

## The Learning Experience in *The Nature Exchange*

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Science North is a world-class science centre located in Northern Ontario, Canada. One of Science North's most popular exhibit spaces is the trading area called *The Nature Exchange*. This is a unique learning environment that relies on the personal "trading" of *found* natural items and information about them, to motivate interest and understanding about the natural world. It has continuously evolved since 1984 and, during that time, compelling evidence indicates that this experience is fun and richly rewarding. It effectively raises awareness of key issues in the natural world around us and, through personal interaction, changes attitudes and behaviour. How does it work?

### Bring it in and share

Visitors bring their natural collected items into *The Nature Exchange*. Trained staff initiate a discussion with the trader: what the object is, where it came from, why it is special and any other pertinent details. Traders are also encouraged to further their knowledge of their natural items through research in an adjacent resource library.



Children share the delightful findings in *The Nature Exchange*.

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### The Exchange

"Points" are awarded by the staff member based upon a series of criteria. Some of these criteria are based on the ethics of collecting and regional availability, while others are negotiable based upon each trader's enthusiasm, initiative and determination, as well as the following guidelines:

**Information:** What knowledge can you share with us about your item?

**Uniqueness:** What distinguishes your item from other similar items?

**Quality:** What condition is the item in?

Traders can have a direct impact on the value of their exchange. Even the simplest object can be awarded a high point value, if the trader shows initiative. The process of trading provides the necessary motivation. In searching for

things to collect and trade, individuals learn to observe, to ask questions, and to think independently.

## The Account

“Points” can be used immediately or banked in The Nature Exchange computer trading data bank and used for future trading for items in the Exchange’s constantly rotating “collection” of goods.



Some artefacts need a closer look.

## Take It Home

Visitors take their traded items home with them to add to their permanent collections, or bring them back in to trade for other items at a later date.

The learning opportunities provided by *The Nature Exchange* are abundant. According to Alan Nursall, Director of Science Program, Science North, “The best thing about *The Nature Exchange* is that most of the real learning takes

place outside of the centre... where our visitors actually live their lives. Kids, and adults, too, get involved in actively observing, collecting, and studying the world around them. Science North, through *The Nature Exchange*, provides the venue that brings them together. It provides context and feedback, and is an outstanding tool for encouraging scientific behaviour in everyday life.” Anecdotal evidence of the learning experience in *The Nature Exchange* is supported by a recent study, which examined the science centre learning experience more closely.

Learning has been described as “changing through experience....acquiring relatively permanent change in understanding, attitude, knowledge, information, ability and skill through experience” (Wittrock, 1977). In order to better understand the nature of learning and begin to recognise it when it is happening, a recent study was undertaken at both Techniquet, in the UK, and Science North in Canada (Barriault, 1998; 1999). This study investigated the behaviour of visitors as they interacted with exhibits to determine if there were consistent patterns of behaviours that occur which indicate learning is taking place. The investigations were carried out through detailed observation and interviews.

What was discovered is that there seems to be eight discrete learning behaviours that occur as part of the interaction with exhibits, and that these

behaviours can be grouped into three categories that reflect increased interaction and depth of involvement.

### **Initiation behaviours:**

- ◆ Testing out the activity
- ◆ Spending time watching others engaging in the activity
- ◆ Information and assistance offered by staff or other visitors

Above all else, visitors need to “feel safe” about committing themselves to engagement with an activity, especially in a public setting. Initiation behaviours enable them to “test the waters” with minimum personal risk and can be seen as the first step in learning.

### **Transition behaviours:**

- ◆ Repeating the activity
- ◆ Expressing positive emotional responses in reaction to engaging in the activity

Smiles and outbursts of enjoyment along with repetition indicate that a level of comfort has been achieved and that visitors are comfortable, and even eager, to engage themselves more thoroughly in the activity. Regardless of whether the activity is repeated in order to better understand it, to master the functions or to observe different outcomes, the net outcome is a more committed and motivated learning behaviour.

### **Breakthrough behaviours:**

- ◆ Referring to past experiences while engaging in the activity
- ◆ Seeking and sharing information
- ◆ Engaged and involved: testing variables, making comparisons and using information gained from the activity

Each of these behaviours acknowledges the relevance of the activity, and the learning gained from the activity, to the individual’s everyday life. A personal level of comfort has been established that encourages a free flow of ideas and exchanges, and enables real learning to occur.

## **The Learning Behaviours in *The Nature Exchange***

An analysis of the visitor experience in *The Nature Exchange* indicates that visitors rapidly pass through the first two behaviour categories and that high levels of “Breakthrough Behaviours” occur on a regular basis.

- ◆ Visitors involved in trading commonly refer to past experiences when presenting an item for trade, either by mentioning where it had been found or how they discovered its identity. For example, children describing their items to the staff person explain that: “I found a beaver stick when we were camping in French River...” or “I found this in a raspberry patch near my house”.
- ◆ Seeking and sharing information are behaviours that permeate the entire experience, both before and during the visit. Visitors seek information about their trading items before coming to The Nature Exchange and are eager to share this information with the staff person. Information shared ranges from “this rock has a lot of colours” to “this is fluorite...when we scratch it with a metal nail, the hardness test says it’s fluorite”.
- ◆ Engaged and involved is exemplified most profoundly when visitors describe their items, discuss the observations of their item and draw conclusions about their item with the staff person. For example, a young boy pointed out beaver teeth marks on the stick he brought in, while another visitor, trading clam shells explains, “I know that starfish eat them and sea gulls too. They open them and eat them”. The trading activity is very involved, lasting from five to 40 minutes. This level of engagement and motivation indicates a rich learning experience about the natural items brought in by the traders and encourages a commitment to learning outside the science centre and into the home environment.

The success of *The Nature Exchange* as a motivating learning environment has encouraged other centres to open a Nature Exchange of their own. *The Nature Exchange* is being offered by Science North as a turnkey package to other institutions. The Dallas Children’s Zoo has adopted a Nature Exchange with great enthusiasm and success. For more information about *The Nature Exchange*, visit our web site at [www.natureexchange.com](http://www.natureexchange.com).

## References

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