Exploring Smart Applications for Effective Mobile-Assisted Language Learning

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Problems to explore

“Are they effective from L2 perspectives?”

“What is an effective design like for mobile-assisted learning?”
Purpose of the study

1. To provide extensive, updated information regarding currently available ESL mobile applications.
   - the overall patterns of common and distinctive features of ESL mobile apps;
   - the details of these features and functions regarding effectiveness on specific language skills.

2. To find out the strengths and weaknesses of current ESL learning apps from a pedagogical and technological perspective.

3. To suggest the directions which might lead toward effective development of future MALL.

Research Questions

• What are the common and distinctive features of ESL smart applications appeared from analysis?

• What are the strengths and weaknesses in utilizing present ESL smart applications for effective MALL?
What is Effective MALL?

CALL? or MALL?

Some unique features distinguish MALL from other types of computer-based learning. The success of MALL depends on whether or not MALL curriculum and material developers understand the nature of mobile learning and make the most effective use of MALL technology. (Kukulska-Hulme & Shield, 2008).

Anytime and anywhere

Mobility

Mobility of Technology
- smartphone, digital cameras, hand-held computer (e.g., tablet PC, PDA), GPS, other mobile devices (e.g., iPad)

Mobility of Learning
- personalized, learner-centered, situated, collaborative, ubiquitous, lifelong
- knowledge reconstruction based on social trust in social process

Mobility of Learner
- engaged in flexible, accessible, and personalized learning activities.
- can develop sense of individuality, community, and ubiquitousness in learning.

Summarized by previous studies (El-Hussein and Cronje, 2010; Kukulska-Hulme, 2007; 2009; Sharples, 2006; Sharples, Taylor & Vavoula, 2005; Ting, 2005; Traxler 2007)
What is Effective MALL?

- Effective MALL enables students to **more easily and more promptly access** language learning materials and communicate with people at anytime, from anywhere.

- Effective MALL facilitates students’ participation in both **collaborative and individualized** language learning activities synchronously and/or asynchronously allowing rapid development of language skills.

- Effective MALL provides various resources and tools for language learning that encourage learners to be **more motivated, autonomous, situated** (site-specific/field-dependent), and socially interactive.

Evaluation Framework of Mobile Apps


1. **Content/Design Target**
   - intended users’ profile and their learning
   - Hubbard’s ‘Learner fit’
   - target learners, content, learning styles and strategies were analyzed from L2 learners’ perspectives.

2. **Procedure & Approach**
   - activities, focus, and methodological approaches
   - Hubbard's 'Activities' and 'Teacher fit'.

3. **Technological Features**
   - Platform, multimedia, and exploitation of computer potential.
   - Web 2.0 technology and currently available platforms
Analytical Framework of MALL

1. Content/Design Target
   - Target Learners
     - age (children, young adult, adult)
     - interest (general, ESP)
     - proficiency level (beginner, intermediate, advanced)
   - Content
     - topic
     - organization
     - content size (number of units, topics, sentences, words, etc)
   - Learning styles
     - recognition, recall, comprehension, experiential learning etc.
   - Learning strategies
     - field-dependent/independent, deductive/inductive reasoning, collaborative/individual etc.

2. Procedure & Approach (Pedagogy and SLA)
   - Activities
     - Instructional (tutorials, drills, text/voice reconstruction)
     - Individual (test, quiz, game)
     - Facilitative (dictionary, database, verb conjugator, spell/grammar checker, pronunciation
   - Focus
     - Linguistic focus (discourse, lexis, grammar, spelling, pronunciation)
     - Language skill focus (reading, listening, writing, speaking)
     - Sociolinguistic focus (form/meaning focused, information gathering, authentic tasks)
   - Methodological approaches
     - Audio-lingual, situated, task-based, structural etc
### Analytical Framework of MALL

#### Technological Features

- **Multimedia**
  - videos/ graphics/ Sound/ Music/ Resolution Size
- **Exploitation of mobile potential**
  - Other functions
    - memo pad, voice recording, speech synthesizing, speech/text recognition
  - Web 2.0 features (SNS, wiki, blog, podcasting etc.)

### Mobile Apps to review

- 87 applications were filtered out from 499 apps found using the keyword, ‘ESL’.
- the applications targeted at learners of specific languages were excluded
- only one application was selected out of the multiple versions of one company

<table>
<thead>
<tr>
<th>Focused Skills</th>
<th>Number of Applications</th>
<th>Mean Percentage</th>
<th>Paid</th>
<th>Free</th>
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</thead>
<tbody>
<tr>
<td>Vocabulary</td>
<td>37</td>
<td>42.5</td>
<td>23</td>
<td>14</td>
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<tr>
<td>Grammar</td>
<td>11</td>
<td>12.6</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Listening</td>
<td>10</td>
<td>11.4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Reading</td>
<td>15</td>
<td>17.4</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Speaking</td>
<td>8</td>
<td>9.1</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Writing</td>
<td>5</td>
<td>5.7</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>87</strong></td>
<td><strong>100</strong></td>
<td><strong>59</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>
Review Procedure

• ‘judgmental’ analysis of software evaluation.

“the judgmental analysis should examine characteristics of the software and task in terms of criteria drawn from research on SLA”

(Chapelle, 2001, p. 54)

• The criteria of selecting applications
The applications should 1) be designed for ESL only, 2) be written in English only, 3) include some instruction devices (tutorial, scaffolding or direct instruction)

The data were analyzed both quantitatively and qualitatively

1) Divided applications into six language learning areas
2) Coded qualitative features of applications in MS Excel with systematic and easily assessable log
3) reviewed the logs by alternatively going over the data between two sheets to compare and contrast them with other skill areas.
4) For general pattern finding across the skills, the analyzed data were integrated, repeatedly reviewed, and counted in the three major themes, ‘Content/Design Target,’ ‘Procedures and Approaches,’ and ‘Technological Features.’
5) Decision Tree Analysis (DTA, Han & Kamber, 2001) was used for knowledge discovery or data mining.
6) For descriptive statistical results, the researcher used automatic formula or ‘find word’ in MS Excel to calculate the total numbers and the percent rates.
Results: Overall Features

Content/Design Target

- Target Users

  - The target users of the applications are mostly adults or young adults (81%). Only 19% of selected applications were designed for children.
  
  - The assumed proficiency level varies from beginning (22%), intermediate (47%), to advanced (30%).
  
  - The target users are considered to have general interest in learning English.

Content and Learning Styles

  - The organization and study features have distinctive patterns according to the target language skills.
  
  - Most of the apps require cognitive learning style such as learning styles of recognition (31%), recall (29%), comprehension (31%), rather than socio-cognitive (ex. experiential learning (12%).
Results: Overall Features

(2) Procedure & Approach (Pedagogy and SLA)

Activities

'not well developed' and also 'traditional'

- Almost the half of the apps offer listed language data only, no instruction. The instructions of the other half are nearly teacher-directed such as tutorials (75%) or drills (40%). Only 18% of them are learners' own reconstruction of text or voice.
- 41% include individual activities such as games or tests.
- Good scaffolding devices for independent learning such as word dictionaries, spell checkers, hyperlink, pronunciation, etc.

Focus

- The major focus is words. 55% have activities for vocabulary learning. The other language skills in the list are reading (15), grammar (11), listening (10), speaking (8), and writing (5)
- More on receptive language skills than productive ones.
- More form-focused short language information than culture (15%) or authentic context (9%) were not much highlighted.
Results: Overall Features

2. Procedure & Approach (Pedagogy and SLA)

- L2 Methodological Approaches

- The most frequently employed approaches are task-based (28) (mostly cognitive tasks such as problem-solving) and audio-lingual (27), situational (6), or structural (6) approaches have been also taken.

3. Technological Features

- Multimedia, Web 2.0, and Other functions

- The most frequently employed multimedia feature was sound and video. Most of the apps include the connection to SNS, but with no specific study purpose.

- Recent mobile technologies such as speech recognition or text recognition, or other web 2.0 tools, were not embedded, or embedded without much consideration of MALL.
Further Analysis of ESL Apps by language skills

(1) Vocabulary

1. General Learning Features
   - young adult learners for general purposes
   - organization: target word, definition, example sentences
   - learning style: recognition, comprehension

2. L2 approaches and Methodological concerns
   - individual (test, quiz) and facilitative (audio file, data base) activities
   - focus on lexis, spelling, and pronunciation
   - No contextualized word instruction

3. Technological Features
   - able to edit words on the list
   - Able to control setting
(1) Vocabulary: Smart Words

- Random smart words
- Index of smart words
- Words with definition, synonyms and example sentences
- British and American version of pronunciation
- Easy to flip words

(2) Grammar

1. General Learning Features
   - intermediate-level young learners
   - diverse grammar topics provided with test/quiz and text-based grammar instructions
   - learning style: recognition+reconstruction, comprehension, comprehension+experiential learning

2. L2 approaches and Methodological concerns
   - activities: instructional (tutorial/ drills), individual (test/quiz), facilitative
     (verb conjugator, database, pronunciation)
   - Grammatical rules only. Mostly no further reading

3. Technological Features
   - memo pad, voice recording, sound
(2) Grammar: Grammar A to Z

- Placement Test
- Grammar within context
- Audio files/voice recorder
- Text-based grammar instruction
- Quizzes
- Pronunciation practice
- L2 dictionary

(3) Listening

1. General Learning Features
   - intermediate-level young learners with general interest
   - diverse listening content with subtitle or transcript
   - learning style: comprehension, recognition

2. L2 approaches and Methodological concerns
   - able to practice pronunciation of words, sentences, and discourse
   - meaning-focused with comprehension questions followed by listening contents
   - authentic contents integrated with L2 language culture
   - able to practice listening and reading at the same time
   - Some are based on audio-lingual method

3. Technological Features
   - authentic audio file provided
   - able to control setup of audio files
(3) Listening: One touch listening clinic

- Learn-Review
- Primitive-Intermediate-Complex
- Able to choose contents from the list
- Scrambled sentence
- Save contents (Review) for further studies

(4) Reading

1. General Learning Features
   - all types of learners with general interest of all proficiency level
   - reading passage or e-book provided with quiz or test

2. L2 approaches and Methodological concerns
   - activities: individual (test, quiz) and facilitative (word definition, glossary, and audio files)
   - able to practice reading and listening skills
   - focus on meaning

3. Technological Features
   - Multimedia-support (sound, video, graphics)
(4) Reading: Oxford bookworms

- Text-based reading passage
- Audio files (British English)
- Word definition
- Vocabulary quiz
- Glossary
- Control setting: audio files and quiz contents

(5) Speaking

1. General Learning Features
   - Various types of contents for children and young adults of intermediate proficiency level
   - Listening contents with Q&A, model practice, audio or video tutorial, etc.
   - Learning style: recognition and recall

2. L2 approaches and Methodological concerns
   - Activities: instructional (tutorial, drills)
   - Focus on linguistics (lexis, pronunciation, spelling), language skills (listening, reading, speaking), and instructional (form-focused)
   - Traditional approach based on audio-lingual

3. Technological Features
   - Voice recording
(5) Speaking: IELTS Speaking Success

- IELTS topics
- IELTS Speaking cue cards with warm-up questions
- Critical vocabulary in each topic
- Relevant idioms supported
- Recorder for self-practice
- Play back the recorded contents
- Email cue cards to friends

(6) Writing

1. General Learning Features
   - young adults for preparing essays in L2
   - diverse types of Essay tutorial are provided
   - Learning style (experiential learning)

2. L2 approaches and Methodological concerns
   - activities: instructional (tutorial), facilitative (grammar, spell checker)
   - Systematic writing process guideline

3. Technological Features
   - memo pad, able to email written passages
(6) Writing: ESL Essay Writing

- Essay organizer
- A step-by-step writing planner for college and high school students
- Essay writing tutorial
- Four types of writing pages
- Spell checker
- Email options
- Assignment prompt

Discussion and Conclusion
1. What are the common and distinctive features of ESL smartphone applications?

**Common features**

- The majority of applications deals with short language data information
  - such as word lists, pronunciations, grammatical elements, or sample dialogues or essays etc.
  - The development of **vocabulary** is the most common skill area

- Most of them require **cognitive language learning style**
  - seldom provide socially interactive learning opportunity.
  - drills, problem solving, recalling, comprehension checks to individually construct linguistic knowledge.
  - The technology functions as resources (ex. word list, tongue twisters, sample writings, games) and tools (ex. dictionaries, a notepad, a voice recorder, a translator etc.), and it is up to the users to control them for developing new knowledge.
  - This approach is very close to **cognitive CALL** (Kern & Warschauer, 2000).

- ESL apps employ various modes and functions of multimedia, such as sounds, videos, music, or images, for personal, perceptual, and field-independent learning
  - while other mobile technologies such as SNS, podcasting, voice synthesizing, which clearly provide more collaborative, constructive, or field-dependent practice, are not actively used for instruction,

- Their L2 approaches are **not diverse** and remain in the **form-focused** instruction.
  - primarily form-focused. Two dominant methods are **audio-lingual and task (test)-based** drills.
2. What are the strengths and weaknesses in utilizing present smartphone applications for effective MALL?

**Strengths**

- provide a personal and learner-centered learning opportunity with ubiquitously accessible and flexible resources and activities.
  - This could encourage learners to develop a sense of individuality and develop life-long learning habits.
  - Students can more easily and promptly access language learning materials and tools on their own anytime and anywhere;
  → enhance their language learning motivation and autonomy in MALL.

**Weaknesses**

- They are weak in realizing mobility as a more situated, field-dependent, and collaborative learning opportunity.
- More active use of authentic context, socially interactive tasks, timely and situated materials (ex. podcasting) is needed.
- Knowledge reconstruction based on social process should be also considered in designing instruction and implementing technology.
- The present apps facilitate personal learning, but do not effectively assist personalized learning.
  → knowledge-building devices, such as hyperlinks, RSS, MoSoSo, CMS, and other web 2.0 tools need to be embedded.
2. What are the strengths and weaknesses in utilizing present smartphone applications for effective MALL?

Suggestions

- **More varied and appropriate technology** should be embedded in the technology to encourage development of other language skill areas. Recorder, speech recognizer, audio file controller, memo pad, course management services (CMS) could be more widely and properly utilized for developing **productive speaking and writing skills**.

- **More diverse L2 approaches and methodologies** should be employed to satisfy the different needs and styles of learners. Despite good quality and quantity of input, their application and use are mostly based on a structural and cognitive focus.

Limitation

- **MALL is high cost.** Smartphones are costly so the users are generally working adults. There are three times more paid apps than the free ones, which, generally, are so-called "trial or lite versions"
Conclusion

- This study shows the great potential of mobile language learning and reminds us of how swiftly mobile technology changes. The effective design and use of ESL mobile applications should continue to be studied in order to suggest the right direction to effective MALL.

Questions