



Brain Builder Workforces

Evidence Brief: Neuro-informed Policy and Practice Scoping Review

Background

Over the last two decades there has been increasing interest in the application of neuroscience and related sciences to inform policy and practice decisions. This has led to the proliferation of publications that refer to 'neuro-informed' policy and practice across a range of fields and disciplines. Despite the growing interest in neuro-informed policy and practice, a clear definition and framework to guide this approach has not been previously available.

The Neuro-informed Policy and Practice Definition and Framework emerged from a need to establish a clear conceptualisation and identify key knowledge bases that underpin a neuro-informed approach. This definition and framework are intended as tools for guiding the development of a common language, knowledge and messages that can embed understanding of neuroscience into action across and within systems.

Scoping Review of Neuro-informed Policy and Practice

The Neuro-informed Policy and Practice Definition and Framework emerges from an extensive scoping review undertaken by researchers at The Queensland Brain Institute at The University of Queensland, in collaboration with the Thriving Queensland Kids Partnership (TQKP). Full details of the methods for this review will be available shortly through a publication entitled *The Brain in Context: A Scoping Review and Concept Definition for Neuro-Informed Policy and Practice*¹.

This scoping review aims to:

1. **Establish a working definition** of neuro-informed policy and practice that can be applied to different systems, workforces, and contexts.
2. **Identify the key knowledge bases and applications** of neuro-informed policy and practice, with a particular focus on those relevant to children and young people.

Scoping review

The review was undertaken following the PRISMA Extension for Scoping Reviews methodology. Database searches of peer-reviewed academic and grey literature were performed in 2023 using the following databases: Scopus, Web of Science, APA Psycinfo via Ebscohost, Worldwidescience.org, Campbell Collaboration Online Library, ERIC, and WHO.

A total of 6119 documents were identified through initial scanning (see Figure 1 below). Documents published from 2000 onwards that included a definition, discussion or example of neuro-informed policy or practice were included. The selection of documents for inclusion was conducted using Covidence software. One author reviewed the title and abstract of each document for relevance. Two authors independently screened the full text of each document to determine eligibility against the pre-determined inclusion/exclusion criteria. Where required, differences in categorisation were resolved by seeking the opinion of a third researcher and applying a consensus method. Outcomes and reasons for exclusion were documented.

In total, 116 documents that discussed the application of neuro-informed policy and practice were included from across the fields of clinical psychology, counselling, developmental psychology, social policy, education, public health, nursing, medicine, nutrition, law, psychiatry, psychotherapy, social work, art therapy, educational psychology, economics, urban planning, religion, and science communication.

¹ The complete report for this scoping review is in preparation for publication in an academic journal.

Process undertaken to identify documents included in scoping review

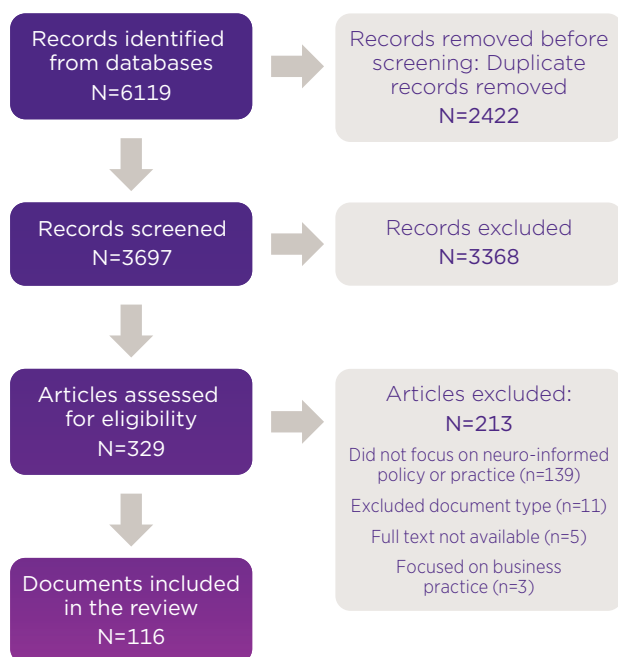


Figure 1: PRISMA flow diagram showing included studies at each stage of inclusion/exclusion process.

Target areas

Applications of neuro-informed policy and/or practice were targeted to a range of areas, including health, education, social services, law, and physical environments (see Figure 2 below).

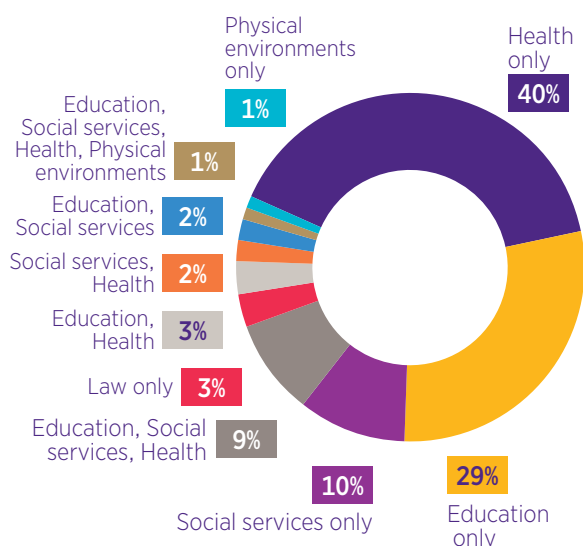


Figure 2: Applications of neuro-informed policy and practice.

Children and young people

From the included documents, 66% made specific reference to children, young people, and/or workforces relevant to these groups.

Critical Considerations

Twenty-four documents (21%) identified critical considerations regarding the ways in which neuroscience is understood and applied. Critiques reflected diverse interpretations that framed neuro-informed policy and practice as either *the brain in isolation* or *the individual in isolation*. Key to these critiques was the need to consider and apply evidence of the complex and profound influence of social and physical environments and systems that underpin human development and behaviour (see Figure 3 below).

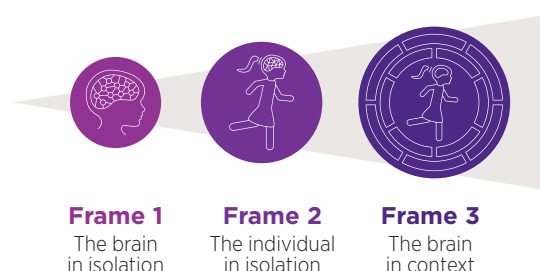


Figure 3: Framing of the applications of evidence from neuroscience into policy and practice.

Defining neuro-informed policy and practice

Across the identified documents, diverse definitions of neuro-informed policy and practice and related concepts were identified. However, these definitions were typically limited to general statement definitions (e.g. “based on neuro-scientific discoveries”) or field-specific definitions (e.g. neuro-counselling, neuro-education). None of the available were sufficiently broad and/or specific to capture the current use of this concept across publications.

Defining a concept

A four-step methodology (see Figure 2 below) for defining a concept proposed by Podsakoff *et al.* (2016) was applied to generate a new definition for *neuro-informed policy and practice* that could be applied across fields to inform application and understanding.

First, from the included documents all available definitions were extracted and collated, and 11 key attributes of neuro-informed policy and practice were identified. Three related terms and/or definitions were selected for comparison with neuro-informed policy and practice based on their theoretical proximity and alignment with the concept (i.e. 'trauma-informed', 'evidence-based', and 'neuroscience').

Second, attributes were compared with the three related terms and examined to determine whether each attribute was necessary or sufficient to define neuro-informed policy and practice.

Third, a preliminary definition of neuro-informed policy and practice was developed based upon these attributes. Finally, a conceptual definition was refined through consultation with experts across relevant fields (e.g. neuroscience, psychology, education, sociology, health, community development, paediatrics).

The definition of neuro-informed policy and practice emerging from this analysis and development is provided in [The Neuro-informed Policy and Practice Framework](#).

Knowledge bases and examples of application underpinning neuro-informed policy and practice

Content analysis of the core elements and components of neuro-informed policy and practice that were identified within each of the 116 documents within the scoping review was undertaken, with a particular focus on those that included reference to children and young people². This analysis identified 12 knowledge bases that underpin the definition of neuro-informed policy and practice developed through this scoping review.

Content analysis of each of the documents within the scoping review also identified a range of examples of application of neuro-informed policy and practice across field and contexts. These examples were mapped across each of the 12 knowledge bases and were summarised.

Find out more about the knowledge bases underpinning neuroinformed policy and practice—and examples of application—in [The Neuro-informed Policy and Practice Framework](#).

² Whilst the analysis focused on neuro-informed policy and practice in relation to children and young people, analysis of all included publications—including those without specific reference to children and young people—identified similar components, with the only distinguishing factor being the greater emphasis on drug use and addiction.

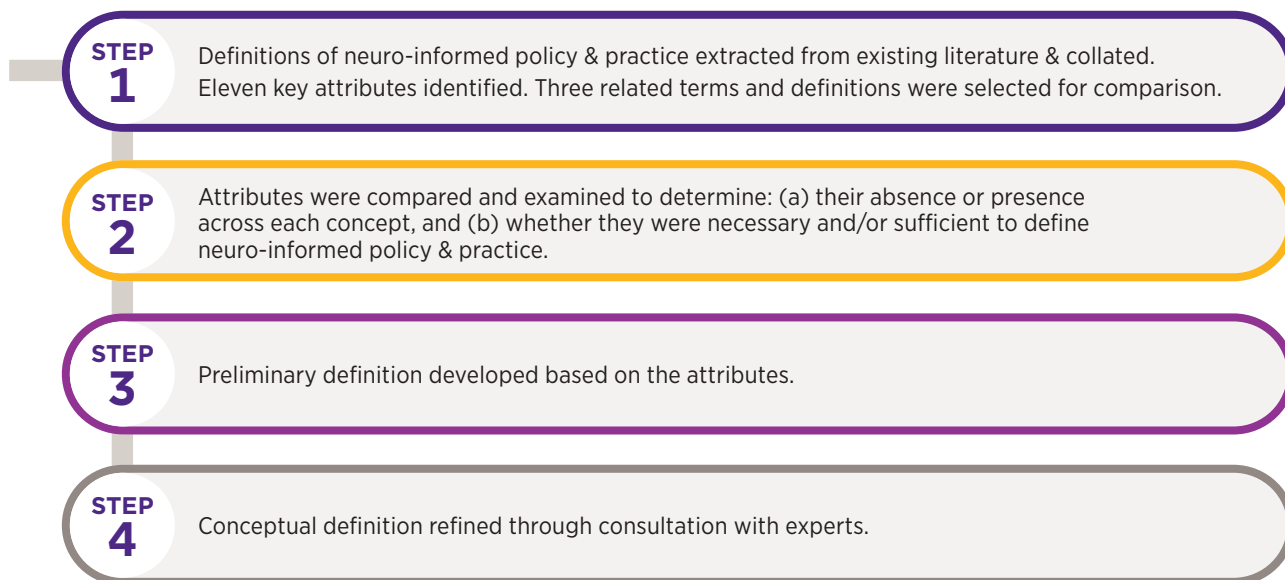


Figure 4: Four-step methodology for defining concepts (Podsakoff *et al.*, 2016)