ2: Direct ESFA *versus* combination ESFA
Participants Characteristics RQ2

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<tr>
<th>Variable</th>
<th>Direct Approach (n = 22)</th>
<th>Combination Approach (n = 14)</th>
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<tbody>
<tr>
<td>Gender</td>
<td>16 Male, 6 Female</td>
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<tr>
<td>Age (yrs) Mean (SD) Range</td>
<td>58.23 (11.45) 38-84</td>
<td>58.36 (11.67) 40-79</td>
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<tr>
<td>Stroke Type</td>
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<tr>
<td>Ischaemic</td>
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<tr>
<td>Haemorrhagic</td>
<td></td>
<td></td>
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<tr>
<td>Time post stroke (months) Mean (SD) Range</td>
<td>30.55 (45.99) 4 - 207</td>
<td>33.29 (42.68) 4-127</td>
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</tbody>
</table>
## Participants’ aphasia
(based on BDAE)

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<tr>
<th>Variable</th>
<th>Direct Approach (22)</th>
<th>Combination Approach(14)</th>
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<td>5</td>
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<tr>
<td>Non Fluent</td>
<td>18</td>
<td>9</td>
</tr>
</tbody>
</table>
Primary Outcome Measure
Oral – Confrontation naming Task (Snodgrass Pictures)
Primary Outcome Measure
Oral – Confrontation naming Task (Snodgrass Pictures)

- Significant main effect of time:
  \[ F(1.90, 64.53) = 32.95, p < .001 \text{ with large effect size } (\eta_p^2 = .49) \]

- No significant interaction effect between time and approach:
  \[ F(1.90, 64.53) = .39, p = .668 \]

- No significant group effect:
  \[ F(1,34) = .23, p = .631 \]

\[ \eta_p^2 \text{ Cohen's guidelines (1988): } 0.01 = \text{ small, } 0.06 = \text{ medium, } 0.14 = \text{ large} \]
Primary Outcome Measure
Oral – Confrontation naming Task (Snodgrass Pictures)
### RQ1: ESFA versus waitlist control group

- 4 mixed ANOVAs were carried out
- Significant interaction effect for: **Psychosocial Domain SAQOL-39g** (p = .013)
- **Overall SAQOL-39g score** (p = .015)
- No mixed ANOVAs for:
  - ASHA – FACS
  - Discourse Analysis
  - GHQ-12
  - Physical & Communication Domain of SAQOL-39g

### RQ2: Direct ESFA versus combination ESFA

- 5 mixed ANOVAs were carried out
- Significant main effect of time for:
  - **BNT** (p < .001)
  - **ASHA – FACS** (p = .001)
- No mixed ANOVAs for:
  - Discourse Analysis
  - GHQ-12
  - Physical & Communication Domain of SAQOL-39g
Limitation of the study: small number of participants; issues of power.

This study is the first which explore the efficacy of ESFA in a randomized waiting list control design.
Conclusion

■ ESFA is an **efficacious therapy** in increasing naming ability, in contrast to no therapy.

■ Participants who received ESFA, regardless of the therapy approach, improved their:

I. **naming ability**

II. **maintained the gains** they made for three months’ post-therapy

III. **generalized to untrained items**

IV. **functional communication skills**
Thank you!

Questions?

Evangelia-Antonia.Efstratiadou.1@city.ac.uk / evaef85@gmail.com