Anytime & Anywhere

Mobile learning and Student Engagement in Online courses

Presenter, Dr. Sarah Nichter
Overview

• Context of the study
• Key terms
• Research questions
• Key Findings
• Interpretation
• Questions and discussion
What assumptions do you have about students and mobile devices?
Context of the Study

• Investigating the possible impact of mobile learning use on students’ engagement levels/behaviors and levels of success
• Online undergraduate students, at one private college; online only population (pop.1,776)
• Online classes structured by 8-week bi-terms; 2 bi-terms in one semester
• OSLQ survey instrument
• Participation was by self-selection and occurred the first 3 weeks of March 2020
**Mobile Learning** - situationally based on the mobility of learners and learning contexts, allowing for fluidity of personal learning in time, content, and context, and mediated through technology (El-Hussein & Cronje, 2010; Sharples, Taylor, & Vavoula, 2016)

**Engagement** - “the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes” (Hu & Kuh, 2001, p.3)

**Self-Regulated Learning** - “the self-directive process through which learners transform their mental abilities into task-related academic skills. ... The key issue defining learning as self-regulated is not whether it is socially isolated, but rather whether the learner displays personal initiative, perseverance, and adaptive skill in pursuing it” (Zimmerman, 2001)
**Research Questions**

**RQ1:** What impact does mobile learning have on student engagement in an online class?

**RQ2:** What is the extent of the impact of mobile learning on Self-Regulated Learning constructs?

**RQ3:** How does mobile learning affect student success online?
The initial plan was to compare non-mobile learning users with mobile learning (ML) users.

However…. Only 22 of 162 reported not using a mobile device, and they were evenly distributed by level of frequency.

<table>
<thead>
<tr>
<th>Mobile Learning Group Membership by Level of Mobile Use</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3 times weekly</td>
<td>70</td>
<td>43.2</td>
</tr>
<tr>
<td>4-8 times weekly</td>
<td>55</td>
<td>34.0</td>
</tr>
<tr>
<td>9 or more times weekly</td>
<td>37</td>
<td>22.8</td>
</tr>
<tr>
<td>Total</td>
<td>162</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participants compared to population by age</th>
<th>Participants</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Range</td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>18-25</td>
<td>24.7</td>
<td>24.2</td>
</tr>
<tr>
<td>26-35</td>
<td>36.4</td>
<td>37.5</td>
</tr>
<tr>
<td>36-45</td>
<td>26.5</td>
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<td>46-55</td>
<td>11.1</td>
<td>12.2</td>
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<tr>
<td>55+</td>
<td>1.2</td>
<td>3.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
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</table>
RQ: What impact does Mobile Learning have on student engagement in an online class?

The overall model (one-way ANOVA) was significant with a small effect size.

\[(F(2, 159) = 6.570, p = .002, d = .275)\]

A between groups analysis was run to determine where the significance was.

The variation between “low” and “high” groups was significant \((p = .001)\) with a large effect size \((d = .719)\)
Environment structuring, task strategies management, and time management were identified from research as potentially significant. The variation among the levels of Mobile Learning use was only significant for task strategies management and time management.

Task strategies had significance between the “low” and “high” groups and the “moderate” and “high” groups. Time management had significance between the “low” and “high” groups only.

RQ: What is the impact of Mobile Learning on Self-Regulated Learning constructs
Comparison of levels of engagement using two constructs of Self-Regulated Learning by levels of Mobile Learning use.
RQ: How does mobile learning affect student success online?

**Course Grade**: Chi-Square Crosstab analysis was not significant
\( (\chi^2 = 8.553, \ df (10), p = 0.575) \)

**Persistence**: Chi-Square Crosstab analysis was not significant
\( (\chi^2 = 12.786, \ df (10), p = 0.236) \)

Student success was measured by course grade and persistence to the next bi-term.

Lack of variation – the majority of the population earned A and B grades and were actively enrolled in the next bi-term.
What might this all mean?

Your interpretation?
Environmental structuring may be important, if not statistically significant. All students in the sample engaged in environment structuring more than task management or time management.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval for Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
<td>Upper Bound</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>70</td>
<td>16.96</td>
<td>2.590</td>
<td>.310</td>
<td>16.34</td>
<td>17.57</td>
<td>12</td>
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<tr>
<td>Moderate</td>
<td>55</td>
<td>17.31</td>
<td>2.340</td>
<td>.316</td>
<td>16.68</td>
<td>17.94</td>
<td>12</td>
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<tr>
<td>High</td>
<td>37</td>
<td>17.62</td>
<td>2.639</td>
<td>.434</td>
<td>16.74</td>
<td>18.50</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>162</td>
<td>17.23</td>
<td>2.518</td>
<td>.198</td>
<td>16.84</td>
<td>17.62</td>
<td>8</td>
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</table>
Task strategies and time management were used the most by students in the “high” level of mobile learning use. Could this also indicate that Mobile Learning itself may be a Self-Regulated Learning tactic.

Examples of Task Strategies: taking more thorough notes, working extra problems, and reading aloud to increase focus and concentration.

Examples of Time Management: study at the same time each day, engaging in the class at the same time, allotting extra time for study, and spacing out study time across days.
What mode of access tells us:

The students in the sample were evenly distributed across the levels of Mobile Learning use.

- Even students in the “low” group earned higher achieving grades
- All levels engaged in environment structuring more
- Possibly restricted by course type/structure

What it doesn’t tell us:

- How often the students used another mode of access
- Choice v. necessity
Limitations & future research

Sample size – affecting coverage of students who engaged less; lack of variation in course grades

Timing – underperforming students may be demotivated to participate

What I wished I asked – grade checking frequency, if mobile was the only access or additional access

• Repeat the study to increase sample size and coverage; to increase knowledge of Mobile Learning

• Need for mobile friendly design

• Develop mobile teaching pedagogy

• Preparing students beginning with orientation
What might this mean at your institution?

Questions? Comments?
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