

UNIVERSITY OF  
**Southampton**  
School of Electronics  
and Computer Science

# Trustworthiness Criteria for Supporting Users to Assess the Credibility of Web Information

Jarutas Pattanaphanchai, Kieron O'Hara and Wendy Hall  
13 May 2013

- > About Arthritis
- ✓ Treatment Options
  - Over-the-counter Medications
  - Prescription Medications**
  - More Than Medication
- > Beyond Medication



## Prescription Medications Used to Treat Arthritis Symptoms

Text A A A Share +

Prescription medications are an available treatment option to help manage arthritis symptoms. Talk to your doctor about them to see what may be best for you.

### Acetaminophen

At higher doses, acetaminophen is available only by prescription. As with the over-the-counter version, prescription acetaminophen helps relieve arthritis pain but does not reduce inflammation.

### NonSteroidal Anti-Inflammatory Drugs (NSAIDs)

Prescription NSAIDs are often recommended by doctors to treat arthritis symptoms.

### Narcotic Painkillers

Narcotics relieve pain by targeting pain receptors on nerve cells. But they do not reduce inflammation. Some are prescribed for short-term use because of the potential for physical and psychological dependence.

### Corticosteroids

These anti-inflammatory agents may be injected into the affected joints to temporarily relieve osteoarthritis pain. They are not recommended for more than 2 to 4 treatments per year. These can also be taken orally for the treatment of rheumatoid arthritis.

### Hyaluronic Acid Substitutes

This treatment is approved only for osteoarthritis of the knee. It is given in a series of 3 to 5 injections and is designed to replace the component of the joint involved in the joint's lubrication and nutrition.

### Disease Modifying Anti-Rheumatic Drugs (DMARDs)

Disease modifying anti-rheumatic drugs (DMARDs) have been shown to reduce the signs and symptoms of rheumatoid arthritis as well as slow the progression of the disease. In most cases, once a diagnosis of rheumatoid arthritis is confirmed, a DMARD is started.

Everyone responds differently to medications so only you and your doctor can decide which one is right for you. Talk to your doctor about the right treatment option for you.

**Find out about a prescription NSAID available from Pfizer.**

**LEARN MORE ▶**

> Next: More Than Medication

## Brain Scans Give Clues to Antidepressant's Effects

Brain scans during memory tests might help predict which depressed patients will be helped by a fast-acting drug, a new study reports.

Major depression is marked by feelings of sadness, loss, anger or frustration that can interfere with daily life for many weeks. Symptoms can also include memory loss and trouble focusing.

Most depression-fighting drugs must be taken for several weeks before working, which can cause an agonizing wait for patients. Because different people respond to different medications, patients may need to try several drugs over a month or more before getting symptom relief.

Several years ago, NIH researchers discovered that a drug used to treat motion sickness could also rapidly reduce symptoms of depression. But the drug, called scopolamine, didn't work in all patients.

To try to predict the drug's effects, the researchers used MRI to track brain activity in adults with and without major depression. People with major depression are known to have unique patterns of brain activity when asked to pay attention to the emotional content of images. They also tend to remember negative information (such as sadness) better than positive or neutral information.

The researchers found that scopolamine relieved symptoms in 11 of the 15 participants who had major depression. Scopolamine's effectiveness was linked to activity in a specific brain region when patients were asked to remember the emotions on faces that flashed by. Activity in this same brain region was also altered by infusions of scopolamine.

The findings suggest that activity in this brain region might provide early clues about how well scopolamine will work in different patients. Ongoing studies are exploring how the brain's response to emotional images might help guide treatment strategies for major depression.

Find ANY word

### HEALTH CAPSULES

- [Brain Scans Give Clues to Antidepressant's Effects](#)
- [Living with Low Vision](#)
- [Featured Website: Inside Life Science](#)

### Links

- [Depression](#)
- [Medications for Mental Health Problems](#)
- [Depression \(Age Page\)](#)

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NIH Office of Communications  
and Public Liaison  
Building 31, Room 5B64  
Bethesda, MD 20892-2094  
[nihnnewsinhealth@od.nih.gov](mailto:nihnnewsinhealth@od.nih.gov)  
Tel: 301-435-7489 Fax: 301-480-4026

**Managing Editor:** Harrison Wein, Ph.D.  
**Editor:** Vicki Contie

**Contributors:**  
Vicki Contie, Alan Defibaugh (illustrations), Dana Steinberg and Harrison Wein

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### Latest Research News from NIH



[Chelation Therapy May Help Reduce Cardiovascular Events](#)



[Technique Directs Immune Cells to Target Leukemia](#)

# Problem


- Assessing the quality of information on the Web is a challenging issue:
  - Decentralized data publishing platform.
    - No inherent quality control.
  - Users tend to base their judgments upon arbitrary criteria.
    - Fogg, *et. al* (2003), Princeton Survey research associates (2002), and Wathen and Burkell (2002).

Less trustworthy

**arthritis.com**  
Experience. Knowledge. Options.

> About Arthritis > Treatment Options > Beyond Medication

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# Normative vs Descriptive criteria

Normative	Descriptive
<ul style="list-style-type: none"><li>• The criteria which are advised to use when evaluating information in order to get the best results.</li></ul>	<ul style="list-style-type: none"><li>• The criteria that users <i>actually</i> use when they are interacting with information.</li></ul>
<ul style="list-style-type: none"><li>• Rigorous to support the user in making a critical judgement .</li></ul>	<ul style="list-style-type: none"><li>• Mostly do not reflect the true trustworthiness of the information can be disguised.</li></ul>
<ul style="list-style-type: none"><li>• Studies from Taylor (1986), Rieh <i>et.al.</i> (1998), Tate (2009), and Wathen and Burkell (2002).</li></ul>	<ul style="list-style-type: none"><li>• Studies from Fogg, <i>et. al.</i> (2003), Princeton Survey research associates (2002), and Wathen and Burkell (2002).</li></ul>

# Solution

- We proposed a set of trustworthiness criteria which can be used to support users' assessments.



# Development of the trustworthiness criteria

# Proposed trustworthiness criteria

Criteria	Descriptions
Authority	The author's identification and credentials
Accuracy	The error-free expression of information
Currency	How up-to-date the web information is
Relevance	How well the content meets the user's needs

# A potential set of trustworthiness criteria and components

Criteria	Components
Authority	<ul style="list-style-type: none"><li>- Author's qualification</li><li>- Author's experience</li><li>- Author's contact details</li><li>- Author's affiliation</li><li>- Web address (URL)</li><li>- Author's recognition and reputation</li></ul>
Currency	<ul style="list-style-type: none"><li>- Date of publishing</li><li>- Date of last modification</li></ul>
Accuracy	<ul style="list-style-type: none"><li>- Grammatically correct</li><li>- No typos</li><li>- Editorial process</li><li>- Reliable links</li></ul>
Relevance	<ul style="list-style-type: none"><li>- Title</li><li>- Type of information</li><li>- Literature</li><li>- Number of citations</li><li>- Content</li></ul>

# Validation process of trustworthiness criteria

# Expert validation

- Online questionnaire
- Participants (10 people)
  - Academic researcher (5 people)
    - Research fellows
  - Liaison staff in the library (5 people)
    - Experience in evaluating the credibility of information on the Web in various domains

# Expert validation

- Results analysis
  - Quantitative analysis
    - Wilcoxon signed rank test analysis (non-parametric)
  - Qualitative analysis
    - Thematic analysis

# Quantitative analysis

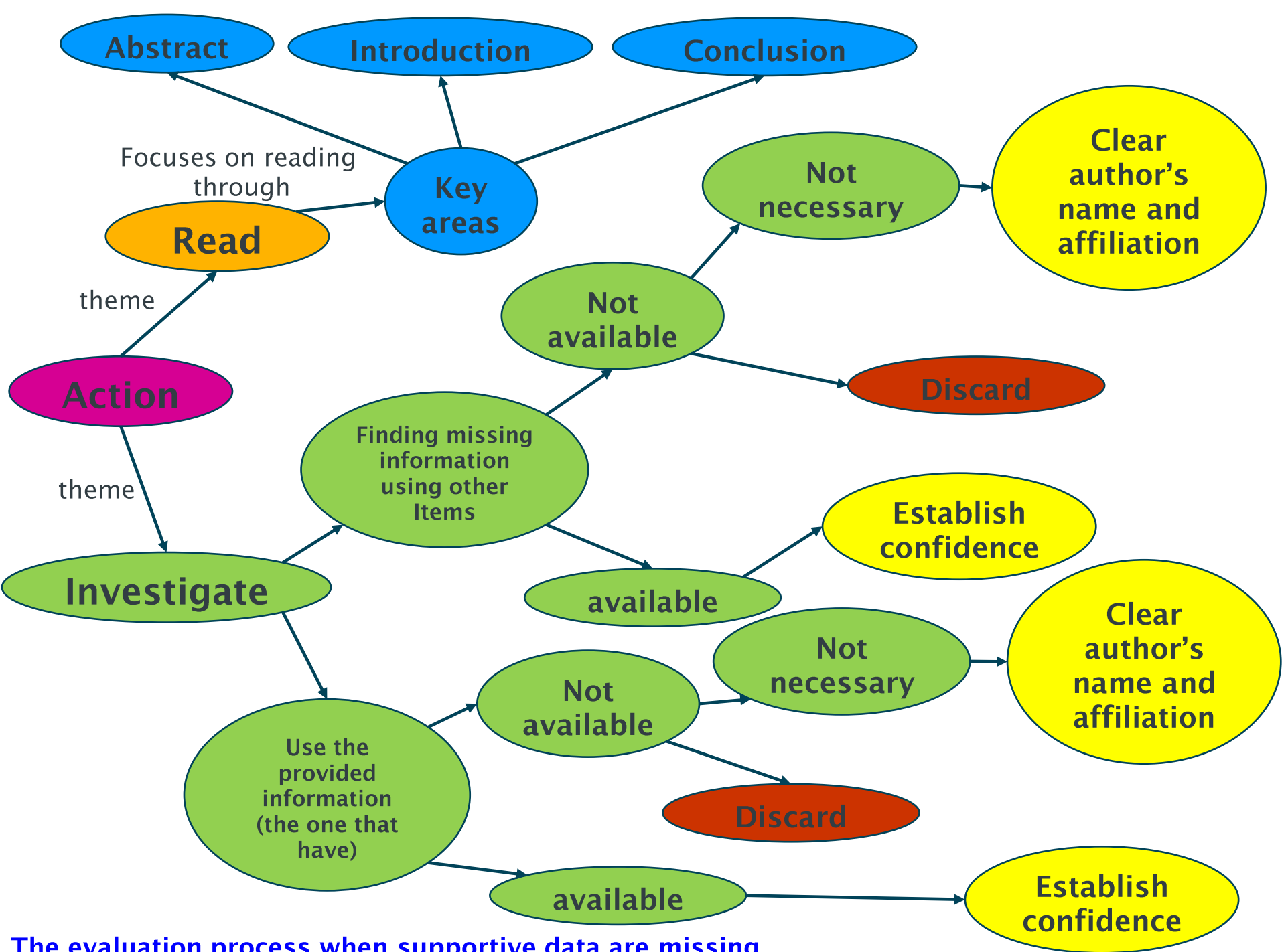
Mid-rating score in questionnaire is 3 (very helpful) with  $\alpha = 0.05$

components	Median from the experts' answers	Z
Author's name	3.00	1.000
Publication date	3.00	0.705
Editorial process (e.g. peer-reviewed)	3.00	0.705
Author's affiliation	3.00	0.655
A list of references	3.00	0.655
Number of citations	3.00	0.317
An overview of the content (e.g. title, abstract)	2.50	0.194
Publication medium	3.00	0.180
Last modification date	2.50	0.160
Author's position	3.00	0.083
Physical address	2.00	0.015
Author's title	2.00	0.010
Detail of author's experience	2.00	0.003



Criteria	Validated components
<b>Authority</b>	<p>The name of the creator (e.g. author's name or organization's name)</p> <p>The creator affiliation</p> <p>The creator's position</p> <p>The creator's title (e.g. Dr or Professor)</p> <p>The physical address of the organization</p> <p>The content of creator's experience</p>
<b>Currency</b>	<p>The publication date of content</p> <p>The last modification date of the content</p>
<b>Accuracy</b>	<p>Information of the editorial process (e.g. peer-reviewed)</p>
<b>Relevance</b>	<p>Number of times that the information has been referenced in the other documents</p> <p>Publication medium (e.g. book, journal, article)</p> <p>An overview of the content (e.g. title, abstract)</p> <p>A list of references</p>

# Qualitative analysis



The evaluation process when supportive data are missing

# Conclusion and future work

- Identifying and providing critical supportive information helps to support the trustworthiness of Web information evaluation
  - Authority, currency, accuracy, and relevance
- We develop a framework for helping a user to evaluate the trustworthiness of Web information using proposed criteria

# QUESTIONS & ANSWERS