Use of iQlickers to Enhance Students’ in-class Learning

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Outline

1. Context and process of using iQlickers

2. Demonstration of the use of iQlickers in a language course

3. Some findings from empirical study
PART 1: iQclicker Pedagogy: The “Nitty Gritty”
Is Your Class Like This?

When will this class be over?

or this?
Problems in Classrooms Today

• In a large-size class, student-student and student-instructor interactions are low.

• When questions are posed, students’ responses are usually very passive.

• They are afraid to speak up.

• They try to avoid embarrassments.
How Can...

• ... we **motivate** our student?

• ... we encourage them to **express** their opinions?

• ... we be sure they **understand** what we teach before we move on to next concept?

Engaging
What are iQlickers & Why Use Them?

- A student response system or clicker is an electronic means for instructors to **pose questions** and **electronically gather** student responses;

- Today’s students **learn little** from traditionally presented classroom demonstrations;

- The objective is to **build knowledge** and **enhance the learning experience** for all students.

- To increase student **engagement** & **improve learning** by having students answer questions;

- Better interaction between instructor and students & contributes to **formative learning**;
Is there Any Evidence that iQlickers is Better than Traditional F2F Instructor-led Classes

- **Improves** instructor understanding of students' comprehension of curriculum.
- **Improves** students concentration (Elliot, 2003)
- **Improves** problem solving skills (Roschelle *et al*., 2004).
- **Provides** students with immediate feedback about the accuracy of their understanding of the curriculum.
- **Provides** instructor with instant feedback of students' understanding of concepts and content knowledge.
- **Provides** instructors with the ability to customize instruction based on student responses.
Why Use iQlickers?

- **Engage** students in active learning;
- **Encourage** students' critical thought processes requiring synthesis of knowledge by providing them a way to answer questions;
- **Improve** class attendance and student participation;
- **Encourage** student preparation prior to class (reading of class materials);
- **Quickly** determine whether homework or reading assignments have been completed before the class.
How does iQlickers work?

- Instructors pose questions during class;
- Students use their mobile devices to respond;
- Responses are then transmitted to the instructor’s computer and *automatically graded*;
- The instructor can display a graph of the polling results.
Benefits of Using iQlickers

★ To get **responses** from the class;
★ To encourage **engagement** with the lecture material;
★ To find out if concepts have been **understood**;
★ Teachers do not have to **waste paper** by distributing quizzes or surveys;
★ There is no need to **call roll or count hands**. Attendance is taken with the simple click of a button;
★ Additionally, there is more **valuable course time** available because the iQlicker system automatically counts all responses;
Reasons for Using iQlickers

★ To involve students in active thinking;
★ To reinforce learning by an immediate review of learned concepts;
★ To expose students to applications of learned concepts in different contexts;
★ To maintain steady class attendance;
★ To clarify common misconceptions, especially effective when a significant fraction of students was revealed to answer wrong;
★ To assist the instructor in understanding the progress and misconceptions of students;
★ To involve students in active discussions.
★ Quickly assess where students “are”
PART 2: Demonstration of the use of iQlickers in a language course
The Lesson Plan

• **Conditional Sentences** in *(GCLA1009) University English II*

• Home preparation (Textbook)
  – Revise the grammar point (form, meaning, and use)
  – Complete the exercise (if needed)

• Classroom activities
  – Revisit the three types of conditionals
  – Provide **scenarios** for SS to use the grammar point through *iQlickers*
Conceptual Framework: ‘Learning and Acquiring Cycle’

Figure 1. The three domains of grammar teaching

<table>
<thead>
<tr>
<th>Models</th>
<th>Step 1</th>
<th>Step 2 (in 3-step models)</th>
<th>Step 3 (in 3-step models)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis (1996)</td>
<td>Observing</td>
<td>Hypothesizing</td>
<td>Experimenting</td>
</tr>
<tr>
<td>Hedge (2002)</td>
<td>Noticing</td>
<td>Reasoning &amp; Hypothesizing</td>
<td>Automatizing</td>
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<td></td>
<td></td>
<td>Structuring &amp; Restructuring</td>
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<tr>
<td>Domains:</td>
<td>Exploring</td>
<td>Learning and Acquiring Cycle</td>
<td>Internalizing</td>
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Design Considerations: (a) Drawing Students’ Attention

• Explain the **rationale** of using iQlickers
  – Promoting *interactions* between teacher and students
  – Using *mobile phones* [as simple as using WhatsApp]

• Not test but **practice** (or ‘apply’ concepts)

• Clear **instructions** on joining sessions
  – Successful mobile numbers shown on iQlickers
Design Considerations:
(b) Engaging Students’ Participation

• From *simple* **MC questions** [time: 120s]
• To *complicated* **open-ended questions** [time: 240s, with possible extension]
• No discussion among students before polling (they should have learnt conditionals in DSE)
• Scenario:
  – *Paul invites Mary to go to the graduation ball this weekend.*
MC Questions

1. Q1: If Mary says "If I go to the ball, I will call you tonight." This implies that...

   press START button to proceed

   1. It is impossible that Mary will go to the ball with Paul because the function was over.
   2. It is possible and also likely that she will go to the ball with Paul this weekend.
   3. It is possible but unlikely that she will go to the ball with Paul this weekend.

2. Q2: If Mary says "If I went to the ball, I would call you tonight." This implies that...

   press START button to proceed

3. Q3: If Mary says "If I had gone to the ball, I would have called you." This implies that...

   press START button to proceed
Open-ended Question

4. Q4: So far, we have examined the three types of conditional sentences, which are 'PRESENT-REAL', 'PRESENT-UNREAL', and 'PAST-UNREAL'. Does the type 'PAST-REAL' exist?

<table>
<thead>
<tr>
<th>Combinations</th>
<th>Present</th>
<th>Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real (Likely)</td>
<td>Type 1</td>
<td>?</td>
</tr>
<tr>
<td>Unreal (Unlikely)</td>
<td>Type 2</td>
<td>Type 3</td>
</tr>
</tbody>
</table>

press START button to proceed
2. Q2: If Mary says "If I went to the ball, I would call you tonight." This implies that...

Press START button to proceed

[1] 1. It is impossible that Mary will go to the ball with Paul because the function was over.

[2] 2. It is possible and also likely that she will go to the ball with Paul this weekend.

[3] 3. It is possible but unlikely that she will go to the ball with Paul this weekend.

Answer: 3
Q4: So far, we have examined the three types of conditional sentences, which are 'PRESENT-REAL', 'PRESENT-UNREAL', and 'PAST-UNREAL'. Does the type 'PAST-REAL' exist?

Yes, because that issue exists from the past to present.

Present real is type1, present unreal is type2, past unreal is type3, past real doesn’t exist:

It will not be a condition in the past-real situation.

hahaha

As it had happened in the past, it was the truth, not the conditional.

No, becoz past real means it does happen in the past. So, it will not be a conditional. It is just a fact.

simple past tense

Past tense

simple past tense
Q4: So far, we have examined the three types of conditional sentences, which are 'PRESENT-REAL', 'PRESENT-UNREAL', and 'PAST-UNREAL'. Does the type 'PAST-REAL' exist?

- yes, past time
- No. simply say it with past tense or present perfect
- Simple past
- past perfect
- Might have done...
- just use simple past tense to express it...
- simple past tense
- past simple
Design Considerations:
(c) Giving Immediate Feedback

• **Immediate feedback** can be given to students
  – Don’t forget to praise for correct answers as reinforcement

• Expect **strange/ off-task/ incorrect answers**
  – Mobile number in red (for MC)
  – May result in a relaxing classroom atmosphere

• Respond to **wrong answers**
  – Pointing out the problems for the whole class
  – Common in learning and acquiring cycle
Design Considerations: (d) Consolidating Key Concepts

- **Summarize key concepts** as consolidation

<table>
<thead>
<tr>
<th></th>
<th>Present (Future)</th>
<th>Past (Happened)</th>
</tr>
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<tbody>
<tr>
<td><strong>Real</strong></td>
<td>(Type 1) Likely</td>
<td>(NOT conditional)</td>
</tr>
<tr>
<td>(Possible)</td>
<td>to happen</td>
<td>-Happened</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Did not happen</td>
</tr>
<tr>
<td><strong>Unreal</strong></td>
<td>(Type 2) Unlikely</td>
<td>(Type 3) Unlikely</td>
</tr>
<tr>
<td>(Impossible)</td>
<td>to happen</td>
<td>to change</td>
</tr>
</tbody>
</table>
Students’ Perception of iQlickers

• Most students:
  – find iQlickers fun and useful
  – Like to use it in future classes
  – (See detailed comments)
1. Do you want to use iQlickers in the class in the future?

press START button to proceed


Answer:
2. Please share what you enjoy and what can be improved in iQlickers.

Press START button to proceed

it can steep up my positivity

I don't need to worry that my answer is wrong.

Anonymous

fun

My iPhone is almost running out of power...what should I do > <

it 's funny but i hope we can send emotion or pictures later!!:-)

interesting / every one can answer the questions / more interaction

It is a very fresh teaching method which attract me to involve more in the lesson. The atmosphere is good as students are more willing to answer question and express their feeling.
PART 3. Empirical Study

• **Study Methodology**
  – Survey instrument: Learning Experience Inventory-Course (LEI-C)
  – Qualitative Interviews of students (focus groups)

• **Limitations**
  – Small sample size
  – Small amount of student interviewees

• **Highlights of findings**
  – **Quantitative:**
    • *Higher degree in students’ understanding of learning outcomes, TLAs and AMs;*
    • *Higher degree in students’ perceived constructive alignment*
  – **Qualitative:**
    • *Making students more participative, attentive and proactive*
Study Instruments

Learning Experience Inventory

- Developed by Professor John BIGGS
- Students’ learning experiences on the following five aspects of a course:
  - Category 1: What I am to learn?
  - Category 2: How to go about learning it?
  - Category 3: How well did I learn it?
  - Category 4: How I feel about my learning?
  - Category 5: Reflecting on my learning?
- 5-point Likert Scale
- Alignment Index
  - Measurement of the constructive alignment between CILOs, TLAs and AMs from students’ perspectives
  - Summation of the mean scores of Category 1, 2, and 3
- Plus some tailor-made questions for iQlickers

Qualitative Interviews

- To provide an in-depth understanding of how classes are delivered in each course;
- Students will be invited to participate in focus group interviews to further explore classroom teaching and learning environment.
- For completeness, teachers of the participating courses will also be interviewed individually about their experience in teaching the course.
Mean Scores of LEI-C Categories 1-3 by Courses with/without iQlickers

<table>
<thead>
<tr>
<th>Alignment Index</th>
<th>Mean</th>
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<tbody>
<tr>
<td>With iQlickers (N=7)</td>
<td>3.77</td>
</tr>
<tr>
<td>Without iQlickers (N=51)</td>
<td>3.61</td>
</tr>
</tbody>
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</tr>
<tr>
<td>Without iQlickers (N=51)</td>
<td>3.73</td>
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</tr>
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<tbody>
<tr>
<td>With iQlickers (N=7)</td>
<td>3.64</td>
</tr>
<tr>
<td>Without iQlickers (N=51)</td>
<td>3.55</td>
</tr>
</tbody>
</table>

Mean Alignment Index (With iQlickers) = 11.27

Mean Alignment Index (Without iQlickers) = 10.82
3.40
3.38
3.47
3.43

Students' Perception on iQlickers Courses (N = 7, Responses = 155)

a. iQlickers enhanced interactivity between me and my classmates in class.

b. iQlickers increased my participation and attention in class.

c. iQlickers was a good way to get immediate feedback from teachers in class.

d. I enjoyed the teaching and learning activities facilitated by iQlickers.
What did students comment?

• Be proactive in learning
  – “I find that iQlickers has made students more proactive. Some classmates are quite shy and fear of providing wrong answers. By using iQlickers, they feel much comfortable in answering questions.” (Student A)
  – “iQlickers can raise your curiosity of knowing the answers, as you don’t know if yours are correct or not” (Student B)

• Be more participating
  – “We can see how many classmates have voted (i.e. giving answers) and how many classmates haven’t, this will push us to answer.” (Student C)

• Be more attentive
  – “Sometime I am not quite attentive; iQlickers allow you to attend to next topics and answer some questions, then you can follow.” (Student D)
  – “Answering the pop-up questions by hand-raising sometime may confuse us which answers are correct; but iQlickers can clearly let you know the correct answers.” (Student E)
Questions?

Thank you!
References