



LEARNING DIFFICULTIES AUSTRALIA

## 2023 RTI Conference Handouts

*Sunday 29th Oct*

***Session 1 - The Development and use of the  
WARs by Dr Robyn Wheldall & Dr Nicola Bell***

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## Nicola Bell

BScPath (Hons II), PhD  
Research Fellow, MultiLit Research Unit

Nicola's PhD thesis topic was literacy development in children with cochlear implants, although she is interested and has published in school-aged literacy more broadly. As Research Fellow within the MultiLit Research Unit, she has contributed to the organisation of trials in schools across Australia.



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## Robyn Wheldall

BA, PhD (Special Education), MAICD  
Director & Co-founder, MultiLit Pty Ltd  
Deputy Director, MultiLit Research Unit  
Honorary Research Fellow, Macquarie University

Robyn has expertise in researching reading interventions and has worked in the areas of learning difficulties, special education, behaviour management and literacy instruction and intervention for struggling readers for more than 30 years.



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**Alison Madelaine**  
BA Dip Ed (Primary), Grad Dip Spec Ed, PhD

Alison is Senior Research Fellow with the MultiLit Research Unit and Clinical Director of MultiLit Literacy Centres. Alison has extensive knowledge of reading development, instruction and assessment. She completed her doctorate on curriculum-based measurement of reading and was a lecturer in special education with a focus on literacy at Macquarie University Special Education Centre (MUSEC).



**Kevin Wheldall AM**  
BA, PhD, C. Psychol, FASSA, FRPS, FColIP, FRALD, MAPS, FCEDP

Kevin is an Emeritus Professor of Macquarie University and is Chairman and Director of MultiLit Pty Ltd. He is the Director of the MultiLit Research Unit. He has researched in the areas of language, behaviour and reading for over 50 years.



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### Disclosure statement

Dr Robyn Wheldall and Emeritus Prof Kevin Wheldall are directors of MultiLit Pty Ltd and have a financial interest in it. Dr Nicola Bell, Dr Alison Madelaine and Dr Siobhan Merlo are paid employees of MultiLit Pty Ltd. MultiLit is a commercial organisation that publishes literacy-related instructional programs and assessments.

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### The development and use of the WARs

Nicola Bell, Robyn Wheldall, Alison Madelaine & Kevin Wheldall




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## The development and use of the WARs

- i.e., the Wheldall Assessment of Reading Passages (**WARP**), the Wheldall Assessment of Reading Lists (**WARL**), and the Wheldall Assessment of Reading Nonwords (**WARN**)
- For each measure, we will discuss:
  - Process of development
  - Theoretical/research rationale
  - Psychometric qualities
  - Recommendations for use



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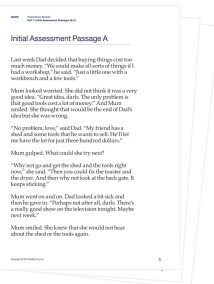
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## WARP: Early years of development

- 1995: 21 x 200-word passages of similar readability (Wheldall & Madelaine, 1997)
- Research conducted to establish:
  - 5x most similar passages (Wheldall & Madelaine, 1997)
  - WCPM (1<sup>st</sup> minute) just as effective as WPP (entire passage) (Wheldall & Madelaine, 1997)
  - Reliability (inter-rater and alternate forms) of 5x passages (Madelaine & Wheldall, 1998, 2002a; Wheldall & Beaman, 2002; Wheldall & Madelaine, 1997)
  - Criterion validity of 5x passages (Madelaine & Wheldall, 1998)
  - Scores are better predictors of reading ability than teacher judgement (Madelaine & Wheldall, 2002c, 2005b)



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## WARP: Later years of development

- Research conducted to establish:
  - 3x most similar Initial Assessment (IA) passages, as differentiated from 10x Progress Monitoring (PM) passages (Wheldall & Madeline, 2006)
  - Benchmarks/norms for Years 2-6 (IA passages) (Madeline & Wheldall, 2002a, 2002b)
  - Ceiling effect around Year 5 (Madeline & Wheldall, 2002a)
  - Reliability (alternate forms) of IA passages (Madeline & Wheldall, 2002b; Wheldall & Madeline, 2006)
  - Criterion validity of IA passages (Madeline & Wheldall, 2002b, 2005a)
  - Reliability (alternate forms) of PM passages (Madeline & Wheldall, 2006)
  - Interpolated norms for time points between testing (Wheldall & Madeline, 2013)



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## WARP: Most recent research

- Used as outcome measure of oral reading fluency
  - InitialLit-2 (MultiLit Research Unit, 2021)
  - Open- vs. enclosed-plan classrooms (Rance et al., 2023)
- Updated validity analyses based on data aggregated since publication (Wheldall et al., in preparation)



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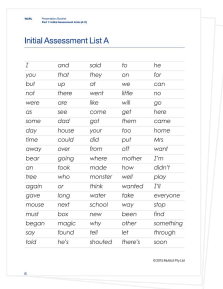
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## WARL: Development

- Stimuli sourced from database of words in books for 5-7y/o children (Stuart et al., 2003)
- Research conducted to establish:
  - 100-word lists (vs. 75-word lists) (Reynolds et al., 2009 [pilot study])
  - 60 sec duration (vs. 30 sec) (Reynolds et al., 2009 [main study])
  - 3x most similar Initial Assessment (IA) lists, as differentiated from 10x Progress Monitoring (PM) lists (Reynolds et al., 2009 [main study])
  - Benchmarks/norms for Years 1-2 (IA lists) (Reynolds et al., 2011)
  - Reliability (alternate forms) of IA lists (Reynolds et al., 2009 [main study], 2011)
  - Criterion validity of IA lists (Reynolds et al., 2009 [main study], 2011)
  - Reliability (alternate forms) of PM lists (Reynolds et al., 2009 [main study])
  - Criterion validity of PM lists (Reynolds et al., 2009 [main study])



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## WARL: Most recent research

- Used to measure progress following instruction or intervention
  - InitialLit-F/InitialLit-1 (MultiLit, 2020)
  - MiniLit Sage (MultiLit Research Unit, 2021)
- Predictor of Phonics Screening Check results (Bell et al., 2020)
- Updated validity analyses based on data aggregated since publication (Wheldall et al., in preparation)
- Interpolated benchmarks for Terms 2 and 4



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Initial Assessment List A

mp	top	if	man	fp
lot	not	out	dog	who
get	egg	see	net	bat
jet	pod	fun	do	bug
pull	back	off	class	meat
quilt	down	more	much	ring
stop	up	good	like	voice
bring	white	bag	room	door
find	often	happy	party	cat
his	be	water	wind	leg



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## WARN: Development

- Stimuli constructed using phoneme-grapheme correspondences taught in InitialLit-F
- Proof-of-concept trial (2016) to establish:
  - 30 sec duration (vs. 60 sec)
  - 50-nonword lists
- Research conducted to establish:
  - 13x most similar lists (of 15x) that were divided into 3x Initial Assessment (IA) lists and 10x Progress Monitoring (PM) lists  
(Whealdal et al., 2021 [2016 data])
  - Benchmarks/norms for Years F-1 (IA lists)  
(Whealdal et al., 2021 [2017-2018 data])
  - Reliability (alternate forms) of IA and PM lists  
(Whealdal et al., 2021 [2016 data])
  - Criterion validity of IA and PM lists  
(Whealdal et al., 2021 [2016 data])



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## Rationale for developing the WARs

- All intended as curriculum-based measures (CBMs) of reading
  - CBMs = assessments based on curriculum requirements
  - Reading CBMs represent the **general** reading curriculum (rather than relating to specific texts)
- Each WAR designed to reflect curriculum requirements of certain year level ranges



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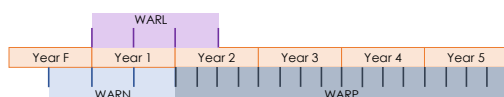
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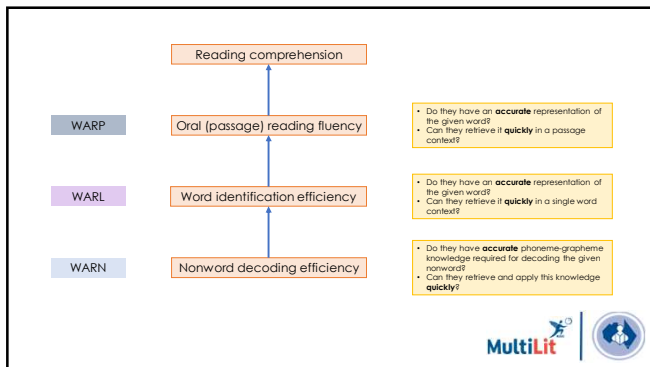
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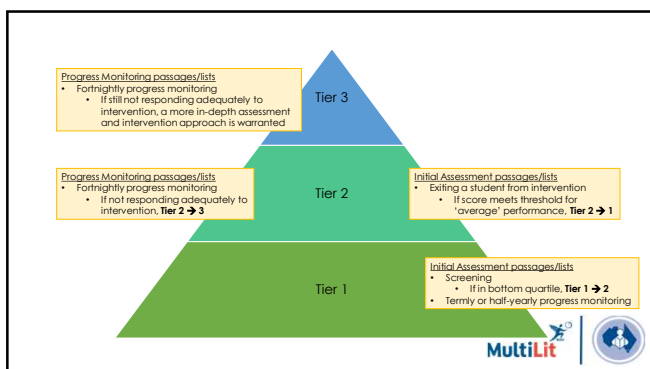
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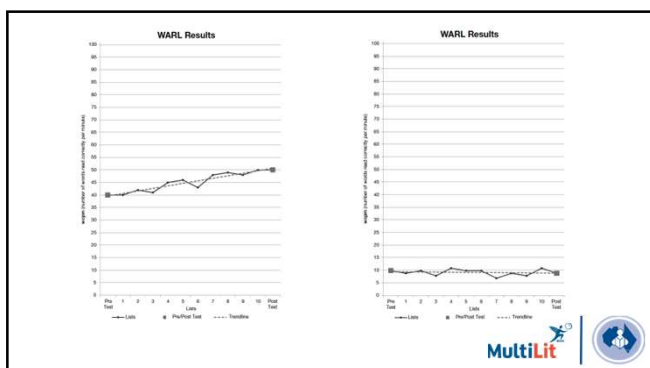
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### Strengths of the WARs

- Has multiple uses
- Quick and easy to administer
- Sensitive to small changes in progress
- Allow for progress monitoring (i.e., parallel forms)
- Good reliability and validity



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### Reliability (Alternate forms)

WARP	WARL	WARN
.97 <sup>a</sup>	.90 <sup>a</sup>	.94 <sup>c</sup>

### Validity

WARP	WARL	WARN
WARL	TOWRE Sight Words	Martin & Pratt (NW reading)
.91 <sup>e</sup>	.92 <sup>b</sup>	.87 <sup>c</sup>
NARA (passage) accuracy	WARP	WARL
.86 <sup>d</sup>	.91 <sup>e</sup>	.86 <sup>c</sup>
Burt (sight word accuracy)	Burt (sight word accuracy)	
.83 <sup>f</sup>	.87 <sup>e</sup>	
SAST (spelling)	WARN	
.77 <sup>d</sup>	.86 <sup>c</sup>	
Martin & Pratt (NW reading)	SAST (spelling)	
.59 <sup>d</sup>	.83 <sup>e</sup>	
NARA Reading Comp	SPAT-R (PA)	
.55 <sup>d</sup>	.69 <sup>e</sup>	
PPVT (vocabulary)	TOWRE Phonemic Decoding	
.33 <sup>d</sup>	.76 <sup>b</sup>	
	Martin & Pratt (NW reading)	
	.75 <sup>e</sup>	
	PPVT (vocabulary)	
	.42 <sup>e</sup>	

<sup>a</sup>Modelaine & Wheldall (2002a)  
<sup>b</sup>Reynolds et al. (2009)  
<sup>c</sup>Wheldall et al. (2011)  
<sup>d</sup>Wheldall et al. (in preparation)  
<sup>e</sup>Reynolds et al. (2011)



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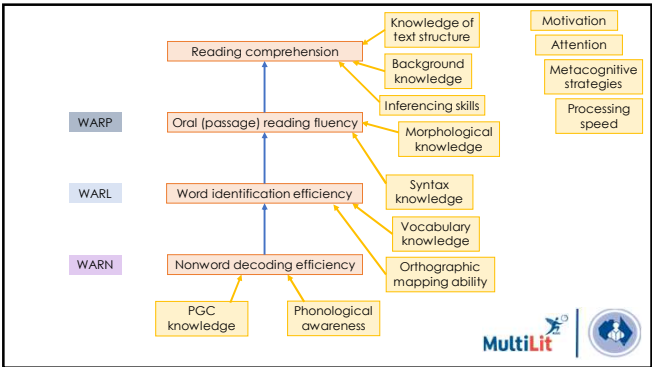
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## Thank you for listening!

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