CAN MOBILE LEARNING ENHANCE NURSING PRACTICE EDUCATION?

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The Promise of M-Learning

- Focus on knowledge that is location & situation dependent.
- Fits a learner-centric, Constructivist view of learning.
- Supports more situated, experiential learning, contextualized within specific domains.
- Delivers discourse in real time to wherever participants are.
Purpose of the Presentation

- Context of nursing practice education and the promise of m-learning
- Main findings from Stage 2 of Spring 2007 formative evaluation study
- Future directions - m-learning and nursing practice education
M-Learning in Health Care & Nursing: Review of Literature

- Use has “exploded”. (Cahoon, 2002)
- 1/3 of Canadian physicians using PDAs. (George, 2005)
- Medical use relates to pharmacology, research on drugs, dosages & calculations.
- Issues of confidentiality.
Benefits

- Quick access to current drug databases.
- The ability to manage patient & procedural information.
- Patient health management.
- Improved team communication.
Barriers

- Risks of storing confidential information.
- Cost & ease of loss or damage to PDA.
- Not enough research on use in nursing.
- Difficult to read.
- Slow data entry.
- Difficult to understand.
Reasons to Recommend (Park, 2006)

- **Safety**
  - Decrease in medication errors
  - Safer than memory
  - Security blanket

- **Portability**
  - Lighter to carry than textbooks
  - Aids mobility

- **Organization**
  - Concise & easy to transport
  - Edit & highlight most important information
  - Add personal notes
Reasons to Recommend (Park, 2006)

- **Access to Resources**
  - Valuable with right software
  - Information available is immense & valuable
  - Up-to-date information
  - Back-up quick reference

- **Decision-making**
  - Use to explore options with client

- **Convenience**
  - Convenient useful tool

- **Image**
  - Way of the future
  - Looks professional
Barriers to Use (Park 2006)

- Cost
- Lack of knowledge about technology & software
- Difficult to set up
- No time to learn
- Confidentiality issues
- Technology failures (batteries die)
- Loss of personal touch
- Aren’t necessary
- Don’t teach you to be a Nurse Practitioner
Koole FRAME Model
(Framework for the Rational Analysis of Mobile Education)
Context for Nursing Practice Education

Practice Environment
• Changes in health care
• Models of teaching

Social Context of Practice
• Workloads
• Preceptor burnout
• Non-nurse field guides
• ↑ Student Isolation

Student practice
• Safety to practice
• Theory/evidence-informed practice

Students

Access to technology
Access to resources

Development of Informatics knowledge, attitudes, skills

Peer-to-peer and instructor connectivity
online connectivity
Evaluation Questions

- Can the use of mobile devices be implemented and sustained in independent nursing practice education settings?
- Will nursing students and instructors find the use of mobile devices to be appealing and comfortable in real life instructional settings?
- Is the use of mobile devices feasible and practical in nursing practice education settings?
Vancouver Island, British Columbia

North Island College
Courtenay, Vancouver Island
Study Design - Stage 2

- Field trial in 5 week class - Nursing 357.
- 2 groups: mobile learning (12) and comparison (5).
- Pre-study demographics survey.
- Post-survey of student use.
- 8 Semi-structured interviews (6 mobile group; 2 instructors).
### Question 1: Demographics

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Stage 2 (N=19)</th>
<th>Level of Comfort (Before)</th>
<th>Desktop</th>
<th>Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 25</td>
<td>4</td>
<td>Very uncomfortable</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26 - 29</td>
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<td>Somewhat uncomfortable</td>
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<td>30 - 39</td>
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<td>Somewhat comfortable</td>
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<td>40 - 49</td>
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<td>Very comfortable</td>
<td>11</td>
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</table>
Question 1: Learning the Mobile Device Features

<table>
<thead>
<tr>
<th>Application</th>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Relatively easy</th>
<th>Easy</th>
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<tr>
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<td>0</td>
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<td>5</td>
</tr>
<tr>
<td>Browse Internet</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Text message</td>
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<td>3</td>
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<tr>
<td>Audio message</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Pocket Word</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Drug software</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>
Question 1: Learning the Mobile Device Features

- Two hour orientation to devices
- One hour to learn application on own (78%)
- Minimal use of GPRS to download data
- Lacked sufficient time to learn devices
- Ownership of the devices needed for investment of time
Question 2: Appeal & Comfort

- Nursing software most used
- Easy to learn familiar programs
- Portable, but heavy for uniforms
- Screen size acceptable for mobile apps
- Screen size small for full word processing & web browsing
- Difficult to use GPRS connectivity
- Unable to access WebCT
### Question 3: Usefulness for Completing Learning Activities

<table>
<thead>
<tr>
<th>Application</th>
<th>Useless</th>
<th>Rarely Useful</th>
<th>Sometimes Useful</th>
<th>Frequently Useful</th>
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</thead>
<tbody>
<tr>
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<td>Text message</td>
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<td>8</td>
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<td>Drug software</td>
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<td>2</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
### Question 3: Use for Communication

<table>
<thead>
<tr>
<th>N=12</th>
<th>With Instructors</th>
<th>With Fellow Students</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2X or less</td>
<td>&gt; 2X</td>
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<td><strong>Cell phone</strong></td>
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<tr>
<td><strong>Email</strong></td>
<td>11</td>
<td>1</td>
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<tr>
<td><strong>Text Message</strong></td>
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<td>2</td>
</tr>
<tr>
<td><strong>Audio Message</strong></td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>
Conclusions

Q1 - Mobile devices implemented & sustained in nursing practice education?
Yes - comfortable; find easy to learn.
Issues: features not employed – GPRS; availability & cost of connectivity; personal ownership NB; adequate time to learn.

Q2 - Mobile devices appealing & comfortable in real life instruction?
Comfort varies with past experience & orientation; portable; screen size acceptable for mobile apps.
Issues: uncomfortable with uniforms; screen small for non formatted applications.

Q3 - Mobile devices feasible & practical in nursing practice education?
Resource software useful; familiar programs employed.
Issues: longer orientation; interactivity & communications aspects limited & need further validation.
Future Directions – Nursing Practice Education

- Instructor presence at the point-of-care with indirect supervision models

“Even my students that didn’t have devices, I’ve told them when I’m out in practice, if they need anything, to call me on the device and I’ll have it on and they can leave a message if I’m visiting with other students, and I’ve had a few students call me on it. Which to me says, you know, I need a method of them being able to contact me when I’m out on the road”.

- Preceptor development & inclusion in use of technology
Future Directions – Nursing Practice Education

- Independence of critical thinking & autonomy of practice

“Because in community they... well the nurses... if I’m there, they’ll define everything for me”.

“I’m sure... I mean I can totally see in the hospital how it would be really very valuable having that right beside you at the bedside. I mean I guess I don’t see it as valuable because I didn’t need to access information right on the spot and use it when I was in clients’ home when we went on home visits and stuff like that. Because the information that they give people, it’s all in pre-packaged, kind of a package that we give people for home visits, for baby visits and stuff. And anything that we’re needing to record there, it has their preset type of sheet that they have”.
Future Directions – Nursing Practice Education

- Culture shifts in practice regarding technology supported student practice

“I mean I remember a few times I was out in the field with the nurses and… they’d be wondering things so… actually I did look up some medications once in a while but it wasn’t while I was with clients”.

Considerations for Future Research

- Early Orientation
- Time to learn, time to explore before course

“I feel a little bad that only in the last couple of weeks I just started getting into it more. I think I was really quite overwhelmed with everything else, getting started, and it was really busy where I was... so it took a little bit more to start learning things.”
Considerations for Future Research

- Integrated use of devices in course

“Because I didn’t have to use it, I just went the path of least resistance… I just did it the way I knew how to do it rather than kind of go OK I can use the PDA and learn at the same time”
Considerations for Future Research

- Mobile appropriate learning activities
  - What can m-technologies help us to do that we could not otherwise do?
  - m-learning activities must be integral to how students and instructors practice and who they are as professionals
  - What is the pedagogical potential of m-learning in real-time, at the point-of-care?
Considerations for Future Research

- Exploring the theoretical basis for m-learning
  - Frame Model (Koole, 2005; 2008)
  - Applicability of Community of Inquiry Model (Garrison, Anderson & Archer, 2001) for m-learning environments
  - Mobile Enhanced Practice Education Model (Parks, Van Neste-Kenny, Burton & Meiers, 2008)
We welcome your questions, ideas, comments

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