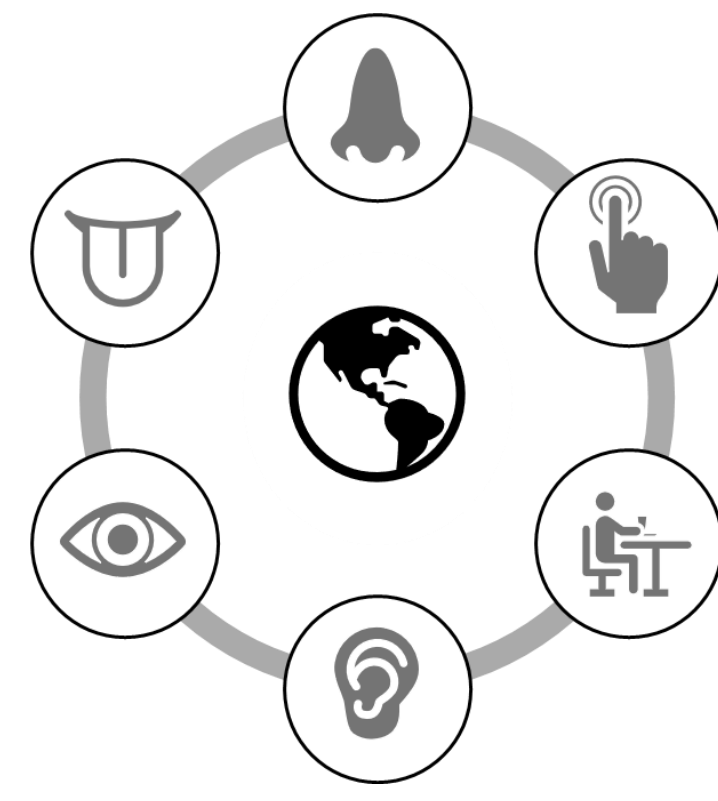


CONTEXT : The aim of this study is to combat anomia in the early stage of Alzheimer's disease (AD). Anomia is the inability to find words. Embodied cognition theory proposes that cognition develops through an interaction between body (with sensorimotor skills) and environment (Versace et al., 2018). According to this view, anomia could be due to a sensory integration default (Vallet et al., 2011; Kenigsberg et al., 2015). A sensorimotor stimulation method, TERM (Treatment by Embodied Reactivation of Memory), has been developed to provide patients with a strategy for lexical retrieval using sensory and motor modalities.



METHODOLOGY

POPULATION

Inclusion criteria :

- French as mother tongue
- Diagnosis of AD
- MMSE > 20
- Lexical-semantic difficulties

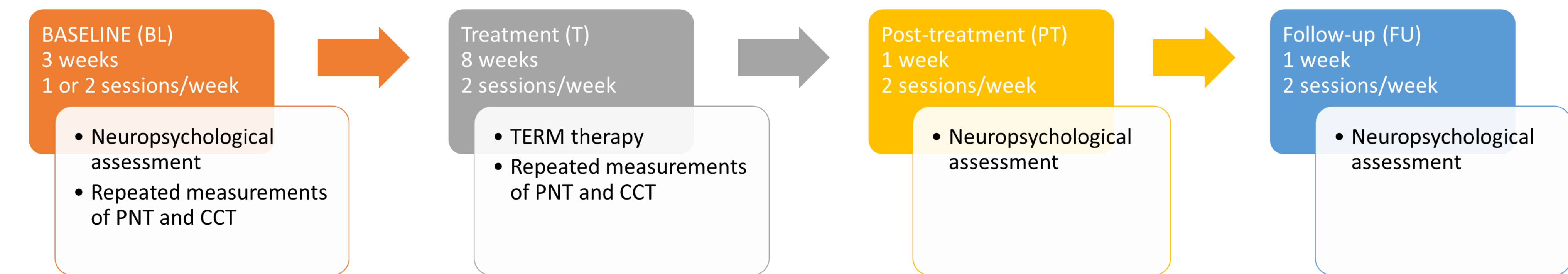
Exclusion criteria :

- Uncorrected visual/auditory impairment
- Neurological/psychiatric disorder
- Other neurodegenerative conditions
- Pervasive anxiety-depressive disorder

MATERIAL : Neuropsychological assessment

Questionnaires	General cognitive functions	Lexical-semantic	Speech
<ul style="list-style-type: none"> • Geriatric Depression Scale 15 (GDS 15) • COVI • Quality of Life-AD (QOL-AD) 	<ul style="list-style-type: none"> • Mini Mental State Examination (MMSE) • 5-word test of Dubois • Frontal assessment battery (FAB) 	<ul style="list-style-type: none"> • 100-picture naming task (PNT) • Camel and Cactus Test (CCT) • PNT of BECS-GRECO • Mini-Semantic Knowledge Questionnaire (MINI-SKQ) • Verbal fluency (P and Animals) 	<ul style="list-style-type: none"> • GréMots speech task • CETI

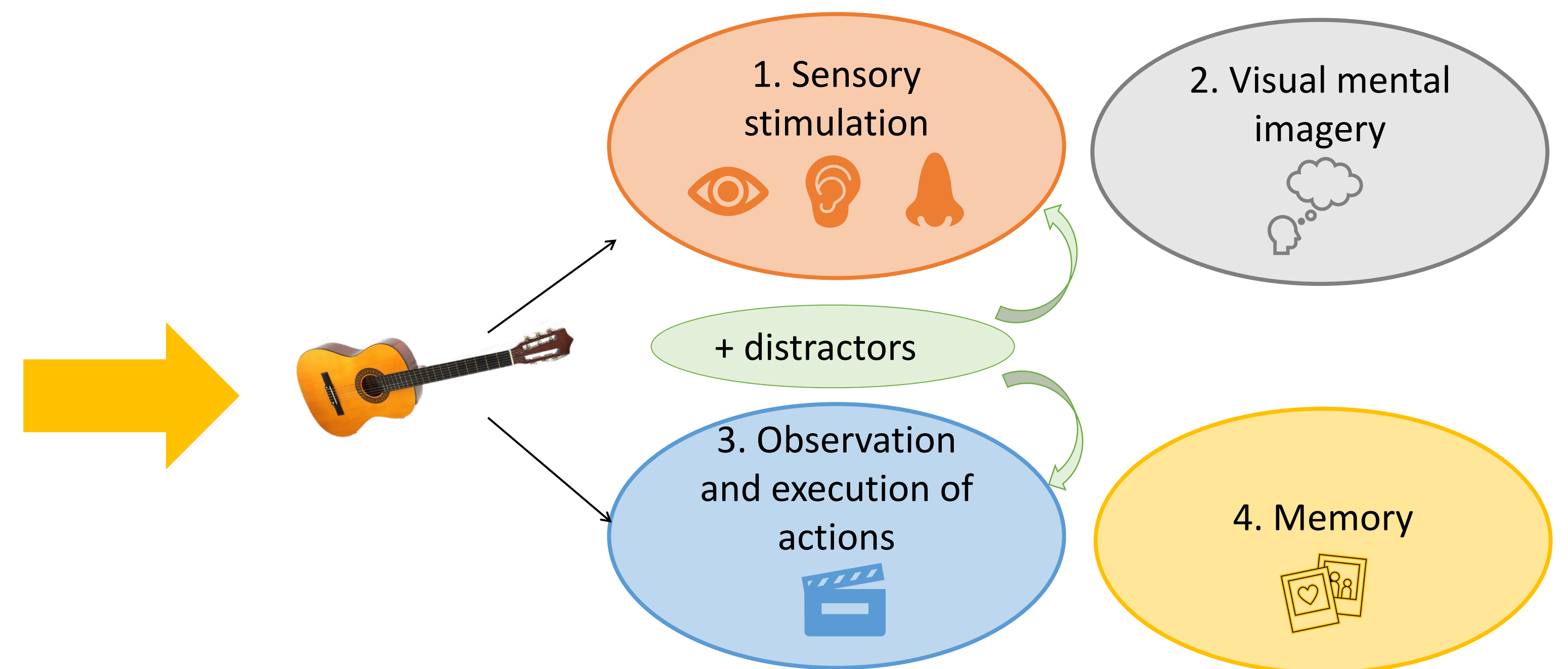
EXPERIMENTAL DESIGN



TERM therapy

Creation of therapy material

- 3 pictures/item + 2 distracting pictures + 2 sounds/item (if applicable)
- 2 distracting sounds + 1 smell/item (if applicable) + 2 videos/item +
- 2 distracting videos → ± 1400 stimuli



RESULTS

Visual analysis via graphs representing a band of two standard deviations around the baseline (BL) mean (Krasny-Pacini & Evans, 2018).

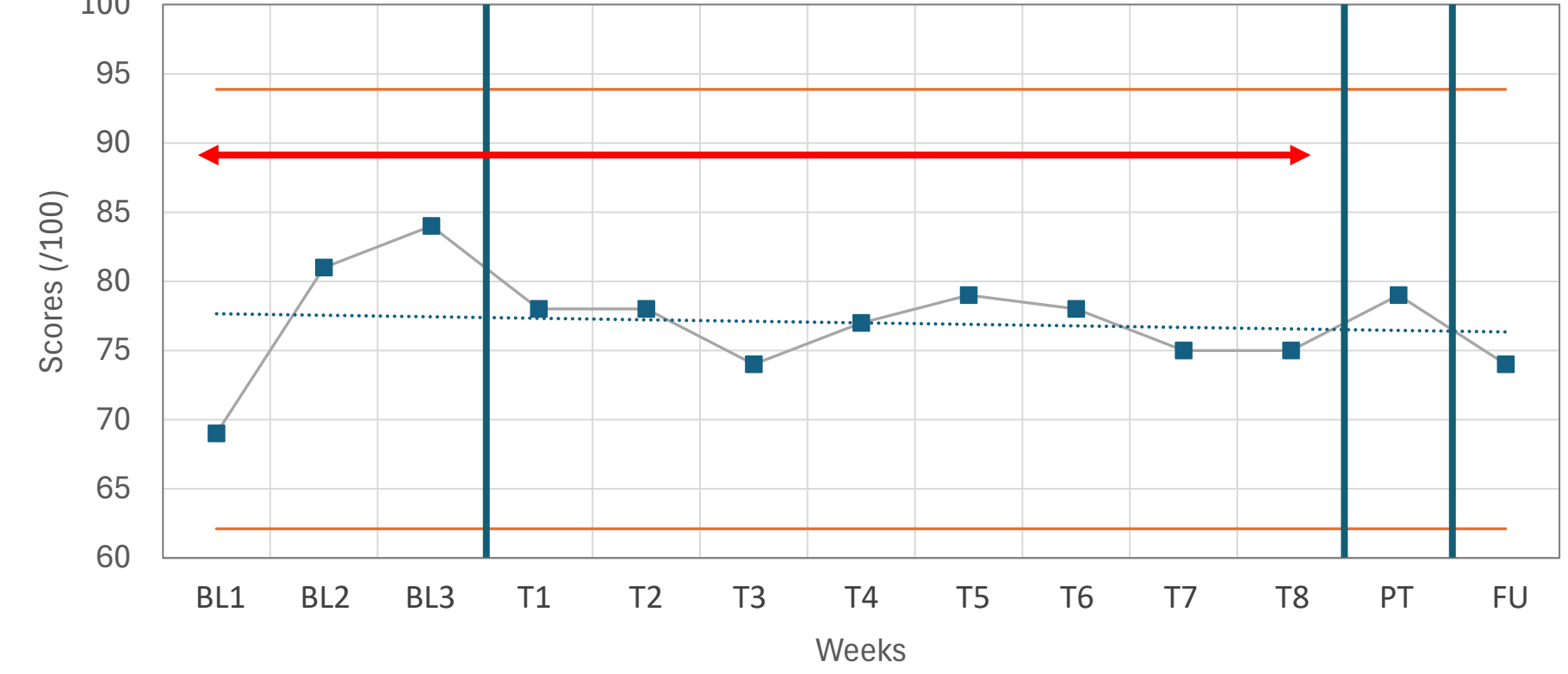
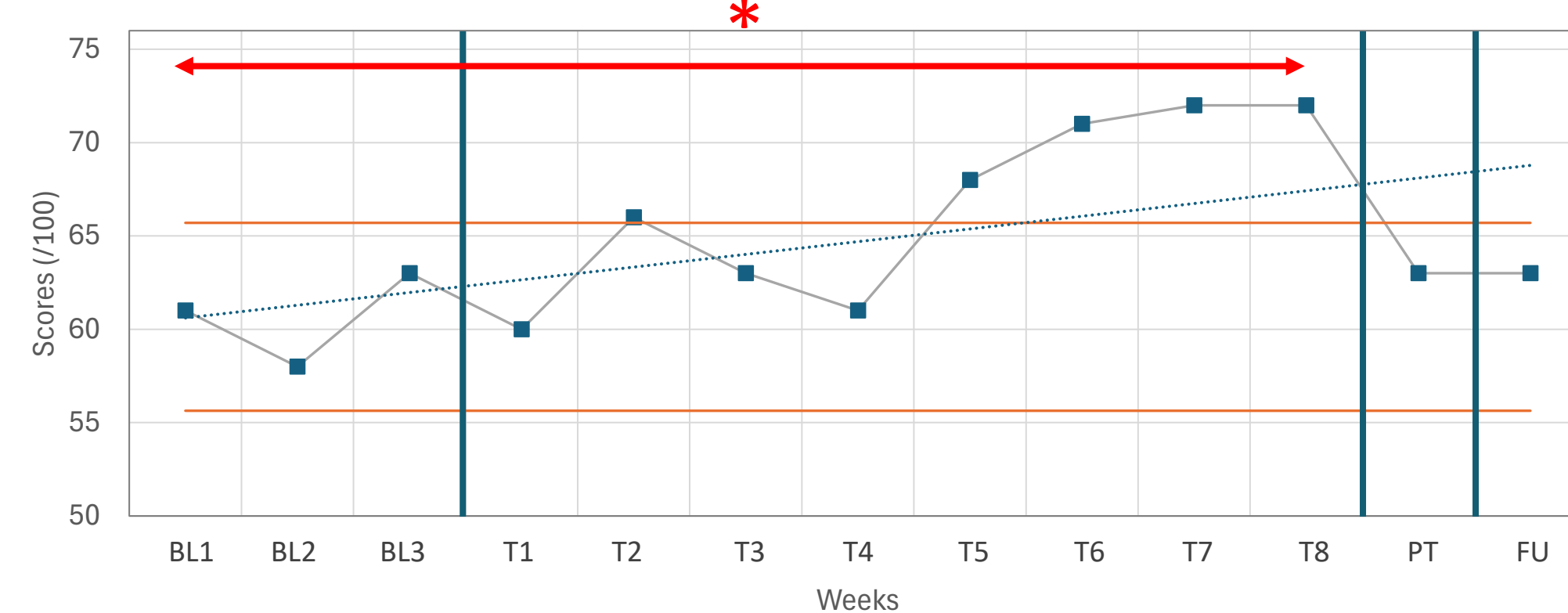
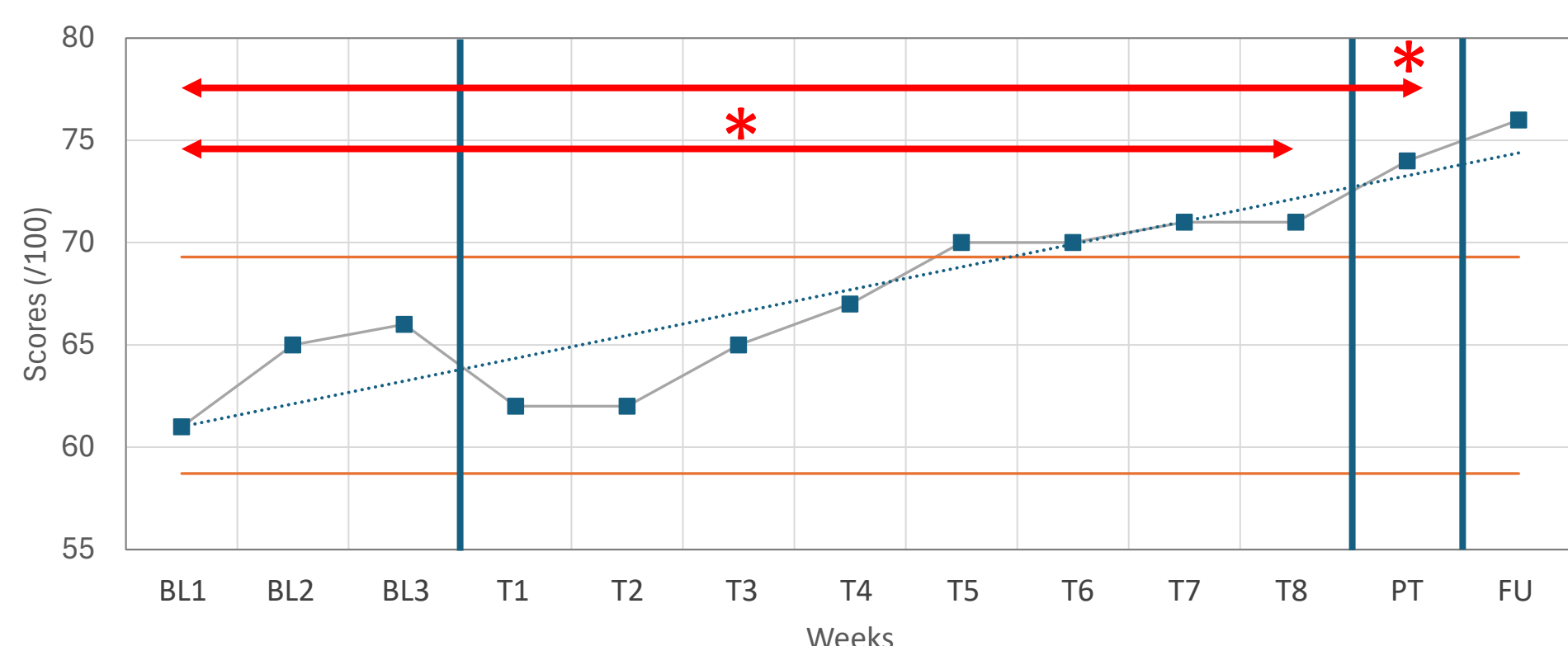
Statistical analysis via the non-parametric Tau index representing the non-overlap rate of measurements between BL and T phases and Wilcoxon statistic.

3 groups of participants according to their response to TERM therapy :

RESPONDENTS GROUP
Therapeutic effect in phase T + effect maintained after 4 weeks
N=3

PARTIAL RESPONDENTS GROUP
Therapeutic effect in phase T, no maintenance of effect in phase PT or FU
N=4

REFRACTORY GROUP
No therapeutic effect in phase T
N=4



* significant improvement in phase T ($p < .05$) + maintained effect

* significant improvement in phase T ($p < .05$) BUT relapse in phase PT or FU

no significant improvement in phase T ($p > .05$)

Comparison of scores across the LB, PT and FU phases : Friedman test

TESTS	LB	PT	FU	Friedman χ^2	p value
MMSE	21.89	21.89	22.56	.75	.687
GDS	3.11	3.56	2.67	3.5	.174
COVI	1.11	0.38	0.38	10	.007*
QOL-AD	36.11	33.13	34.75	1.556	.459
FAB	13.11	13.11	12.89	.437	.804
5-word test of Dubois	8.78	10.22	9.00	3	.223
100-PNT	65.48	72.44	70.89	8.629	.013*
CCT	43.93	46.56	46.56	3.935	.14
PNT of BECS-GRECO	33.56	34.33	33.56	.258	.879
MINI-SKQ	8.00	9.44	9.44	5.040	.08
Verbal Fluency P	13.67	13.67	12.33	2.229	.328
Verbal Fluency Animal	11.22	11.33	13.22	4.606	.100
Speech task	17.78	18.13	19.50	.467	.792

* significant p value ($p < .05$)

(CETI not analyzed yet)

DISCUSSION

This study investigates a new method to address anomia in early stage of AD. Initial analyses showed that TERM improved lexical retrieval in 7 out of 11 patients, during phase T and/or phase PT. Further analyses will show whether this improvement is reflected in functional communication (i.e., CETI). In addition, although no generalization to other lexical-semantic functions (e.g., semantic matching) was observed, less anxious affect was noted. In conclusion, TERM seems to be an interesting method to slowdown anomia in AD.