

Culture in cognitive development

Micah B. Goldwater, PhD

BM 336

2 parts today

- 1- Experimental research comparing cognitive development in white/western kids to kids from other cultures
- 2- Indigenous Australian child development and education

Interdisciplinary Cognitive Science



Two useful review papers on cross-cultural differences in cognitive development

- Rogoff, B., Paradise, R., Arauz, R. M., Correa-Chávez, M., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual review of psychology*, 54, 175-203.
 - <http://www.annualreviews.org/doi/abs/10.1146/annurev.psych.54.101601.145118>
- ojalehto, b. l., & Medin, D. L. (2015). Perspectives on culture and concepts. *Annual review of psychology*, 66, 249-275.
 - <http://www.annualreviews.org/doi/10.1146/annurev-psych-010814-015120>

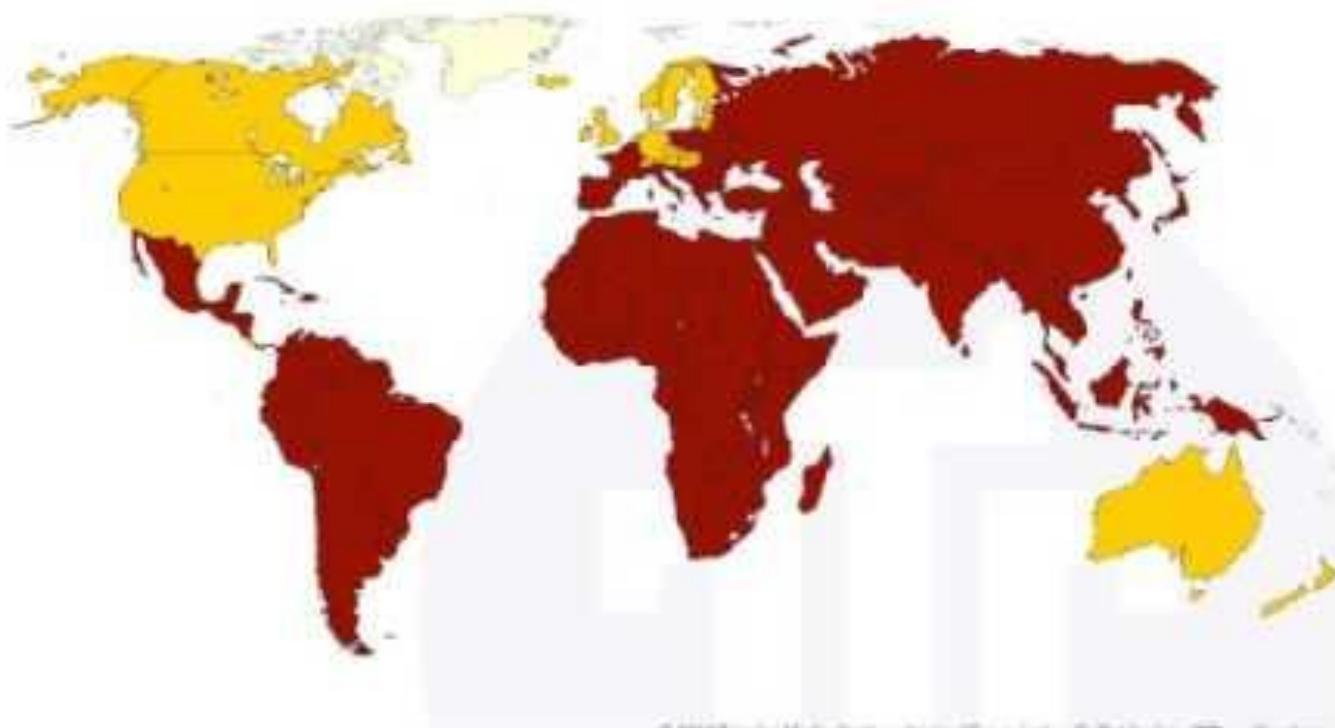
Outline

- Caucasian/European Descent compared to East Asian
 - Relational vs. individual object focus
- Caucasian/European Descent compared to Indigenous Central American
 - Mexican/ Guatemalan Mayan
 - “Intent participation” and learning via observation
- Caucasian/European Descent compared to Native American
 - Menominee of Wisconsin, mid-west USA
 - Folkbiology and category-based induction

Roughly....

CULTURAL DIVERSITY

INDIVIDUALISTIC VS. COLLECTIVISTIC



Oyserman, Coon, Kemmelmeier (2002)

Table 1

Individualism and Collectivism Domains Assessed in Individualism–Collectivism Scales

Domain name	Description	Sample item
Individualism		
Independent	Freedom, self-sufficiency, and control over one's life	I tend to do my own thing, and others in my family do the same.
Goals	Striving for one's own goals, desires, and achievements	I take great pride in accomplishing what no one else can accomplish.
Compete	Personal competition and winning	It is important to me that I perform better than others on a task.
Unique	Focus on one's unique, idiosyncratic qualities	I am unique—different from others in many respects.
Private Self-know	Thoughts and actions private from others Knowing oneself; having a strong identity	I like my privacy. I know my weaknesses and strengths.
Direct communicate	Clearly articulating one's wants and needs	I always state my opinions very clearly.
Collectivism		
Related	Considering close others an integral part of the self	To understand who I am, you must see me with members of my group.
Belong	Wanting to belong to and enjoy being part of groups	To me, pleasure is spending time with others.
Duty	The duties and sacrifices being a group member entails	I would help, within my means, if a relative were in financial difficulty.
Harmony	Concern for group harmony and that groups get along	I make an effort to avoid disagreements with my group members.
Advice	Turning to close others for decision help	Before making a decision, I always consult with others.
Context	Self changes according to context or situation	How I behave depends on who I am with, where I am, or both.
Hierarchy	Focus on hierarchy and status issues	I have respect for the authority figures with whom I interact.
Group	A preference for group work	I would rather do a group paper or lab than do one alone.

Individualism vs. Collectivism

- Often Asians are more relational: e.g., when describing/remembering scenes

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K. Kim, A.B. Markman / Journal of Experimental Social Psychology 42 (2006) 350–364

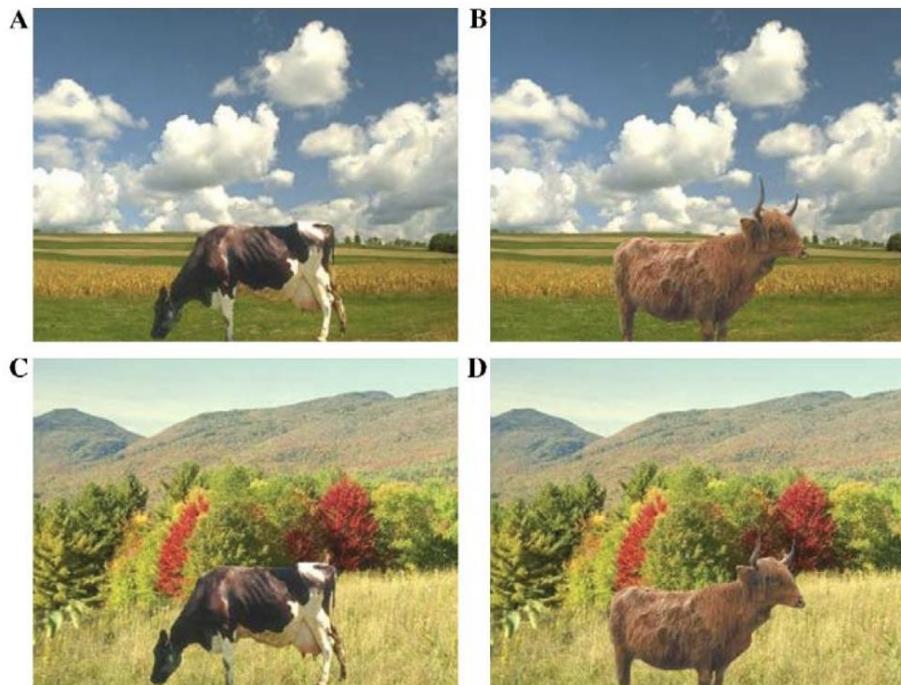


Fig. 5. Sample pictures used in Experiment 3. (A) A study picture. (B) A new animal in the old background. (C) An old animal in a new background. (D) A new animal with a new background.

Individualism vs. Collectivism

- During preschool years, research with European Americans show that both relational abilities improve and the ability to selectively attend to individual objects/one event at a time

Object vs. Relational Focus

- Kuwabara, M. & Smith, L. B.(2012) Cross Cultural Differences in Cognitive Development: Attention to Relations and Objects. *Journal of Experimental Child Psychology*, 113, 20-35.
- http://www.indiana.edu/~cogdev/labwork/Kuwabara_Smith.pdf

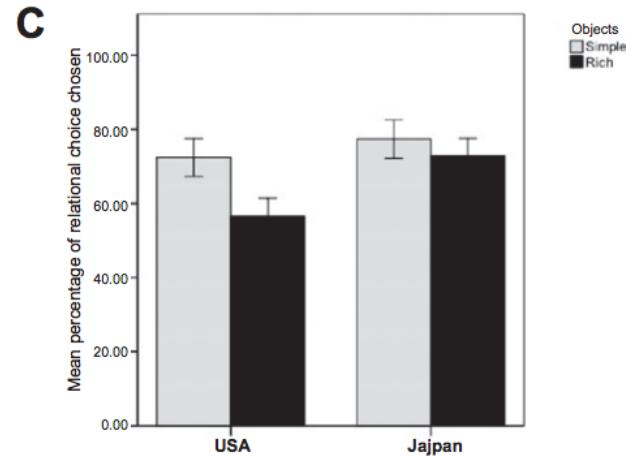
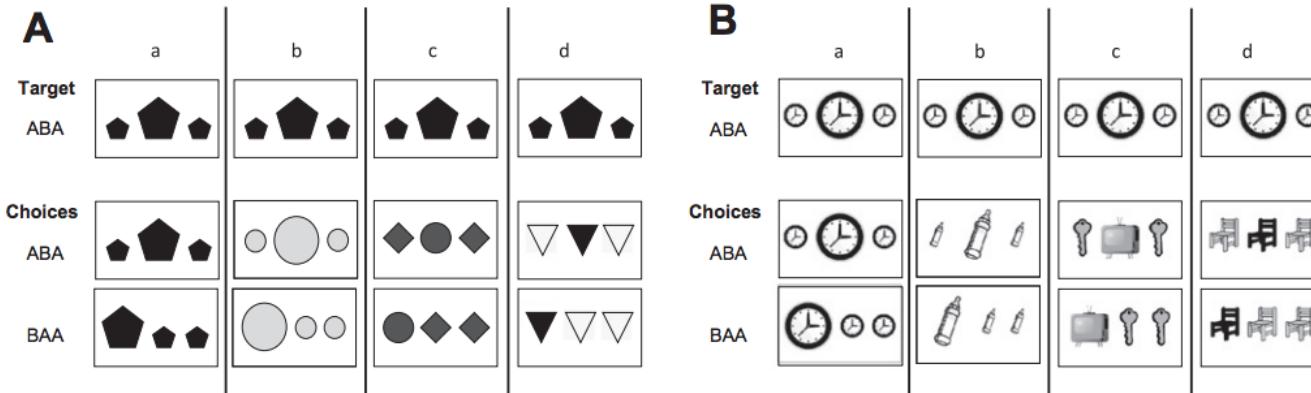


Fig. 1. (A, B) Stimuli examples for Simple (A) and Rich (B) conditions. As seen, different choice cards for the very same target card were constructed to assess just the abstractness of children's relational representations. As seen in column a, the first pair of choice cards uses the very same shapes or objects as in the target card, and thus the relational match is also an identity match that does not require children to ignore individual object properties. The second set of choice cards (size to size) presents a somewhat more abstract relation, namely small-big-small (column b). The third and fourth sets of choice cards require a more abstract representation of the relation that can be realized with many different object properties (shape and color), that is, symmetry around a center object, ABA (see column c for shape example and column d for color example). (C) Mean percentages of correct relational choice chosen by children from the United States and Japan in the Simple and Rich conditions. The error bars show ± 1 standard error.

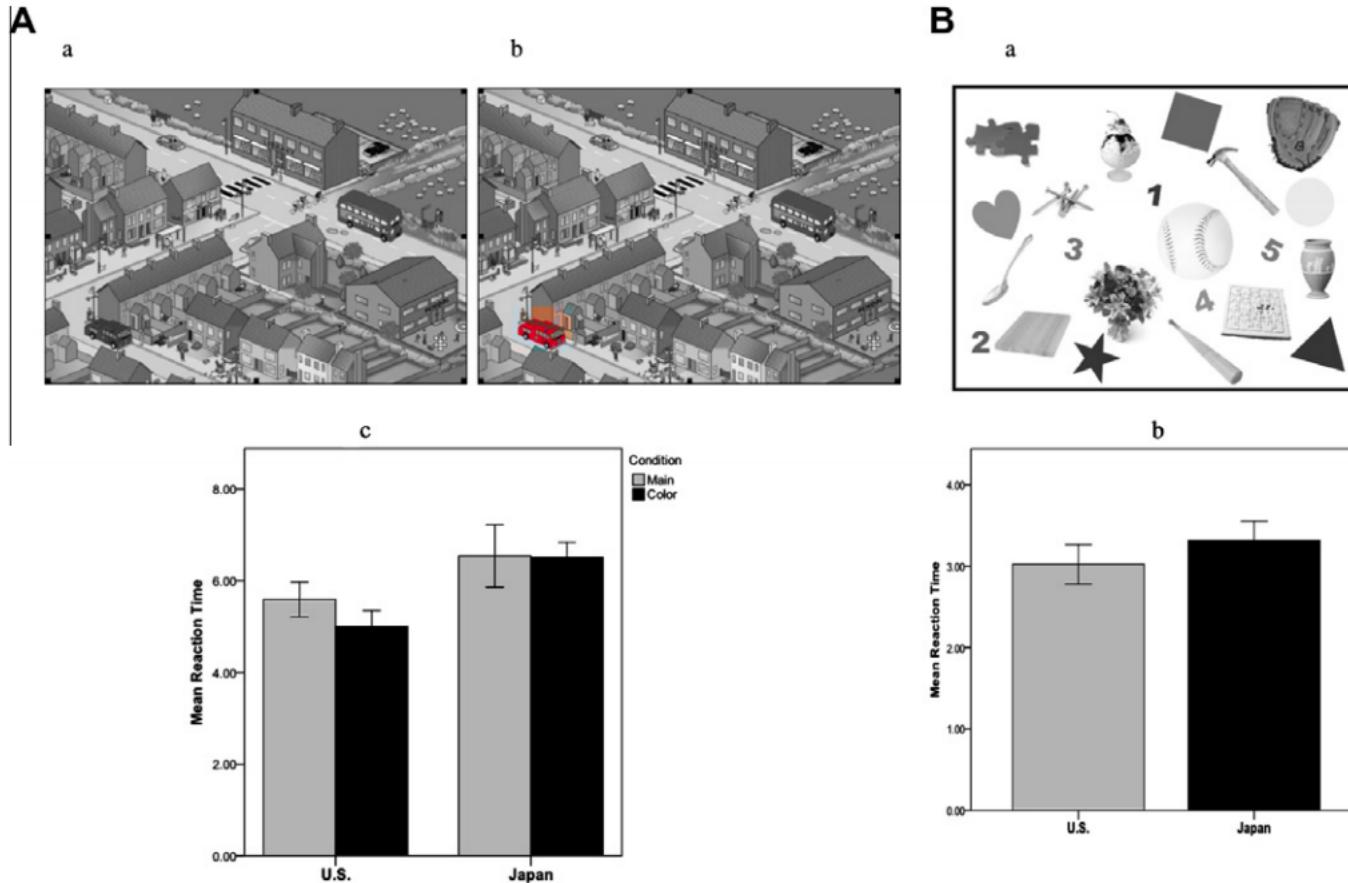


Fig. 2. (A, panels a and b) Examples of the stimuli used in Experiment 2 for the Less Distraction condition (a) and the More Distraction condition (b). For this trial, the target was a bicycle. Trials in the Less Distraction condition were colored black and white, and there was no distracting competitor against the target object. Trials in the More Distraction condition were colored black and white except the distracting competitor against the target object. For this example, the distractor is a red car. (A, panel c) Mean reaction times to find a target object for correct search in Less Distraction and More Distraction conditions for children from the United States and Japan. The error bars show ± 1 standard error. (B, panel a) Example of the stimuli used in Experiment 3. The objects are randomly placed in the whole paper with distractors such as numbers and simple shapes. For this example, children looked for a hammer in Order 1 and looked for a flower in Order 2. (B, panel b) Mean reaction times to find a target object for correct search trials in Experiment 2 for children from the United States and Japan. The error bars show ± 1 standard error. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Individualism vs. Collectivism

- Cultural values provide strategies of what information to attend to and extract from the environment, detectable as early as 4 years-old
- The interdependent self-conception of collectivist cultures leads to relational focus
- The independent self-conception of individualism leads to object focus

Outline

- Caucasian/European Descent compared to Indigenous Central American
 - Mexican/ Guatemalan Mayan
 - “Intent participation” and learning via observation

Firsthand learning through intent participation

- Rogoff, B., Paradise, R., Arauz, R. M., Correa-Chávez, M., & Angelillo, C. (2003)
- Western schooling fundamentally changed the relationship between children and adults, and how children learn from adults
- Schools isolate children from adult activities
- Pre-industrialization western children learned from adults by directly participating in adult activities, e.g., farming
- Current indigenous communities show these practices

Firsthand learning through intent participation

Intent participation, when even quiet observation is seen as a form of participation. Being a good observer, and strategies for learning via observation are explicitly communicated to children in Asia and central America, among other cultures.

vs.

“*assembly-line instruction*, which is based on transmission of information from experts, outside the context of productive, purposive activity. This tradition of organizing learning is common in many U.S. schools and middle-class family interactions, perhaps related to historical changes connected with industrialization and child labor laws, which have contributed to compulsory extensive schooling and routine segregation of children from many mature settings.”

“In a farming community in East Africa, 3- and 4-year-old children spent 25–35% of their time doing chores, whereas middle-class U.S. children of the same ages spent only 0–1% of their time doing chores and 4–5% of their time accompanying others in chores (Harkness & Super 1992).”

Children in these communities are more likely to be directly involved, and this affects how they observe when they are not

Firsthand learning through intent participation

“ In U.S. classrooms children’s learning is often assumed to occur primarily by means of the teacher’s provision of information, in what has been called a factory model (Callahan 1962). The factory-efficiency approach to learning and teaching is a tradition that became widespread around 1900. It was based on Taylor’s time-and-motion studies of steelworkers for industrial efficiency and began to be applied to education to achieve bureaucratic efficiency in the face of enormous growth in student populations. (In 1890 only 4% of U.S. youth graduated from high school. By 1940 half of U.S. youth did.)

Teachers were cast as technical workers who were supposed to insert information to the children, who were seen as receptacles of knowledge or skill. The information itself was broken into bits to be delivered in a specified sequence, like an assembly line. According to the leading educational administration textbook in 1916, written by Stanford’s Dean of Education:

Our schools are, in a sense, factories in which the raw products (children) are to be shaped and fashioned into products to meet the various demands of life . . . It is the business of the school to build its pupils according to the specifications laid down.

(Cubberley 1916, p. 338)

Firsthand learning through intent participation

“In a factory model the teacher strives for efficiency in the delivery of knowledge and applies incentives (or punishments) to induce children to cooperate in the production process. The students cannot speak or help each other without permission from the teacher. The teacher “delivers” the curriculum using specialized forms of discourse, especially quizzing (in which the teacher asks questions to which she knows the answer and evaluates the student’s response) to test the receipt of information. Often the teacher directs children’s actions without explaining a rationale

(see Mehan 1979, Cuban 1984, Gutierrez 1992, Mercer et al. 1988, Hargreaves 1989, Wells 1992, Minick 1993, Rogoff et al. 1996, Matusov & Rogoff 2002).”

Firsthand learning through intent participation

- Often children of indigenous backgrounds get into trouble in school because they attempt to collaborate with other students and don't seek permission.
- Spontaneous adult problem-solving in Native American cultures is more collective, with an understanding that people have different and complementary skills. Much less of a manager-who-delegates process compared to European Americans
- Western assessment requires distinguishing people as high vs. low performers; not about discovering complementary abilities in collaboration

Firsthand learning through intent participation

- Correa-Chávez, M., Rogoff, B., & Mejía Arauz, R. (2005). Cultural patterns in attending to two events at once. *Child Development*, 76(3), 664-678.



Figure 1. The Origami Lady demonstrates the folding of a figure to three children.

Firsthand learning through intent participation

- Adult comes to primary school to teach origami
- Simultaneous attention:
- Child does their own origami while observing adult model, and activities of other children, and some conversation
- Alternating attention:
- Pausing own activity to watch model or interact with other children

Firsthand learning through intent participation

Table 2

Mean Percentage (and Standard Deviation) of Segments in which Children Used Different Forms of Attention Management

Form of attention management	Primary analysis		Secondary analysis	
	Mexican heritage basic schooling	European heritage high schooling	Mexican heritage high schooling	European heritage high schooling
Simultaneous	48.3 (7.9)	27.1 (9.7)	34.7 (11.0)	27.1 (9.7)
Alternating	37.7 (5.5)	53.3 (9.2)	48.2 (10.0)	53.3 (9.2)
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Simultaneous attention was negatively correlated with question asking. Authors interpret this as a sign that they are better at learning via observation. Other interpretations possible of that correlation.

Firsthand learning through intent participation

- Correa-Chávez, M., & Rogoff, B. (2009). Children's attention to interactions directed to others: Guatemalan Mayan and European American patterns. *Developmental Psychology, 45*(3), 630.



Figure 1. Scenarios for Sessions 1 and 2. Session 1. Mayan (top left) and European American (top right) children wait their turn and attend (or not) to the Toy Lady and their sibling constructing the mouse toy. Session 2. Mayan (bottom left) and European American (bottom right) children attempt to construct a frog by themselves, while the Toy Lady is busy with her work.

Firsthand learning through intent participation

Children are taught how to build one toy

Observed other children being taught with another toy

Table 2

Mean Percentage and Standard Deviation of Segments in Which Children Attended to Construction

Form of attention	Mayan traditional		Kaxlaan Mayan		European American middle-class	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
All children						
Sustained	62.4 ^a	20.4	54.9 ^a	19.2	30.6 ^a	24.3
Not attending	33.2 ^b	19.6	40.2	19.5	46.8 ^b	21.5
Brief glances	4.4 ^c	5.0	5.0 ^d	4.3	22.6 ^{c,d}	15.1

Note. In each row, superscripted letters indicate significant differences across cells with the same letter (according to planned contrasts).

The more western schooling, the less attention paid to other children being taught

Firsthand learning through intent participation

Table 3

Average Amount (and Standard Deviations) of Help Children Needed To Construct Toy, With Respective Correlations

Help score/correlation	Mayan traditional	Kaxlaan Mayan	European American middle-class	All children
Children attempting to construct mouse by themselves				
Percentage (and SD) of maximum score of help from Toy Lady	33.5 (14.0)	30.5 (15.1)	31.7 (20.1)	31.7 (16.6)
Correlation (<i>r</i>) between help received and attention	-.11	.19	-.07	.01
Children attempting to construct frog by themselves				
Percentage (and SD) of maximum score of help from Toy Lady	43.5 (15.1) ^{a,b}	52.3 (13.9) ^a	58.8 (11.2) ^b	51.0 (14.8)
Correlation (<i>r</i>) between help received and attention	-.38*	-.29	-.44*	-.47*

Note. In each row, superscripted letters indicate significant differences across cells with the same letter (according to planned contrasts).

**p* < .05.

The more Western schooling, the more help needed for the more difficult toy.
No effect for easy toy.

Firsthand learning through intent participation

- Summary:
- School fundamentally changes the way children and adults interact, where children learn away from the adult activities that the learning is supposed to eventually prepare them for
- There is a focus on transmission of knowledge from expert to novice, and individual assessment
- Children from indigenous communities learn via intent participation and observation of genuine adult activity
- Cognitive consequences: indigenous children can at once attend to models to learn from and perform their own actions
 - White children do not attend to lessons directed to others, and need to alternate attention between model and their own actions when learning from a model

Outline

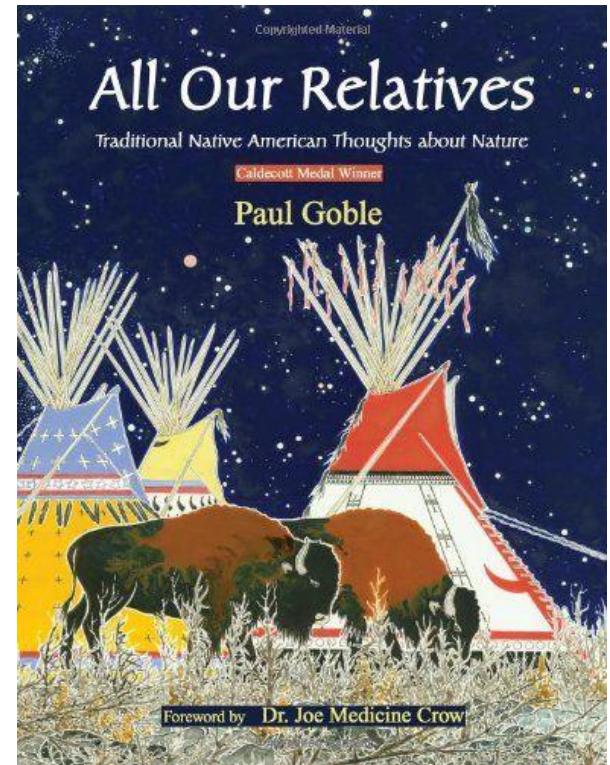
- Caucasian/European Descent compared to Native American
 - Menominee of Wisconsin, mid-west USA
 - Folkbiology and category-based induction

Folk biology: Native and European Americans

- ojalehto & Medin (2015) for review
- What do parents want children to learn about nature?

Native: “they are part of nature”

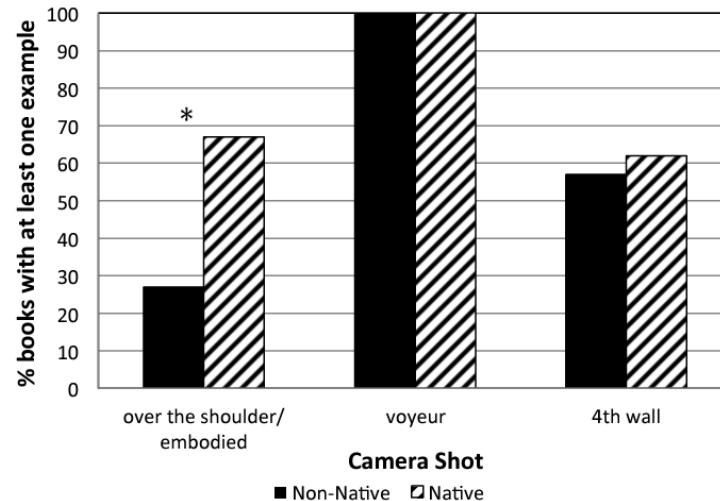
European: “to respect nature”



Building different models of the world

- Megan Bang and colleagues' analysis of children's books and 4-year olds playing with ecological dioramas

Figure 2. Perspective as Conveyed through Camera Shot



- 16 of 21 rural Native American children & 14 of 16 urban Native American children displayed perspective taking
- only 7 of 17 urban non-Native American children did so
- $\chi^2 (2) = 9.14 , p=.01$.
- Native American adults when telling a story about animals, sometimes become the animal in gesture, not just depict the animal in a place

Folk biology: Native and European Americans

- Asked 5-7 year old children “Why do these (e.g., frog and lily pad) go together?”



- Compared to rural European Americans, Native American children more likely to mention food chain relations, their utility for people, and mimic sounds of animals

Folk biology: Native and European Americans

- Category-based induction: generalizations based on category knowledge
 - If an emu has omenatum in their bones, how likely is it that all birds do?
 - If a crow has omenatum in their bones, how likely is it that all birds do?
 - (most people would say crow makes it more likely because it's a more typical bird)
- Carey (1985) showed that 4 year-olds, unlike 10 year-olds and adult do not use these kinds of similarity relations, but instead privilege humans as bases of induction
 - If humans have omenatum, then lots of animals do
 - Generalize to animals from humans more so than from dogs, despite dogs being more similar to other animals according to adults
 - Asymmetric generalisation: more so from human to animals than animals to humans

Folk biology: Native and European Americans

- Carey (1985): “folk psychology” precedes “folk biology” where people are the center of reasoning about the natural world
 - Claimed developmental universal
 - Used urban white middle-class children, who may know little about nature
- Medin, Waxman, Unsworth, Bang and colleagues compare urban European American, rural European American, and rural Native American

Folk biology: Native and European Americans

- Children ranged from 4 – 10 years old
- Half told humans had omenatum, half told dogs did
- Then shown pictures of and asked if they had omenatum:
 - human, dog, bear, aardvark, eagle, toucan, trout, angelfish, bee, fly, maple, dandelion, sun, rock, computer, pencil
- Children generalized to non-living things the least, then some to plants, but mostly to animals

Folkbiology: Native and European Americans

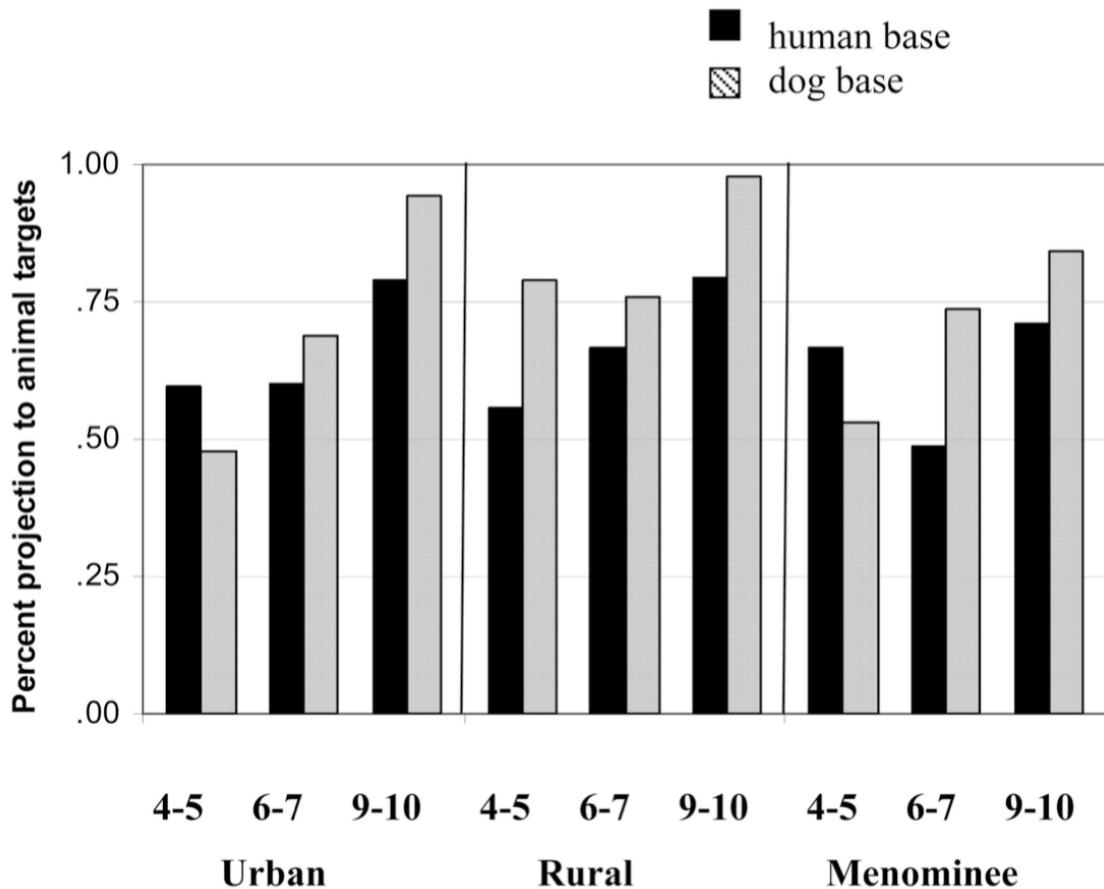


Figure 1.
Projection to animals from human base and from dog base for each population and age group.

All children by age 6 use similarity among animals, draw stronger generalizations from dog

European-descent Rural children with high levels of experience in nature and dogs as pets use dogs earlier on than the other two groups

Folk biology: Native and European Americans

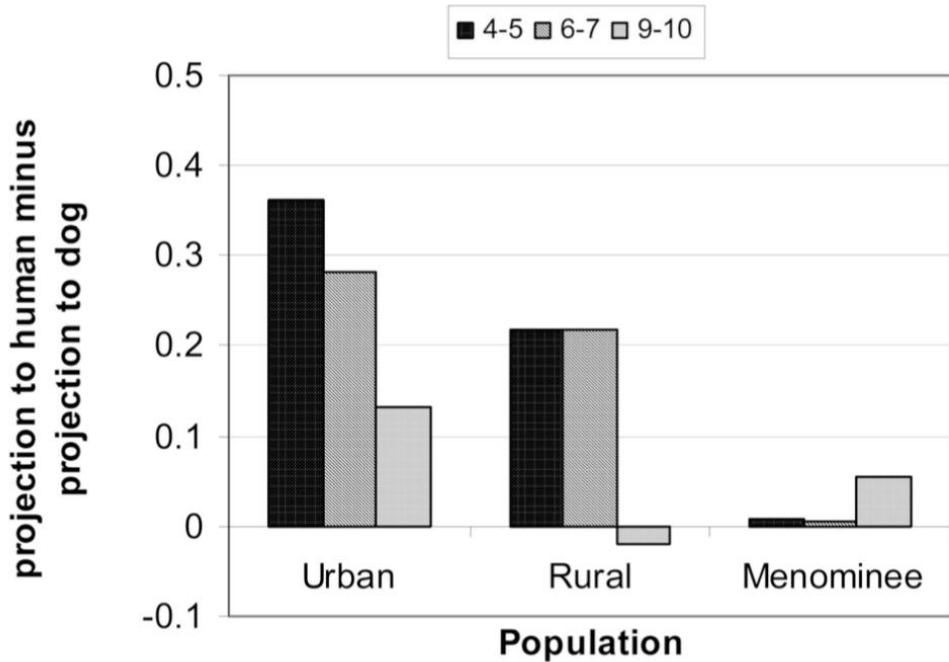


Figure 2.
Asymmetries of projections from human to dog and from dog to human.

Urban white children show the greatest asymmetry early on, generalizing from human to dog stronger than from dog to human.

Rural white children show early asymmetry, but less so

Native American children show no asymmetry from beginning

Fostering a mental model wherein we are a part of nature- and all living things have agency



Led by Megan Bang Northwestern University



Right now, we're in the before,

Folk biology: Native and European Americans

- Fundamental difference in the mental model of human-nature relations- a part of, or separate from.
- Experience with nature and “psychological distance” to nature critical in developing folkbiology
- Native Americans see more complex ecological relations in nature, and show no inductive asymmetry between humans and animals
- Education attempts to engender a part of nature mental model in all people
- When you are a part of nature, and attribute agency/personhood to non-humans and non-animals, then a different ethics of extraction is created

Related

Some discussion of Native American sustainable forestry practices in this interesting article

<https://www.nytimes.com/interactive/2020/12/02/magazine/tree-communication-mycorrhiza.html>

Many similar examples in Australia

<https://theconversation.com/the-worlds-best-fire-management-system-is-in-northern-australia-and-its-led-by-indigenous-land-managers-133071>

Global movement that to fight climate change, we need Indigenous ecological knowledge and practices.

Cross-Cultural Variation in Cognitive Development

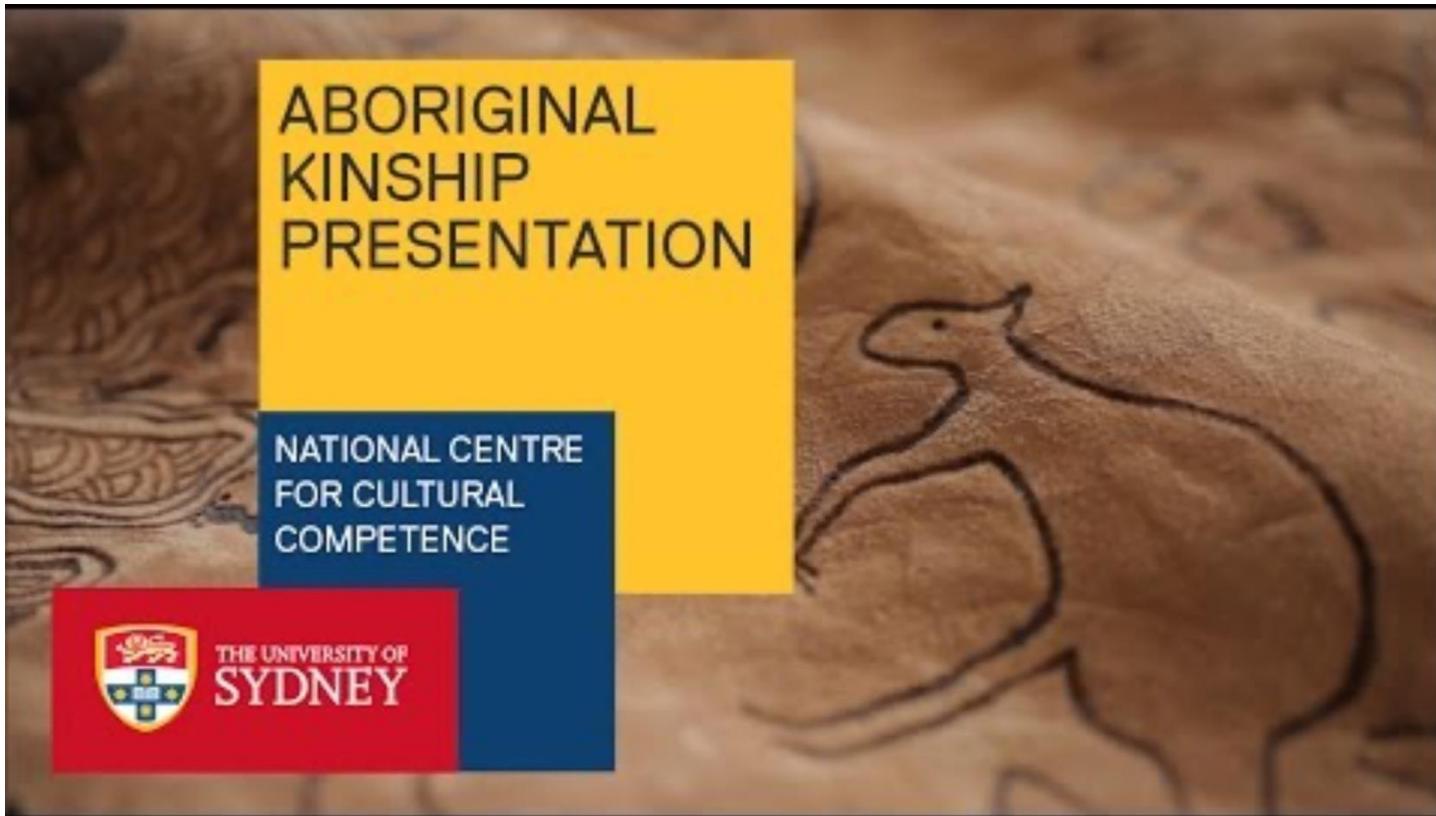
- Cultures provide value systems and these are realized in moment-to-moment interaction with each other and the environment
- Cultures/values provide strategies for attention, learning, memory, reasoning, generalizations, concepts
- Collectivism promotes relational thinking, while individualism promotes an object-focus
- Western schools emphasize individual learning, while Meso-American indigenous cultures promote collaboration and learning via intent participation/observation
- Native American cultures emphasize being part of nature, while European Americans see themselves as separate from nature

2 parts today

- 2- Indigenous Australian child development and education

Indigenous Australian child development and education

A series of short videos made by the university to introduce some basic concepts



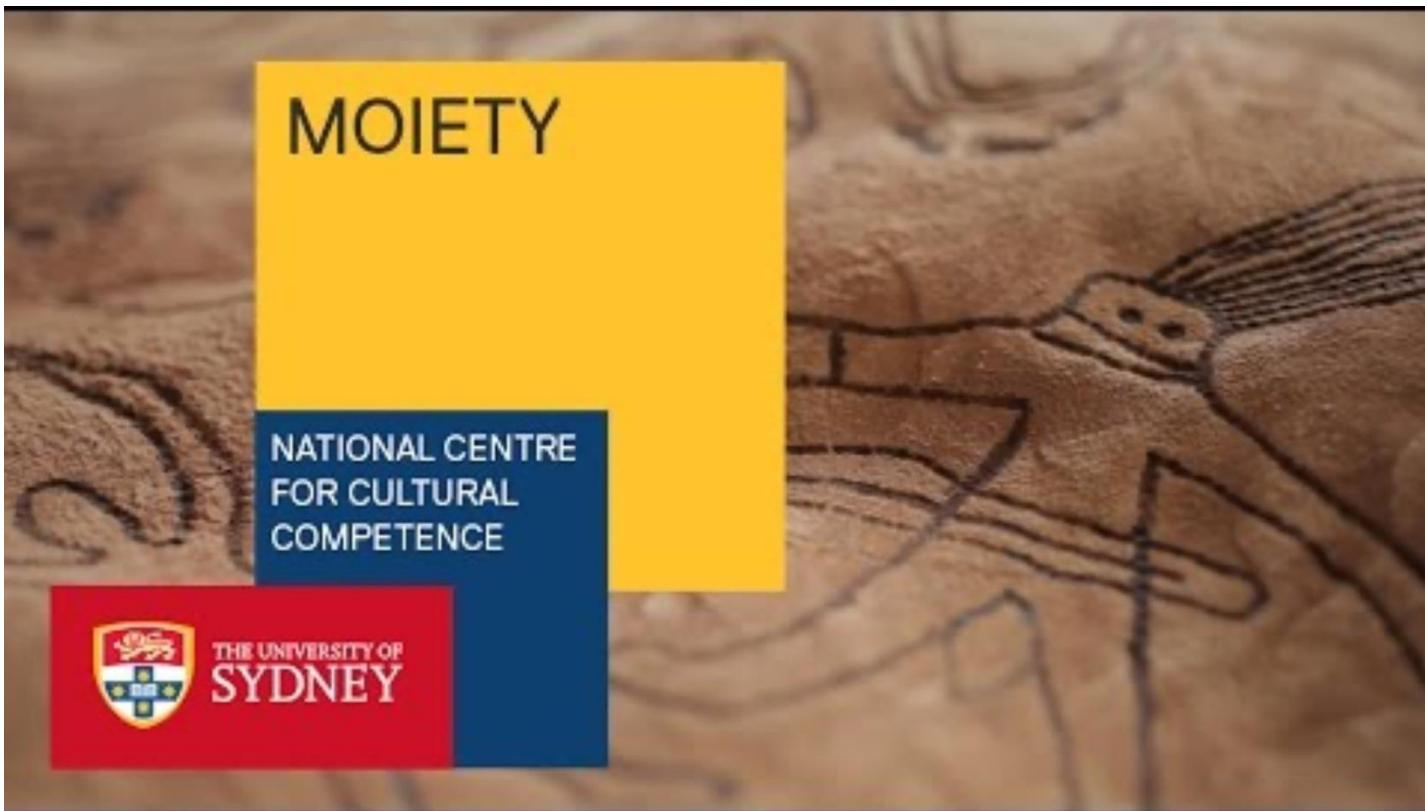
Indigenous Australian child development and education

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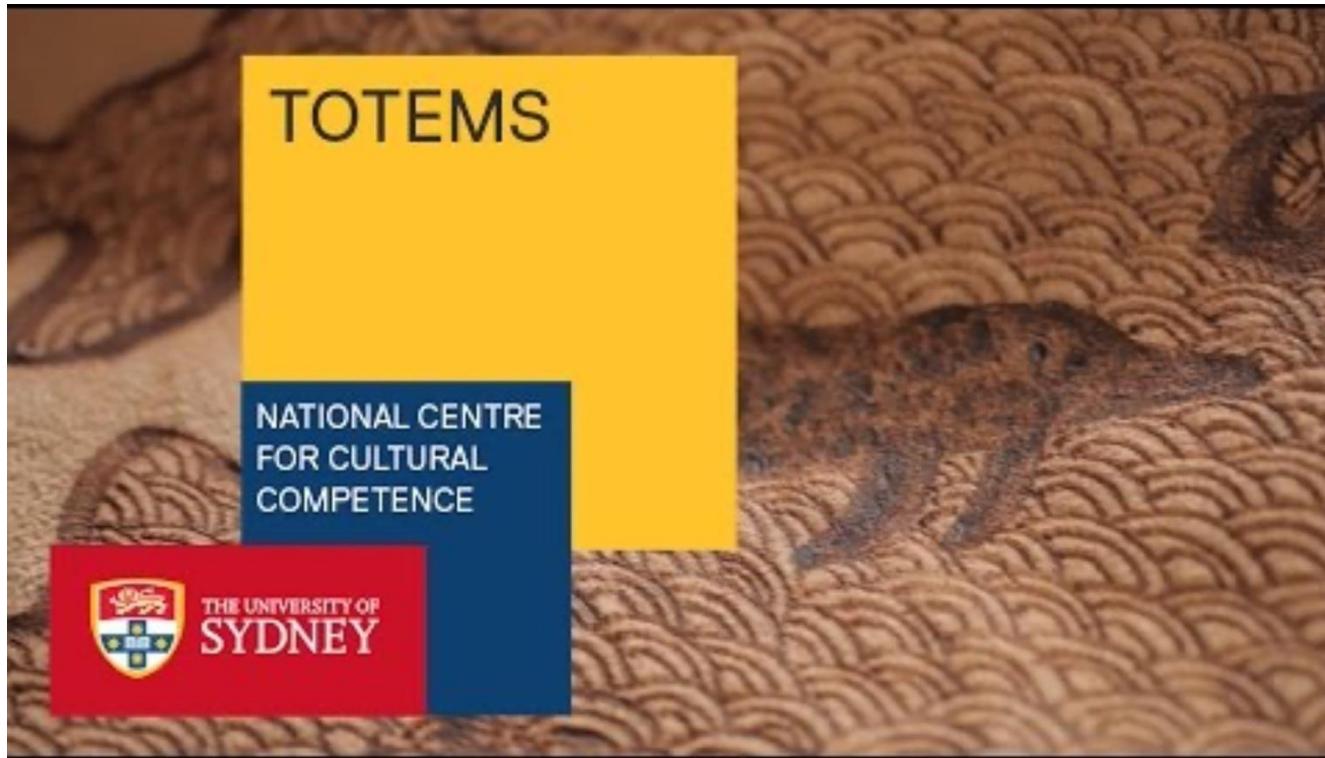
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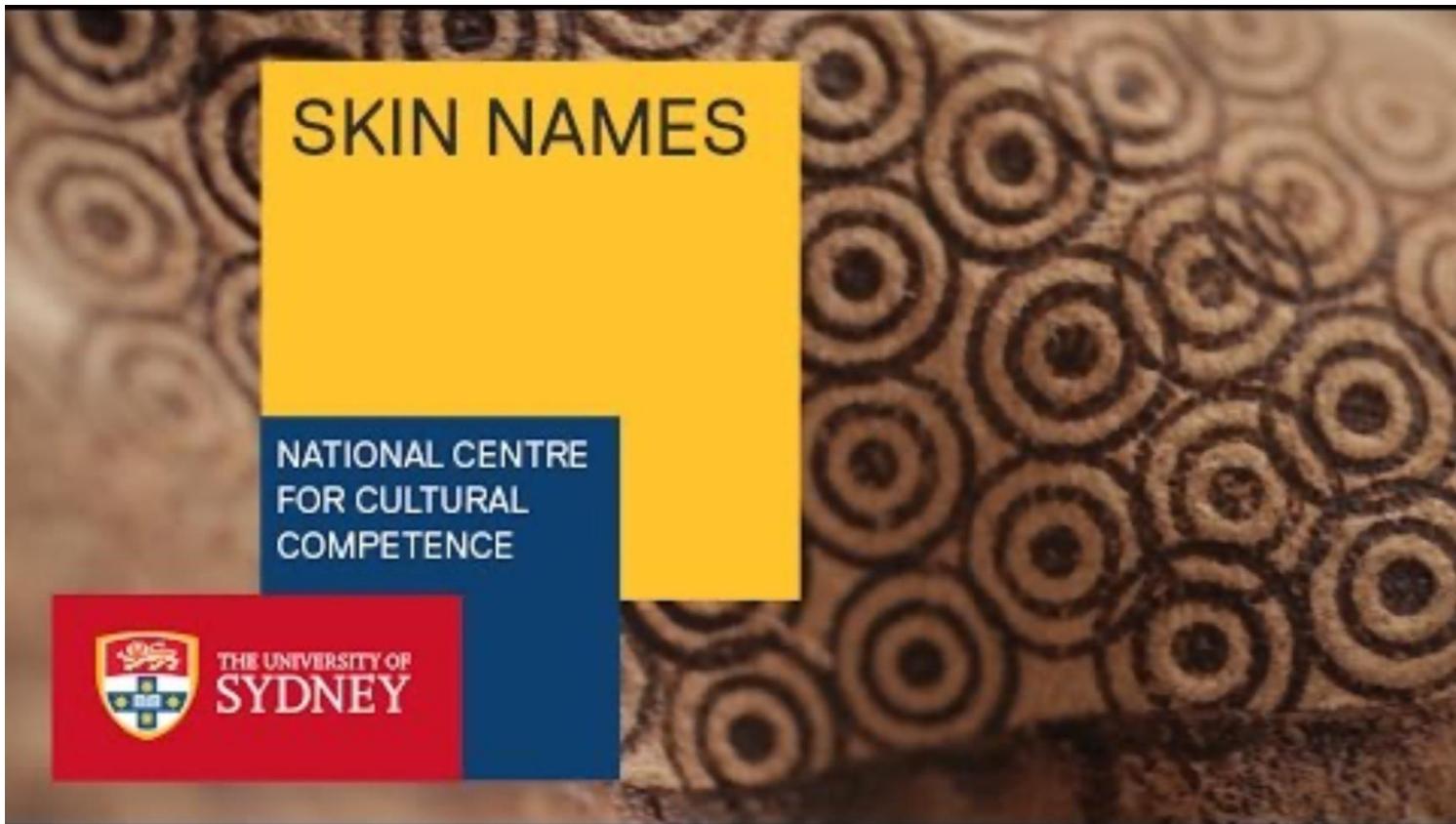
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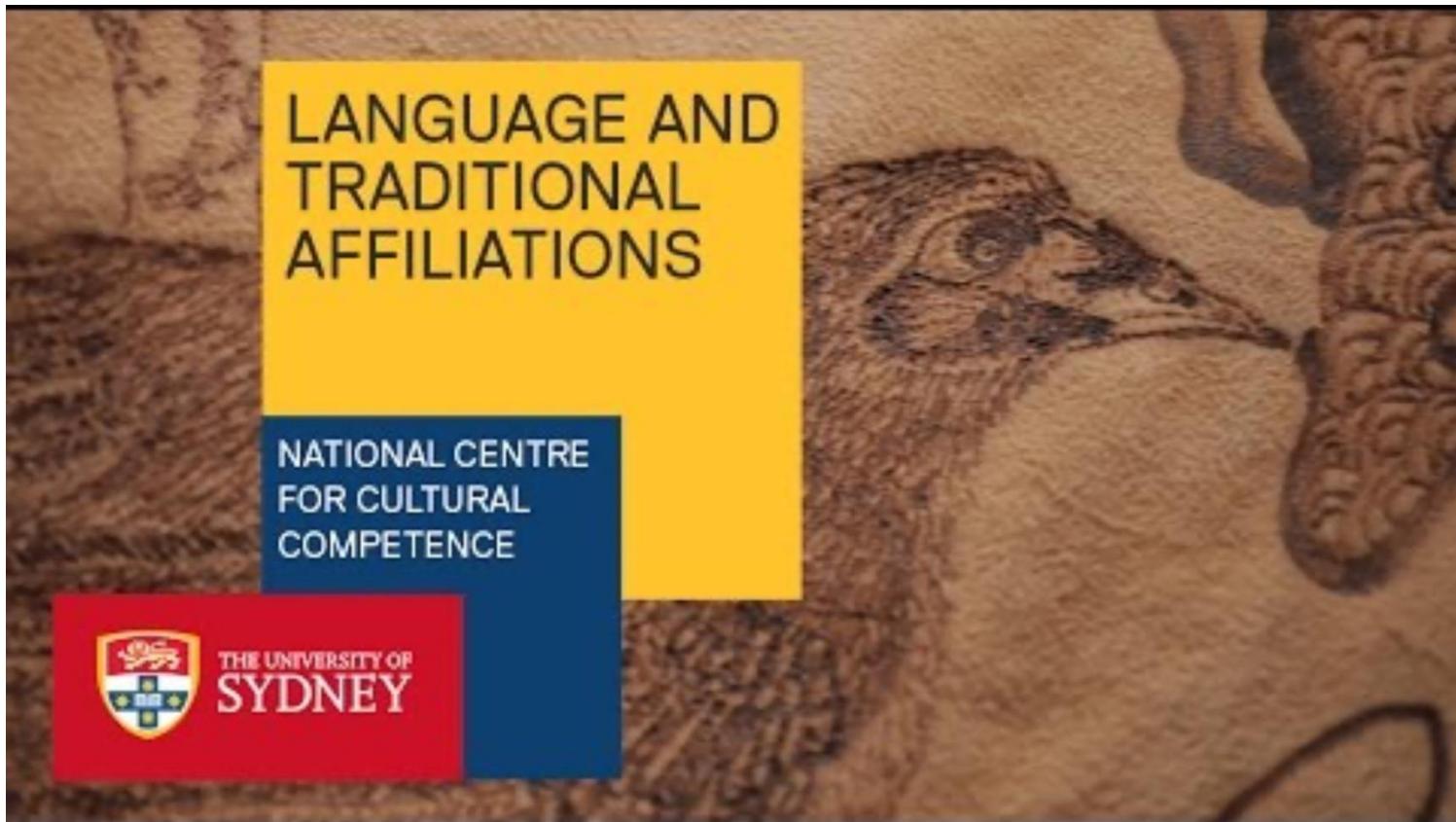
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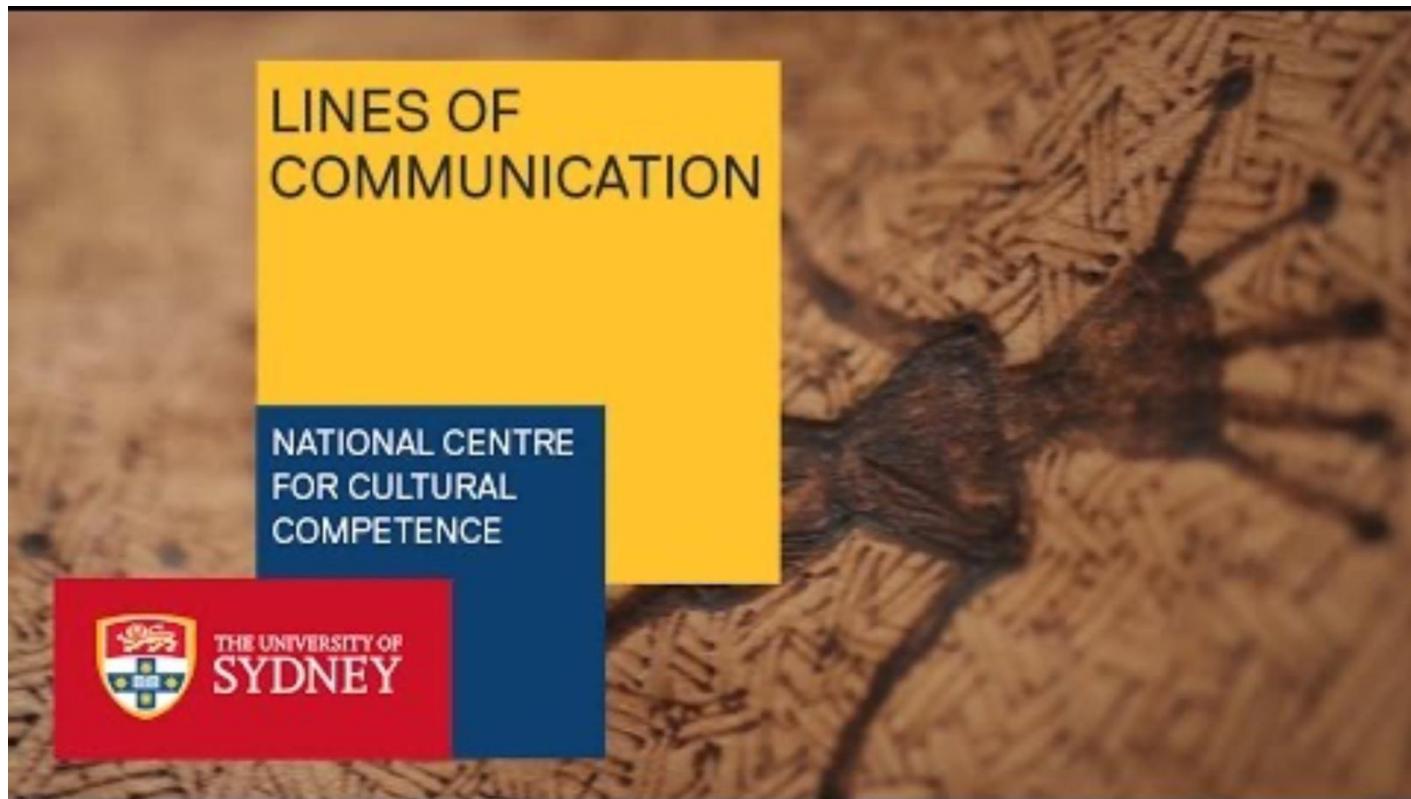
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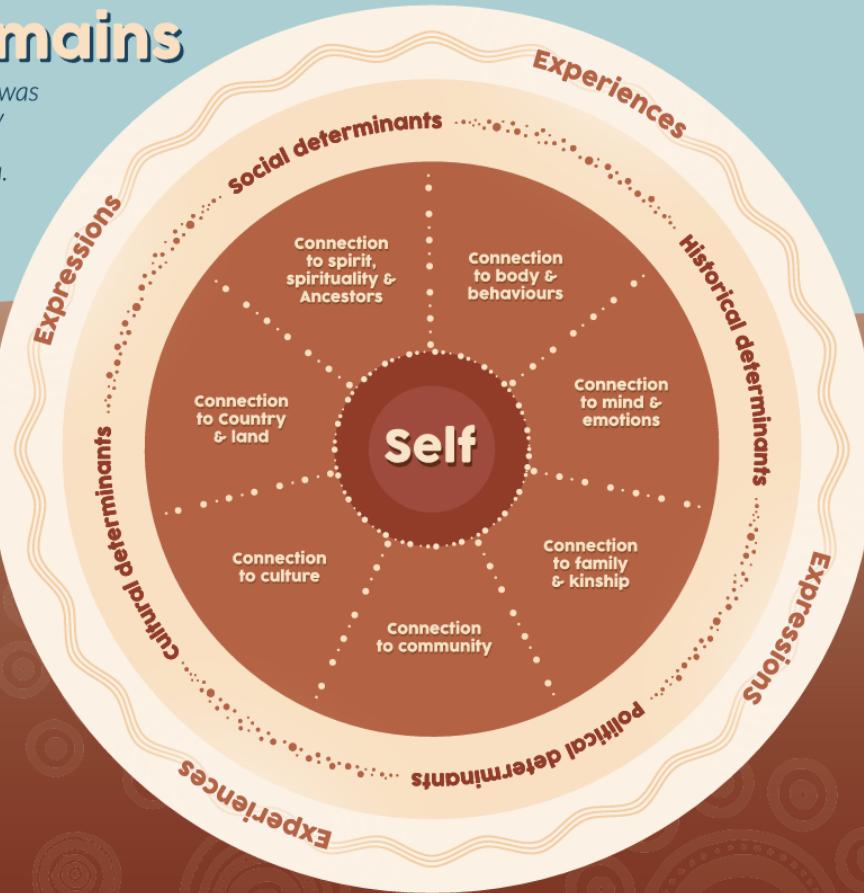


Self-concepts and self-determination

Social Emotional Wellbeing

The SEWB domains

Over several years this SEWB diagram was collectively discussed and supported by Aboriginal and Torres Strait Islander people in many forums across Australia.



Self

- The sense of self is grounded in a collectivist perspective that understands self as intrinsically intertwined with family and community.
- Stronger connections to culture and Country builds individual and collective identities. Empowerment, pride, and strong identity contributes to sense of self and feeling whole.

SEWB Diagram adapted from Gee et al., (2014)

Expressions and Experiences

The SEWB domains are inter-related and at play in most situations, this model artificially separates the domains to address them conceptually, but to understand the domains is to acknowledge their interconnectedness. The diversity of cultures and histories among Aboriginal peoples influence the expressions and experiences of SEWB between and within individuals. There are also variations between traditional and contemporary expressions of the domains.

Over the life span there is an ebb and flow of change as risk factors disrupt connections and protective factors restore and strengthen connections. Resilient and empowered individuals and communities maximise the benefits of protective factors and minimise exposure to risk factors.

The importance of self-concepts and self-determination in Indigenous development and education

The nine principles enunciated in the Framework guided the development of *Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice*. The nine principles are:



1 Aboriginal and Torres Strait Islander health is viewed in a holistic context that encompasses mental health and physical, cultural and spiritual health. Land is central to wellbeing. Crucially, it must be understood that while the harmony of these interrelations is disrupted, Aboriginal and Torres Strait Islander ill health will persist.



2 Self-determination is central to the provision of Aboriginal and Torres Strait Islander health services.

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Deficit vs. Strength/Asset Framing



'Once students knew their identity, they excelled': how to talk about excellence in Indigenous education

Published: November 9, 2022 6.40am AEDT

Lukas Coch/AAP

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When we talk about Indigenous education in Australia, it almost always includes three words: “close the gap”. The federal government’s [Indigenous education priorities](#) highlight school attendance, literacy and numeracy and year 12 attainment. This frames students and their families as a “problem” to “fix”.

In [other areas](#) of education, the word “excellence” is frequently used to frame policy. But a simple Google search of “excellence” and “Indigenous education” comes up with very few meaningful results. Why aren’t starting from the same point in Indigenous education?

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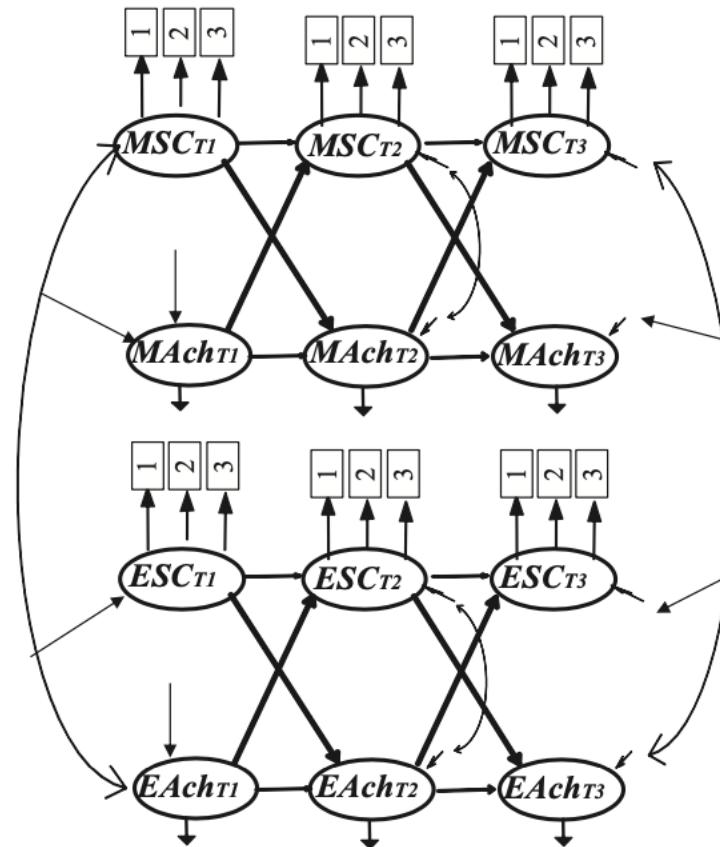


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Reciprocal relationships between self-concept and academic achievement

- Marsh et al. (2023)
- High Self-concepts lead to achievement
 - Self-enhancement view
- Achievement leads to high self-concept
 - Skill acquisition view
- Fancy statistical technique needed to test reciprocal relationships
- Here ~500 Indigenous & 500 Non-Indigenous high achieving Australians across many primary and high school over multiple years
- “I learn math/English quickly”
- Relationships equivalent across groups



Self-determination in Education



There are a growing number of Indigenous run schools or schools with-in schools integrating cultural identity and practices with standard Australian curriculum. These are small samples but do not show deficits in numeracy and literacy in NAPLAN tests.

SSSG- other schools with similar Demographics

School = Gawura

Year 5 reading

Self-determination in Education



Welcome to Gawura School – an Indigenous school within a school

There are a growing number of Indigenous run schools or schools with-in schools integrating cultural identity and practices with standard Australian curriculum. These are small samples but do not show deficits in numeracy and literacy in NAPLAN tests.



When there is no self-determination: How misapplication of psychological theory can cause severe harm

- Years after the [2008 apology for the stolen generation](#), Aboriginal children are still separated from their family at higher rates than other groups
- Psychological theory has some blame
- Child services evaluates the quality of parental relationships, in part, related to Attachment Theory
- Attachment Theory was developed in individualistic cultures to predict long term psychological wellbeing based on the quality of relationship between child with their primary caregiver.
- This is misapplied in Aboriginal contexts in multiple ways, for example
 1. Communal caregiving, not the responsibility of a single parent
 2. From infancy, Aboriginal people view their infant as having more agency & autonomy in their behavior than non-Aboriginal, and this is to be respected and supported. Some behaviors are seen as negligent in Attachment Theory-based assessments are seen as autonomy-respecting in Aboriginal culture. E.g., a child falls down. Do parents help them up? Aboriginal parents may leave the child to help themselves up after assessing the fall did not cause real injury.

Wright, P. Gray, B. Selkirk, C. Hunt & R. Wright (21 Jan 2024): Attachment and the (mis)apprehension of Aboriginal children: epistemic violence in child welfare interventions. *Psychiatry, Psychology and Law*, DOI: 10.1080/13218719.2023.2280537

Also see, papers such as Kruske, S., Belton, S., Wardaguga, M., & Narjic, C. (2012). Growing up our way: the first year of life in remote Aboriginal Australia. *Qualitative Health Research*, 22(6), 777-787.

Some papers on/inspired by Indigenous Australian Cognition: Space, memory, and narrative

Reser, D., Simmons, M., Johns, E., Ghaly, A., Quayle, M., Dordevic, A. L., ... & Yunkaporta, T. (2021). Australian Aboriginal techniques for memorization: Translation into a medical and allied health education setting. *Plos one*, 16(5), e0251710.

Levinson, S. C. (1997). Language and cognition: The cognitive consequences of spatial description in Guugu Yimithirr. *Journal of linguistic anthropology*, 7(1), 98-131.

Heft, H. (2013). Environment, cognition, and culture: Reconsidering the cognitive map. *Journal of environmental psychology*, 33, 14-25.

Langley, M. C. (2013). Storied landscapes makes us (Modern) Human: Landscape socialisation in the Palaeolithic and consequences for the archaeological record. *Journal of Anthropological Archaeology*, 32(4), 614-629.

Cultural cognitive strengths: Aboriginal memorization method, with Narratives connected to place

- Reser et al (2021) examined memory in medical students
- Task- memorize word list
- Condition 1- gold standard of Western memorization the “Memory Palace”
- “Participants were instructed to visualize a familiar room and setting, i.e. a childhood bedroom or their current residence, and to try and recall the location and physical appearance of items in the imagined space. A schematic drawing on a whiteboard was used to illustrate this setup. Participants were instructed to associate items to be remembered with specific objects and locations in the imagined space, with as much detail as possible (e.g. a red lamp with an adjustable shade and a power switch in the center of the lamp base sitting on a desk to the left hand side of the entrance to the room. As items were added to the memory list, each new item was associated with an object and position in the imagined room. To recall items, participants were instructed to imagine themselves walking into the room, approaching each object and location which had a list item associated with it, and to attempt to recall the list item in conjunction with the imagined object.”

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- Reser et al (2021) examined memory in medical students
- Task- memorize word list
- Condition 2- Aboriginal method
- “Group 2 participants were given an overview of the Australian Aboriginal memorization technique by an experienced Australian Aboriginal educator, including a short description of how Elders instruct young people, and the elements of place-based narrative, image, and metaphor. To construct a narrative around the butterfly word list (Fig 1A), the instructor walked students around a rock garden located on campus which contained multiple rocks, plants and concrete slabs arranged in the shape of a large, stylized footprint (Fig 1B & 1C). Each list item was incorporated into a narrative related to elements in the rock garden (Fig 1C). The narrative was practiced as students physically walked through the garden with the instructor, and participants were encouraged to visualize walking through the garden during recall. As the participants mentally "walked" the path in the narrative, they were encouraged to approach each feature in the garden and identify the place and its associated butterfly name.”

Cultural cognitive strengths: Aboriginal memorization method, with Narratives connected to place

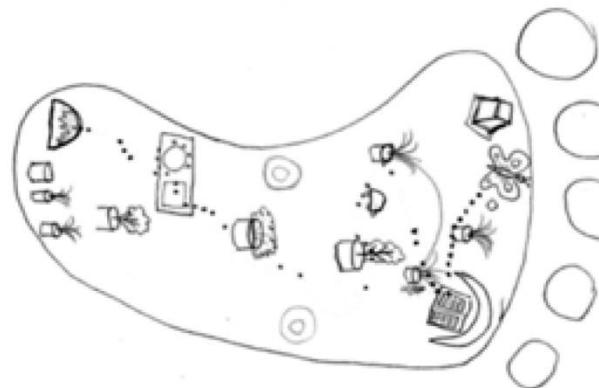
A

Hairstreak
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checkerspot
crescent
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swallowtail
dogface
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anglewing
admiral
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marble
heath
grayling
brushfoot
metalmark
ringlet
sandhill
copper

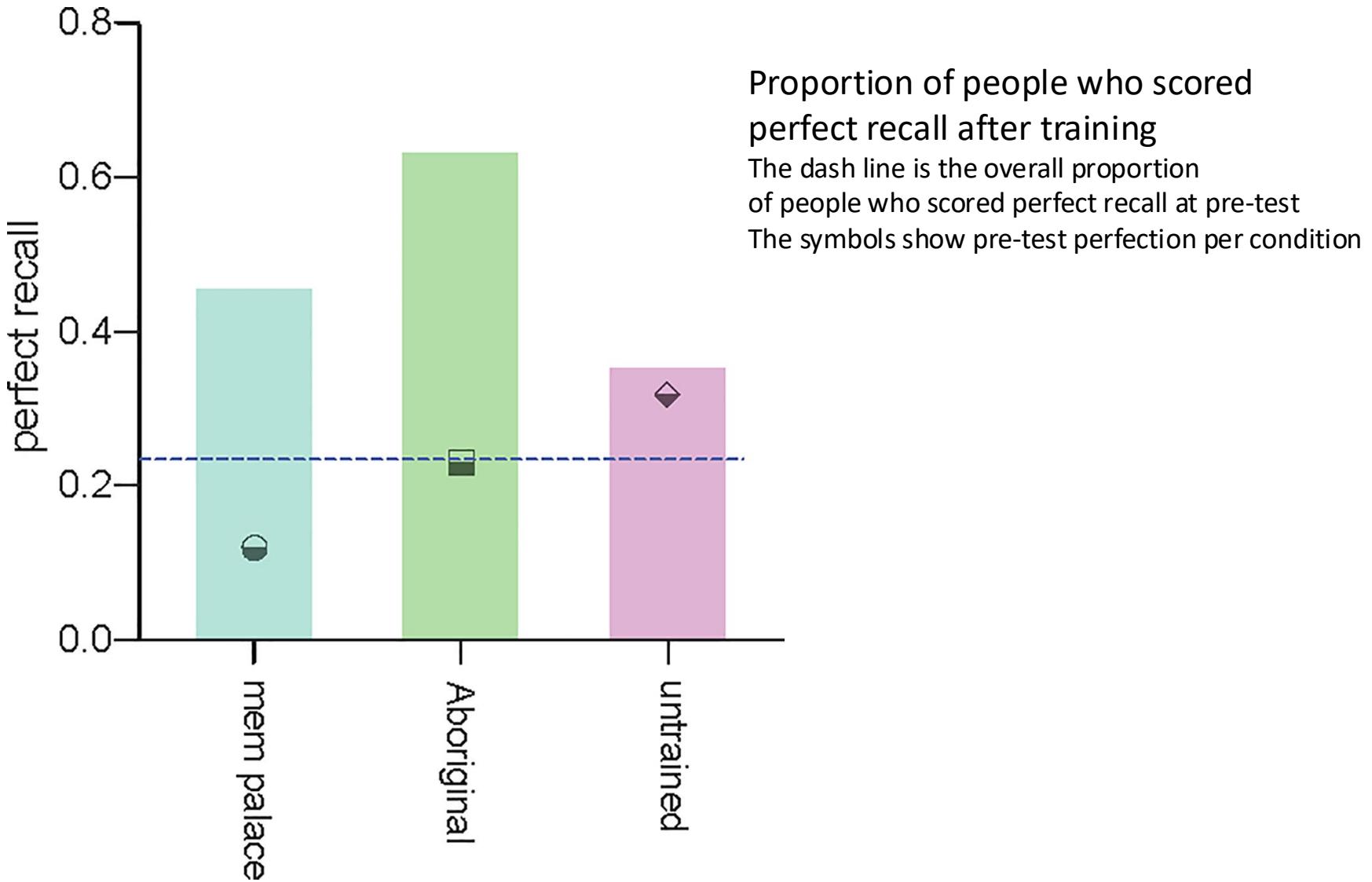
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C



Cultural cognitive strengths: Aboriginal memorization method, with Narratives connected to place



Indigenous Australian Child development and Education Summary

- Rather than dividing experimental psychological research into isolated psychological/cognitive processes, the holistic interdependent self should be understood and supported
- Rather than a “deficit model,” an “asset” or “strength” based approach focusing on agency and self-determination is needed and is successful
- Self-concept and educational achievement is reciprocal in both Indigenous and non-Indigenous Australians
- With Indigenous self-determination, there is no educational “achievement gap”
- Where there is no self-determination, the misapplication of developmental psychological theory developed in Western contexts can cause severe harm to Aboriginal children and families.
 - To get an introductory sense of the importance of kinship in Aboriginal cultures, watch the 8 videos from the Cultural Competence center.
- All people’s cognition can benefit from an understanding of Aboriginal knowledge transmission practices. A strength-based approach highlights two-way cultural influence.

That's the end of The Cognitive Development Section

- How do you argue for different theories?
 - What evidence do you use?
- How do you argue for what interventions to choose?
 - What evidence do you use?

Exam Q&A

- Monday November 17th
- Me: 12:30pm
- Caroline 2:00pm
- Zoom links will be added to Canvas.