Can Users Estimate Their Usage of a Web-Based Application?
Validating a Self-Report Usage Questionnaire

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ABSTRACT
User surveys are often used to estimate usage of online systems. We asked medical student to estimate their weekly use of KnowledgeMap, an online medical education system, during the previous semester. The information was validated against server log files. The average number of log-on days was significantly different across four categories of self-reported use. Self-reported frequency scales may be used to correctly segregate users into discrete ordinal usage groups.

INTRODUCTION
KnowledgeMap (KM) is an online system that allows medical students to browse and search documents from medical curriculum. A pilot study of KM was conducted during the Fall of 2002 in the first year anatomy course at Vanderbilt Medical School. Other investigators have questioned the validity of user surveys in estimating server usage.[1]

METHODS
At the end of the fall semester, the medical students were asked to complete an evaluation questionnaire in which they were asked to estimate their usage of KM. The five choices are shown in Table 1. The students were asked to optionally provide their user ID. For each user, the number of log-on days was obtained from the server log file and combined with the survey result.

RESULTS
Of 81 participants, 73 students provided their user ID. The results are displayed in table 1. The means across the five categories were compared using the Kruskall-Wallis test (Unequal Variances). All means were found to be pair-wise significantly different except for the pair marked with an asterisk.

CONCLUSION
The self-reported frequency scale shown in Figure 1 is a valid method to statistically segregate students into four ordinal categories of use.

REFERENCES

Table 1 – The average number of unique log-on days for each response category

<table>
<thead>
<tr>
<th>“Never”</th>
<th>“&lt; Once Per 2 Weeks”</th>
<th>“&lt; Once Per 1 Week”</th>
<th>“1 – 5 Times Per Week”</th>
<th>“&gt; 5 Times Per Week”</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=5</td>
<td>N=18</td>
<td>N=16</td>
<td>N=30</td>
<td>N=12</td>
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<tr>
<td>0.25</td>
<td>5.44</td>
<td>10.9</td>
<td>18.8</td>
<td>30.2</td>
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<td>7.97</td>
<td></td>
<td>18.8</td>
<td>30.2</td>
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</tbody>
</table>

* The only pair that is not significantly different (Mann-Whitney Method)