An Enjoyable System for Learning Website Attributes to Foster Children's Information Literacy

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BACKGROUND

Lights and shadows of the Internet
- large amount of and various types of information
- hard to realize risks due to both parties' anonymity
- easy and convenient, but risks need to be determined

Existing techniques to protect children from harmful websites
a) Website filtering
   - just avoid and give no chance to determine whether websites are dangerous or safe
   - enable to produce immunity in harmful websites
b) Educational contents provided by police or schools
   - seem impractical situation
   - enable to understand coping process

MOTIVATION

Problems of using existing techniques
- children cannot live in safe space permanently
- difficult to foster their information literacy
  e.g., scissors are dangerous, but
         - parents explain why they are dangerous
         - children learn how to use

What is real education about information literacy?
- experts should explain why websites are dangerous or safe
- children should access all websites to realize how to prevent traps

OBJECTIVE

Propose enjoyable system for learning website attributes to foster children's information literacy

Ring Retrieval + Risk Rating > filtering, educational contents

System gives chances
- to understanding website features and determining risks
- to foster children's information literacy and improve their decision-making ability

System requirement
- provide website features with various kinds of attributes
- inform websites' risk darkly
- tell children present level of their information literacy
- integrate real websites and educational contents

RING RETRIEVAL

Graphical User Interface
Category ring   line up attribute names
- use for starting searches with attributes
Key ring   line up attribute values
 – search keys derived from the attribute values on bottom part of key rings
 – adjust search keys by rotating key rings
 – range of search keys are in proportion to number of key rings
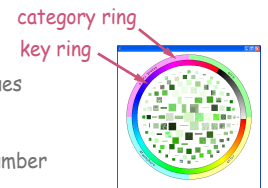 – outer key ring has higher priority

Display retrieved results
- arranged in concentric circles according to search key values and their priorities
 – higher ranked objects are larger and shown closer to center
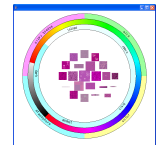 – details are displayed by placing cursor on image

Children can
- use enjoyable and excitely with easy operations and reasonable screen transition
- browse and compare many websites simultaneously
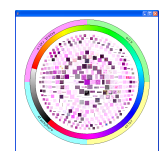- browse websites from various angle and understand their features

"Concentric Ring View"
category ring
key ring

rotate 'color' ring
click 'atmosphere'

RISK RATING

Algorithm
a) link websites with real world
   - Act on Specified Commercial Transactions
   company name, delegate's name, address, phone number, email address
b) link, text and image analysis in websites
   - html structures, writing skill, taboo words, last update, and so on

Children can
- understand risk of websites by themselves
- notice about own level of information literacy

PROTOTYPE

1,200 websites
(safe) 400 from kids' portal site
        400 from general portal site
        200 for over 20 like prize
(risky) 200 warning from police

Five attributes
- action (learn, try, play)
- color（two feature colors）
- atmosphere（pastel tone - dark）
- number of images (small - large)
- life cycle (short - long)

initial screen

add 'action'

"try"
almost sites are safe

rotate 'action' ring

"learn"

rotate 'action' ring

"play"
some sites are risky

add 'color'

"play"+"yellow"

rotate 'color' ring

"play"+"blue"

rotate 'color' ring

"play"+"gray"
various kinds of sites

add 'num of imgs'

"play"+"gray"+"few imgs"
almost safe sites

rotate 'num of imgs' ring

"play"+"gray"+"more imgs"

rotate 'num of imgs' ring

"play"+"gray"+"lots imgs"
almost risky sites