

# Visitors' Reflections on their Learning: What's Easy and What's Difficult to Learn?

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# Mind and Learning - Front-End Evaluation

## Visitors' Reflections on their Learning

### What's Easy and What's Difficult to Learn?

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#### **PURPOSE**

This report summarizes the second of a set of front-end studies conducted as part of the Mind and Learning Planning Grant to characterize how visitors describe their own learning. The goal of this particular study is to get a sense of what visitors believe is easy or difficult for them to learn and why.

#### **METHOD**

##### **Data Collection**

Visitor responses were collected over a 2-week period, from 1/13/01 to 1/29/02. Data were collected through a question and answer table that was placed unattended in the prototype area on the Exploratorium floor. A sign above the table encouraged visitors to complete the following sentences:

*It's easy for me to learn ...*

*because ...*

*but it's hard for me to learn ...*

*because...*

in a loose-leaf binder on the question and answer desk. We hoped that this format would encourage a range of visitor responses and would give visitors a chance to reflect.

To provide some guidance for visitor input, we seeded the binder with responses from the Exploratorium staff. Also, three staff responses were posted above the desk to attract attention.

Visitor responses were collected at the end of most days. The original seeds were left in the binder to encourage visitors on subsequent days to contribute.

### Data Corpus

We collected 74 visitor responses. This count does not include non-task related inputs (e.g., “Tania was here”).

### ANALYSIS

An initial coding scheme was developed aimed to capture key commonalities. This coding scheme was then applied to the complete data set and refined to minimize the number of miscellaneous items and to more clearly define and delineate between categories.

### FINDINGS

Visitors described learning about different types of things, which can be broadly categorized as shown in Table 1. Table 1 also provides examples for each category to better illustrate each coding category.

**Table 1. Categories of What Visitors Learn**

Category	Examples
Skill: Visitors mention learning <i>to do</i> something	Doing things Getting along with others Singing Drawing Speaking Language Snowboarding
Academic Subject: Visitors mention learning a topic or subject associated with an academic discipline or course in school	Science Physics Math Probability Geometry Foreign language History
Types of Knowledge: Visitors describe learning knowledge that comes in a certain form	Concepts Stories Facts and trivia Visualized Information Creative and abstract stuff

Analysis of why visitors believed it was easy or difficult to learn suggests five different categories of explanations. These are presented in Table 2.

**Table 2. Categories of Visitors' Explanations for why it is difficult/easy to learn**

Category	Example
<p><i>Subject Matter:</i> Visitors mention that there is something about the subject matter that makes it easy / difficult to learn</p>	<p>It's easy for me to learn <i>Physics</i> because <i>Of it's spacious entirely</i></p> <p>It's easy for me to learn <i>Stories, narratives from books and movies</i> because <i>If there is a point or a joke it's easy to remember details as they relate to the point</i></p> <p>It's hard for me to learn <i>Quantum mechanics</i> because <i>Well c'mon, does anyone know about it really</i></p>
<p><i>Learning Technique:</i> Visitors indicate that a certain learning technique or style makes it easier / more difficult to learn</p>	<p>It's easy for me to learn <i>By doing things / gravity</i> because <i>Hands on is better</i></p> <p>It's easy for me to learn <i>Kinetically</i> because <i>I can experience through see- feel- touch- associate</i></p> <p>It's hard for me to learn <i>Through textbook learning</i> because <i>It's hard for me to visualize a concept I don't know</i></p>
<p><i>Disposition:</i> Visitors write about their 'disposition' to learn in general or learn a particular subject. This category includes instances where the visitors believe they have a <i>talent</i> for learning a subject matter and instances where the visitor mention an <i>affective disposition</i> towards learning</p>	<p>It's easy for me to learn . because <i>I'm smart!</i></p> <p>It's easy for me to learn <i>Drawing</i> because <i>It's my talent</i></p> <p>It's hard for me to learn <i>Math and languages</i> because <i>Boring</i></p>
<p><i>Prior Knowledge:</i> Visitors mention needing or having prior knowledge in a related subject to learn</p>	<p>It's hard for me to learn <i>How a computer works</i> because <i>No experience in this field</i></p> <p>It's easy for me to learn <i>Snowboarding</i> because <i>I already know how to ski</i></p>

<i>No Information:</i> Visitors give no or a circular explanation of why something is easy or hard to learn	It's hard for me to learn Most <i>math</i> because <i>I just don't seem to get it</i>  It's easy for me to learn <i>Spelling</i> because <i>it's easy</i> .
<i>Cannot Determine:</i> Coder could not interpret the visitor's input	It's easy for me to learn <i>Clothing</i> because <i>I look good</i> It's hard for me to learn <i>Facts about places, people, events, things</i> because????

## SUMMARY

Visitors wrote about learning academic subjects (e.g., math), learning to do things (e.g., skiing), and learning *types* of knowledge (e.g. visual information) They gave different types of explanations as to why learning can be easy or difficult: 1) Something about the subject matter makes it easy or difficult to learn. 2) There is a certain learning style or technique (e.g. learn by doing) that they find easy or difficult to use to help them learn. 3) They have or lack a natural ability, or talent, or motivation to learn a subject or skill. 4) They have or lack some other piece of prior knowledge.

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