

**Paving the Way for STEM in History Museums
Constructing a Narrative: Writing about STEM for a Specific Audience**

LEARNING STYLES

Everyone learns in a different way. By exploring diverse learning styles, you can gain a better understanding of how you learn and can discover how other people learn. Your ultimate goal is to reach the broadest possible spectrum of your audience.

-National Docent Symposium Handbook

What are learning styles?

- The way someone learns--how they process, absorb, and retain information
- How someone makes sense of something new
- Can be (and have been) defined and classified in lots of different ways
- Influence not only how someone learns, but how you can and should teach someone to give them the best chance of understanding something

Learning Theories and Theorists:

We have been thinking about how people think for hundreds of years, but really trying to understand how people learn (and especially quantifying it) is newer. Below are highlights of a few theories that have influenced our understanding of the way people learn. None are all-encompassing, and many have limitations or issues, but their context is still important in getting a full sense of how our understanding of learning has changed over time.

Alfred Binet – Intelligence Testing

Asked to create a scale to identify students in need of alternative education, Alfred Binet and his partner Theodore Simon created one of the first scales for measuring intelligence. This scale, the Binet-Simon Scale, is the major basis for today's IQ tests.

Jean Piaget – Stages of Cognitive Development

Though many of the specifics of his theories have since been undermined, Piaget's views of mental development have been hugely influential in educational theory.

Highlights:

- Children cannot undertake certain tasks until they are psychologically mature enough to do so
- Development occurs in stages, rather than a gradual smooth process
- Has been used as basis for scheduling school curriculums



Paving the Way for STEM in History Museums
Constructing a Narrative: Writing about STEM for a Specific Audience

Lev Vygotsky – Social Constructivism and the Zone of Proximal Development

"Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level....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."

Highlights:

- Social interaction plays a fundamental role in the development of cognition.
- The range of skill and development that a child can achieve with adult guidance or peer collaboration is higher than that which can be achieved by that same child alone.

Guilford and Torrance – Measuring Divergent Thinking

J. P. Guilford is considered to be the beginning of the scientific study of creativity, or divergent thinking.

Highlights:

- Test have led not only to ways to measure creativity, but also to ways of defining types of thinking.
- Identifies four types of thinkers: fluid, flexible, original, elaborative
- The National Doцент Symposium Council has used their research to describe the types of questions that different creative thinkers might ask.

Howard Gardner – Multiple Intelligences

"In the heyday of the psychometric and behaviorist eras, it was generally believed that intelligence was a single entity that was inherited; and that human beings - initially a blank slate - could be trained to learn anything, provided that it was presented in an appropriate way. Nowadays an increasing number of researchers believe precisely the opposite; that there exists a multitude of intelligences, quite independent of each other."

Highlights:

- Gardner challenged the long held idea of the definition of intelligence as being too narrow. He proposed at least eight different types of intelligence.
- His first complete statement of these ideas came in the 1983 book *Frames of Mind*.

Visual-Auditory-Kinesthetic

The VAK (or sometimes VARK) learning styles model provides a very easy and quick reference inventory by which to assess people's preferred learning styles, and then most importantly, to design learning methods and experiences that match people's preferences.

Highlights:



Paving the Way for STEM in History Museums
Constructing a Narrative: Writing about STEM for a Specific Audience

- Visual: learn by seeing
- Auditory: learn by hearing
- Read/Write: learn by reading and writing
- Kinesthetic: learn by doing
- Most people have an identifiable dominant style of learning, but almost everyone has at least some sort of blend of these three forms.

David Kolb – Learning Style Inventory

Kolb's learning theory sets out four distinct learning styles (or preferences), which are based on a four-stage learning cycle. (which might also be interpreted as a 'training cycle'). Kolb's model offers both a way to understand individual people's different learning styles, and also an explanation of a cycle of experiential learning that applies to us all.

Highlights:

- Type 1 Learners rely on their senses and feelings.
- Type 2 Learners gather information and then reflect on it.
- Type 3 Learners gather information and are eager to act on it.
- Type 4 Learners act on their senses and feelings and want to teach themselves.