

Research Report:

Can Neuro Coaching Change Unconscious Bias?

MA Professional Practice (Neuro Coaching)

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Glossary of Terms

Terms	Definition
Dual process behaviour	Refers to IAT measurement of associations un-related to social identity, like drinking alcohol or consuming chocolate.
Heuristic	A mental shortcut originally identified by Tversky and Kahneman, (1974) as reducing the complexity of assessing probabilities and predicting values, and generally being useful, whilst sometimes leading to systematic errors (p. 1124). The authors' first examples of errors are based on how very little information in the form of a 'personality sketch' will have more influence on the thinker making a poor prediction about the likely career of an individual than if they are given no information about personality at all (p.1125). This theory developed into the concept of 'automatic' thinking and was popularised in the book 'Thinking Fast and Slow' (Kahneman, 2012).
Implicit Bias	• is an internal cognitive process (an attitude or stereotype); • influences those around us by affecting our perceptions, actions, and decisions; • thereby leading to unequal treatment of others because of group memberships; • often disallows awareness of those influences and • is internalised from broader, external social environments. (Walker and Wang, 2022, cited Californian Legislation AB-241, Implicit Bias, p. 202)
Implicit Bias as a Behaviour	A view that implicit bias is something that people do rather than something that people possess. More specifically, implicit bias can be defined as implicit group-based behaviour, which is behaviour that is influenced in an implicit manner by cues that function as an indicator of the social group to which others belong. For instance, saying that someone is racially biased means that part of what that person does (e.g. whether the person smiles at someone, shakes hands with someone, hires someone for a job) is influenced by cues indicative of the racial group of others (e.g. skin colour). The influence of these social cues can be labelled as implicit when it occurs quickly, effortlessly, unintentionally, unconsciously, or in a way that is difficult to control (D Hower, 2019, p.836).
Intergroup Contact Hypothesis	Note that Allport proposed that reduced prejudice could result when the following features of the contact were present: "(a) equal status between the groups, (b) common goals, (c) intergroup cooperation, and (d) the support of authorities, law, or custom" (Pettigrew and Trop, 2005, p. 264).

Terms	Definition
Internalised Oppression	“An operational definition of internalized oppression is that it is a negative set of feelings and misinformation emanating from the dominant culture that subculture individuals internalize as true for themselves and other members of their group. These beliefs are turned inward and adopted as sabotaging behaviours that are then used on self and other group members. The styles and behaviours of the dominant group are viewed as superior and “correct” and conversely, the subculture behaviours are considered inferior and “wrong” thus reinforcing the collusion of maintaining the dominant culture as the pinnacle.” (Turnbull et al., 2005, p. 17)
mBIT	Multiple Brain Integration Techniques - based on NLP theory, modelling and neuroscience of the gut and heart brains, categorised as practitioner literature (Oka and Soosalu, 2012).
Schema	A ‘schema’ is understood to help us categorize and understand information quickly by drawing on familiar frameworks to process new data. Schemas are connected to studies of memory, knowledge organisation and perception. They appear to be similar to the NLP concept of a ‘generalisation’.
Social Neuroscience	Amodio and Cikara, (2020) introduce the scope of Social Neuroscience as being to “investigate the psychology of intergroup bias by integrating models and methods of neuroscience with the social psychology of prejudice, stereotyping, and discrimination” (p. 439).
Striatum	The striatum is a critical part of the brain’s basal ganglia system and is involved in a wide range of functions, including movement, reward processing, decision-making, and habit formation.

Introduction

Structural discrimination remains prevalent in Anglo-Western societies despite decades of legislative efforts aimed at promoting equality. This research takes place in the context of the widespread acceptance of unconscious—or implicit—bias as an explanation for the persistence of inequality. In recent years, the concept of unconscious bias has entered mainstream discourse, with Prince Harry describing the racism experienced by Meghan Markle as an example of this phenomenon (Ducourtieux, 2022).

Unconscious bias is hypothesised to function as a “glue” that sustains inequality and social conflict across identity-based differences, such as gender, race, age, class, sexuality, and appearance. For organisations, addressing unconscious bias is essential to comply with legislative equality mandates and ensure psychosocial safety for employees and equitable service access for clients. In health services, the consequences of unconscious bias can be life-threatening for minority populations. Despite the evolution of structural reforms, organisations often lack the tools to address the biases that individuals unconsciously bring into the workplace. A typical organisational response has been the implementation of unconscious bias training. However, this intervention has not produced a reduction in bias.

Unconscious bias presents a complex challenge: it operates at the individual level, often beyond conscious control, contributes to systemic inequalities, and undermines the objectives of equity legislation. This research challenges the assumption that unconscious bias is beyond individual control. It posits that similar to other mindset-related behaviours, individuals can reduce unconscious biases through targeted interventions, provided they are intrinsically motivated to and supported by an effective methodology.

Prior to the project, in a Literature Review (Minton, 2022), the researcher identified:

- A large volume of research on the problem of unconscious bias. Specifically, how it enables structural discrimination and inequality in organisations.
- An acceptance of evidence that unconscious bias training in organisations does not reduce bias or the impact of bias.
- A gap in research exploring if coaching can change unconscious bias.

- The availability of the Implicit Association Test (IAT) as an established measurement of unconscious bias already in use for awareness-raising in the organisational sector.

From this, a quasi-experiment, mixed methods research project was proposed to explore the primary research questions:

1. Can NLP Coaching change unconscious bias as measured by the Implicit Association Test?
2. If so, is it possible to identify one technique with a greater correlation to change?

Based on Neurolinguistic assumptions, the researcher did not require coachees engage with a theoretical framework. The coaching process was informed by a belief that the key change that the coach was seeking to make was to associations within generalisations about a group that was in the 'deep structure'. The coach's role was understood to be to support the coachee in the process of 'making new meanings' at this level about that group. Coachees were understood to be empowered in a partnership to identify their current meanings and actively engage in replacing these with more 'generative' meanings that support equality. The frame of 'allyship' was intended to provide a context that was psychologically safe to reveal and reflect on thinking, feelings and behaviours that did not align with their authentic self or values.

Intended individual learning outcomes for the researcher in this study included:

- Developing skills to design and conduct research that provides sufficient evidence to evaluate if a Neuro Coaching approach to changing unconscious bias has potential.
- Reflecting on her own understanding of unconscious bias as simultaneously an internal/individual and social/cultural phenomenon and her own working theory of change at an individual level.

The researcher conducted this study within their own coaching practice, where she has provided Neurolinguistic Programming (NLP)-based coaching and qualification trainings for over a decade. The research aimed to evaluate Neuro Coaching as a potential intervention for reducing unconscious bias, filling a notable gap in existing research both with coaching and NLP.

This project has the potential to inform future research and practical interventions: reframing unconscious bias as a learned association that can be “unlearned” at the individual level. If successful, it could support calls to redirect investments from largely ineffectual unconscious bias training to targeted coaching methodologies capable of producing lasting individual and systemic changes.

Literature Review

Approach to the Literature Review

This review builds on Minton (2022) to explore unconscious bias, research on changing unconscious bias, and the use of the Implicit Association Test (IAT) to measure change. The review addresses theoretical foundations, methodological debates, and practical applications relevant to the research design and coaching context.

What is Unconscious/Implicit Bias?

Evolution of the Construct in Cognitive Science, Social Cognition, and Social Psychology

Riaz (2021, p. 114) highlights that there is no consensus on the boundaries or overlaps between fields such as neuropsychology, cognitive psychology, and neuroscience, complicating cross-disciplinary discussions of unconscious bias. The understanding of unconscious/implicit bias has evolved across these intersecting disciplines over decades, reflecting shifting definitions, measurement approaches, and research priorities. This review includes seminal works and recent definitions relevant to this study and Neuro Coaching. A glossary of key terms is provided to support comprehension, recognising that practitioners may not have expertise in these intersecting disciplines.

In cognitive science and psychology, dual-process theories explain the mismatch between intentions and actions, distinguishing between automatic, unconscious thought processes and deliberate, intentional processes (Forscher et al., 2019, p. 3). These theories conceptualise thought processes as either automatic, fast, and

reflexive or controlled, slow, and deliberative. This theoretical approach traces back to Tversky and Kahneman's (1974) "heuristic principles" and was popularised in *Thinking, Fast and Slow* (Kahneman, 2012), which contextualised how human beings rely on mental shortcuts that can lead to biases.

Greenwald and Banaji (2017) trace the concept of "implicit" from cognitive psychology into social cognition, noting that "unconscious" was initially unwelcome in academic psychology (p. 864). By the 1980s, the field shifted towards embracing terms like "implicit memory," which emerged in 1985 to describe memories independent of conscious recall (p. 865). Bargh's early work on automatic social perception laid the groundwork for studies of stereotype activation, furthering the conversation on how unconscious thought processes influence social judgments. Patricia Devine's 1989 dissertation demonstrated a key paradox: individuals could reject prejudice consciously while behaving in biased ways unconsciously (Nordell, 2021, p. 29). In 1998, the IAT was introduced to measure relative association strengths, with shorter response times indicating stronger implicit associations (Greenwald and Banaji, 2017, p. 866). By 2002, this method had been adapted to measure stereotypes. However, while the IAT provides a method for measuring implicit associations, it does not constitute a fully developed theory of implicit bias.

Current Construct of Implicit Bias

Walker and Wang (2022) clarify that implicit bias differs from stereotypes and prejudice by being acquired through socialisation. Implicit biases are persistent, unrecognised associations that shape expectations of different groups, often without the individual's conscious awareness. These associations may be reinforced through repeated exposure to societal norms and stereotypes in media, institutions, and social interactions. A 2019 Californian legislative definition succinctly captures implicit bias as associations that unconsciously influence behaviour, highlighting its role in reinforcing social inequities.

Debates About the Construct

Gawronski (2019, p. 578) distinguishes three types of "unawareness" relevant to implicit bias: (a) content, (b) source, and (c) effects. Gawronski argues that current evidence does not support the notion that people are unaware of the mental content underlying their implicit measures. This critique highlights the complexity of studying

“implicitness” and underscores the limitations of relying solely on self-report or reaction-time-based measures.

De Houwer, (2019, p. 835) critiques the portrayal of implicit bias as an uncontrollable, hidden force. He argues that this conceptualisation risks portraying individuals as powerless to change biased behaviours. Instead, De Houwer proposes an alternative framework where implicit bias is understood as behaviour—something people do rather than something they possess. He references Skinner’s behavioural principles to emphasise that covert behaviours, such as thoughts and feelings, are observable to the individual and thus amenable to change (p. 838). This behaviourist perspective shifts the focus from latent internal processes to observable behavioural patterns. This perspective aligns with that of the researchers.

Influence of Neuroscience in Practitioner Literature

Neuroplasticity, foundational to NLP, supports the idea that unconscious thought processes underpin all change and learning. Neuroplasticity refers to the brain’s capacity to form and reorganise synaptic connections, particularly in response to learning or experience. Niebauer (2019) identifies the left hemisphere as the “storytelling” centre shaping self-perception (p. 20–21). This conceptualisation emphasises that human cognition is shaped by internal narratives, which can perpetuate biases through selective attention and memory. Niebauer describes bias as an unconscious process that surfaces as intuition (p. 123), reinforcing the idea that biases often operate below the level of conscious reasoning. The researcher incorporated these insights into coachee discussions, aligning with NLP’s foundational theories (Wake, 2008, pp. 72-73) to help coachees reframe their narratives.

Niebauer (2019, p. 130) notes that despite advances in neuroscience, the precise location of consciousness in the brain remains unidentified. This aligns with the principles of Multiple Brain Integration Techniques (mBIT), which posit that the gut and heart contribute to embodied consciousness alongside the head brain (Oka and Soosalu, 2012). In this research, mBIT techniques were used to address coachees’ visceral reactions, such as sensations of discomfort or disgust, that they believed signalled unconscious bias. These embodied responses were used in the coaching to process change in the coachee’s automatic reactions.

Key Findings from Social Neuroscience (Amodio and Cikara, 2020)

The Importance of the Ingroup

Within the coaching process for coachees seeking to change racial bias, the researcher examined self-identity in the self/other dichotomy to surface beliefs about the out-group (“who I am not”), using the prompt “What is good about being white?” While this hypothesis is based on Cultural Studies in the researcher, it is interesting to note that social neuroscience findings support the primacy of ingroup identity in social categorisation, with neural activity indicating stronger engagement when thinking about ingroup members (p. 444). Conformity to ingroup norms activates brain regions associated with intrinsic value processing (p. 456). This underscores the importance of social identity in shaping perceptions of the “other.”

The Role of Emotion in Bias

The researcher’s working theory assumes that biases involve emotions or could be emotionally driven. Conditioned fear, a potential mechanism for prejudice, may explain micro-behaviours and autonomic arousal (Amodio and Cikara, 2020, p. 448). However, social neuroscience research into amygdala activity at this point in time has only indicated that fear responses can be complex and may reflect concerns about being perceived as prejudiced rather than underlying prejudice itself.

Recognising and Inhibiting Biased Responses

Neuroscience research suggests that individuals may experience difficulty in detecting bias, inhibiting biased responses, or implementing egalitarian behaviours (Amodio and Cikara, 2020). These challenges highlight the importance of developing strategies to support people who wish to create a change in themselves and align their conscious values with their automatic responses.

Approaches to Changing Unconscious Bias

Intergroup Contact Hypothesis

The researcher incorporated Allport’s seminal hypothesis (cited in Nordell, 2021, Kindle position 208) that meaningful contact reduces prejudice by asking coachees about their access (past and present) to meaningful contact with the outgroup in the pre-coaching survey and first coaching session. Paolini et al. (2021) affirm this hypothesis through over 500 studies, noting that informal contact, such as

friendships, can also reduce bias (p. 17). However, to generalise positive effects, individuals must perceive contact as typical of their social group rather than as isolated encounters (p. 18). In this study, the coaching process reframed coachees' past contact experiences to challenge generalisations about out-groups, supporting shifts in perception. In NLP terms, memories of past intergroup contact were able to be used as a source of 'resources' to support a change in generalisations in their subjective meanings about the group, something that did not occur spontaneously as a result of the original contact alone.

Procedures for Changing Implicit Associations

The primary research question involves using the IAT to measure change, requiring contextualisation within existing literature. Forscher et al. (2019) examined 492 studies with 87,419 participants and found that interventions producing "robust results" on implicit measures often had small effect sizes, yet these shifts are significant in social psychology. Notably, studies using pre-test/post-test designs with bias reduction goals and IAT assessments showed larger effects, aligning with the quasi-experimental, solution-focused Neuro Coaching approach used here. This study exceeded norms by including four coaching sessions per participant and a two-week gap between coaching and post-test IAT assessments, addressing limitations in prior research dominated by short-term, single-session interventions.

Meta-analyses provide further insights. Forscher et al. (2019) found that positive changes in implicit bias were strongest in studies involving associated concepts, motivational goals, or tasks taxing cognitive resources. These findings align with the researcher's hypothesis that effective bias reduction addresses cognitive processes and goal-directed motivation. However, mixed-method designs, such as the one employed in this study, were excluded from their analysis. FitzGerald et al. (2019), more aligned with this research's scope, identified four intervention categories for reducing implicit bias: exposure to counter-stereotypes, identifying with the outgroup, evaluative conditioning, and emotional induction. These interventions are compared with coaching tools in the Findings. Additionally, demographic diversity was prioritised in this study as far as possible, addressing criticisms of the overrepresentation of university students and US-based participants in previous research.

Additional Review of Literature Post-Coaching

The initial literature review was further built on following the practical component of the research when analysis of coaching sessions revealed studies mentioned to coachees, or theory that consistently influenced the coaching process outside of the researcher's awareness.

Mindfulness for Bias Reduction

Mindfulness, or nonjudgmental observation of internal states, featured prominently in coaching techniques based on assumptions that were not conscious on the part of the researcher. Although the term “mindfulness” was not explicitly used, all coachees were asked to observe internal thoughts, feelings and behaviours without judgement or with self-compassion, and coaching sessions involved a ‘check-in’ question: “What have you noticed anything since our last session?”. This use of mindfulness is supported by (Oyler et al. (2022, pp. 1107-1110) findings that identified mindfulness as having a small but significant effect on reducing intergroup bias through emotional regulation and stress reduction—factors that act as precursors to bias.

In conversations with some coachees, the coach shared her hypothesis that mindfulness, while effective in managing bias in the moment, is insufficient for sustained change unless deeper unconscious-level shifts because it is not sustainable when stressed. This is supported by research that stress, a precursor to intergroup bias, impairs the ability to observe thoughts and feelings (p. 1110).

Increasing Perceived Variability within an Outgroup

Brauer and Er-rafiy (2011) demonstrated that increasing perceived variability within an outgroup reduces prejudice. Posters showcasing diverse individual characteristics among Arabs reduced biased behaviour, aligning with the researcher's hypothesis that bias change fundamentally involves addressing overgeneralisation in subjective meaning-making. This process disrupts simplified group categorisations that perpetuate structural inequality, consistent with the approach used in this study.

Influence of Academic and Practitioner Literature

Broad reading in practitioner literature, including works such as Nordell's *The End of Bias* (2021) and Greenwald and Banaji's *Blindspot* (2013), informed the researcher's

conceptual framework by providing accessible overviews of multidisciplinary research on unconscious bias. The influence of academic literature has been integrated throughout the main body of the Literature Review. However, the researcher reflects that its direct impact on the coaching process was limited, primarily due to a scarcity of studies addressing unconscious bias through coaching and a general lack of research on Neurolinguistics as a methodology.

Methods

Research Paradigm

The research is based in a realist paradigm, which assumes that there is an objective reality; however acknowledges that our ability to understand this reality is limited by subjective processes of perception and meaning-making. Knowledge is believed to be something that can be furthered through inquiry while recognising that this is influenced by context, power and subjective interpretation. The project is informed by a transformative intent within the context of 'real world research', aiming to evaluate if neuro coaching as an intervention has the potential to reduce unconscious bias and contribute to meaningful social change.

Overview of Methodology

A flexible mixed-methods design was used. Initially, quantitative data was expected to play a primary role as a measure of change. However, due to the low reliability of the implicit bias measure, qualitative data—derived from surveys, coaching transcripts, and researcher reflections—gained prominence. The study employs individual case studies to capture participants' experiences and the complexity of the coaching process.

The core evidence for assessing change was drawn from analysis of changes described in participant surveys 2 and 3 (self-reported changes) and coaching session transcripts (coachees' reflections on change), and comparison to individual coaching goals.

The coach-researcher assessed the comparative depth of reported changes, which informed the evaluation of coaching tools and techniques. Less weight was placed on survey data related to levels of reflection about allyship in a wider social context, as it was deemed both less relevant and less reliable.

Findings regarding whether neuro-coaching can change unconscious bias were triangulated from qualitative and quantitative data based on subjective assessments and comparative mean results from pre- and post-test IATs for the coachee and control groups.

Data Collection Methods

Coachee Surveys

Surveys were conducted pre-, mid-, and post-coaching (Appendix 1). The pre-coaching survey combined the research-specific survey with the Coach's standard intake form, gathering background information and initial beliefs about unconscious bias and allyship. The mid-point survey assessed early changes after two sessions (questions 3 to 5). The post-coaching survey (questions 10 to 13) captured participants' reflections on changes they perceived as relevant to unconscious bias.

Implicit Association Test (IAT)

The IAT was used pre- and post-coaching for both coachees and a control group, following Greenwald et al. (2020, p. 12). Participants completed the IAT twice to generate a "pre-test" baseline. However, concerns arose when one coachee's IAT scores fluctuated from "strong bias" to "no bias" pre-coaching and back to "strong bias" after one session in which they explicitly acknowledged bias-related negative emotional reactions.

The literature confirms the IAT's low test-retest reliability is 0.50 (Greenwald et al., 2020, p. 18). Consequently, IAT data analysis was adapted as follows:

1. Consistent use of the first IAT result as "pre-test" data for all participants.
2. Analysis focused on comparing group means, medians, and qualitative interpretations rather than statistical significance.

Coach Journal

The coach maintained detailed session notes and reflections on coaching in a digital journal. These entries informed the summary of the coaching sessions in the participant case studies.

Data Analysis

Case Study Synthesis

Data from all sources were synthesized into individual case studies (Appendices 2 – 9).

Table 1: Structure of Participant Case Studies

Section	Subheadings
Case Study – Participant Information	• Bias Chosen • Client Background • Client Context
Coaching Goal	• Extract of Goal from the 'Well-Formed Outcome'
Results	• IAT Result • Mid-Coaching Questionnaire (after two sessions): ◦ Reflections on internal changes ◦ Outward-directed behaviours or actions • Post-Coaching Questionnaire: ◦ Experience of any change ◦ Alignment with the original coaching goal ◦ Examples of changes
Self-Described Changes in Coaching Sessions	• Detailed quotes and reflections extracted manually from coaching session transcripts
Coaching Tools Utilized	• Implicit Tools noticeably used at an individual level • Explicitly Proposed Tools
Summary of Key Moments	• Summary from Coach's perspective
Coaching Session Summaries	1. Session-by-session description of the process from Coach's perspective 2. Detailed AI-generated session-by-session summary from analysis of coaching transcripts.

The case studies facilitated a detailed familiarity with the data by the researcher, as well as providing a picture of the context for the coaching and experience of the coachee.

AI-Assisted Analysis of Data

ChatGPT was utilised to analyse and summarise as follows:

1. **Analyse the changes described in coaching sessions and surveys, comparing them to coaching goals.** This analysis provided the most significant input into the findings by incorporating a high volume of qualitative data. These outputs were verified within the app, against the coach's recollection and by manually checking sources that were quoted.

2. **Summarise coaching transcripts to provide greater detail to the case studies.** These summaries are intended to offer a richer level of insight into the coaching process and have been included in the case studies. Through the use of timestamp ranges and quotation of exchanges between coach and coachee the outputs were found to align with the Coach's recollection. No findings are based on these summaries, and detailed verification was not conducted.
3. **Identify coaching tools across the transcripts at a participant level and then in aggregate.** The analysis of coaching tools and techniques based on the session transcripts was reviewed and corrected, with references to transcript sources in this document limited to the session number. This analysis provided valuable insight into the full range of techniques used across 31 coaching sessions at a level of detail that was not possible from the Coach's Journal. This output has contributed to findings on the research question regarding coaching tools and techniques.

Triangulation of Data

Findings were triangulated using case studies, survey results, and IAT data, considering:

- a. Comparison of quantitative coachee and control group means (IAT scores)
- b. Qualitative and quantitative self-assessment of change in bias by coachees, compared to their coaching goal.

Due to the IAT's limited reliability, the subjective assessment of change by the coachees has been weighted more heavily as the most significant source of evidence. Other survey data has not been considered relevant or reliable enough to contribute to the assessment of the core question, 'Can Neuro Coaching change unconscious bias?'.

Ethical Considerations

Key ethical considerations included:

- Informed consent via participant information sheets (Appendix 10) and agreements (Appendix 11).
- Anonymity and confidentiality (data anonymized using participant codes).

- Right to withdraw (reminders of this were provided, and one coachee withdrew due to time constraints).
- Researcher bias mitigation (transparency about potential conflicts of interest).

Participants' confidentiality was maintained through a numbering system, and data storage complied with university ethics guidelines (see Ethics Form, Appendix 12).

Insider Researcher Considerations

The researcher operated as an external coach, working with unfamiliar participants and maintaining typical professional boundaries. The study's potential benefits to the researcher's commercial practice are acknowledged here and managed through data transparency and self-reflection.

Risks of Adverse Outcomes and Safety Measures

Participants were informed about coaching processes and given the option to decline any tool. No timeline techniques into the emotional past were used, and emotion-focussed NLP brief methods did not require that Coachees share the content/story of memories or spend time in catharsis to resolve unresourceful states as barriers to their outcomes; this is in alignment with the International Coaching Federation ethical guidelines for coaching and NLP tools. The final survey confirmed that all participants felt safe during coaching.

Participant Recruitment and Selection

Participant Criteria

Participants were recruited from the public and screened using inclusion/exclusion criteria (Table 2 below). All participants were selected from the volunteer pool 'blindly' by the researcher using a numbering system.

Table 2: Final Participant Criteria

Actual Criteria for Coachees
Inclusion • Have a personal interest in the possibility of changing their own unconscious bias • Are available during the practical research time-period to meet <i>online on specific days of the week</i>. Exclusion • Have studied coaching or NLP • Have attended unconscious bias training in the past 3 months • Work in Psychology. In addition, volunteers who were known to the researcher (as graduates or social relationships) were excluded.
Actual Criteria for Control Group Members
• Could have studied NLP, Coaching, or both. • Willing to take a specific IAT test (paired with a Coachee) within time frame requested

For transparency, both a summary of the recruitment process points of the difference between intended versus actual research design and intended vs actual participant criteria are provided in Appendix 13.

Participant Demographics

The final sample included eight coachees and eight control group members. Coachees were predominantly Heterosexual, Caucasian Australian women aged 52–54. One participant was male and also spoke English as a second language. Two coachees were aged 35 and born overseas, and one Australian was currently an expatriate in Europe. The control group contained more diversity. Details can be found in Appendix 14.

Coaching Process

Unconscious Bias Topics

Participants selected biases they wished to change, focusing on allyship rather than internalized oppression. Some adjustments were made due to IAT limitations (e.g., “skin colour” and “race” were both used as a proxy for race bias towards Aboriginal people).

Table 3: Biases Chosen by Participants

Bias	No. of Participants
Age	1
Disability	1
Gender - Career	2
Cultural/Race	2
Body Image	2

Coaching Structure

Coaching sessions were held online every two weeks, with adjustments for participant needs. Sessions ended once participants believed they had achieved their goal, as defined in their initial session and in alignment with coaching professional ethics. Total coaching hours ranged from 2.12 to 4.47 per participant (Appendix 15).

The coaching process had some structure that was common in Session 1 and then diverged into an emergent, client-centred process. Coachees experienced similar questions in the 'review and close-out' portion of their final sessions. An overview of the process is provided in Table 4 below.

Table 4: Overview of Coaching Process

Contact	Common Content
<i>Take the IAT twice, complete Coaching Intake and Pre-coaching Survey completion</i>	
Session 1	• Verbal contracting. • 'Getting to know you' conversation with Coachee Intake Form and 'What unconscious bias and allyship means for you?' • Well Formed Outcome process, described as 'Coaching Goal'. • Coach ends session with a proposal re what to do in second session to support the change. This is proposed in the context of being re-proposed at the beginning of the second session. • Coachee receives Coaching Goal sheet completed by email post-session. <i>This session often exceeded the intended 60 minute appointment, with agreement by Coachee.</i>
Session 2	• Every session opens with check-in on any actions by coachee that were identified in the 'Next Steps' of the Goal Sheet and inquiry into 'any reflections between sessions'. • Explore content specific to Coachee emerging from Well Formed Outcome process, or between-session reflections of behaviours/reactions, or fall back on using the IAT Content to explore associations/meanings as the basis for a belief change. • In some cases this session included a Neuro Coaching change process (often Integral Eye Movement Therapy re emotions, or Belief Change with Sub modalities). • In one case this session stayed in the realm of exploring theory.
<i>Mid-Coaching Survey Completion</i>	
Session 3	• Reflection on internal process or behavioural change between sessions and use of the 'mid-coaching survey' as review of Coachee's experience so far. • For one Coachee this was the first session with a Neuro Coaching change process. • In several cases, Coachees felt the change had been achieved and in some cases the coaching 'deepened' with more change processes arising from exploration and in others just moved to discussion of retaking the IAT and taking further time to 'notice any changes' but the session closed with a sense of the goal being achieved. • In one case there was no need to continue the coaching and this session was the close-out session.
Session 4	• Two participants engaged in even more change processes and then close-out and review. • For Seven participants this was the close-out session with review of outcome, referencing goal sheet on shared screen.
<i>Final IAT and Post-Coaching Survey Completion</i>	

Coaching Tools and Techniques

The coaching approach combined established neuro-coaching methods with emergent tools developed during sessions. Neuro coaching methods are understood to include both explicitly proposed 'change processes' and frameworks and skills that may be integrated into the coaching naturally.

Table 5: Neuro-Coaching Tools and Techniques

Tools that were proposed as 'change processes'	Tools that were naturally integrated into the session as part of the NLP coaching 'style'
• Belief Change with Submodalities • Integral Eye Movement Therapy • Visual Goal Alignment • Strategy Interrupt using a submodality change • Multiple Brain Integration Technique (mBIT) • Anchoring	• Well Formed Outcome • Meta Model • Milton Model • Clean language • Future Pace • Reframing

Two tools and two questions were developed in action and used with multiple coachees for the purpose of surfacing biased associations:

1. Using IAT content as prompts for exploration of associations that make up the bias (Appendix 16).
2. For biases related to appearance (body image bias), the coach used Google images to elicit associations that surfaced the somatic responses described by two participants (Appendix 17).
3. For gender-career bias, a tailored question emerged and was applied across two participants: "In a same-sex couple, how would you know who would be the better primary parent and would be the best breadwinner?"
4. For race, a key question was also repeated: "What is good about being white?"

Table 6 provides a comparison of coaching tools and techniques to the categories of interventions identified by (FitzGerald *et al.*, 2019) in the meta-analysis of 30 studies (excluding the use of drugs).

Table 6: Categories of Interventions from FitzGerald et al. (2019) Compared to Coaching Techniques/Process

Category	Found Effective in FitzGerald et al. (2016)	Potentially Similar Coaching Technique	Bias – Participant #
Identifying the Self with the Outgroup This focuses on fostering a sense of identity that includes outgroup members. It encourages individuals to see themselves as part of a larger community that encompasses diverse identities. Practically, this could involve group activities and discussions that emphasize shared goals and values, helping to break down barriers and reduce stereotypes.	Yes	Goal setting process identifying intentions for the change, in multiple coachees surfaced a theme of 'connection'. In several coaching sessions, the coach attempted to use identity level questions in a self/other duality to surface biased assumptions, and there were discussions of how cultural meanings create identity in the in-group based on 'what they are not'.	P1, P4, P6, P7, P8 P5, P8, P3
Exposure to Counter-Stereotypical Examples Exposure to counter-stereotypical examples involves presenting individuals with examples that contradict common stereotypes associated with outgroup members. This approach aims to challenge and change implicit biases by showcasing positive, non-stereotypical representations of outgroup members.	Yes	Multiple coachees accessed their memories of positive counter-stereotypical examples of real people. The coach provided stories of real counter-examples from her own experience. Counterexamples discussed from the media.	Race – P7 Ability – P3 Gender/Career – P1 Age – P8
Evaluative Conditioning Evaluative conditioning is a technique where participants are repeatedly exposed to a pairing of a stimulus (e.g., an image or word) with something positive or negative. Over time, they begin to associate the stimulus with the paired positive or negative feelings.	Yes	This was not used as a change tool but as a tool to surface associations connected to bias and test changes in these associations using images as a stimulus.	Thin/Overweight – P4 and P6
Inducing Emotion Inducing emotion involves using specific methods to create certain feelings or moods in people. This can be done through various techniques, such as exposing individuals to positive or negative stimuli to see how these emotions affect their thoughts, behaviours, and biases.	Yes	When positive emotions were identified by the coachee, they were used by the coach as a 'resource' for change with anchoring or through future visualisation (future pacing positive changes)	Gender/Career – P2 Gender/Career – P1 Race – P5 Age – P8

Category	Found Effective in FitzGerald et al. (2016)	Potentially Similar Coaching Technique	Bias – Participant #
Inducing Emotion Inducing emotion involves using specific methods to create certain feelings or moods in people. This can be done through various techniques, such as exposing individuals to positive or negative stimuli to see how these emotions affect their thoughts, behaviours, and biases.	Yes	When positive emotions were identified by the coachee, they were used by the coach as a 'resource' for change with anchoring or through future visualisation (future pacing positive changes)	Gender/Career – P2 Gender/Career – P1 Race – P5 Age – P8
Engaging with Others' Perspectives This involves participants imagining or understanding how individuals from outgroups think and feel. This includes participants envisioning positive interactions with members of outgroups. The goal is to foster empathy and awareness of the experiences of others, which can help reduce biases. Practically, this might involve exercises that encourage individuals to consider situations from the perspective of those they hold biases against.		Future pacing/visioning exercises were frequent in the coaching as part of the process of both testing and integrating changes. Future pacing was experienced by all in the Well Formed Outcome. These all included envisioning positive interactions or scenes that were counter-stereotypical. Note that the images surface from the coachee and the coach 'paces' rather than leads the scene that emerges from the imagination.	All
Appeals to Egalitarian Values Participants are encouraged to set egalitarian goals, think about multiculturalism, cooperation or tolerance.		It was a criterion of participation to wish to change own bias. Goal setting surfaced to consciousness genuine values as 'intentions' for the change. See findings discussion of intentions for change.	All
Intentional Strategies to Overcome Bias Participants are instructed to consciously implement strategies to override or suppress their biases. This can include mindfulness practices, setting specific goals to act without bias, or other cognitive techniques designed to control biased responses.		All participants were asked to practice a form of mindfulness by observing their internal processes/responses without judgment both in and outside of coaching sessions. One participant was provided with a tool to use between sessions to interrupt a bias in the form of an intrusive thought.	All Race – P5

Participant Numbers and Adjustments

The initial group of 10 coachees was reduced to 8 due to participant withdrawal and the removal of one participant's data. Unfortunately, this coachees' data was removed due to difficulties maintaining focus on the same bias as the goal, answering surveys, and accidentally turning off the coaching session recording/transcript. The control group size was adjusted accordingly and without reference to IAT results.

The methods employed in this study were designed to balance rigour and adaptability. The case study approach allowed for an in-depth exploration of individual changes while triangulating findings with subjective and objective data. Ethical considerations, participant safety, and researcher reflexivity were all key considerations throughout the study.

Findings

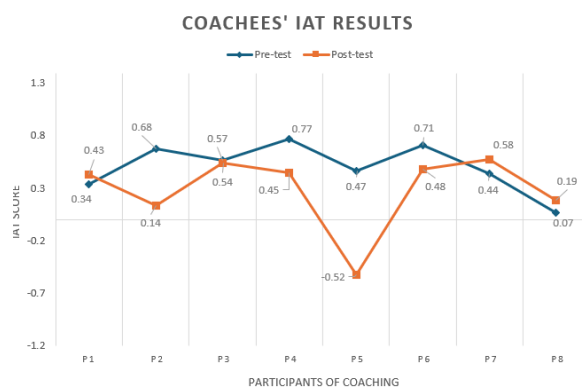
Comparative Coachee and Control Group IAT Data

The data is represented graphically as individual pre- and post-intervention scores for both Coachees and the Control Group. The movement in the levels of bias (interpreted qualitatively by the instrument) has been compared across both groups. While broad patterns emerge, this cannot be considered definitive evidence of change due to the test-retest reliability of 0.5. Therefore, these patterns are interpreted alongside other data sources.

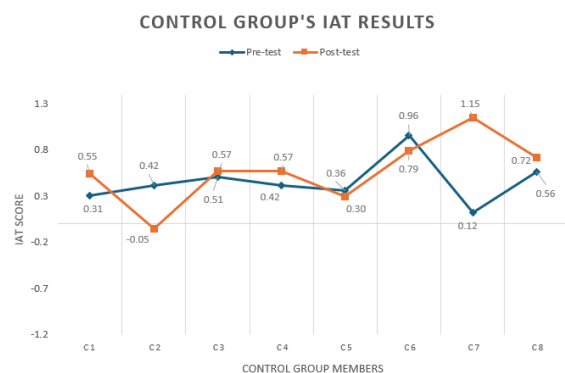
Quantitative - Individual Scores Over Time by Group

The graphs below display participant scores over time (see Appendix 18 for raw data). Zero represents neutrality (balanced associations), with positive scores indicating bias and negative scores reflecting non-conformance with stereotypes (described as “hypothesis non-conforming” by the instrument). Scores below zero thus indicate “non-biased” responses.

Graph 1: Coachee Pre and Post Tests



Graph 2: Control Group Pre and Post Tests



The primary focus is the difference between the pre-test (blue line) and the post-test (orange line). The Control Group only completed the IAT at a similar interval without an intervention. Their fluctuating results highlight the IAT’s limitations as a reliable measure. Due to these limitations, individual score differences were not tested for statistical significance.

Quantitative - Means and Median in the Difference over Time, compared by Group

Table 7 presents the mean differences in scores for both groups. The Coachees' mean difference is twice that of the Control Group, indicating a reduction in bias. This suggests that measurable changes occurred in the Coachee group, showing a trend towards reduced bias.

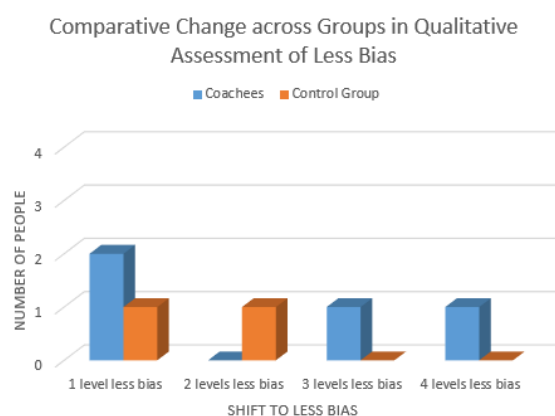
Table 7: Level of Change Pre and Post-Test - Comparative Means between Groups

Mean Difference	
Coachees	Control Group
0.22	- 0.11

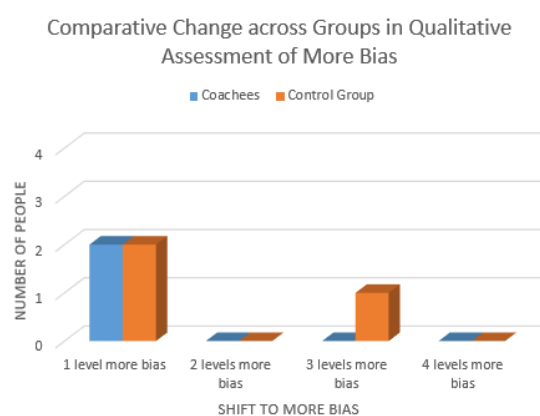
Qualitative - Changes in 'Level of Bias' Interpretation by the IAT

The IAT assigns qualitative interpretations to quantitative scores, categorizing bias as "slight," "moderate," or "strong" in either direction, with a narrow "neutral" range representing "little to no bias." The qualitative categories indicate the extent of the effect (based on response delay times). Appendix 19 provides a breakdown of the shifts in qualitative categories for both groups.

Graphs indicate the number of participants in each group whose bias shifted towards either less or more bias according to IAT interpretation.



Graph 3: Number of participants across Coachee and Control Groups that shifted towards *less bias* according to IAT interpretation



Graph 4: Number of participants across Coachee and Control Groups that shifted towards *more bias* according to IAT interpretation

Summary of Finding from the IAT as a Measure of Bias

Despite the IAT's limitations, the comparison reveals meaningful trends:

- Coachees showed twice as much reduction in bias and half the increase in bias compared to the Control Group.
- The Control Group exhibited slightly more shifts toward increased bias (one additional participant).

Both groups demonstrated changes in their IAT scores, but the Coachee group displayed greater positive shifts, including one participant who moved from “Moderate Bias” to “Moderate Preference” for non-conforming pairings (opposite of bias)—a significant change not observed in the Control Group.

Coachee Subjective Assessment

Quantitative - Post-Coaching Survey Results

The post-coaching survey, conducted two weeks after the final session, asked Coachees to reflect on perceived changes related to bias. The questions were designed to ensure responses were independent of the researcher-coach's influence.

Figure 1: Post-Coaching Survey 3 Questions regarding the coaching outcome

10. Please describe your experience of any change in your own awareness of responses (internal or behavioural) that you believe relate to unconscious bias: *

11. Please describe your experience of any change in your own awareness of responses (internal or behavioural) that you believe relate to unconscious bias.

Do you believe that there has been a noticeable change in your internal process (thoughts or feelings) about the group you were working on being an ally for? *

- ☐ Yes
- ☐ No

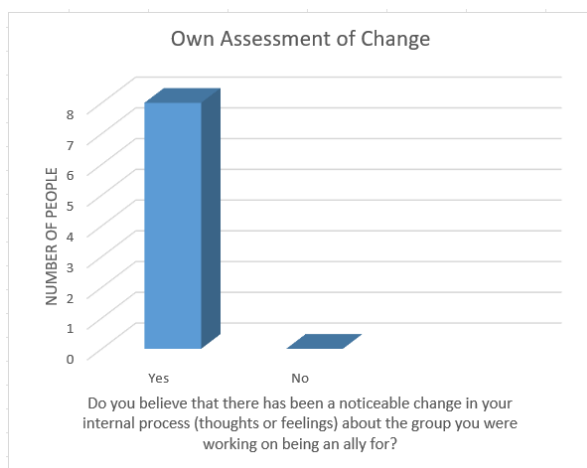
12. If yes, how does this change reflect your original coaching goal for creating a change?:

- ☐ A. It is less of a change than I had hoped to achieve
- ☐ B. It is the level of change that I had hoped to achieve
- ☐ C. It is more of a change than I had hoped to achieve

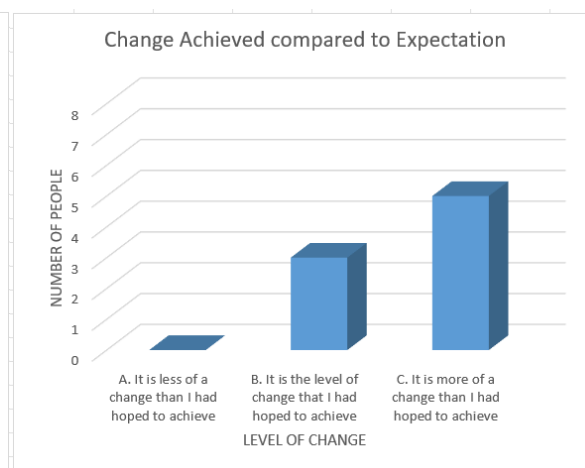
13. Please describe one, or more examples of the changes you have noticed internally (in thinking and feelings) and/or externally (in your behaviour): *

Summary of the Quantitative Data Regarding Change

1. All (100%) Coachees reported experiencing a noticeable change in their internal processes (thoughts or feelings) regarding the group they aimed to support.
2. The majority (5 out of 8) indicated that the change exceeded their initial expectations set during the goal-setting phase.



Graph 5: Post-Coaching Survey, Question 11
Noticeable Change Results



Graph 6: Post-Coaching, Question 12
Compared to Expectations Results

Mixed – Analysis of Coachee Descriptions of Changes Compared to Goals

The outcome analysis compared each Coachee's coaching goal with qualitative data from final session transcripts and survey responses. The full analysis for each participant is provided in Appendices 20 to 27. This mixed-methods approach, emphasizing subjective self-assessment, informed findings for the core research question: *"Can Neuro Coaching change unconscious bias?"*

For some Coachees, significant changes were noted in the mid-coaching survey and discussed in Session 3. When relevant, the Session 3 transcript was integrated into the analysis.

Table 8: Participant Outcomes Compared to Goal Analysis

Participant 1 Outcome (see Appendix 20)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: Resolve internal conflict regarding parental roles and create a balance in caregiving and work roles through open and collaborative conversations with his partner. Specific Goals: • Reduce internal mental conflict between traditional beliefs and flexible family roles. • Develop confidence in shared caregiving responsibilities and decision-making about children. • Identify and challenge biased beliefs (e.g., "Nobody is going to take care of the kids as well as the mum"). • Increase awareness of unconscious bias, including supporting female colleagues in his workplace. Sensory-Based Evidence: • Internal beliefs about caregiving would feel less true (e.g., "Nobody is going to take care of the kids as well as the mum"). • A more open, balanced discussion with his partner about parental roles. • Noticing more bias-related behaviours in external contexts (e.g., at work).	Key Achievements • The coachee demonstrates growth in initiating and participating in open conversations about future options for caregiving roles with his partner, shifting from internal assumptions to collaborative discussions. • He reports a noticeable reduction in internal conflict and a stronger ability to question and reframe biased beliefs, such as "nobody is going to take care of the kids as well as the mum." • The coachee associates these shifts with feelings of calmness and peace of mind, indicating alignment with his stated emotional goals. Unexpected Outcomes • The coachee expressed a desire to independently replicate the reflective questioning process used in the sessions, indicating a commitment to long-term self-sufficiency in addressing biases. • The final session revealed the coachee's increased readiness to apply reflective methods to broader contexts. Final Assessment <i>The coachee's goals have been achieved and he has self-reported as feeling the outcome had been 'more than I had hoped to achieve'. Both transcript evidence and survey data support this. While the personal element of the goal subsumed the original work context, this is not surprising, considering the deeply personal nature of the role of father in a man's life.</i>

Participant 2 Outcome (see Appendix 21)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: Be a stronger advocate for individuals (male or female) in their career decisions, including the role of primary parent, ensuring that their gender does not influence the coachees' thinking. Specific Goals: • Break down personal perceptions and barriers to avoid unconsciously forming biases in conversations about career aspirations. • Facilitate conversations that support others' personal goals without directing them based on the coachees' beliefs. • Change the reaction of "pausing" when a man mentions a career break to take parental leave. • Learn new ways of thinking and adopt a supportive mindset. • Understand why certain thought patterns emerge in specific situations. Sensory-Based Evidence: • Conversations feel more "everyday" and natural, with no internal "pause" or sense of discomfort when a man discusses a career break to be a parent. • Proactive and constructive discussions, regardless of the person's gender.	Key Achievements: • The coachee demonstrates growth in real-time interactions, particularly when reflecting on recent gender-related discussions. • They report a shift from defensive emotional reactions to calm, non-judgmental engagement, highlighting an increased ability to challenge biases. • Coachee reflects that she has changed her perception of her sister-in-law's career as a road paver from 'unusual' to 'cool'. Unexpected Outcomes: • The use of symbolic anchors (e.g., "the tree") as a calming strategy to be more present exceeded the coachee's expectations and contributed to their emotional regulation and open mindset. • The Coachee shares a reflection that this topic is one part of a larger gender bias that creates limits and that, as a parent she supported her boys to be able to cook for themselves (identifies with past flexibility on gendered role bias). • The Coachee expresses looking forward to future conversations with people about their career and family responsibilities and noticing what happens, suggesting a commitment to continuing self-reflection and growth beyond the coaching. Final Assessment: <i>The coachee's goals have been achieved, and she self-reports that she feels the change was 'more than I had hoped to achieve'. This is supported by both transcript evidence and survey data describing real-world changes in feelings and cognitive processes. The researcher assesses that this change was transformational, with deep structure changes beginning in the first session and metaphors of resourceful states carrying through between coaching sessions and to the final session.</i>

Participant 3 Outcome (see Appendix 22)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: Treat individuals with physical disabilities with the same respect as non-disabled people while being conscious of the support they may need and providing it discreetly, maintaining dignity. Specific Goals: • Assist discreetly without drawing attention to oneself as a “good person” who is helping. • Self-educate by seeking out information about disability-related symbols (e.g., green lanyard for hidden disabilities). • Foster authentic engagement by better understanding the lived experience of people with disabilities. Sensory-Based Evidence: • Conversations and interactions reflect authenticity and respect without condescension or assumptions of weakness. • The coachee gains knowledge about disability-related accommodations and applies it.	The analysis uses session 3 and 4 transcripts. Key Achievements: • The coachee demonstrates growth in their perception of disability, moving from generalizations to recognizing the unique strengths of individuals, as evidenced by reflections on specific people in her own acquaintance and public figures such as Stephen Hawking. • She reports a noticeable reduction in feelings of pity (“feeling sorry for”), replaced by genuine respect for the individual strengths of people with disabilities. Unexpected Outcomes: • The reflections on language (e.g., “differently abled”) demonstrate an increased awareness of the impact of linguistic framing on unconscious assumptions. • The coachee reflected on a memory with self-compassion to rethink what an acceptable internal response is when seeing profound physical differences in others. Final Assessment: <i>The coachee’s goals have been achieved, and she reported in the survey feeling that the change was ‘more than I had hoped to achieve’. Transcript evidence and survey data indicate meaningful shifts in feelings and cognitive processes aligned with their coaching goal. Note that the coachee already had stories of assisting discreetly and respectfully to differently abled people in the past, so entered the coaching at a high baseline as an ally. Resolving feelings of pity that were difficult to acknowledge consciously and self-criticism were unexpected but highly positive outcomes for someone who is already an ally.</i>

Participant 4 Outcome (see Appendix 23)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: Eliminate physical and emotional reactions to overweight individuals, replacing judgment with neutrality. Specific Goals: - No longer have a physical reaction or judgment based on appearance (e.g., assumptions like "lazy" or "undisciplined"). - Develop a neutral, present-minded response based on interaction, not assumptions. Sensory-based evidence: - Includes no physical response, openness to discovering mutual interests, and no feelings of pity or compassion based on appearance alone.	Analysis uses coaching session 4 transcript. Key Achievements: - The coachee demonstrated neutral reactions when observing overweight individuals in the public context at least three times, fulfilling the sensory-based evidence criteria. - She reported a shift from noticing weight as a defining characteristic to observing a broader range of traits, indicating increased non-judgmental engagement. - She moved from self-critical to self-accepting thoughts about her own final reactions, which she decided were similar to 'noticing if someone is tall... I observe this without judgment. Unexpected Outcomes: - The coachee explored shifting societal norms within broader cultural narratives around appearance, showing an increased awareness of social constructs influencing her bias. - She acknowledged a connection between this bias and her own body image and the need for continued self-work on personal body image, indicating readiness for a future focus on self-perception. Final Assessment: <i>The coachee's goals have been achieved and, in some respects, exceeded, supported by both transcript evidence. In a post-coaching survey, she rated the change as 'the level I had hoped to achieve'. The evidence indicates a reduction in unconscious bias and increased self-awareness.</i>

Participant 5 Outcome (see Appendix 24)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: To respond naturally and comfortably when meeting the eyes of Aboriginal people, without overthinking or averting gaze. Specific Goals: • Meet eyes with Aboriginal individuals in everyday encounters and respond with a natural smile and sense of ease. • Prevent automatic, intrusive thoughts or labels from crossing the mind during interactions. • Measure progress in daily environments such as the shopping centre or while walking. Sensory-Based Evidence: • Encounters with Aboriginal people occur without any noticeable shift in thoughts or emotional responses. • Eye contact feels natural, automatic, and comparable to interactions with others in public spaces. • Absence of tension, physical unease, or hesitation during social interactions.	Analysis uses coaching sessions 3 and 4 transcripts. Key Achievements: The coachee demonstrates growth in real-time interactions, particularly when reflecting on spontaneous micro-behaviour level exchanges with Aboriginal people who are strangers in everyday contexts (e.g., in the shopping centre). She reports a shift from a specific automatic, bias-driven thought to calm, intentional engagement, highlighting increased emotional regulation and reduced self-monitoring during interactions. The coachee acknowledged that a previously unwelcome unconscious internal dialogue (racist label) has ceased crossing her mind. This was a thought that she consciously rejected and experienced as a distressing, intrusive thought. Unexpected Outcomes: The use of strategy interrupt, eye movement techniques and visualization exercises exceeded her expectations, fostering both emotional regulation and greater spontaneity and self-acceptance in cross-cultural interactions. The coachee expresses a greater focus on present interaction rather than the projection of hopelessness that had previously driven an urge to 'rescue'. Final Assessment: <i>The coachee's goals have been achieved or exceeded across multiple dimensions, supported by evidence from the transcripts and survey data, indicating meaningful changes in internal thought processes, micro-behaviours and emotional responses. The coachee expressed that the change was 'the level I had hoped to achieve'.</i>

Participant 6 Outcome (see Appendix 25)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: Shift focus away from the person's weight and avoid initial negative assumptions about their lifestyle. Specific Goals: • Notice the person's expression rather than their body size. • Develop emotional regulation to reduce automatic, judgmental thoughts. • Foster a more neutral, non-judgmental approach in interactions with people of different body sizes. Sensory-Based Evidence: • The coachee would meet someone for the first time and notice their feelings or expressions before forming any assumptions about their lifestyle.	Analysis uses coaching sessions 3 and 4 transcripts. Key Achievements: • The coachee demonstrates improved emotional regulation (e.g. no longer experiencing a feeling of 'disgust'), reporting a shift from effortful self-monitoring to unconscious, automatic responses during interactions with overweight people. This was highlighted when they described noticing fewer automatic assumptions without needing to correct their behaviour consciously. • The coachee reports meaningful real-world changes, including moments where they redirected focus to conversation and expressions rather than body size in interactions. Unexpected Outcomes: • The belief-change exercise was described as more impactful than anticipated, with changes in thinking occurring faster than expected and feeling natural rather than forced. Final Assessment: <i>The coachee's goals have been achieved or exceeded, supported by both transcript evidence and survey data in which she describes the coaching outcomes being 'more than I had hoped to achieve'. Real-world reflections, where the coachee described successful shifts in her behaviour, feelings and cognitive processes outside of coaching sessions, provide particularly powerful evidence of change. Comments in the post-coaching survey suggest that the coachee is using mindfulness/conscious mind strategies to counter the habit that was previously unconscious.</i>

Participant 7 Outcome (see Appendix 26)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: Develop more natural interactions with colleagues of colour, reduce fear-based avoidance of Aboriginal people in public, and feel more comfortable with language differences. Specific Goals: - Start conversations in the kitchen with colleagues who are people of colour and have them feel natural. - Respond with less fear or defensiveness in interactions with Aboriginal people in public spaces. - Shift from feeling excluded or suspicious when colleagues speak another language to either not being bothered or feeling comfortable enough to talk about it. Sensory-Based Evidence Criteria: - Does not change walking direction due to fear of confrontation. - Has more conversations in the kitchen with colleagues of colour that feel comfortable and routine. - Feels neutral about language differences and able to discuss them if relevant.	The analysis is based only on the transcript of session three (the final session). Key Achievements: - The coachee reports no longer experiencing fear-based avoidance of Aboriginal people in public places (no longer crossing the street to avoid). - The coachee described routine, lighter conversations with colleagues of different cultural backgrounds. - The coachee reframed their feelings about language differences at work and acknowledged that others speaking their first language might be motivated by something other than exclusion. - The coachee describes the changes as involving a conscious decision or choice: "I choose to understand that many of the behaviours I took offence to are natural for other cultures". Unexpected Outcomes: - The coachee reported reaching their goals more quickly than anticipated. - The coachee shared an example of discussing the coaching process with others during a networking event, indicating openness in conversations about their unconscious bias change process. Final Assessment: <i>The coachee has achieved their coaching goals and rated the outcome in the survey as being 'more than I hoped to achieve'. The coachee's progress demonstrates meaningful real-world changes in behaviour, feelings and cognitive responses aligned with her coaching goal. The bias that the coachee has changed has allowed greater congruence between her thoughts and actions and her self-image as someone committed to supporting DEI (as someone who has worked in this area). It is noted, however, that there is a conscious</i>

Participant 8 Outcome (see Appendix 27)	
Goal Summarised	Summary of Analysis of Evidence of Change
Core Purpose: Recognize and create a place for the knowledge and experience that comes with age, fostering more respect for ageing and ensuring a sense of belonging for elders. Specific Goals: - Proactively lean into personal networks to foster intergenerational connection (e.g., sending letters to grandparents and finding other ways to engage with them). - Develop more knowledge about career inclusion concerning ageism and ways to foster inclusion. - Reframe personal perspective to view the 50s and 60s as opportunities for growth and development. Sensory-Based Evidence: - Initiating conversations and actions to connect with elders. - Opening space for intergenerational sharing and belonging. - Demonstrating increased understanding of career inclusion regarding age. - Shifting internal perception of later life stages to be viewed as periods of growth.	Analysis of session 4 transcript. Key Achievements: - The coachee demonstrates a shift in her mindset towards embracing aging as an opportunity for growth, as reflected in her statement: "Aging is actually a privilege." - The coachee has taken proactive steps to enhance intergenerational connections by engaging in letter writing with grandparents overseas and exploring community-based family activities. - She acknowledges an increased self-awareness of age-related inclusion issues within her professional context in career development, expressing a desire to conduct further research and promote change. - The coaching process catalysed a plan to use community service as a means of fostering in-person relationships across generations for herself and her children. - The coachee's reflections on age-related biases expanded into a broader exploration of intersectionality, comparing social constructs of age and disability. Unexpected Outcomes: - The connection to a vision of her own older years as rich and fulfilling unexpectedly saw a new 'carpe diem' mindset that involved prioritising personal interests alongside her responsibilities as a mother to a new level. This was evident in action when the coachee spontaneously joined a hockey club. Final Assessment: <i>The coachee's goals have been achieved, supported by transcript evidence and survey data. The coachee rated the change as 'the level I had hoped to achieve'. She has not only reframed aging as a stage of growth but has also taken tangible steps to strengthen intergenerational ties and, unexpectedly, prioritise living a fulfilling life at her current age.</i>

Quantitative – Pre and Post-Coaching Survey on noticing own bias

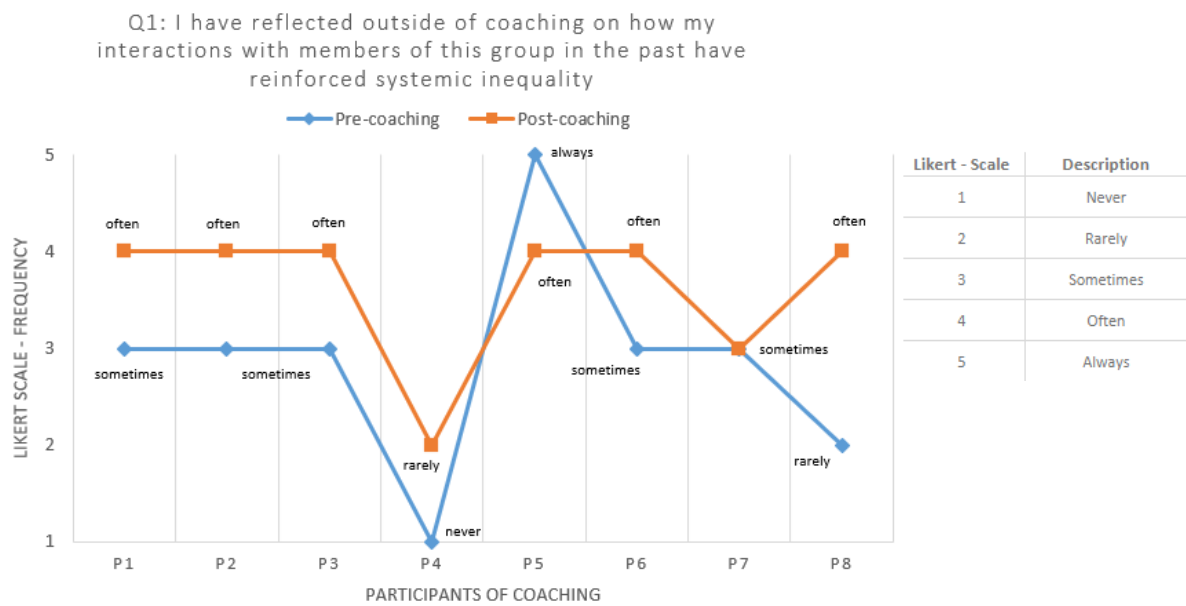
The pre-and post-coaching surveys included several Likert scale questions designed based on the researcher's assumptions about possible outcomes related to allyship goals. However, an examination of the responses suggests that some questions measured constructs susceptible to "response shift." The researcher reflects that these constructs align more with reflections on social issues rather than internal processes, feelings, and behaviours, which became the primary focus due to the *Well-Formed Outcome* established in session one.

Once unconscious positive intentions (intrinsic motivations) were identified and Coachees engaged in meaningful self-change, broader societal-level changes appeared more abstract. This reflects the coaching principle of focusing on what lies within the Coachee's control—a notion aligned with the maxim "Be the change you want to see in the world."

The most consistent pattern was observed in Question 4, where 6 of 8 Coachees reported greater agreement with the statement: *"I feel that I am capable of noticing bias in my own thinking in the moment and preventing it from influencing my behaviour/decisions."* One participant reported no change, and another (Participant 5) recalibrated their assessment downward.

The researcher notes that these survey outcomes may not reliably predict changes in unconscious bias, as they seem impersonal and "social" compared to the highly individualized outcomes reported during coaching sessions.

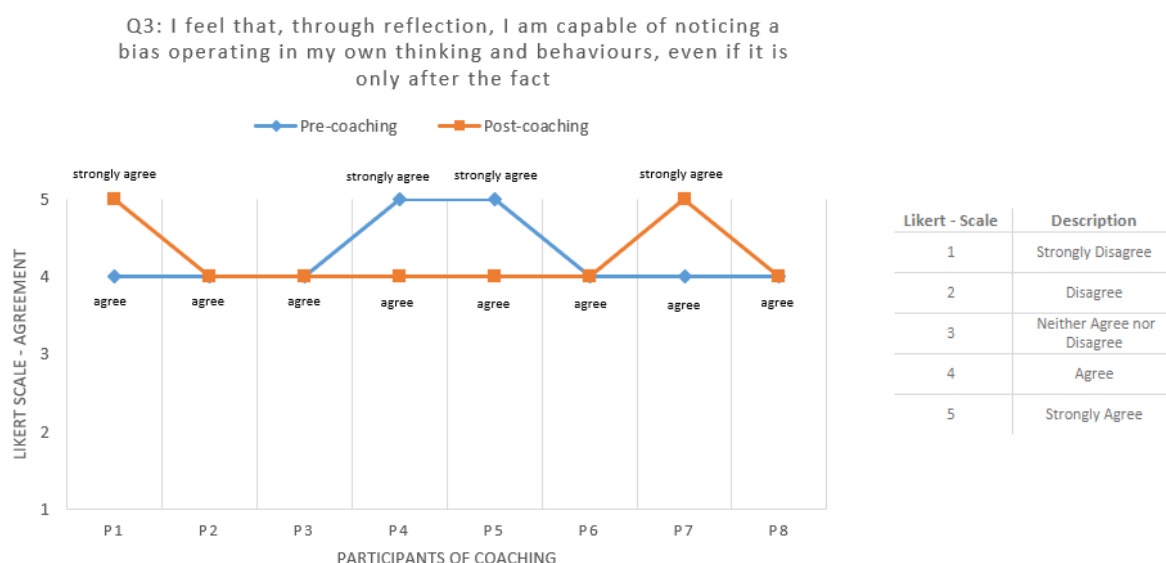
Graph 7: Frequency of reflection on interactions reinforcing systemic inequality



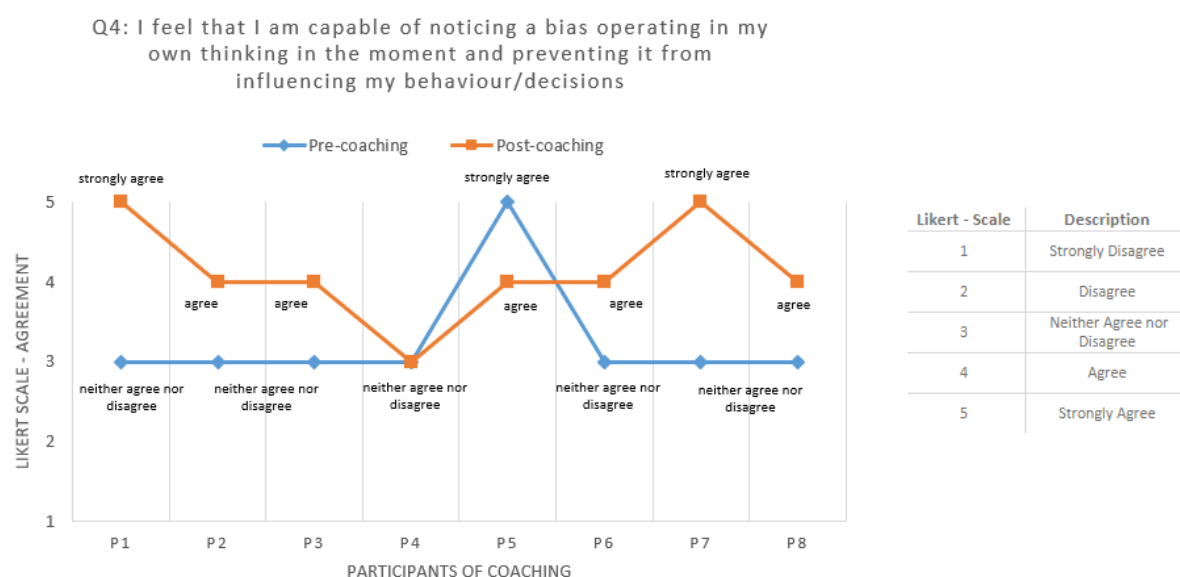
Graph 8: Efforts to be a genuine ally



Graph 9: Ability to reflect on and notice bias in own thinking and behaviours



Graph 10: Capacity to prevent bias in the moment



Qualitative - Coaching Techniques Used Across all Coaching Sessions

To address the research question, *“Is it possible to identify one technique with a greater correlation to change?”* the researcher analysed coaching transcripts using ChatGPT for both explicitly proposed and integrated coaching techniques. The analysis was reviewed and adjusted for accuracy. Comprehensive tables that outline the coaching tools and techniques by participant can be found in Appendix 29:

1. **Coaching Tool/Process:** The name of the coaching tool or technique.
2. **Looked/Sounded Like (Sessions):** Instances where the tool was openly introduced, with session numbers and some quotations.
4. **Purpose/Outcome:** The general intended impact of the tool or technique.

This analysis was useful for bringing to the researcher's awareness elements of the coaching style that could be described as 'unconscious competence'. It is not sufficiently accurate to base findings on; however, it was one input into the findings for this research question. The Coach Journal and Case Studies provided the definitive qualitative data inputs.

Primary Research Questions

What is the subjective experience of any change for the Coachees?

The subjective experience of changes in unconscious bias varied across Coachees. This diversity is best understood through the qualitative data collated in Tables 10 to 12 within the report and detailed in the appendices (Case Studies, Appendices 2 - 9 and the Participant Analysis of Change for each individual, Appendices 20 – 27).

The analysis aimed to summarize and identify patterns of change within the following categories by corresponding bias:

1. Cognitive (Internal Process)
2. Behavioural
3. Emotional (State)

This was followed by categorisation by "new/changed" versus "stopped/replaced." There is sometimes a correlation between the two, which is indicated by the use of the same row. Several participants contributed data on changing the biases related to gender and career, weight and body image, and racism towards Aboriginal people. Note that the volume of change in these rows should not be seen as the 'sum' of changes as a single change can involve elements across the three categories.

Table 9: Changes by Category

Category	Percentage	Participants	Summary
<i>Cognitive</i>	100% (8/8)	P1, P2, P3, P4, P5, P6, P6, P7, P8	Reframing biases, adopting neutral or positive perspectives across all participants.
<i>Emotional</i>	75% (6/8)	P1, P2, P3, P5, P6, P8	Improved emotional regulation, reduced judgement, and increased emotional breakthroughs.
<i>Behavioural</i>	62.5% (5/8)	P4, P5, P6, P7, P8	Observable changes in actions, interactions, and proactive decision-making across contexts.

Table 10: Cognitive (Internal Process) Change

Bias	New Change	Stopped/Replaced Change
Gender/Career	Adopted openness to shared responsibility and collaborative decision-making.	Stopped assuming traditional roles and gendered caregiving expectations.
Gender/Career	Reframed sisters-in-law career as a road paver as 'cool'	Stopped thinking of this as a strange choice for a woman
Differently Abled	Developed respect and admiration for individual strengths rather than viewing individuals through generalized perceptions.	Stopped categorizing differently abled people as having some lack.
Overweight	Increased awareness of unconscious influences and adopted curiosity about body-related assumptions.	Stopped focusing on weight in physical appearance as the primary identifying factor when meeting new people.
Overweight	Shifted focus to traits beyond physical appearance, such as demeanour	Stopped feeling concern in interactions about unpleasant emotions (could stop judging own responses).
Aboriginal		Stopped assuming the need to 'rescue' based on a perception of 'woundedness.'
Aboriginal		Stopped experiencing an intrusive thought (a racist label that she consciously rejected) around Aboriginal people
People of Colour	Adopted an open and curious mindset when others were speaking their first language. The strategy included a 'choice' to notice that behaviours that she previously took offence to are natural in other cultures.	Stopped suspicious reaction when others were speaking their first language in the workplace
Elders	Developed a positive outlook on aging, seeing it as a period of growth and as a privilege. Began thinking about the intersectionality of 'elder' and 'able-bodism' and their impact on older people's careers	Stopped assuming aging automatically results in a reduced capability and seeing the 50s and 60s as periods of slowing down.

Table 11: Behavioural Change

Bias	New Change	Stopped/Replaced Change
Gender/Career (male)	Engaged in explicit discussions about shared roles and responsibilities with his female partner and planned further discussions to reach an agreement on roles	Stopped assuming there was an obvious choice for the primary caregiving and provider roles in his relationship
Gender/Career (female)	Able to allow the conversation to flow and to listen 'cleanly' (neutral and supportive) when others talked about their career/family decisions	Stopped an unconscious pause in conversations about career when men talked about taking a career break to be a father
Differently Abled	Used more inclusive language	
Aboriginal	Initiated spontaneous warm micro-behaviours with strangers in public (as for white people)	Stopped avoiding eye contact
Aboriginal		Stopped crossing the street to avoid Aboriginal strangers
People of Colour	Started routine, light conversations with colleagues of different cultural backgrounds.	Stopped avoiding social situations with colleagues of different cultural backgrounds
Elders	Took initiative in organizing activities and family connections to break down the isolation of elders in her family	
Elders	Spontaneously signed up to join a Hockey Club (as an expression of a new 'carpe diem' mindset)	Stopped putting off pursuing interests that did not include her children

Table 12: Emotional (State) Change

Bias	New Change	Stopped/Replaced Change
Gender/Career (male)	Felt calm and assured about mutual decisions with his partner and relieved not to have to be 'in control'.	Stopped feeling internally conflicted over caregiving roles.
Gender/Career (female)	Felt calm and less attached (able to be present) in conversations with both men and women who were thinking about their career and family roles. Looked forward to future conversations.	Stopped feeling internal conflict ('push pull') and defensive when men talked about the primary parent role.
Differently Abled	Felt respect and admiration	Stopped feeling pity
Overweight	Felt neutral instead of critical during observations	Stopped feeling disgust response or hyper-awareness about body size
Aboriginal	Experienced joy and curiosity about opportunities to work with Aboriginal people, including in cross-cultural 'on country' events.	Stopped feeling concerned about intrusive racist thoughts and accidentally expressing this (because the thought stopped)
Aboriginal		Stopped feeling awkward about smiling and making eye contact (micro-behaviours) with Aboriginal strangers in public
Aboriginal		Stopped feeling a need to 'rescue'
Aboriginal	A sense of peace about significant emotional events in the past	
Aboriginal		Stopped reacting fearfully to imagined threats from Aboriginal strangers
People of Colour	Felt neutral/normal when colleagues spoke another language in the workplace.	Stopped feeling suspicious that colleagues were talking about her in their first language
Elders	A feeling of greater spontaneity to embrace life and pursue interests in the present.	

Unexpected Benefits for Coachees

The initial assumption was that changing unconscious bias within the frame of allyship would be driven by altruistic motivation. In practice, several Coachees expressed surprise at the personal benefits they experienced as changes generalised:

- A sense of peace about significant emotional events from the past (P5).
- A sense of calm, flow, and “becoming” (P2).
- A new ‘live life to the full’ mindset (P8).

For example, Participant 2 reflected during the close-out and review session (Participant 2, Session 4, 2024, 25:13) on whether she had used any of the resource anchors created during her coaching sessions:

But [what] I have got from that last session, I've written [it] down and it's in my office, so I see it all the time, but I've written down three words, which is the 'tree', 'flow', and 'emergent'... So, from the last session because, obviously the tree represents growth, and the flow was just allowing things just to continue, and emergent was the change factor. It's like this is what's happening out of this... it's, you know, 'becoming.'

So, the triggers, I haven't had [to use] those yet, but... what is centring me is more, funnily enough, the tree. It's like every now and again if... I see a representation of the tree, it suddenly makes me feel calmer, which then allows a more natural flow of thoughts and reactions and feelings to just happen. So, I haven't consciously called it [used the anchor], but I am noticing that that is becoming more of a natural fact.

Can Neuro Coaching Change Unconscious Bias?

The researcher concludes that the triangulation of coaching conversations, post-coaching surveys, and Coachee-reported changes over time supports the finding that Neuro Coaching can change unconscious bias. Coachees recognised bias in themselves as patterns of thinking, feeling, or behaviour. While the IAT lacked validity as a measurement tool, it provided some evidence of shifts over time. The Coachee Group's mean showed greater movement toward reduced bias compared to the Control Group, suggesting that the Coachee experience had a measurable impact.

Coach's Subjective Assessment of Coachee Change

While it may seem simpler to use the Coachee's subjective assessment of how coaching outcomes compared to their expectations to define a "level" of change, the researcher's experience as a coach and facilitator of personal development suggests that an individual's level of expectation often reflects their prior experience with personal development. For those with limited prior experience, even small changes may feel significant, influenced by low expectations of what it is possible to change.

As Coach, the researcher believes that some Coachees experienced more significant changes than others. Self-reflection on the criteria for this subjective assessment identified several influences on her perception, including elements of the coaching process, the internal impact on the Coachee, and the potential external impact in the "real world."

In-Coaching Process Influences on Perceived Significance:

- **"Deep Structure" Change:** Moments where Coachees accessed profound change, often signalled by non-verbal cues (e.g., tearing eyes, flushed skin, smiling) indicating that they felt deeply "moved" or connected to something beyond themselves. To a lesser degree, these moments were also "felt" by the Coach due to the rapport built with the Coachee, reinforcing a sense of significance for the Coach.
- **High-Level Intentions:** Coachees with particularly "high-level" intentions or motivations for change created a stronger impression of significance for the Coach.
- **Describes an 'Integrated' change outcome in the post-coaching survey:** in Neuro Coaching, a change at an unconscious level that is considered integrated does not require a conscious mind decision but emerges spontaneously and is often noticeable in retrospect. This criterion has been bolded in Table 13 below to indicate a greater weighting of importance.

Perceived Internal Impact and Potential External Influence:

- **Unexpected Positive Changes:** Some Coachees experienced additional changes, suggesting that bias-related shifts were connected to broader patterns of thoughts, feelings, or behaviours, which generalised into further positive outcomes.

- **Contextual Influence:** Coachees working in contexts where reducing bias had the potential to impact members of an outgroup more directly (as leaders or service providers for the group).
- **Commonality and Potential for Impact at Scale:** Some changes addressed “expressions of bias” that the researcher believes are common in Australian culture. Therefore, changes that may seem to benefit only the Coachee could be significant for their potential to be replicated on a larger scale and positively influence cultural norms.

The outcome of this reflection was tested by removing “participant” as the organising category and assessing changes as identified in Tables 10 to 12. The changes were integrated (no longer divided into “types” of change) and assessed holistically. They were then re-identified with individual participants. As a result, Table 13 represents an analysis of significance that the researcher believes is as objective as possible, considering the many influences on her intuitive sense of significance at the end of the coaching process. An unexpected outcome of this analysis has been that all coachees appear to have achieved at least one change that the researcher believes is significant, with some achieving more changes at this level than others.

Table 13: Significant Change across Coachees

Bias (P#)	Change	Criteria
Aboriginal (P5)	• Stopped feeling awkward about smiling and making eye contact with Aboriginal strangers in public and instead initiated spontaneous warm micro-behaviours (as for white people). • Stopped experiencing an intrusive thought (a racist label that she consciously rejected) around Aboriginal people. Stopped feeling concerned about this thought when meeting new Aboriginal people. Looked forward with joy and curiosity to opportunities to work with Aboriginal people, including in cross-cultural ‘on country’ events. • Stopped assuming the need to ‘rescue’ triggered by a perception of ‘woundedness.’ • Felt a sense of peace about something in her past.	Integrated Deep Structure High-Level Intentions Unexpected Positive Changes Contextual Influence Potential for Impact at Scale
Aboriginal (P7)	• Stopped reacting fearfully and crossing the road to avoid imagined threats from Aboriginal strangers.	Potential for Impact at Scale

Bias (P#)	Change	Criteria
Differently Abled (P3)	Felt respect and admiration rather than pity for differently abled people.	Integrated Potential for Impact at Scale
Elders (P8)	Felt a greater spontaneity to embrace life and pursue interests in the present. Stopped putting off pursuing interests that did not include her children.	Integrated Unexpected Positive Changes
Gender/Career (male) (P1)	- Adopted openness to shared responsibility and collaborative decision-making. Stopped assuming traditional roles and gendered caregiving expectations would apply in his own future family. Engaged in explicit discussions about shared roles and responsibilities with his female partner and planned further discussions. - No longer felt an internal conflict regarding caregiving roles.	Deep Structure High-Level Intentions Potential for Impact at Scale
Gender/Career (female) (P2)	- Allowed conversations to flow and listened 'cleanly' (neutral and supportive) during discussions on career/family decisions. Felt calm and less attached (able to be present) in conversations about career and family roles. - Stopped an unconscious pause in conversations when men mentioned taking a career break to be a father. - Stopped feeling internal conflict ('push pull') about gender and career roles.	Integrated Deep Structure High-Level Intentions Unexpected Positive Changes Contextual Influence Potential for Impact at Scale
Body Image (P4)	Stopped feeling disgust or hyperawareness about body size. Stopped <i>unconsciously</i> focusing on weight in physical appearance as the primary identifying factor when meeting new people.	Integrated Deep Structure Potential for Impact at Scale
Body Image (P6)	Stopped feeling disgust or hyperawareness about body size. Stopped <i>consciously</i> focusing on weight in physical appearance as the primary identifying factor when meeting new people.	Potential for Impact at Scale

The ideal outcome for the researcher is that the change is integrated (not requiring attention at a conscious mind level). The researcher believes that the following open

field comments in the post-coaching survey Questions 10 and 12 (Appendix 28) reflect this level of change for some participants (P2, P3, P4, P5, P8). Examples of this are provided below.

Participant 5, working on race bias:

I feel that the process of [coaching] has helped me to stop a biased thought process that seemed to be happening very automatically in my brain. I'm still seeing 'colour' but negative connotations that seemed to be instantly linked have ceased. (Post-Coaching Survey, Question 10).

Participant 4, working on body image bias:

I think I am becoming less aware of overweight people as overweight; that is, it's not necessarily the first thing I notice about them. (Post-Coaching Survey, Question 10).

Participant 2, working on gender/career bias from a female perspective:

I do not take a pause or feel I do. I am more open in discussions and less reactive. I am prepared for not knowing and am ok with not knowing - there is no preconceived idea that a person based on gender should automatically be the one to be home vs. a career. (Post-Coaching Survey, Question 12).

In contrast, other coachees (P1, P6, P7) reported in these same questions a cognitive process of choosing how to respond in the moment, or mindfulness, that enabled them to manage what they recognised as the internal process of the bias, for example: *"Noticing it, accepting the thought, and changing the thought"* (Participant 6, Question 12), and *"I choose to understand that many of the behaviours that I took offence to are natural for other cultures."* (Participant 7, Question 12). In a real-world coaching engagement, the researcher would seek to work with them further, raising their expectation of the change that is possible and supporting this with further coaching.

On balance, the researcher has concluded that, depending on the coachee and their choice of bias, it has the potential for a range or level of change, starting with 'mindfulness', going through to 'integrated' and then to 'transformational' (with greater personal benefit for the individual from generalising).

Table 14: Range of Change

Mindfulness	Integration	Transformation (positive generalising)
P1, P7, P6	P3, P4	P2, P5, P8

Is it possible to identify one technique with a greater correlation to change?

Although an analysis of transcripts using AI for coaching tools and techniques was conducted, it was not accurate at the level of all techniques used with every coachee. It has been included as Appendix 29 for interest. It's influence in the findings for this question was to identify techniques that were unconscious competencies for the coach.

Coaching Tools Typical across all Coachees:

- Well Formed Outcome – incl. future pace, chunking up to highest intention, surfacing of internal conflict
- The frame of 'allyship'
- Reframing conversations
- Meta-Model questions and other Powerful Questions
- Milton-Model pre-supposition that change is possible
- Milton-Model in mental rehearsal/future pacing
- Psychoeducation for transparency on tools, Neuroscience, NLP and working theory of unconscious bias.
- Observing self without judgement/mindfulness
- Calibration of Non-verbals and Sensory-Based Language
- Reflective Listening and Validation/Pacing

Additional Tools used selectively:

- Belief Change with Sub-modalities for assumptions – P1, P2, P5, P6, P8
- Integral Eye Movement Therapy (IEMT) for emotions – P2, P4, P5, P6
- Future-Pacing to test changes (following all change tools above)

- Clean Language with metaphors – P1, P2, P4
- Multiple Brain Integration Technique (mBIT) – P4
- Strategy interrupt (A and K) – P5, P4
- Visual Goals Alignment – P1, P8
- Anchoring positive states (spontaneously occurring) – P2

Coaching tools that developed spontaneously and were explicitly proposed:

- Visual Prompt (Photo-Based Trigger) – P4, P6
- Use of the IAT terms and images to surface associations (most coachees)

Participants Who Did Not Experience an Explicit 'Change Process'

Participant 3 did not experience a structured Neuro Coaching change process yet reported a change that has been described in the post-coaching survey as integrated. The researcher believes that this change occurred due to new generalisations formed from reflecting on multiple memories of past encounters with differently-abled people. This suggests that new “intergroup contact” may not be necessary for individuals to form more complex and nuanced generalisations about out-groups. Instead, individuals may simply need opportunities to reflect on and process past experiences with ‘real people’. This aligns with adult learning theory, which assumes that adults learn not only from experience but also from reflecting on their experiences. The Meta Model, Powerful Questions and Reflective Listening were the primary tools that were used in these coaching conversations.

Participant 7 also did not experience any explicitly proposed change tools, although current and new beliefs were identified in preparation for a Belief Change with Sub-modalities. At the next coaching session, the coachee described evidence of having achieved her outcome. The researcher believes the most significant change came through Meta Model challenges and reframing; however, further coaching may have delivered a more integrated change outcome.

It is not possible in this study to identify definitively a tool or tools that have contributed to the mid-level changes, such as Participant 3’s integrated change, without any explicit ‘change process’, alongside Participant 4’s work both with emotion (IEMT) and the deep structure (mBIT).

The researcher can say:

- For people who experience intrusive thoughts of a biased nature it is useful to know it was possible in at least one case to change these with a simple strategy interrupt.
- For people working to change an assumption/generalisation, the Belief Change with Submodalities is a positive experience in that it allows the coachee to choose the new belief (e.g. 'I don't know who the best parent or best breadwinner will be').
- Where emotion is present in connection to the bias, the IEMT worked to clear the feeling most of the time, with one case where more work with a different tool was required.

It is also useful to note that for coachees who do not wish to experience anything other than 'conversational' coaching, it is possible to achieve a change in unconscious bias at the level of 'integrated' through a combination of the Well-Formed Outcome, NLP language models, powerful questions and reframing. A caveat to this is that in the one case where this occurred, this coachee (Participant 3) had multiple memories of intergroup contact to draw on as the basis for reflection and reframing assumptions.

As for all coaching that works to change mindset and behaviour, intrinsic motivation for the change and the capacity to reflect without judgment on one's thinking, feelings, and behaviour is essential.

Action Between Coaching Sessions

The majority of Coachees did not take action between sessions, demonstrating that such actions are not necessarily required to change unconscious bias. All Coachees were asked to notice interactions with the out-group and their internal thoughts, feelings, and behaviours arising from these interactions. Actions that were taken are summarised below:

- Research - to address knowledge gaps about the out-group (P3, P6) and about unconscious bias (P4)
- Direct acts of allyship (P8, P1)
- Reflective conversations about bias outside of the coaching (P7, P2)
- Reflecting on and noting down internal signs of bias to bring to coaching (P4)

How do Coachees experience the frame of ‘coaching to develop as an ally’?

The key intention behind the allyship frame was to create a psychologically safe, judgement-free zone for exploring biases that are not often discussed at a personal level. Coaching began by eliciting the Coachee’s understanding of allyship during the pre-coaching survey, which served as a “pre-frame” for setting the coaching goal. The Well-Formed Outcome description then became the primary frame of reference for understanding allyship for each individual.

The framing was intended to:

- Reinforce that unconscious bias originates from societal messages outside of one’s control, though its impact can contribute to inequality.
- Emphasise that Coachees are fundamentally good people who can choose to change how these messages influence them.
- Highlight that this change enables Coachees to become better allies, reducing complicity in structural discrimination and inequality.

There was no between-session expectation of allyship-related action. However, when such actions occurred, check-in questions surfaced this at the start of subsequent sessions. The use of allyship was fundamentally ‘paced’ to the coachee’s current level of commitment. In the context of the workplace, where outcomes could impact customers/clients or employees that report to a leader, this could change to help ground the coaching in the individual’s context.

Other Lessons Learnt

Emotions Connected to Bias

Most of the emotions identified as connected to the bias of a coachee were addressed using Integral Eye Movement Therapy (IEMT). For Participant 4, mBIT techniques were used in a subsequent session to address lingering feelings. For Participant 3, reframing and meta-modelling were used instead of emotion-clearing

methods, as “pity” was only acknowledged as “feeling sorry for” after the change occurred in the post-coaching survey. For Participant 7, reframing and meta-modelling were used to examine present-time fear and suspicion.

Table 15: Emotions Connected to Biases

Emotion	Bias	P#
Disgust	Thin/overweight bias	P4, P6
Awkwardness, hopelessness/urge to rescue	Race bias (Aboriginal Australian)	P5
Fear, wariness/suspicion	Race bias (Aboriginal Australians and People of Colour)	P7
Pity/ ‘sorry for’	Differently abled bias	P3

IEMT does not require Coachees to share the content of early memories they access to resolve emotions as barriers to their goals. In Neuro Coaching, it is standard practice to work “content-free” and briefly on negative memories to avoid re-living the memory. Coachees typically experienced this tool for approximately 10-20 minutes (including instructions on how it works and break states to return to a neutral state). This is consistent with ICF ethical requirements to avoid spending the majority of the session exploring the emotional past.

When Coachees did volunteer information from these memories, it was noteworthy that the significant emotional events contributing to bias-related feelings *did not involve negative experiences with members of the out-group*. This is not surprising for the researcher, based on her experience of working with an emotion-focused method in the past.

Conversations Beyond Political Correctness

In one session, a long conversation about Aboriginal Australians involved an exploration of “real opinions” about social dynamics in Australia. This conversation surfaced hopelessness as a remaining barrier to allyship and reframed it as “not useful” for achieving the Coachee’s goals (Participant 5, Session 3, 2024). This conversation highlighted how political correctness can sometimes stifle courageous

conversations essential for reflective learning, as noted by Turnbull (2016, p. 126). Psychological safety—fostered by both unconditional positive regard from the Coach and active participation in an exchange of genuine opinions—enabled deeper self-exploration.

The Coachee reflected: *“I don’t think I’ve ever had this conversation openly and honestly... for fear of offending or sounding like a racist person”* (Participant 5, Session 3, 2024, 1:02:41 - 1:02:59). Given that this Coachee had worked with Aboriginal Australian clients for decades, the admission that she had never felt safe enough to have such conversations to reality-test her beliefs is concerning. An extract of the transcript is included in Appendix 30. The researcher believes that Diversity Coaching holds the potential to support learning and adaptation to evolving social expectations by creating space for genuine conversations like this.

Coach’s Sharing in the Coaching Partnership

The Coach noted that the coaching sessions involved:

- Greater than usual sharing of her own experiences
- Acknowledgement of personal bias and modelling of self-compassion
- Discussions of relevant current events (e.g., the Australian Disability Royal Commission findings, the failed Voice Referendum, and the US election)

The Coach reflected that sharing her experiences helped create a sense of safety for Coachees to open up. However, she recognised the need to refine methods for surfacing biases without relying on personal sharing.

Raising Coachee Expectations of Change

The researcher notes a key caveat regarding the ability to raise coachee expectations of personal change possible and support the development of “more significant changes”. According to the humanistic psychology principle of unconditional positive regard and respect for the boundary of the coachee, the Coach needs to take care when “pressing” for Coachees to adopt higher expectations of themselves, beyond their self-defined goal. Challenging Coachees to aim higher is an intuitive decision that depends on the level of rapport established.

In this case, where Coachees had already expressed self-criticism and demonstrated courage by admitting thoughts and emotions they felt were inconsistent with their values or authentic selves, challenging them to “raise the bar” further was particularly sensitive. While the coach did do this consistently, it was not always successful.

Some participants (e.g., P2 and P5) responded positively to the challenge in Session 3 to continue reflecting and participating in change processes right through to the final coaching session. Others were content to conclude their coaching after achieving their desired outcomes (e.g., P7) or used the final session as a check-in to ensure that changes noted in Session 3 remained consistent after a few weeks (P1, P8). All participants experienced some change that “felt significant” to the Coach, suggesting that their initial goals were “good enough.”

Reflections on the Coaching Process

The researcher reflects that the IAT, which was initially hoped to function similarly to a personality profile by raising awareness through self-assessment, proved unsuitable for motivating coachees. In practice, efforts to “find” evidence of bias or inspire further reflection after initial goals were achieved often involved personal sharing by the Coach or psychoeducation about the bias itself. While this approach was effective in some cases, it carries the risk of unintentionally “leading” the Coachee.

To improve future coaching, more specific tools could support this process of surfacing and recognising a bias in yourself. Coaching multiple participants working on similar biases could lead to the development of additional tools, such as visual prompts (e.g., the images used for thin/overweight bias) or powerful questions like those used across the two participants working on gender/career bias and the two working on race. In real-world scenarios, Coachees could also be offered the option to move on to a new bias once they have achieved meaningful change in their initial goal. For many in the organisational sector who are managing diverse teams, the priority may be to achieve less transformational personal change and more ‘baseline’ freedom from multiple unconscious biases.

Coachee Intentions for Change

The researcher assesses that the Well-Formed Outcome question regarding positive intention contributed to the depth of change and the early focus on personal transformation rather than broader social change. Table 16 below summarises the themes in Coachees' intentions (original extracts in Appendix 31):

Table 16: Themes in Coachee Intentions for Change

Theme	Coachee Example (P#)	Key Intention
Connection	P1, P4, P6, P7, P8	Form deeper, authentic relationships and belonging.
Self-awareness	P2, P3, P8	Increase self-understanding and remove internal barriers.
Social contribution	P3, P5, P7	Support others' growth and foster social change.
Emotional balance	P2, P5, P8	Achieve emotional peace, balance, and happiness.
Overcoming bias	P4, P5, P6, P7	Dismantle assumptions and judgments about groups.

The Coachees' intentions largely focused on creating connections across differences, achieving emotional growth, and contributing positively to social dynamics. A common thread was their desire to "be better" versions of themselves in various roles, such as family members or colleagues. Notably, two participants expressed a hope to support others in creating changes in bias, suggesting that allyship work can extend beyond individual development to fostering change within in-groups.

Skills of the Coach, outside of the Neuro Coaching Methodology

Whilst Coachees can identify their goal for no longer having a bias, surfacing the structure of the bias (e.g. unique beliefs, feelings, strategies) is more difficult. As discussed, an approach of an unusual level of sharing by the Coach emerged, along with several tools and questions specific to different biases. The ability to share so

freely is an outcome of having reflected on the topics from the perspective of personal biases prior to coaching.

Compared to other Coaches, the researcher has extensive content knowledge about social identity/cultural theory and allyship that come together into a conceptual framework that she is congruent about if questioned, and that acts as a 'frame' for approaching changing unconscious bias as a personal development process. This is supported by many years of both leading and participating in 'social identity-based' personal development events, including ally's work. The researcher believes that the experience of working on your own biases and internalised oppression is a highly valuable process for supporting a depth of understanding to Coach others on this content. It is also her position that with Neuro Coaching methods and theory as the basis for understanding, this ability could be developed rapidly in a Coach with a passion for social outcomes.

The Coach has a high level of confidence working with emotions. The coaching toolkit that she called on was based in Neuro Coaching; however, tools were applied within a specific understanding of emotion that is possibly a hybrid with other personal development methods that have a greater focus on emotion as a lever for change than Neuro Coaching.

Researcher's Self-Reflection

Summary of Personal Insights (Coach Journal)

The personal reflections captured post-coaching sessions in the Coach Journal have been anonymised and summarised below to provide some insight into the experience of coaching to change unconscious bias.

- Noted awkwardness with the language around "able-bodism," reflecting on the tension between the latest language and long-standing language from her childhood (with a disabled parent).
- Awareness of parallel processing with personal feelings of hopelessness and sadness regarding systemic racism and intergenerational poverty.
- Recognized the emotional weight of discussing internalized gender oppression and its parallels to personal experiences.

- Observed contrasts in ease of working with different participants to surface the structure of different biases and acknowledged the emotional impact of concluding a coaching relationship.
- Reflected on the courage and beauty of participants striving to align unconscious reactions with conscious values.
- Felt a deep connection to a participant's goal and noted personal enthusiasm for engaging with allyship and systemic change topics in conversations.

Coaching on changing unconscious bias requires a capacity for powerful conversations with unrelenting authenticity. It is an observation that if coaching on this topic over an extended period, it would be important to access coaching supervision to process reflections such as these.

Reflection on Assumptions in the Research Design

The researcher reflects that on completing the project proposal, her assumption that the IAT could accurately measure the level of bias caused her to discount any information to the contrary. This was partly based on the volume of research using the IAT as the measure of change and her perception that empirical measurements are significantly more convincing in the organisational sector. It is possible that the project may not have been proposed without the assumption that the IAT could provide empirical evidence of change in something as subjective as 'the unconscious'. However, having made this error, the researcher now feels that research with qualitative data that reflects the subjective experience of coachees is more recognisable as a real change and has offered additional insight into the nature of unconscious bias. It is also the case that large volumes of qualitative data have become significantly easier to analyse with the availability of AI tools.

Conclusion

Addressing the Research Question: Can Neuro Coaching Change Unconscious Bias?

This study sought to evaluate whether Neuro Coaching can effect change in unconscious bias. The findings affirm that it can. The most heavily weighted data source—coachees' subjective assessments of their outcomes—demonstrates a compelling trend: 100% of participants reported achieving their goal, and 62% assessed their change as exceeding expectations. Furthermore, mean shifts in IAT scores for both coachee and control groups align with the conclusion that Neuro Coaching can influence unconscious bias.

Changes included cognitive, emotional and behavioural shifts, including positive changes that were unexpected and not directly consciously related to the biases. The change can be seen as existing on a continuum, from 'mindfulness', to 'integrated' and 'transformational'. While significant transformation is possible, the findings reinforce that success is determined by the coachee's standards.

Key Findings and Implications

Three key findings emerged from this study:

Scalability

Many participants indicated that the bulk of the change occurred within three coaching sessions, suggesting Neuro Coaching is a brief and efficient process to reach the coachee's standard. Coachees can realistically address multiple biases within a standard organisational coaching engagement.

Techniques demonstrated adaptability across diverse biases and participants in different contexts.

Toolkit and Capability

Changes were achieved using diverse tools, reflecting the emergent nature of Neuro Coaching and the adaptability required of practitioners, including a need for skills in working with emotions in coaching.

Learning about the nature of bias

The coaching process offers insights into how bias operates in the subjective experience of the meaning-making process. This could be a rich source of information to support others to change bias through the formation of change processes and tools, particularly if more commonalities emerge within a specific bias.

These findings underline the importance of flexibility and skill in navigating emotions and employing the Neuro Coaching toolkit. They also suggest significant potential for broader application within organisations and society.

Reflections on the Process of Change

Jessica Nordell's (2021, Kindle location p. 377) reflections in *The End of Bias* resonate with the researcher's belief on the risks of individuals grappling with awareness of their own bias without support:

Once I set aside my attachment to notions of my own rightness, I could take an honest inventory of the fears, errors, lack of skill, and biases that had led me to act in ways that harmed others. This happened again and again as I faced my mental conditioning regarding myriad social identities, including my own. These moments were deeply uncomfortable, even painful. Navigating the emotional dimension of this path is, I think, an underexplored area of research, one that is crucial to address because it can easily subvert the process of change.

The study demonstrates that compassion and self-compassion are critical to enabling meaningful change. Current discourse often frames bias in terms of dichotomies—right/wrong, good/bad, victim/oppressor—which risks perpetuating unconscious bias or defending it as 'unchangeable.' By fostering a more compassionate narrative, individuals are better able to confront and change deeply rooted biases.

Recommendations for Future Research

This study represents a first step toward research on the personal dimensions of change. The following recommendations outline potential next steps for advancing this area of study:

1. Expand the cohort to include larger groups of coachees working on the same biases to refine and test tools for surfacing biases from deeper cognitive structures.
2. Conduct interviews with coachees outside of coaching sessions to validate self-reported outcomes.
3. Incorporate reflective journals for coachees to capture observations between sessions.
4. Deliberately select participants exploring internalised oppression and allyship (e.g., women addressing gender and career biases).
5. Integrate intergroup contact into the coaching journey to enable rich, reflective insights based on lived experiences.
6. Implement longitudinal studies to track changes, actions, and decisions post-coaching over 12 months or more, assessing the systemic impact of personal levels of change in a context.

Final Thoughts

A larger-scale study would further validate these findings and ensure scalability by demonstrating that other coaches can achieve similar results. Addressing unconscious bias is a pressing societal challenge, and this study suggests that Neuro Coaching has the potential to offer a viable solution. Scaling these findings to a broader audience could enable widespread access to meaningful change.

Encouragingly, this project's public nature revealed an interest within society in tackling bias 'from the inside out.' For many, the absence of a psychometric instrument to validate change does not diminish the value of their subjective experiences. Neuro Coaching offers a pathway to change that is both practical and transformative, making it a promising approach for addressing unconscious bias on an individual and societal level.

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