Motivation

• Wiki is a server software that allows users to create and edit Web page content using any Web browser. Wiki supports hyperlinks and has a simple text syntax for creating new pages and cross links between pages on the fly.

• Despite their popularity, little is known about factors that foster or discourage adoption of this technology (Ives et al., 2005)
Motivation

- Provide a foundation for later and more comprehensive studies of wiki and technology adoption in general
- Use of Structural Equation Modeling (SEM) as a method for understanding technology adoption, still growing in the IS field.

Research Question

Do training, perceptions of critical mass and complexity have a significant effect on intention to adopt wikis?
Hypotheses

- H1: PU has a positive impact on users’ intention to adopt wikis.
- H2: PEOU has a positive impact on users’ intention to adopt wikis.
- H3: Perception of Complexity has a negative impact on Perceived Ease of Use, influencing users’ intention to adopt wikis.
- H4: Perception of Complexity has a direct negative impact on users’ intention to adopt wikis.
- H5: Training on how to use wikis has a positive impact on Perceived Ease of Use of wikis.
- H6: Perceptions of critical mass (PCM) have significant positive effect on Perceived Ease of Use of wikis.
- H7: PCM have a significant direct influence on users’ intention to adopt wikis.

Method

- Task
  - Participants worked together populating a wiki for academic purposes
    - First: subjects were required to write at least five questions from a chapter or topic from the textbook
    - Second: participants were asked to edit questions from other chapters, improving language, choices, clarity, meaning and level of difficulty.
Method

- Task (continued)
  - Third: Participants were required to repeat stages 1 and 2 again, making them focus on the way users post and retrieve content.

Results

- Participants
  - 456 undergraduate students were asked to participate in this study.
  - Fewer than 300 turned in the questionnaire. Much higher than the 80+ participants reported in group system studies (Fjermestad and Hiltz, 1998).
  - After a list-wise deletion process to remove partial responses and missing data, 269 were considered for this analysis.
Hypothesis Testing

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Estimate</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>PU -&gt; IU</td>
<td>0.372</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>H2</td>
<td>PEOU -&gt; IU</td>
<td>0.376</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>H3</td>
<td>COMP -&gt; PEOU</td>
<td>-0.892</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>H4</td>
<td>COMP -&gt; IU</td>
<td>-0.240</td>
<td>0.255</td>
</tr>
<tr>
<td>H6</td>
<td>PCM -&gt; PEOU</td>
<td>0.082</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>H7</td>
<td>PCM -&gt; IU</td>
<td>0.462</td>
<td>&lt; .01</td>
</tr>
</tbody>
</table>

Overall variance in IU explained by the model: 0.648
Hypothesis Testing

<table>
<thead>
<tr>
<th>Construct</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
<th>Total Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM</td>
<td>0.545</td>
<td>0.036</td>
<td>0.581</td>
</tr>
<tr>
<td>COMP</td>
<td>-0.17</td>
<td>-0.237</td>
<td>-0.407</td>
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<tr>
<td>PEOU</td>
<td>0.301</td>
<td></td>
<td>0.301</td>
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<tr>
<td>PU</td>
<td>0.326</td>
<td></td>
<td>0.326</td>
</tr>
</tbody>
</table>

Discussion

- H1 and H2 were supported at $p < .05$
  - TAM applies to wikis
  - No surprise, given the extensive previous research on TAM
  - But it is a surprise! $R^2$ was ~65%
  - Editing wikis is a relatively new exercise for most people, which may lead users to believe that novelty artifacts that are easy to use can be adopted easier.
Discussion

• Complexity
  ◦ Strong negative correlation between COMP and PEOU – the highest reported in this study
    • Higher complexity means lower ease of use
  ◦ However, Complexity didn’t have a significant effect on IU

• Complexity (cont…)
  ◦ Two complexity factors:
    • Wiki size: as the wiki grew, it became harder to find relevant information and make meaningful contributions
    • Wiki interface: as content grew, so did links and pages and navigation became cumbersome
      • “There was no undo button. Many times I wrote something, but I accidentally deleted it, and I was not able to go back.”
      • “In the beginning, it was unclear where to post our work, which was aggravating. Also, other people changing my work to sound worse than my original did was a negative.”
Discussion

• Complexity (cont…)
  ◦ Users inadvertently erased previous posts partially, even completely
    • “…When I clicked the chapter 7, which I majorly contributed to, all the content was gone and was replaced with this message, "whoo hoo! what happened here?" All the hard work people put into contributing the the chapter 7 (...) is gone. Do we have to write summaries all over again?”

• Perceived Critical Mass
  ◦ Positive impact on IU
    • Adoption is influenced by whether or not the tool is used by other peers
    • Awareness of participation seems more important than just knowing about the technology
  ◦ Positive impact on PEOU
    • Widespread use of technology lead users to believe it’s easy to use, in spite of the fact that many consider this tool complex to use
Discussion

- Perceived Critical Mass
  - Positive impact on PEOU
    - Collective adoption portrays the impression of ease of use
    - Value of wikis increase with the number of people that use it
    - When many people use the technology, they become confident about it. Thus a significant correlation between PCM and PEOU

Discussion

- Perceived Critical Mass
  - Positive impact on PEOU
    - The more people contribute to the site, the more useful and interesting it turns, thus attracting more users and contributors. This turns into better PEOU and IU
Conclusion

- Achieving a critical mass of active users and not just readers should be a top priority if the wiki is to be successful.

- Initial set of users may prove critical in attracting more users to the platform
  - Easier in educational environments: many students were truly interested in using the wiki regardless of extra credit

Conclusion

- Complexity may not necessarily be threat to wikis if handled properly
  - The organic structure makes wikis complex apparatus
  - At the same time, wikis make it really easy to create web pages without technical knowledge
  - Doing the same thing coding HTML would have been extremely complicated and impractical
Conclusion

• In academia, students do benefit from wikis…
• But so do instructors!
  ◦ Possibility to see the evolution of a written assignment
  ◦ Tracking and streamlining group projects
  ◦ Knowledge base for instructors, due to searchable capabilities and categorization

Conclusion

• In organizational environments
  ◦ Wikis as knowledge repositories –depending on context and particular needs
  ◦ In some cases, wikis may be perceived less complex than similar artifacts while serving the same purpose
Questions?
Thank you!