

Visitors' Questions about the Mind

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Mind and Learning - Front-End Evaluation

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PURPOSE

This study was performed to collect questions visitors have regarding different mind topics that have been discussed in the Mind and Learning Planning Team meetings. This collection of visitor questions may be used to inform future exhibit development and program design for the Mind and Learning Project.

METHOD

- Semi-Structured Interviews
- Visitors were recruited (either as individuals or as pairs) on the north side of the Traits of Life area on the Mezzanine. A few interviews were also conducted on the ground floor near the Exploratorium Café.
- We recruited visitors age 13 and up.
- Interviews were conducted in the afternoon to avoid school groups on these days:

<u>Date</u>	<u>Day</u>
4/10/02	Wednesday
4/14/02	Sunday
4/17/02	Wednesday
5/16/02	Thursday
5/19/02	Sunday
5/22/02	Wednesday
5/29/02	Wednesday

- Visitors were shown pairs of words, one pair at a time, and asked if any questions come to mind for these words. The word pairs are as follows:

Word Pair

Mind - Body
Baby's Mind - Adult's Mind
Language - Thought
Consciousness - Dreams
Thought - Action
Feeling - Thought
Thought Control - Free Will
Nostalgia - Déjà vu
Your Identity - Your Society
Learning as a Child - Learning as an Adult
Mind - Alcohol
Creativity - Active Imagination
Spacing Out - Meditation
Learning - Laughter
Brain - Mind

DATA COLLECTED

- N=30
- Demographics Breakdown
 - 26 individual and 4 group interviews
 - 29 adults and 5 adolescents interviewed
 - 13 male and 21 female visitors interviewed

RESULTS

- Visitor questions are listed for each word pair on the following pages. Note that visitors' verbatim responses appear in *comic sans MS* font. Headings and subheadings are added to help organize the list and do not denote categories defined by the visitors, themselves.

Mind - Body

Mind

How the mind works

Body

How the body operates

Relationship between Mind and Body

How are they connected?

How people with strokes establish the mind body connection

Why does my back hurt?

How do they affect each other?

What parts of each affect parts of the other?

Is Cartesian dualism true? Are there really two different things?

What one can do to improve the other?

Mind over Body

How does the way the mind works affect the physical body?

I'm amazed at the coordination between mind and body. As a computer scientist I have to write all these lines of code to make a program work. But then I see something and my body has all these reactions. How does that work? How is it that my mind thinks and then my body reacts?

How the mind controls the body, like how it can control pain and illness.

Does hypnotherapy work?

How mental states manifest in physical things. Like you have an exhibit on sweat and heartbeat, also awareness and balance and other things

How are messages sent from the mind to the body?

Brain and Body

I have a son who's bipolar. So, I'm interested in chemical imbalances in the brain. How does that affect thinking?

Messages to and from the brain to the body - how do they occur?

How neurons work. How they move.

Reality and Perception

Sensory stimulation. Perception vs. reality.

I have another son who has 45% hearing loss. But, he thinks he can hear everything.

The mind seems to make up the difference. How does that work?

Memory

How do we remember so much?

Soul

The spirit within in - what is it?

Other minds

Will we ever be able to read other people's minds?
How is it that everyone's mind and body are unique?

Development

Ages - adult vs. child's mind and body

Dreams

Where do dreams come from?

Intelligence

Determining IQ.

Baby Mind – Adult Mind

What are the limitations of each?

The baby's mind

What the baby's mind like?

What babies think about

How much do they understand? You can tell from their expression that they understand something, but what?

What babies are capable of as far as thinking goes.

Do babies think with conscious thoughts?

How babies learn

How babies learn things

How much better babies can learn

The adult mind

Mental illness why do some people make such disastrous decisions

How do you keep an adult's mind together?

Differences

What's the difference?

What's the difference in processing sensory input?

The physical differences between the two.

I wonder about the attention span of each. Sight and sound - how do we interpret these?

Development vs. games (that is:) Learning as opposed to playing, I guess.

Which is more developed?

Is the baby's mind as developed but has less content than an adult's mind?

Is the adult's mind more advanced than the baby's mind?

Are adults more discriminating and habitual, and are babies more open in the way they think?

How come my kids can learn Japanese and I can't?

Development

How does the mind develop?

Does it actually grow in size?

How are new pathways formed?

When does a baby's mind start to think for itself?

What are the acquisition states of perception?

How much of what develops is dependent on genetics and education

What can you do to help develop a baby's mind when it is still moldable?

Other relationships

What is the impact of a baby on an adult's mind?

Why don't my kids listen to me?

Can adults know what babies are thinking?

Language – Thought

Language

- Where did language start?
- Why are there common elements between languages?
- What languages are spoken?
- What is the most languages anyone has ever known?

Learning languages

- How do we learn language?
- Human language vs. animal language vs. computer language.
- Why is it easier to learn one language over another? Why are there barriers to thought processes in learning languages?
- Explain the language acquisition process for different languages.
- When are you too old to learn a new language?
- If there are any easy ways to learn a new language, especially when you're older.
- If you know a language when you're young, and then don't use it, can you retrieve it later on?

Relationship between language and thought

- How do they influence each other?
- Do we think in something other than words like feelings, shapes, patterns?
- Do we think before we talk?
- Do babies have conscious thought if they have no words to think with?
- Why does language seem slower than thinking
- Can you type as quickly as you think? How does that vary from individual to individual?

Language affecting thought

- How does language affect thought?
- Is there thought without language?
- How language limits thought.
- How different word patterns create different thoughts. I believe if vocabulary is improved then we also think better
- Do thoughts differ from language to language?
- How are thought patterns shaped by the language we speak?
- Do different languages influence your ability to do higher order thinking? Some languages are simpler than others, so how does that affect higher thinking?
- If we talk in a different language, what happens in our brains?

Other Questions

- Why do my kids swear?

Consciousness – Dreams

Dreams

How are dreams created?

Why

Why do we dream?

What is the function of dreams?

When

Do I dream every night?

Can we dream when we're awake?

Why can't you dream with your eyes open?

Where

Dreams come from where?

Your body and brain when you dream

What do you look like when you dream?

What part of your brain makes you think of which things [when you dream]?

Messages to the brain [during dreaming].

REM, brainwave activity.

Nightmares.

Effects of drugs on your brain.

Do dreams only happen in the mind?

Remembering dreams

Why do we only remember some dreams?

Why do some people remember their dreams and others don't?

Will I ever be able to remember my dreams?

Meaning of Dreams

What do dreams mean?

How significant are dreams?

Do dreams foretell future?

What are the symbols in dreams?

Is there an universal interpretation of dreams? Are some symbols always interpreted the same way?

Experiencing Dreams

Why do dreams feel so real?

What is lucid dreaming?

Can we control dreams?
How can we control dreams?
Do all people dream the same (full color and sound)?
Why some people dream in color

Connections between consciousness and dreams

How are they connected?
Which is more prominent?
How is dreaming different from waking?
Can you solve problems while you're sleeping?
How dreams can intertwine the conscious with the subconscious?
What the unconscious does that we're not conscious of.
Dreams are from our subconscious so what's the link between the subconscious and the conscious?
How does our consciousness affect our dreams? What do they [dreams] mean to the conscious mind?
Is conscious pain the same as what pain would be like in a dream?

Thought – Action¹

What makes us think about actions before we do them?

Why we do things w/o thinking?

How often do we think before we act?

What's the interaction between ego and action?

Turning thoughts to action

How thoughts turn into action

What changes thoughts to action?

Why are some people brilliant but can't seem to execute or live up to their potential?

Thought precedes actions. How many times does someone need to think about something before s/he acts? When and why and is there a threshold?

Is telekinesis real?

How do you motivate kids?

Actions' interactions with thought

What influences do actions have on thought processes?

¹ Only 9 out of the 30 visitors interviewed were shown the “Thought – Action” pair. Later, this pair was replaced by the “Feeling – Thought” pair to align with the new focus of the Mind and Learning Team.

Thought – Feeling²

Feelings

What are the different types of feelings? You know, like, happiness, anger.
 Does my sadness feel the same as your sadness? Same with happiness and other feelings.
 Why do we cry?
 Can we respect our feelings?
 Can you control your feelings?

Connections between feelings and thoughts

What is the connection between the two?
 How much do our feelings affect our thoughts?
 How your thoughts can determine your feelings.
 To what degree are the two intertwined?
 Is there any neuroscience research about connections between feeling and thoughts in the brain?
 Is it possible to do one without the other?
 What's more important - feelings or thinking?
 What controls your life more, feelings or thoughts?

Is there a difference?

Are they really two different things?
 How do you separate the two?
 Are feelings really thoughts, or are they coming from a different center of the body?

² 21 out of the 30 visitors interviewed were shown this pair of words.

Thought Control – Free Will

Thought Control

Why do different people have different levels of control? Is it heredity or learned?
 How does enculturation work?
 How much we are a product of our political and social environment
 How does propoganda and advertisement control our thoughts?
 What's the best type of propoganda?
 What does TV do to your mind?
 Do those commercials on TV really work?

Free Will / Free Thought

Do we in fact control our thoughts and use free will? Or has something already been decided for us?
 Do we really have the ability to control what we think about?
 Can it [free will] ever be completely taken away?
 Choosing yourself vs. activities that are already preordained for you - how do we know?
 What do we have control over in our lives?

Relationship between thought control and free will

Can they co-exist?
 Which is better?
 Mind control vs. crowd think. How can you exercise free will in face of crowd mentality?
 When a child is under adult and the adult instruct kids, do we [adults] in the process control the child's thought process? If the instructions conflict with free will. Does control limit free will?

Other questions

Does god have a remote control on the universe?
 How different cultures interpret the same events and phenomena
 Bio feedback

Nostalgia – Déjà vu

Déjà vu

What is déjà vu?

Why do we think it happened before?

Is there really déjà vu or is that just a figment of our imagination?

How often do we have déjà vu and why?

Are they an inevitable product of having memory?

Does everyone experience [déjà vu] at some point in their lives?

How old do you have to be to have it?

What senses trip déjà vu and how does that vary with the individual?

Reincarnation.

What happens when to our brains when we die?

Deja vu is almost like the dream process, many times I've dreamed something and wondered how it's connected to my consciousness.

Nostalgia

Why do I feel sad again?

About nostalgia, why do things seem so much better when we look back?

How common is it?

How often are you actually remembering what you think you are?

Are they an inevitable product of having memory?

Connection between Nostalgia and Déjà vu

How are these two related?

Does déjà vu stem from nostalgia?

Why does one invoke emotions and the other surprise?

How are they related to memory? Do they refer to a real past or simply a trigger to make us feel something like a past?

If you took a scan of the brain, how does it interpret the two differently? They are obviously very closely related though they spark very different feelings.

Other Questions

How do our memories control our thoughts?

Identity – Society

Identity

Why aren't all people the same?
 What are people's identities? How are they formed?
 What is identity composed of?
 Are there traits that are universal and cross-cultural?
 How much can we change about our identities? Is it limited?

Society

Animal organization vs. human organization. Human socialization patterns. Herding vs. solitary behavior in animals and humans.
 How values in society play out in our interactions (e.g., like women in the workplace)

Connections between Identity and Society

How is our identity affected by our society?
 How much of your identity is determined by your society?
 Can they be independent of one another, and if so, how?
 Personal vs. social values. How do they develop?

Different Identities in different Societies

How we look at ourselves vs. how we look at ourselves in a group setting
 How our behavior changes in a group setting
 The crowd thinks as one. You have to be strong as an individual but then those same people over-ride their own thoughts in a crowd. Why?
 Would I have a new identity if I lived in a different society?
 How would an American be different from someone in Japan, for example?
 I'm from India but I live here. So what is my identity? How do you grow into and adapt to a new country while maintaining roots to the old. There's a conflict.
 How do we preserve one identity?
 Do we have multiple identities to conform with multiple societies we live in?

Fitting into the world

How do you fit into the world?
 How much of your identity do you bring into your society?
 What are the activities that you participate in that make you identify with your society? Sports? Places you go?

Nature and Nurture

Nature vs. nurture. What's the equation there?
 How much of your identity is formed before you're introduced to society?

Roles in Society

How does society define women's roles?

Are men and women driven by different forces?

Why do I have to pay taxes?

Why do you have to take care of kids?

Child Learning – Adult Learning

Child Learning

Why is it easier for a child to learn?
 How do we learn as children?
 maybe children's thinking cycles faster?
 How much studying is good for kids?
 Do I remember everything I learned as a child in some way or another?

Adult Learning

Is it harder to learn as an adult?
 Why is it harder to learn as an adult?
 Can we learn as adults?
 It's harder to retain ideas and things as an adult. Maybe it takes more repetition?
 What's the motivation curve for an adult?
 Are there ways to help adults learn more effectively?

Differences

Is there a difference?
 Why is learning in children so much faster than for adults?
 How quickly can an adult learn compared to a child, and in what areas?
 How does age affect learning?
 At what stages are you more apt to learn what things: like when do you become concerned about social behavior or religious or spiritual matters
 The process of each - how do they change over time?
 Different learning styles of adults vs. children.
 How children learn by participating, vs. learning as an adult that seems like it has to be more structured, school-based.
 How interests change. If you're interested in something as a child, are you interested in the same thing as an adult? How the focus of interests change.

Learning

Why we develop the way we do?
 How do things in our upbringing affect us?
 The mechanisms that our brains use.
 What is your brain capacity? How much of your potential do you use? About .00001%, right?
 Does your brain only have a certain capacity for content, or are there other factors?
 Why do some people value learning?
 Where is the pleasure center for learning?
 Can you learn patience?
 Why are there few people in libraries?
 What's the point of watching repeatedly sports events?

Mind – Alcohol

Alcohol's effects

How does alcohol affect the mind? Both in the short term and long term.
 Why does it affect the body and the mind?
 delays reactions?
 How much quantity of alcohol would affect learning?
 How does it work on lessening inhibitions?
 How does it affect different parts of the brain?
 What's the chemistry?
 Does alcohol really destroy brain cells? How many is destroyed? How many do we begin with? If 10K is that a lot? How many is too much? What is the destruction rate of brain cells from alcohol?
 Is alcohol good for you? Is alcohol good for sleep?
 Is it psychological? I remember seeing studies where people were given non-alcoholic beer and told it was regular beer and they started acting drunk... what's going on there?
 How would humans be different without alcohol (or any kind of mind-altering substance)?

Effects on different people

What does alcohol do to the mind of an adolescent, vs. the mind of an adult?
 Why do different people have different tolerance?
 Why do some people develop addictions and others don't?
 Alcohol has different affects on everybody. There's an overall affect but there are also differences. Like getting tired or aggressive. Why?

Addiction (and recovery)

What creates addiction? How much of addiction is mental?
 Chemical pathways in the brain, especially alcohol receptors.
 Genetic predisposition.
 Is there some sort of protection from the effects of alcohol? Is there something like chemotherapy for the brain damage from alcohol?

Mind's effects

Can the mind counteract the effects of alcohol?

Other Questions

What about other drugs?

Creativity – Active Imagination

How do drugs affect creativity and imagination?

At the brain cell level, what encourages creativity and an active imagination?

Imagination

What's an active imagination?

Why do we imagine things?

Why do some people have active imaginations and others don't?

Creativity

Do we have creativity?

Thinking out of the box - what allows someone to create something new?

What would expand your creativity (other than drugs)?

Can you see creativity in the brain?

What is creativity?

Is goofing off creative?

Artistic tendencies. Is creativity the same as [being] artistic?

Where does creativity stop and insanity begin?

Creativity across people

What makes someone creative?

What determines why one person is more creative?

What ages are we most creative?

Is there an age where you're not as able to be as creative anymore?

Why do the most brilliant things get done by young scientists?

Why do some people stay creative?

Are these instilled in someone? Do they just have it [creativity]? Can it be learned?

How can we nurture creativity better, especially in kids?

Relationship between creativity and active imagination

Are they the same?

Does one imply the other?

Are the two highly linked? Do you need one to have the other?

How they're related. Creativity seems to me to be the production of something from the active imagination. What is it that sparks the production?

Spacing out – Meditation

Are there different ways of relaxing the mind?

How yoga and tai chi come into play. Look at meditation vs. chaotic behavior, how does it calm?

The science of yoga. Human attention span.

Are these controlled practices? Learned?

Meditation

Meditation is a controlled pattern. Is it possible to control your brain patterns?

What effects does meditation have on you?

How does meditation expand your mind?

Lately Eastern philosophy has really almost become trendy here. Is that something that really has an impact on our way of life?

Is there verifiable benefits to spirituality and meditation other than stress reduction?

Does meditation require concentration?

There's a lot of hype about having to go to class and learning mantras. Are there other ways to learn meditation?

Spacing Out

Why do we space out?

What happens when we space out?

Is there a relationship between spacing out and stress?

Is watching TV better than spacing out?

How do you know when someone is spacing out?

Relationship between Spacing Out and Meditation

I meditate and I always wondered if there's a difference between what I do and what I used to do as a kid staring out into space.

Is it like a mental reset to bring back the senses?

What's the neurological difference between the two?

Why would I rather space out than meditate?

Is meditation better than spacing out? Does it have more positive effects on the body?

What is it about meditation that makes it restorative, or have an active body response, versus spacing out, which seems to have a dulling effect?

Why is meditation so much more relaxing than spacing out?

Learning – Laughter

Laughter

How do we know what's funny?
Do we learn to laugh?
What sparks laughter in different people?
Do we laugh because we understand or appreciate humor?
Are there different types of laughter? When does laughter become derision?
What are the chemical affects of laughter?
How does laughter open your mind, or increase your creativity?
What are the quantifiable effects of laughter? Are some forms of laughter healthier than others? Is it better to watch old movies or SNL?

Relationship between learning and laughter

Does laughter encourage or inhibit learning?
How does laughter help state of mind and hence the learning process?
Do children retain more when they learn and laugh as opposed to learning without laughing or having fun?
Do we form better pathways [when we laugh]?
Should laughter be required in learning?

Learning

Do you learn better when you're in a good mood?
Is it fun to learn?
What kinds of learning are more fun than others?
Is learning fun for some and not others?
Why do some people like to learn and others don't?

Brain – Mind

Brain

How does the brain work?
 Can the brain grow?
 What can we do to use more of our brains?
 How does your brain change when you're learning?

Mind

What do we mean by mind?
 How does the mind work?
 Do animals have different minds?

Relationship between Brain and Mind

What's the difference?
 Are they one and the same?
 When does the brain become the mind?
 How is the mind independent of the brain?
 Is the mind in the brain?
 What makes a mind greater, or more individual, than a brain?
 What part of the brain controls what part of the mind? Like what's with the left and right brains?
 Where are other parts that make up the mind? Like nervous systems and hormones and adrenaline.

Identity

What is personality? And how does it develop?
 The physical aspect vs. the more abstract concept of the mind. Which one makes up your entity?
 Uniqueness issue again - boggling that no two [people] are exactly the same.

Soul

Where is the soul?
 Is a brain damaged individual less of a person? Do they have less of a soul?
 The brain is an organ, and the specifics of how it works. The mind is the soul attached to the brain. What turns the brain into a mind is something indescribable. The brain is the machine; the mind is the soul of that machine.

Other Questions

What are thoughts? Where do they come from?
 Do we all start with the same info when we're born? What kind of knowledge do we begin with?
 Why are some people more intelligent? Is it genetic?

Can we read people's minds?

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