



Why are we here?

### Slide 3



We all have an interest, or questions, about the teaching and learning we see around us.

By show of hands, is there anyone here that does not believe that statement applies to them?



So we all have questions, does that then mean we are on a quest to find answers?

Well of course, otherwise we wouldn't be here – in this program or here today.

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I'll be up front and honest with all of you, Carl, Xin and myself don't have THE answers to your questions.

All we have for you today is an alternative way for you to think about exploring your questions.

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So why is the need for an alternative so important?



Anecdotal evidence:

Academia continues to churn out scholarship in educational research – when was the last time you came across something that was directly applicable to your own teaching and learning?

### Slide 8

Scholarship on the relevance of scholarship

*SOURCE:* Shavelson, R.J. (1988). Contributions of education research to policy and practice: Constructing, challenging, changing cognition. *Educational Researcher*, 17(7), 4-11, 22. Scholarship on the relevance of scholarship:

Research "audiences continue to believe that research should provide reliable and relevant rules for action, rules that can be put to immediate use"

Shavelson, R.J. (1988). Contributions of education research to policy and practice: Constructing, challenging, changing cognition. *Educational Researcher*, 17(7), 4-11, 22.

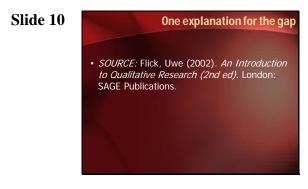
The reality however, is quite different. The **rules for action, rules that can be put to immediate use** rarely if ever are applicable – as there is a perception that theory never seems to move smoothly into real learning environments.

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We've talked about this ad nauseam, but the gap between theory and practice is ever present and a source of real frustration.

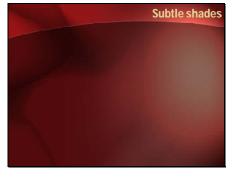
Shaela, I was curious, having lived extensively in England...could you explain the context of this 'phrase'?



One explanation for the gap:

"Traditionally, psychology and social sciences have taken the natural sciences and their exactness as a model, paying particular attention to developing quantitative and standardized methods. Guiding principles of research and of planning research have been used for the following purposes: to clearly isolate causes and effects, to properly operationalize theoretical relations, to measure and to quantify phenomena, to create research designs allowing the generalization of findings and to formulate general laws." (pp. 2-3)

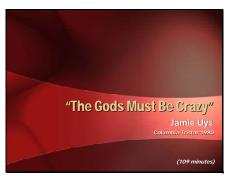




Odd – but from my perspective, I have never known learning environments to be so straight forward so as to lend to this type of inquiry. It far too often seems as though we try to fit a complex and very rich world, into very simplistic models to explain its behaviour.

Today, Carl, Xin and I offer you something from a different perspective.

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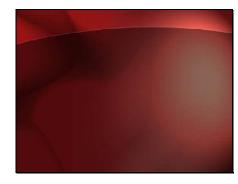


### Carl's Introduction to the Movie

Uys, Jamie (Producer/Writer/Director). (1980). *The Gods Must Be Crazy* [Motion Picture]. Botswana: CAT Films / Mimosa.



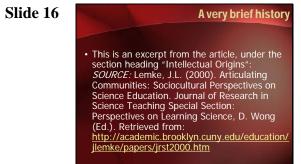




MOVIE – first 8 minutes: Handout out 'Field Notes' document

View up to the pilot throwing out the bottle (8:40).





This is an excerpt from the article, under the heading "Intellectual Origins":

Sociocultural perspectives on science and science education ... derive mainly from developments in the social and human sciences since the 1960s. Jerome Bruner (1990) provides a useful account

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of how initial hopes in the late '60s and '70s for a general synthesis of cognitive and sociocultural perspectives in developmental psychology were disappointed as cognitivist research increasingly ignored sociocultural factors in the 1980s and turned towards a pure Cartesian dualism. [Think of dualism as consisting of two elements: the mental or mind or soul, and real world matter. They both exist, and more importantly, do not 'interact' in any way – the mind does not extend into the real world, and matter vice versa.]

The view that science represents a uniquely valid approach to knowledge, disconnected from social institutions, their politics, and wider cultural beliefs and values was strongly challenged by research in the history of science (e.g. Shapin & Schaffer 1985), the sociology of science (e.g Latour 1987, Lynch & Woolgar 1990), and ethnoscience studies in cultural anthropology (e.g. Hutchins 1980), and contemporary science studies (e.g. Haraway 1989, 1991, 1999).

Historians, sociologists, and cultural anthropologists came increasingly to see that science had to be understood as a very human activity



whose focus of interest and theoretical dispositions in any historical period were, and are, very much a part of, and not apart from the dominant cultural and political issues of the day. Moreover, the core sensemaking process at the heart of scientific investigation was seen to critically involve instrumentation and technologies, in effect 'distributing' cognition between persons and artifacts, and persons and persons, mediated by artifacts, discourses, symbolic representations, and the like.

Meanwhile, the view of science education (and education in general)

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as a second socialization or specialist enculturation into a sub-community was developed out of anthropological theory (e.g. Spindler 1987, Lave 1988) and neo-Vygotskyan perspectives in developmental psychology (e.g. Cole 1996, Wertsch 1991, Rogoff 1990), in opposition to asocial views of autonomous cognitive development. Piaget's view of the autonomous child-scientist constructing a Kantian epistemology from direct experience and Platonic logical schemas was revised along Vygotskyan lines to take into account the social and cultural origins of learners' logical, linguistic, and semiotic resources and models -- learned from more experienced social partners -- and the actual role of social interaction in learning and normal development. Nor was this an idealized view of social interaction as autonomous minds meeting in a rational parliament of equal individuals, but instead a richer and more complex notion of learning-incommunity, often among unequal participants, with a significant role assigned to power relationships and differences of age, class, gender and sexuality, language and cultural background.



Take a look at the Field Notes document we handed out earlier.

How would you classify the 'answers'?

Are they examples of

**Objective Reality** 

Subjective Reality

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### **Objective Reality**

- "view that there are real objects [raw material] in the world that exist independent of our conscious knowledge or awareness of them" (p. 1) and that we have direct access to them through our senses.
- *SOURCE:* Spinelli, Ernesto (1989). *The Interpreted World: An Introduction to Phenomenological Psychology.* London: SAGE Thousand Oaks.

"view that there are real objects [raw material] in the world that exist independent of our conscious knowledge or awareness of them" (p. 1) and that we have direct access to them through our senses. (Spinelli)

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### Subjective Reality

 nothing truly exists in a set physical form but rather is interpreted (and given a meaning) by individuals nothing truly exists in a set physical form but rather is interpreted (and given a meaning) by individuals

# Slide 23 Inter-subjective Reality Inter-subjective Reality • the common-sense, shared meanings constructed by people in their interactions with each other and used as an everyday resource to interpret the meaning of elements of social and cultural life the provide the meaning of elements of social and cultural life • SOURCE: Retrieved from http://en.wikipedia.org/wiki/Intersubjectivity Ship

Inter-subjective Reality

the common-sense, shared meanings constructed by people in their interactions with each other and used as an everyday resource to interpret the meaning of elements of social and cultural life

SOURCE: retrieved from: http://en.wikipedia.org/wiki/Intersubjectivity

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### Something to think about over lunch

The tensions between the objective and subjective realities are addressed in "that our experience of the world is always made up of an interaction between the raw matter of the world, whatever that may be, and [the interpretations of] our mental faculties" (Spinelli, p. 8).

We can therefore situate the experience of the world, as being the result of interplay between the two. However, though human beings can share consensus views of the world, each individual (through maturation and social experience) "constructs a unique interpretation of the world" (p. 9). Something to think about over lunch:

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### Main point

- Some comments on Vygotsky's thery
- The major theme of Vygotsky's theoretical framework
- The important concepts of Vygotsky's theory
  The practical application of "Social-culture theory" in education

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### Comment 1----by Kublin

 Kublin et al (1998) succinctly state that
 "Vygotsky (1934/1986) described learning as being embedded within social events and occurring as a child interacts with people, objects, and events in the environment" (p. 287).



Caregivers are agents of culture (Trevarthen, 1988) who set an infant's nascent actions within an intimate setting that is deeply informed by the caregiver's cultural knowledge. Caregivers cannot help but view infants' expressions as meaningful within the human sphere of their own culture. Infants, in complement, are quintessential cultural apprentices who seek the guided participation of their elders (Rogoff, 1990).

The adult's reaction and interpretations transform the infant's emerging behavior into a social act. In essence, the child induces the adult to recruit the act for communication (Bakeman, Adamson, Konner, & Barr, in press). After many experiences of supported expression, the child gradually masters an action that is qualified with cultural meaning. The act has passed through the zone of proximal development during which the adult has educated the child in its use. (p. 21)

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The major theme of Vygotsky's theoretical framework

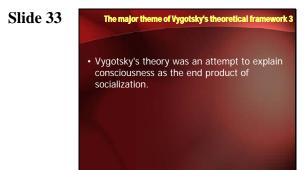
 "social interaction plays a fundamental role in the development of cognition" (Kearslev 1994e) 1. Vygotsky (1978) states: "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals." (p57).

In Vygotsky's conception, psychology cannot be viewed as separate from the twin concomitants of human history and human culture. In particular, Vygotsky saw the primary psychological tasks of childhood as being encounters with and learning how to assimilate and use the intellectual and cognitive "tools" developed by humans over the centuries -language, mathematics, music and art, and so on. Absorbing the laws, conventions, ways of working with ideas and problems in the world that these tools afford are essential to becoming an educated person, a full human being, and Vygotsky was essentially interested in the processes that facilitated acquiring these tools, as well as in processes that inhibited or prevented one from acquiring them. For Vygotsky, the place where these processes came together was in education, whether defined as formal schooling or less formal encounters with an educative purpose.

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The major theme of Vygotsky's theoretical framework 2

 "that instruction is most efficient when students engage in activities within a supportive learning environment and when they receive appropriate guidance that is mediated by tools" (Vygotsky 1978, as cited in Gillan & Relan 1997, 231). 2. These instructional tools can be defined as "cognitive strategies, a mentor, peers, computers, printed materials, or any instrument that organizes and provides information for the learner." Their role is "to organize dynamic support to help [learners] complete a task near the upper end of their zone of proximal development [ZPD] and then to systematically withdraw this support as the [learner] move to higher levels of confidence."



For example, in the learning of language, our first utterances with peers or adults are for the purpose of communication but once mastered they become internalized and allow "inner speech".

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### Basic Principles underlying Vygotsky's Framework

- Children construct their knowledge
- Development can not be seperated from its social context
- Learning can lead development
- Language plays a central role in mental development

### The important concepts of Vygotsky's theory 1 ZPD---- 'zone of proximal development' - the potential for cognitive development is limited to a certain time span (Kearsley 1994e), which is a a level of development attained when children engage in social behavior. Private Speech · Activity theory---- an extension of the idea of the 7PD

the idea is that children develop by encountering concepts or tasks that lie beyond their immediate ability to accomplish, but which are within a "zone" of possible performance that may be realized if the child works along with an adult.

He defines the 'zone of proximal development' as having four learning stages. These stages "range between the lower limit of what the student knows and the upper limits of what the student has the potential of accomplishing" (Gillani and Relan 1997, 231). The stages can be further broken down as follows (Tharp & Gallimore 1988, 35):

Stage 1 - assistance provided by more capable others (coaches, experts, teachers);

Stage 2 - assistance by self;

Stage 3 - internalization automatization (fossilization); and

**Stage 4 -** de-automatization: recursiveness through prior stages.

Full development of the ZPD depends upon full social interaction. The range of skill that can be developed with adult guidance or peer collaboration exceeds what can be attained alone

an extension of the idea of the ZPD to encompass more sorts of interpersonal activity in more different kinds of settings, often very specific situations in which problems of a particular sort are presented to students, and in which they have to work collaboratively to try to solve them.

# The ZPD is defined as the distance between one's actual development (as measured by independent problem solving) and the level of potential

development (determined by problem-solving under adult guidance or competent peers.)

In order for the ZPD to be such a success, it must contain two features. The first is called subjectivity. This term describes the process of two individuals begin a task with different understanding and eventually arrive at a shared understanding. The second feature is scaffolding, which refers to a change in the social support over the course of a teaching session. If scaffolding is successful, a child's mastery level of performance can change, which means that it can increase a child's performance on a particular task.

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### Zone of Proximal Development

- Vygotsky created the phrase, "zone of proximal development (ZPD)" is critical in the learning of individuals.
- Subjectivity Scaffolding

A "zpd" represents the amount of learning possible by a learner given the proper instructional conditions.
 In essence, he is viewing this process as an alternative to intelligence (IO). A tutor/learner; a teacher/student, or any combination of mentor and mentee, by working together, learn beyond what one could by oneself: Cultural tools are shared, meaning is constructed in a social context (learning from each other), and the experiences are integrated, thus leading to heightened levels of knowledge and understanding.

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### Private Speech

- The child begins to perceive the world not only through its eyes but also through its speech. And later it is not just seeing but acting that
- becomes informed by words. " "Thought is not merely expressed in words; it comes into existence through them. "
- 'A word devoid of thought is a dead thing, and a thought unembodied in words remains a shadow."
- "A word is a microcosm of human consciousness."

Consider private speech, where children speak to themselves to plan or guide their own behavior. This is most common among preschoolers, who have not yet learned proper social skills but rather explore the idea of it. Children often use private speech when a task becomes to difficult and the child doesn't know how to proceed. Private speech helps the child accomplish a task. Vygotsky believed private speech changes with age, by becoming softer or being just a whisper.

thinking originates in collaborative dialogues which are internalized as "inner speech," enabling children to do later in "verbal thought" what they could at first only do by talking with supportive adults or more knowledgeable peers (Bakhtin, 1981; Vygotsky, 1962, 1978; Wertsch, 1991).

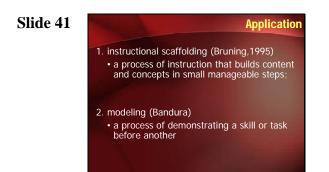


a) cultural objects (cars, machines, computers, etc.)b) language and social institutions ( churches and schools)

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Vygotsky asserts that one's sociocultural setting and engagement in meaningful activity within that setting are the bases for development and learning. It is through social interaction with more competent members of one's culture that learning occurs.

Vygotsky is best known for being an educational psychologist with a sociocultural theory. This theory suggests that social interaction leads to continuous step-by-step changes in children's thought and behavior that can vary greatly from culture to culture(Woolfolk, 1998). Basically Vygotsky's theory suggests that development depends on interaction with people and the tools that the culture provides to help form their own view of the world. There are three ways a cultural tool can be passed from one individual to another. The first one is imitative learning, where one person tries to imitate or copy another. The second way is by instructed learning which involves remembering the instructions of the teacher and then using these instructions to selfregulate. The final way that cultural tools are passed to others is through collaborative learning, which involves a group of peers who strive to understand each other and work together to learn a specific skill (Tomasello, et al., 1993).



### Application continue

- 3. reciprocal teaching: teacher and students take turns being the teacher
- 4. peer collaboration; working in teams
- 5. apprenticeships (or internships)

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Socio-cultural theory in Education: Epistemological Implications

Let's quickly review...

We were talking about the 'nature of reality' before lunch – this is known as an ontology, which is the underlying philosophical assumption about what the world/reality are composed.

This is not epistemology – for epistemology is the 'nature of knowledge', essentially, what counts as facts.

It is important to note that

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Objective Reality Objective Reality

 "view that there are real objects [raw material] in the world that exist independent of our conscious knowledge or awareness of them" (Spinelli, p. 1) and that we have direct access to them through our senses.

"view that there are real objects [raw material] in the world that exist independent of our conscious knowledge or awareness of them" (p. 1) and that we have direct access to them through our senses. (Spinelli)

Therefore this ontological assumption, [An Ontological Assumption – or simply Ontology – is what you believe to be the nature of reality]

So for this ontology, one might lead to an epistemology that argues that facts are out there, just waiting to be discovered via inquiry – positivism.

### Slide 46

Subjective Reality

 nothing truly exists in a set physical form but rather is interpreted (and given a meaning) by individuals

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nothing truly exists in a set physical form but rather is interpreted (and given a meaning) by individuals

Therefore this ontological assumption, might lead to an epistemology that argues that facts are derived by individuals, or in another sense, constructed out of an individuals understanding of the world.

# Slide 47 Inter-subjective Reality • the common-sense, shared meanings constructed by people in their interactions with each other and used as an everyday resource to interpret the meaning of elements of social and cultural life

Inter-subjective Reality

the common-sense, shared meanings constructed by people in their interactions with each other and used as an everyday resource to interpret the meaning of elements of social and cultural life

Therefore this ontological assumption, might lead to an epistemology that argues that facts are found through the interactions and negotiation of the differing understandings of people, in a sense, out of the phenomena of everyday life.





Mind Exercise:

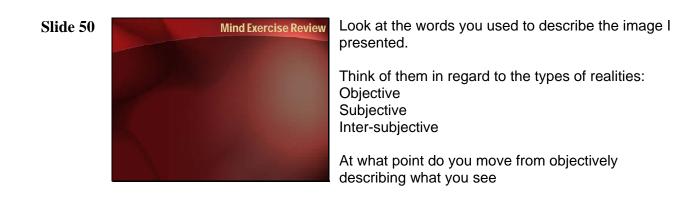
- 1 Pull out a clean sheet of paper
- 2 I'm going to put an image up on the screen
- 3 I want you to describe it as thoroughly as possible (you have 90 seconds)

bday.pic.05.jpg

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<<90 seconds>>







3 candles 1 boy 1 girl Cake facial expressions Etc. etc.

to subjectively interpreting what you see

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Smiling – happy Boy centre of attention

To contextualizing what you see using some common experience you share to assign meaning



I have been in this position It is a birthday It is the boy's 3<sup>rd</sup> birthday

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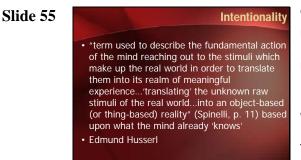
There is more here than what we can visibly observe, for our minds take the raw material of what we see, 3 candles

1 boy 1 girl Cake facial expressions

And Interprets and translates it Smiling – happy Boy centre of attention

In order to contextualize it based upon what the mind already knows: I have been in this position It is a birthday It must be the boy's 3<sup>rd</sup> birthday

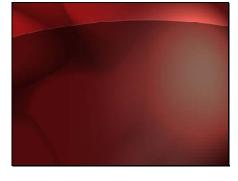
This process is known as 'intentionality' – from Edward Husserl's theories on Phenomenological Psychology



"term used to describe the fundamental action of the mind reaching out to the stimuli which make up the real world in order to translate them into its realm of meaningful experience...'translating' the unknown raw stimuli of the real world...into an object-based (or thing-based) reality" (Spinelli, p. 11) based upon what the mind already 'knows'

This is from Edward Husserl's theories on Phenomenological Psychology.

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OK, deep breath – we are almost at the finish line.

Over the last 2 years for my cohort, and over the next year for the first year cohort, we were and you will be introduced to a variety of different methodological and epistemological perspectives.

The difficulty is keeping it straight at times.

So, I offer the following for your review as a future resource – this is something I put together to organize my own thoughts.

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A way of organizing some idea			
Ontology	Perspective	Epistemology	Method
Objective Reality	Behaviourist / Empiricist	Positivist	
			Quantitative
Subjective Reality	Cognitive / Rationalist	Constructivist	
			Qualitative
Inter-Subjective Reality	Situative / Pragmatist- Sociohistoric	Phenomenologist	

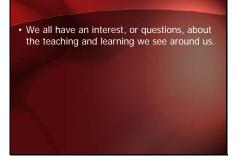
The "Perspective" column and content is derived from:

Collins, A., Greeno, J., & Resnick, L.B. (1992). Cognition and Leaning. In B. Berliner & R. Calfee, *Handbook of Educational Psychology*, New York: Simon & Shuster MacMillan.



When I began this introduction before lunch, I made the following assertion:

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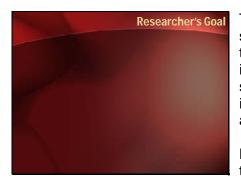


We all have an interest, or questions, about the teaching and learning we see around us.

That teaching and learning we see around us, of course, has a context.

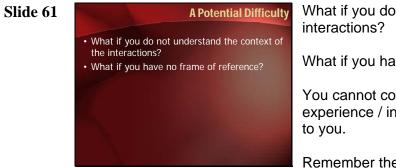
So perhaps exploring that context, and its subjective nature, is a better starting point in the search for our answers.

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The goal of a researcher, when commencing a socio-cultural inquiry, is to gain greater insight into the context of the interaction under study, and how it is understood by its varying participants and the society in which they live. Only then does the interaction take on a more complete meaning in any analysis.

However, there is sometimes a difficulty which needs to be addressed...



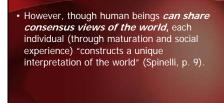
What if you do not understand the context or the interactions?

What if you have no frame of reference?

You cannot contextualize the observation / experience / interaction, because it is entirely foreign to you.

Remember the following point from before lunch:

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However, though human beings *can share consensus views of the world*, each individual (through maturation and social experience) constructs a unique interpretation of the world" (Spinelli, p. 9).

Our role, as researchers – is then to explore those unique interpretations of the world – trying to build a consensus view, but understanding that those subtly unique interpretations, might just be the answers we have been looking for...

Finally, take this object as an example...

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What is it - think about that just for a moment!



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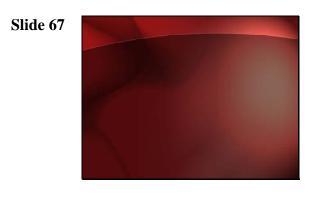
"we become what we behold.... We shape our tools and afterwards our tools shape us" (Marshall McLuhan, quoted in Lapham, 1994, p. xxi)

SOURCE: Lapham, Lewis H. (1994). Introduction to the MIT Press edition: The eternal now. In McLuhan, Marshall. Understanding media: the extensions of man (pp. ix-xxiii). Cambridge, Massachusetts: MIT Press.

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### Acknowledgement

Our group would like to extend its thanks to Fiona MacKellar for her advice on many of the ideas presented in this presentation and access to her extensive library of resources. <<Commence movie from 8:40 to 15:50. >>





# Slide 69

# Helping to think deeper

 The film is full of examples of people from one cultural context making sense of another





### Slide 72 • Introduction of the artifact • Never the same again • Technology Change • Social Interaction Change • Collaboration • To fit new item into current beliefs • Use of Elder knowledge (authority) • Decision • Responsibility • Xi to dispose of the "evil thing" (6 minutes)





# "The Gods Must Be Crazy" Chapters 4-6 Attempted Assassination of the Ministers • Escape to the Banana "Forest" • A Dash for the Border Baboon steals the "evil thing"

# Slide 75

### "The Gods Must Be Crazy" Chapters 7-11 • Urban (Kate) meets Rural (Andrew) Animal (Baboon) views traveling through gates • Bushman (Xi) meets Resident (Marimba) Mis-communicated Intentions • Animal (Rhino) meets humans Army meets Border Guard • Don't look; the "wait-a-bit" tree



# Slide 77

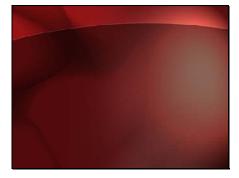
# Chapters 12-20 "The Gods Must Be Crazy" Bushman meets "the gods" Language problem Mpudi rescues car & language problem Villagers sing to Kate Return of the shoes (Laughter) Bushman meets the Herdsboy

- Bushman meets Police
- Busman meets the Court

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	Artifacts
Plane     Bottle	•Legal System •Money
Language     Clothes/Skins     Jeep/snake tracks     Bow and Arrow     Sleeping Potion     Bicycle     Gun/ Thunder	•Classroom Resources -chalk board - books - posters •Shoes •Social Etiquette

# Slide 84

### Further Discussion

- Romantic View
   Historical Reality the one who lives it!
   Journey to Nyae Nyae another view
- Objective
- Subjective
- Inter-Subjective



# Endemonsion The second seco

### Slide 87

### References

Visual Data: "Classic Coac Colar, Retrieved from http://www.flickr.com/photos/84649354@/ND0/113017677/ Visual Data: "Mind the Gap", Retrieved from http://www.flickr.com/photos/alexsegre/107249775/ Vygotsky, L. S. (1998). Collected works (Vol. 5). New York: Plenum. Vygotsky, L. S. Luria, A. (1993). Studies on the history of behavior. Ape, primitive, and child. Hildalek, NJ: Fitbaum. (Original work, published 1930) Vygotsky 1978, as oted in Gillani & Relan 1997, 231

Visual Data: "Birthday Party". Retrieved from http://www.flickr.com/photos/diongillard/5096226/