

Dissemination of a New Assessment Tool on Handwriting Readiness throughout Europe

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Dissemination of a New Assessment Tool on Handwriting Readiness throughout Europe

21st International Graphonomics Society Conference
16-19 October 2023

Margo Bakker & Liesbeth de Vries

Centre of Expertise Urban Vitality, Faculty of Health, Amsterdam University of Applied Sciences

Bee occupational therapy for children, Joure

The Netherlands



Ready for handwriting?

100 million children
worldwide start first grade
every year





Handwriting
is
important

embodied
cognition

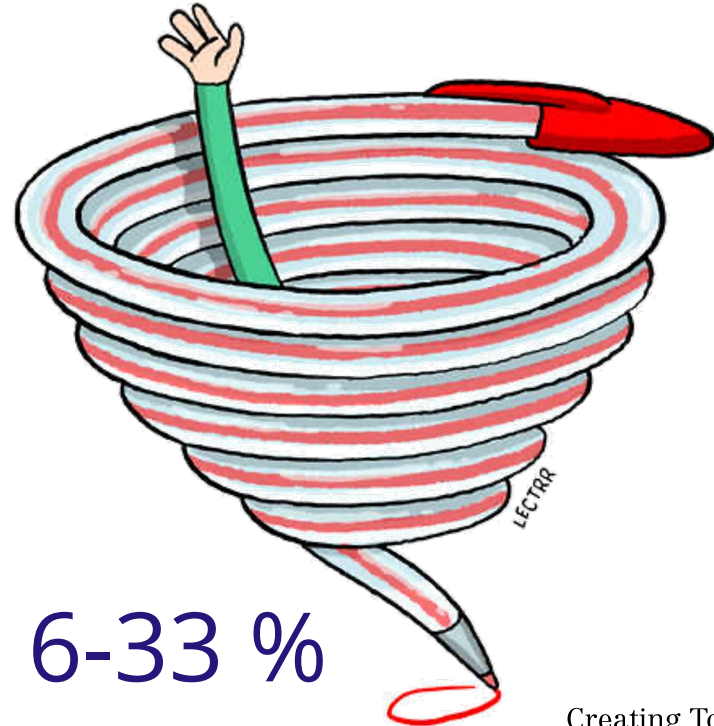


Handwriting difficulties



There are 3 kids. It raining
to much. One kid he jump in the
fall down water. He have boots.
The other another kid she have
umbrella. She not get wet.
She is so happy she stay under
the umbrella

Another kid is sad. She don't
have coat for rain and she
don't have boots.

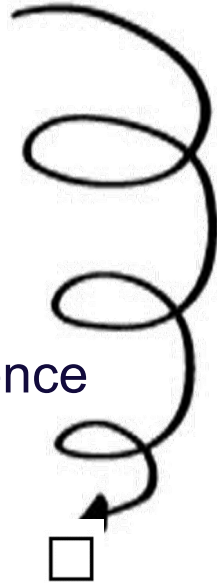


6-33 %

Start handwriting when ready!

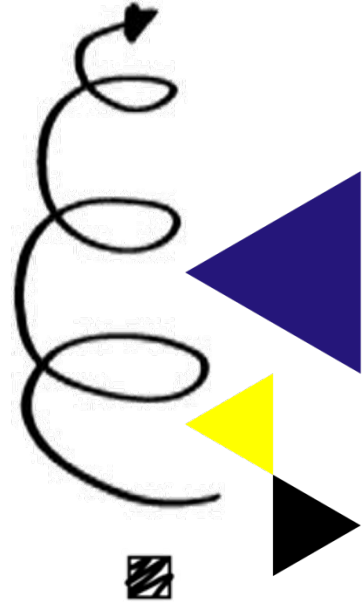
Not ready:

- Frustration
- Wrong habits
- Low motivation
- Reduced self-confidence



Ready:

- Fun
- More practice
- Growing performance



Writing Readiness Inventory Tool In Context (WRITIC)

WRITIC-Assessment

Purpose

- evaluating handwriting readiness

Intended population

- kindergarten children
- typically developing
- 5 – 6.5 years old (phase before learning handwriting)

In the context

- administered in the classroom
- 20 minutes



3 domains

Domains WRITIC	Subdomains WRITIC	
Child	Interest Questionnaire 6 items 3-point scale Range 0–12	Sustained attention Scored by tester 1 item 3-point scale Range 0–2
	Physical Scored by tester 2 items 3-point scale Range 0–4	Social Scored by tester 1 item 3-point scale Range 0–2
Environment	Task Performance[†] Scored by tester 7 items 3-point scale 6 items 7-point scale Range 0–50	Intensity of performance Scored by tester 4 items 7-point scale Range 0–24



Person

- interest paper- and pencil tasks
- sustained attention



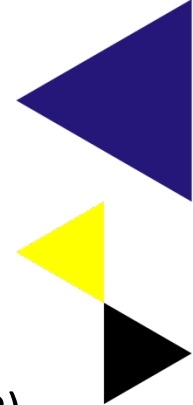
Environment

- physical – desk & chair
- social – class climate

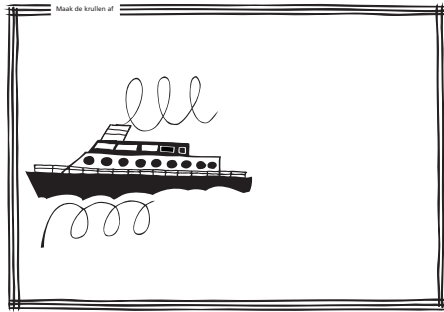
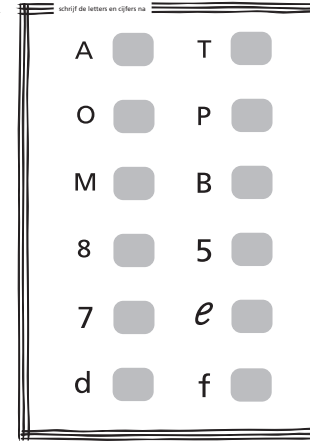
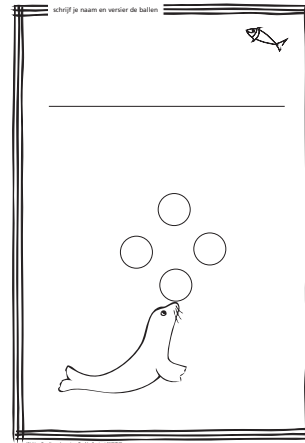
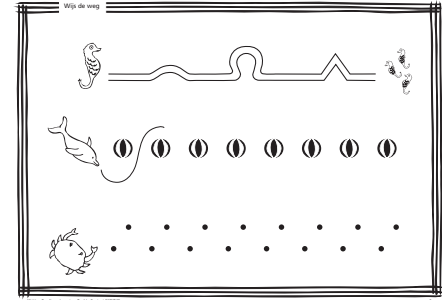
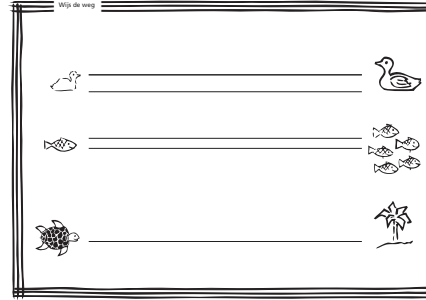
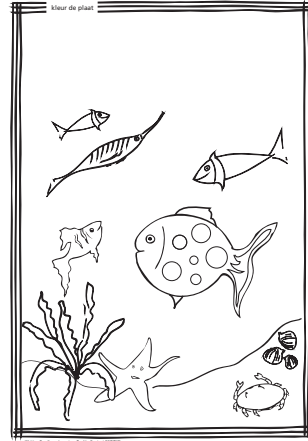
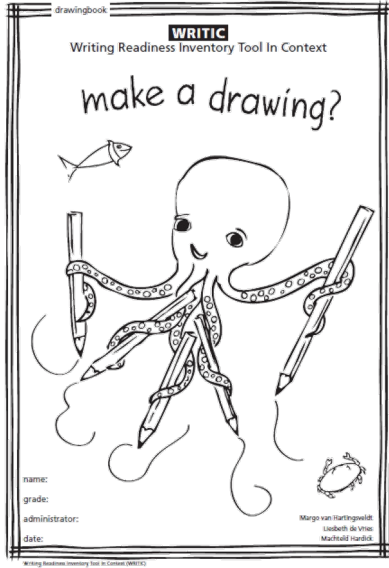


Paper-and-pencil tasks

- **task performance** (WRITIC-TP)
- intensity of performance



Drawing book



Writing Readiness Inventory Tool In Context (WRITIC)



8 psychometric studies
(N=625)

WRITIC is:

- Valid
- Reliable
- Feasible
- Predictive
- Norm-referenced

WRITIC predictivity

Kindergarten

- WRITIC- TP
- 9-HPT
- Beery-VMI

Grade 1

- Handwriting test: SOS quality and SOS speed

Predictors

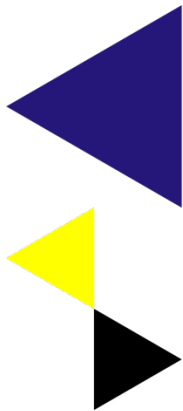
- WRITIC-TP – SOS handwriting quality
- 9-HPT and Beery-VMI – SOS handwriting speed

WRITIC-TP: WRITIC Task Performance

Beery-VMI: Beery-Buktenica Developmental Test of Visual-Motor Integration

9HPT: Nine Hole Peg-Test

SOS: Systematic Screening for Handwriting Difficulties



Netherlands

Germany

Switzerland

Belgium

Austria

875 children tested
750 therapists trained
1000 manuals sold

Norway

Bulgaria

Portugal

Slovenia

Greece

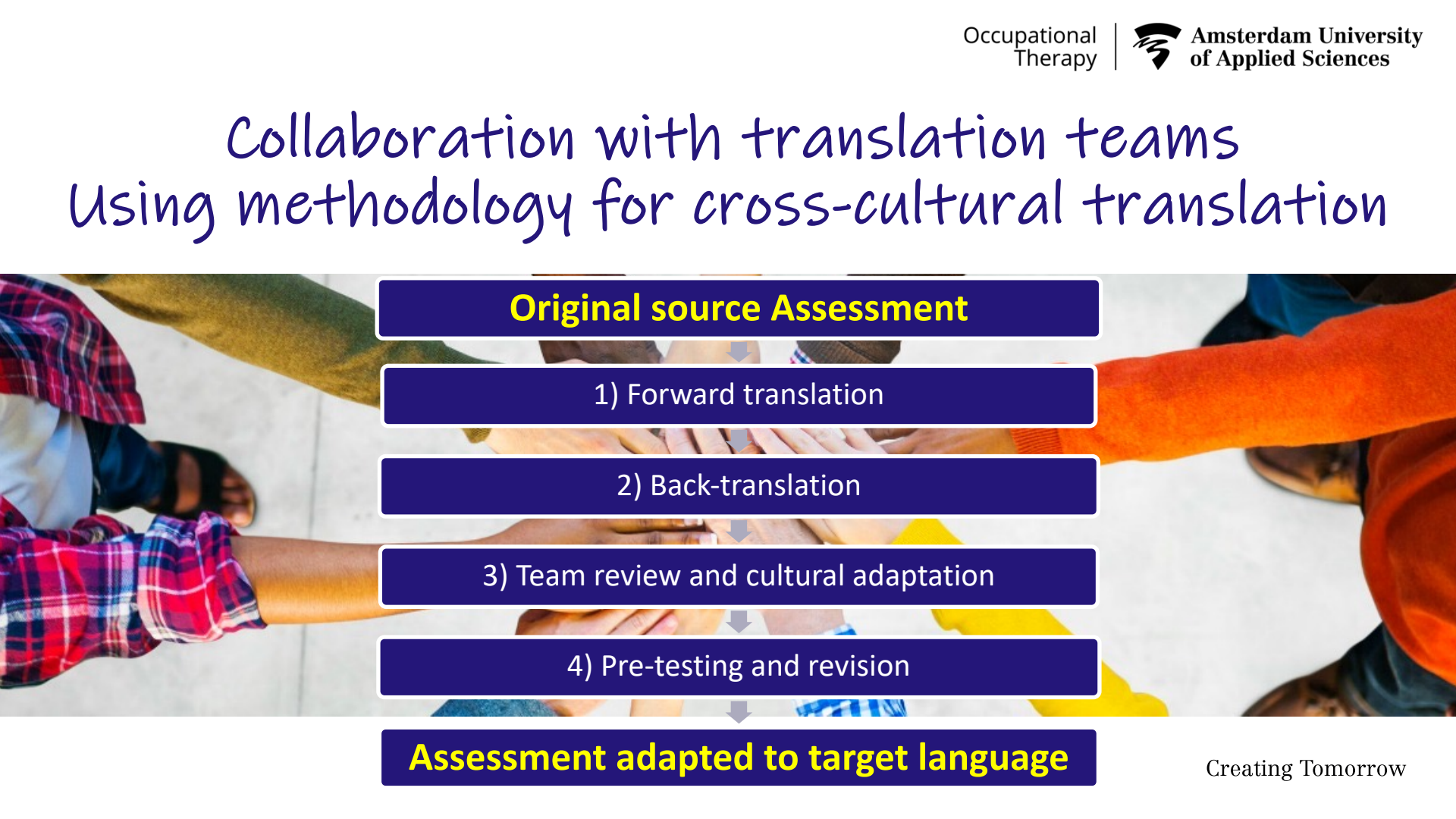
United Kingdom

International
interest

Translation and validation projects

Collaboration with translation teams

Using methodology for cross-cultural translation



Original source Assessment

1) Forward translation

2) Back-translation

3) Team review and cultural adaptation

4) Pre-testing and revision

Assessment adapted to target language

Translation and publication

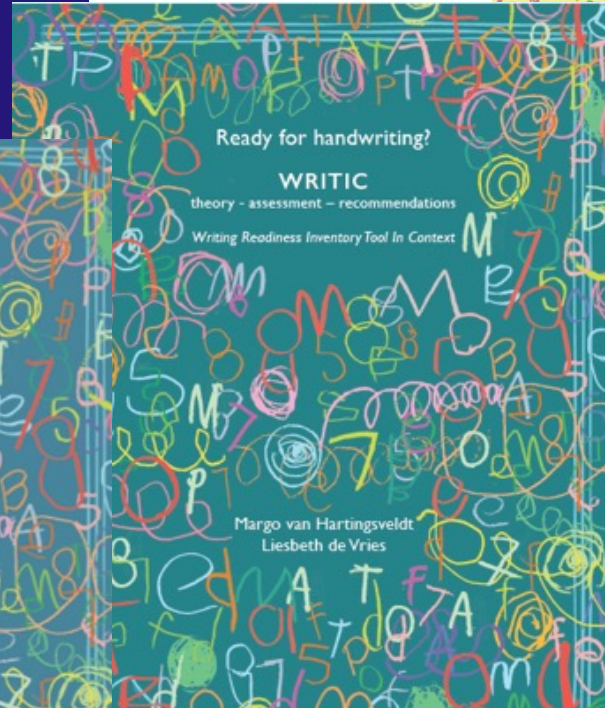
2014



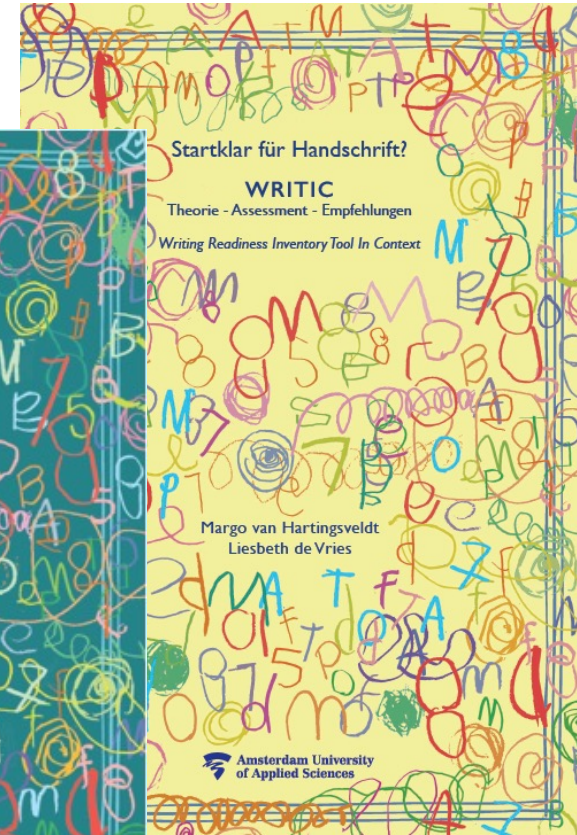
NL 2016



UK 2019



DE-2023



WRITIC-assessment in Portugal

Collaboration with
Ana Rita Matias and Paulo Delgado,
University of Evora

- Internal consistency on the subdomain 'Task Performance' (n=70, Cronbach's alpha of 0.72),
- High to excellent test-retest (N=65) and inter-rater reliability (n=69) (ICCs of 0.88-0.93)
- Convergent validity (n=87) that underpins the construct proposed by the translated WRITIC-PT



children

Article

Translation, Cross-Cultural Adaptation, and Psychometric Properties of Writing Readiness Inventory Tool in Context (WRITIC)

Paulo Delgado ¹, Filipe Melo ², Liesbeth de Vries ^{3,4}, Margo Hartingsveldt ^{4,*} and Ana Rita Matias ¹

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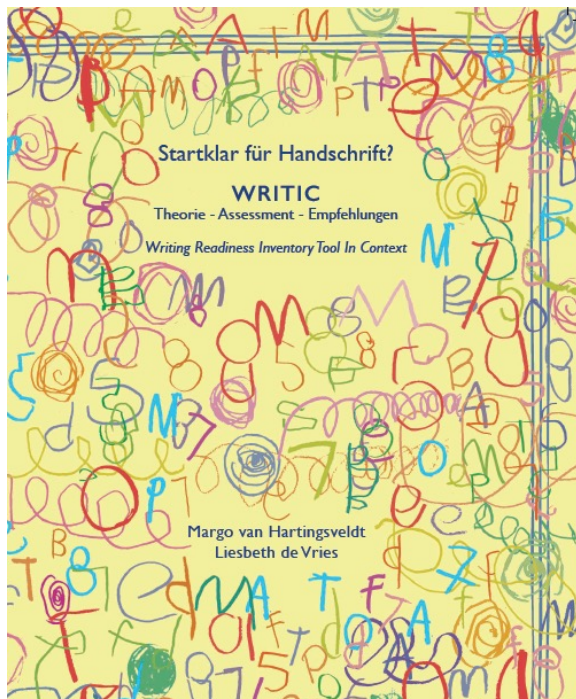
³ Centre of Expertise Urban Vitality, Faculty of Health, Amsterdam University of Applied Sciences, 1000 CC Amsterdam, The Netherlands; liesbeth@bee-kinderergotherapie.nl

⁴ Occupational Therapy Programme, Hanze University of Applied Sciences, 9714 CA Groningen, The Netherlands

* Correspondence: m.j.van.hartingsveldt@hva.nl (M.H.); armatias@uevora.pt (A.R.M.)

Abstract: This article describes the translation and cultural adaptation process of the WRITIC (Writing Readiness Inventory Tool in Context) into European Portuguese. We examined the convergent validity, test-retest, and interrater reliability on the norm-referenced Portuguese (PT) WRITIC Task Performance (TP). To establish content validity, we consulted experts in handwriting. Internal consistency was found with 70 children, test-retest reliability with 65, inter-rater reliability with 69, and convergent validity with 87. All participants were developing kindergarten children. Convergent validity was examined with the Beery Developmental Test of Visual-Motor Integration (Beery™VMI-6) and the Nine Hole Peg-Test. On content validity, we found an agreement of 93%, a good internal consistency with

WRITIC-assessment in Germany, Austria and Switzerland



Collaboration with

- Zuyd University of Applied Sciences (DE)
 - Campus Wien University of Applied Sciences (AT)
 - Zurich University of Applied Sciences (CH)
-
- Back-and-forth translation
 - Cross cultural differences for three countries
 - Validation studies started in Germany and Austria
 - Validation study planned in Switzerland



Time for questions

Information:

www.amsterdamuas.com/writic

Get in contact:

writic@hva.nl

Publications WRITIC-assessment

- van Hartingsveldt, M.J., P. B.M. Aarts, I. J.M. de Groot, and M. W.G. Nijhuis-Van Der Sanden. 2011. "Standardized tests of handwriting readiness: a systematic review of the literature." *Developmental Medicine and Child Neurology* 53 (6):506-15. doi: 10.1111/j.1469-8749.2010.03895.x.
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- Delgado, P., Melo, F., de Vries, L., Hartingsveldt, M., & Matias, A. R. (2023). Translation, Cross-Cultural Adaptation, and Psychometric Properties of Writing Readiness Inventory Tool in Context (WRITIC). *Children*, 10(3), 559.