



Curtin University

School of Physiotherapy and Exercise Science

# Mental Toughness: Sounds Great, But How Do I Develop It?

Daniel Gucciardi



# Brief Biographical Sketch

- Educational and professional qualifications

- Bachelor of Science (Hons) (2005)
- PhD (2009)
- Member of the Australian Psychological Society (since 2008) and its College of Sport and Exercise Psychologists (since 2010)

- Professional career

- Research fellow @ Curtin University (2009)
- Postdoctoral Research Fellow @ The University of QLD (2010-2012)
- Senior Lecturer (2013-2014) and Associate Professor (2015-present) @ Curtin University

# Key Collaborators in Mental Toughness



Assoc. Prof.  
Sandy Gordon



Dr  
John Mahoney



David Anthony



Prof.  
Sheldon Hanton



Prof.  
Nikos Ntoumanis



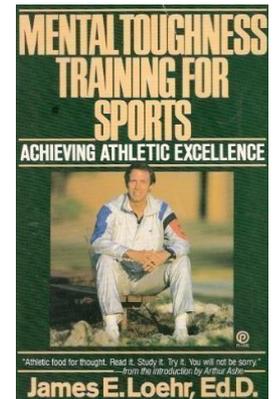
Dr  
Chunqing Zhang

# Overview

- Brief historical overview of mental toughness research
- Defining mental toughness
- Systematic review of qualitative research on mental toughness development
- Interventions to foster mental toughness

# A Brief Historical Overview (Gucciardi & Hanton, 2016)

- Wave 1: Professional practice knowledge
  - 1950s through to 2000
  - Component of personality (e.g., tough-mindedness) (Cattell et al., 1955)
  - Professionals' experiences with and observations of athletes
  - Diverse assortment of positive psychological qualities (e.g., confidence) and skills (e.g., arousal regulation)
  - *Strengths*: importance of professionals' experiences, observations and self-reflections for psychological theory (e.g., Beck, 1967)
  - *Limitations*: unsystematic approach to the construction and communication of knowledge



# A Brief Historical Overview (Gucciardi & Hanton, 2016)

- Wave 2: Unobservable personal attributes
  - 2000 through to early 2010s
  - Identification and description of unobservable personal attributes (e.g., confidence, optimism) and their development
  - Reservoir of personal resources (Hobfoll, 1989, 2002)
  - Qualitative research
    - In-depth accounts of individuals' perceptions, lived experiences, etc (e.g., Jones et al., 2002, 2007; Gucciardi et al., 2008)
  - Quantitative research
    - Sparked largely by the publication of the MTQ48 (Clough et al., 2002)
    - Other tools include the PPI (Loehr, 1986), PPI-A (Golby et al., 2007), SMTQ (Sheard et al., 2009)
    - Sport-specific tools in cricket (Gucciardi & Gordon, 2009)

# A Brief Historical Overview (Gucciardi & Hanton, 2016)

- Wave 2: Unobservable personal attributes
  - *Strengths*
    - Identification of boundary conditions (e.g., personal resource versus resilience)
    - Resource caravan (Hobfoll, 2002)
  - *Limitations*
    - Little theoretical justification for the combination of resources as a multidimensional construct (see Johnson, Rosen et al., 2012)
    - Unsystematic approach to theory development (see MacKenzie et al., 2011)
    - Reliance on arbitrary metrics and static research designs (i.e., cross-sectional surveys)

# A Brief Historical Overview (Gucciardi & Hanton, 2016)

- Wave 3: Observable behaviour (person x situation)
  - 2015 onwards
  - Importance of behaviour acknowledged in early work (e.g., Gucciardi et al., 2008; Jones et al., 2007)
  - Reignited in recent work (e.g., Gucciardi, Jackson et al., 2015; Hardy et al., 2014)
  - Behaviour = acts displayed by a person that are observable and measurable
  - Important to qualify and specify the action (Kahng et al., 2011)

“Resilience may be defined as returning to play following injury in a timeframe consistent with one’s medical prognosis (functional), or it could refer to using humour during the injury rehabilitation process (topographical)”

# Defining Mental Toughness

- Mental toughness is one's personal capacity to produce consistently high levels of subjective (e.g., goal progress) or objective performance (e.g., sales, race time, GPA), despite everyday challenges and stressors as well as significant adversities (Gucciardi, Hanton et al., 2015, p.28)
- ↑ behavioural perseverance (Bell et al., 2013; Gucciardi, Peeling et al., 2016), objective performance (Bell et al., 2013; Hardy et al., 2014; Mahoney et al., 2014; Gucciardi, Hanton et al., 2015), goal progress (Gucciardi, Hanton et al., 2015)

# How Do We Develop Mental Toughness?

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## A meta-study of qualitative research on mental toughness development

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# Meta-Study of QL Research (Anthony et al., 2016)

- *Why?* Several narrative reviews (e.g., Connaughton et al., 2011) but none that had taken a systematic approach
- *What?* Three aims of this study:
  - I. systematically review and evaluate the qualitative literature regarding key developmental factors and processes for mental toughness in sport and performance settings;
  - II. synthesise knowledge of key developmental factors and processes for mental toughness in sport and performance settings; and
  - III. generate an integrated framework that can inform future research and advancement in theory with regard to mental toughness development in sport and performance settings.

# Meta-Study of QL Research (Anthony et al., 2016)

- *How?* Meta-study involves a systematic approach to collecting and analysing data from qualitative research
- Search of Web of Science, Scopus, Sport Discus, OvidSP, and Google Scholar using “mental toughness” and “mentally tough”
- **Backward** (i.e., scanning reference lists of included articles) and forward search **strategies** (i.e., work that has cited included articles)

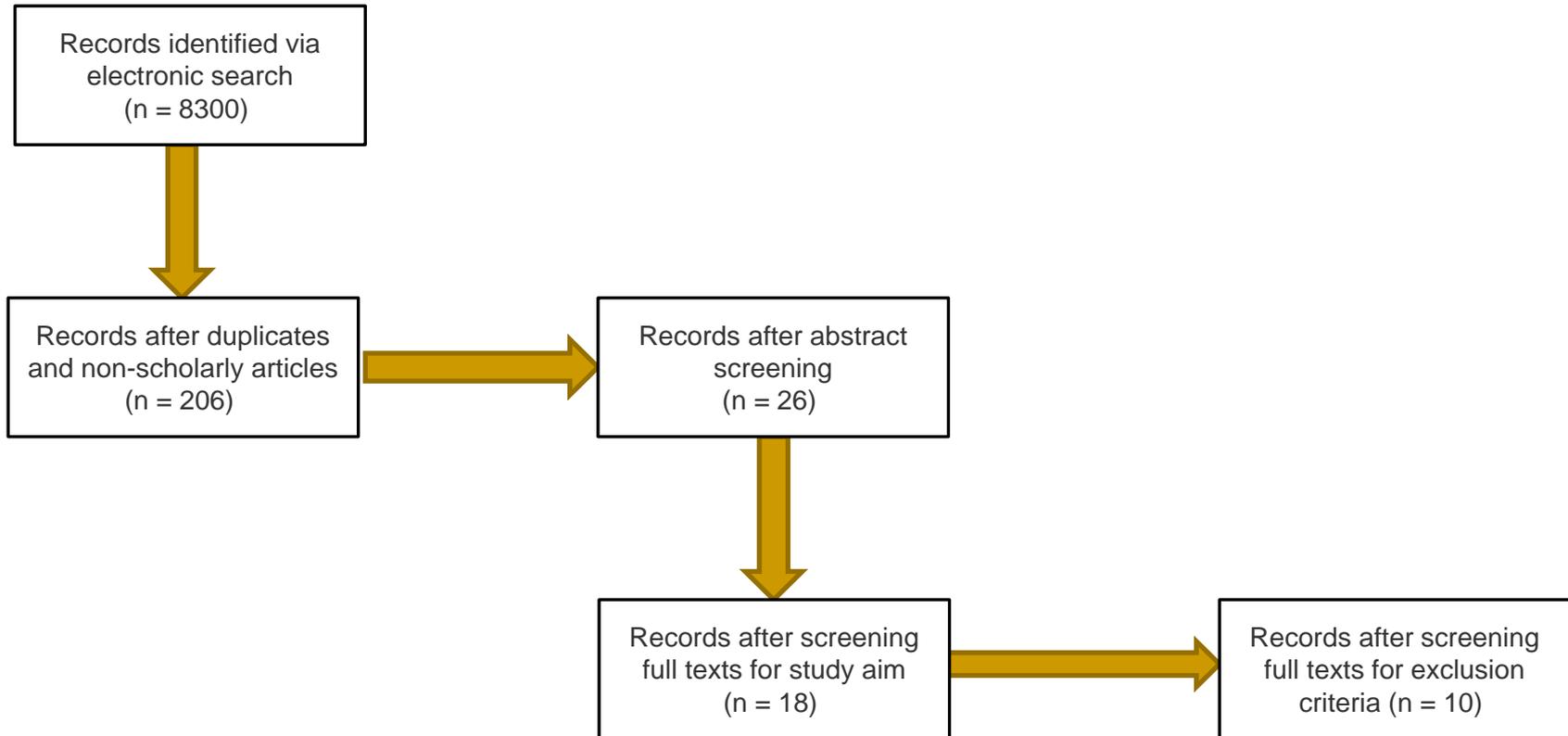
# Meta-Study of QL Research (Anthony et al., 2016)

- Meta method analysis
  - review and evaluation of the research designs of each primary study
  - 10-item qualitative research checklist (Critical Appraisal Skills Program, 2014)
- Meta data analysis
  - examination of the findings from each primary research report
- Meta theory analysis
  - critical analysis of extant theory to develop a unified theoretical understanding of the phenomenon
- Meta synthesis
  - synthesis of the data, methods, and theories from research reports → integrative theory or framework

# Meta-Study of QL Research (Anthony et al., 2016)

- Inclusion criterion
  - Explored participants' perspectives on mental toughness development
- Exclusion criteria
  - Reflections of an intervention program
  - Involved quantitative methods (e.g., survey-based)
  - Non-sport or performance setting
  - Analysis of historical or archival data, or a review paper
  - Non peer-reviewed outlet (e.g., conference presentation)
  - Mental toughness development was not a specific aim of the study

# Meta-Study of QL Research (Anthony et al., 2016)



# Meta-Study of QL Research (Anthony et al., 2016)

**Table 3.** Assessment of retained studies against CASP (2014) qualitative research checklist.

Study	RA	QM	RD	RS	DC	Rel	EC	DA	CF	RV	Ret
Bull et al. (2005).	✓	✓	✓	?	✓	?	✓	✓	✓	✓	✓
Butt et al. (2010).	✓	✓	?	?	✓	✓	✓	✓	✓	✓	✓
Connaughton et al. (2010).	✓	✓	✓	?	✓	?	✓	✓	✓	✓	✓
Connaughton et al. (2008).	✓	✓	✓	?	✓	?	✓	✓	✓	✓	✓
Cook et al. (2014).	✓	✓	X	✓	✓	?	✓	✓	✓	✓	✓
Driska et al. (2012).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gucciardi, Gordon, & Dimmock (2009).	✓	✓	✓	?	✓	?	✓	✓	✓	✓	✓
Mahoney, Gucciardi, et al. (2014).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Thelwell et al. (2010).	✓	✓	✓	?	✓	✓	?	✓	✓	✓	✓
Weinberg et al. (2011).	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓

Note: ✓ = appropriate; ? = can't tell; X = inappropriate. RA = research aims; QM = qualitative methodology; RD = research design; RS = recruitment strategy; DC = data collection; Rel = relationships; EC = ethical considerations; DA = data analysis; CF = clear findings; RV = research value; Ret = retained.

# Meta-Study of QL Research (Anthony et al., 2016)

## ■ Personal characteristics

- Malleable personal skills or resources that an individual might implement at a given time across a range of different contexts, often a result of learning from previous experiences
- Tough character, tough attitudes and tough thinking (Bull et al., 2005), heightened awareness (Mahoney, Gucciardi, et al., 2014), cognitive strategies (Driska et al., 2012), and reflective practice (Connaughton et al., 2010)

## ■ Interactions with environment

- How the interactions between performers and various stakeholders within the environment might affect their ability to develop
- Encouragement, knowledge and inspiration from significant others (Connaughton et al., 2008), interpersonal relationships (Butt et al., 2010; Gucciardi et al., 2009), social support networks (Connaughton et al., 2010)

# Meta-Study of QL Research (Anthony et al., 2016)

## ■ Progressive development

- Importance of ongoing opportunities for growth or development within the environment throughout one's career
- positive but tough practice environment (Butt et al., 2010), challenging motivational climate (Connaughton et al., 2008), facilitative coaching philosophy and training environment (Gucciardi et al., 2009), opportunities for skill mastery, success in training, and international competitive experience (Connaughton et al., 2010)

## ■ Breadth of experience

- Categorisation of critical incidents that occur throughout one's career that are necessary for MT development, and the importance of diverse experiences over time to facilitate adaptive and positive growth
- coping with pressure (Bull et al., 2005), overcame hardship in the sport (Driska et al., 2012), international experience (Connaughton et al., 2010)

# Meta-Study of QL Research (Anthony et al., 2016)

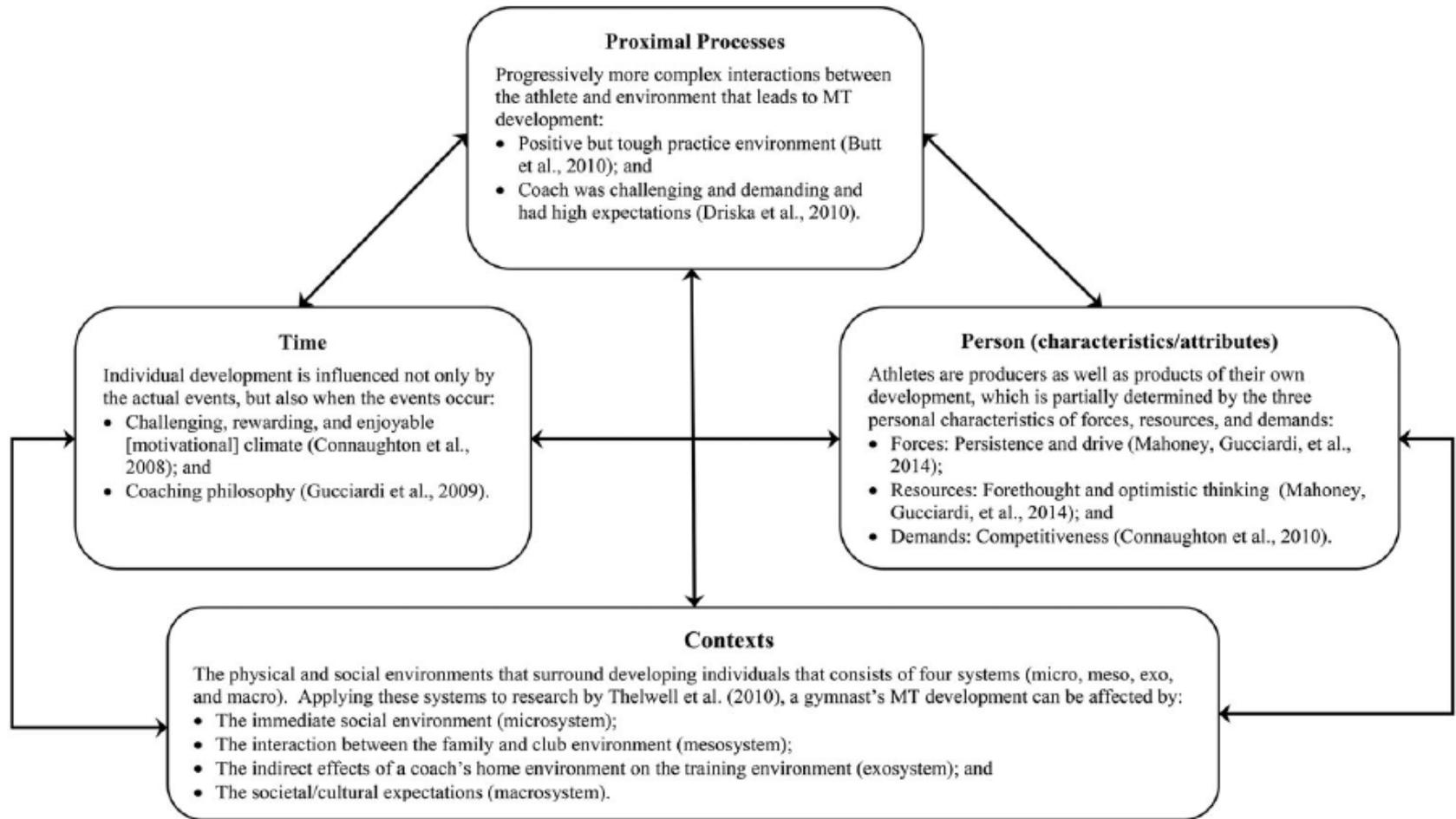


Figure 2. The bioecological model of mental toughness development.

# Meta-Study of QL Research (Anthony et al., 2016)

- Understanding how individuals interact with their environment is key
- Performers are active agents in their mental toughness development
- Minimal attention has been paid to differences in the developmental processes that may foster or hinder mental toughness development
- Degree of stability in one's mental toughness levels may offer a unique approach to clarifying the importance of developmental processes

# Interventions for Mental Toughness

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2013, Vol. 2, No. 4, 281–297

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## Enhancing Mental Toughness and Performance Under Pressure in Elite Young Cricketers: A 2-Year Longitudinal Intervention

James J. Bell, Lew Hardy, and Stuart Beattie  
Institute for the Psychology of Elite Performance, Bangor University



# Bell and colleagues (2013)

- 41 male cricketers aged 16-18 years ( $16.9 \pm 0.8$ )
- 49 contact days
  - 29 days over 4 training camps + 17 day tour of India
- Goal = provide players with opportunities to practice dealing with pressure and threat
- Threat = exposure to punishment-conditioned stimuli in the form of consequences (punishment)
  - Disciplinary (e.g., punctuality) or performance standards (e.g., testing)
  - Punishments (e.g., cleaning changing rooms, missing training session)

# Bell and colleagues (2013)

- Multi-disciplinary and transformational nature
  - Coaches, ex-internationals, medical staff, psychologists
  - Inspire followers to transcend self-interest for the success of a greater cause
  - End of day meetings with staff and 2 players (daily co-captains rotated)
- 4-day program cycle
  - Day 1: skill development (practice in non-threatening environment)
  - Day 2: pressure training (exposure to pressurised tests + support from staff)
  - Day 3: testing (pressure – support and encouragement from staff)
  - Day 4: review and goal setting (individual consultations)

# Bell and colleagues (2013)

Table 1

*Descriptive Data for Dependent Variables Across Experimental Conditions in 2009 (Pre-Intervention) and 2010 (Post-Intervention)*

Outcome variables	Intervention group		Control group	
	2009	2010	2009	2010
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Coach-rated mental toughness	4.55 (1.13)	5.06 (0.82)	4.49 (0.60)	4.29 (0.72)
Competitive performance statistics	50.78 (7.95)	57.03 (10.40)	50.22 (7.49)	50.85 (9.57)
Indoor batting assessments				
Pace	28.31 (7.90)	33.95 (5.14)	28.90 (5.25)	27.81 (7.24)
Spin	24.05 (9.56)	27.42 (8.78)	22.76 (9.28)	20.76 (7.89)
Indoor fitness assessments				
Vertical jump	34.41 (4.32)	38.28 (4.81)	35.63 (4.43)	38.80 (4.59)
Multi-stage fitness	11.56 (0.63)	12.67 (0.57)	11.54 (1.26)	11.50 (1.26)

# Bell and colleagues (2013)

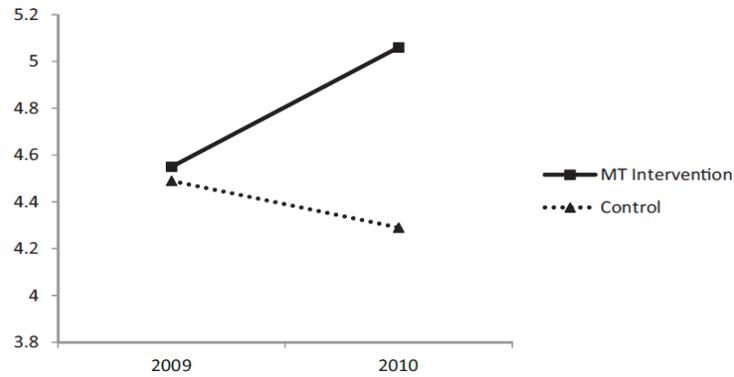


Figure 2. Group  $\times$  Time Interaction for Coach Rated Mental Toughness.

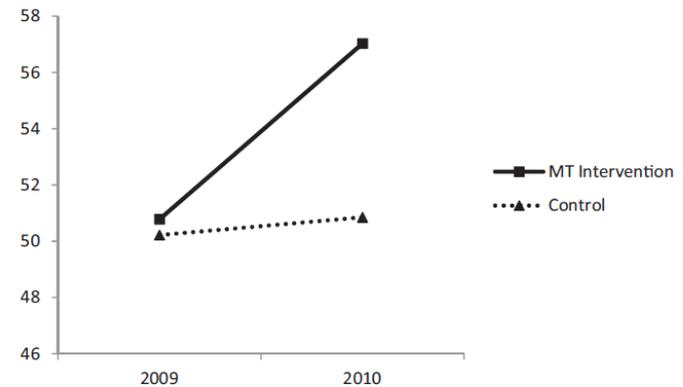


Figure 3. Group  $\times$  Time Interaction for Evaluation of Competitive Performance Statistics.

# Interventions for Mental Toughness

- Training coaches to support basic psychological needs (Mahoney, Gucciardi et al., 2017; Mahoney, Ntoumanis et al., 2016)
- Psychological skills training (Gucciardi et al., 2009)
- Strengths-based coaching (Gordon & Gucciardi, 2011)
- Behavioural coaching (Anthony et al., under review)

# Organisations and Mental Toughness

*The aim of this establishment is to create an environment where mental toughness development is inevitable*



# Thank you!



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