Technology, Games and Learning in an Intermediate Spanish class

Fall 2016
INTRODUCTION

1. Intermediate Class Profile: Millennial students
   • Predominantly black student body increasingly diversified
   • multicultural, most students commute, and work
   • most students have inadequate preparation for class

2. Technology and Game used:
   • Clickers (Student Response Systems) (Teacher prepared)
   • Hangman Game (Student creations)

3. Goal:
   To measure and compare test results from using games and technology and from traditional teaching methods

4. Theoretical Framework:

5. Method

6. Results
PROFILE OF INTERMEDIATE CLASS: Millennial Students

- Considered to be born between 1981-2004 (Moving towards Generation Y now)
- A multimedia approach to learning suits them (variety)
- Guide on the side, not the sage on the stage
- Interactive, use of social media
- Real life application help learning and performance (contextual)
- Active and collaborative learning (clickers)
- Employ new teaching methods to teach because they are more experiential and exploratory learners (I hear, I know/forget. I see, I remember. I do, I understand)
- Show a lot of caring because they grow in a more nurturing and caring environment
THEORETICAL FRAMEWORK

• The theoretical background for this study were the Social Learning Theory proposed by Albert Bandura and Student Involvement: a development Theory for Higher Education proposed by Alexander Astin.

• According to the social learning theory, learning is affected by psychological factors and interaction with the environment.

• The student involvement theory posits that for growth and learning to occur, students must be engaged in their environment. The amount of student learning and personal development is directly proportional to the quality and quantity of student involvement. The more students put into an activity, the more they get out of it.
Students enrolled in two sections of the same intermediate Spanish course were exposed to two types of content delivery modes: technology and a game for educational purposes. The game was ‘hangman’ created by the students themselves, and the technological tool was clickers (Student Response Systems). Educational material was introduced via the alternate delivery modes and tests were administered on the content. These test scores were compared to the test scores of the same students following a traditional lecture on an equivalent content.
RESULTS OF THE INDEPENDENT GROUP TEST

An independent group test was conducted to find out if traditional lecture versus the use of technology had a significant impact on the test scores.

The results indicated a marginally significant impact of the type of teaching strategy,

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology &amp; Game</td>
<td>25</td>
<td>62.8400</td>
<td>21.30078</td>
</tr>
<tr>
<td>Traditional</td>
<td>26</td>
<td>72.7308</td>
<td>18.96641</td>
</tr>
</tbody>
</table>
QUANTITATIVE RESULTS

Test scores as a function of the type of teaching strategy, clickers versus traditional N=17; and the hangman game versus traditional, N = 15 were analyzed with a paired samples t-test. The results indicated there were no significant differences between the test scores as a function of teaching strategies. The means are presented below.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1 Hangman</td>
<td>15</td>
<td>60.4667</td>
<td>29.67892</td>
</tr>
<tr>
<td>Traditional 1</td>
<td>15</td>
<td>64.5333</td>
<td>30.55876</td>
</tr>
<tr>
<td>Pair 2 Clickers</td>
<td>17</td>
<td>39.0588</td>
<td>32.11400</td>
</tr>
<tr>
<td>Traditional 2</td>
<td>17</td>
<td>54.2941</td>
<td>36.11746</td>
</tr>
</tbody>
</table>
INTERPRETATION OF THE RESULTS

1. Scores from traditional strategy higher than scores from game and clickers
2. Qualitative remarks were positive and the expectation was that quantitative figures would reflect higher scores on technology. Not so.

Engaging, helpful, interactive, fun, easy, great study tool, informative, convenient, useful, competitive, enlightening, eye-opener, the best tool, must know the material, different, informative and fun, fast thinking, active, interesting, teamwork, challenging

1. Explanation might lie in the level of involvement by students beyond the classroom.
SURVEY ELEMENTS

1. First Name (for credit purposes if applicable)
2. About how many hours a week did you spend studying for the test in this class?
3. If you are employed, indicate the number of hours (using the slider) you work per week
4. Full-time job hours per week
5. part-time job hours per week
6. Your attitudes about this class are valuable to us. Using the sliding scale below, indicate your views about what you learned in this class to date (1= Not at all; 10= Highest)
7. Confidence in applying the concepts to other settings (1= Not at all; 10= Highest)

8. Engagement/interest in the class, Information is valuable and meaningful for my future academic goals (1= Not at all; 10= Highest)

9. Use 3 words to describe your experiences related to the Hangman or Clicker gaming activities (Student Response System-SRS) activities used in this class

10. If you were the instructor, how would you use these gaming activities as a strategy for teaching?

11. In what way did these gaming activities help you learn in the class?
SURVEY ELEMENTS

1. First Name (for credit purposes if applicable)
2. About how many hours a week did you spend studying for the test in this class?

<table>
<thead>
<tr>
<th></th>
<th>9:00</th>
<th>10:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg</td>
<td>3.2</td>
<td>2.75</td>
</tr>
<tr>
<td>Range</td>
<td>2-6</td>
<td>1-6</td>
</tr>
<tr>
<td>Mode</td>
<td>2 (6)</td>
<td>2 (7)</td>
</tr>
</tbody>
</table>
1. If you are employed, indicate the number of hours (using the slider) you work per week: Full-time job hours per week, part-time job hours per week

<table>
<thead>
<tr>
<th></th>
<th>9:00</th>
<th>10:00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full time</strong></td>
<td>(7 people)</td>
<td>(6 people)</td>
</tr>
<tr>
<td><strong>Part time avg</strong></td>
<td>14.3 hours</td>
<td>24.3hrs/wk</td>
</tr>
<tr>
<td><strong>Don’t work</strong></td>
<td>3 people</td>
<td>2 people</td>
</tr>
</tbody>
</table>
## SURVEY ELEMENTS

Engagement/interest in the class
(1= Not at all; 10= Highest)

<table>
<thead>
<tr>
<th></th>
<th>9:00</th>
<th>10:00</th>
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</thead>
<tbody>
<tr>
<td><strong>Avg</strong></td>
<td>7.2</td>
<td>7.81</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>2-10</td>
<td>4-10</td>
</tr>
<tr>
<td><strong>Mode</strong></td>
<td>$8^4, 10^2, 9^2, 7^2$</td>
<td>$10^5, 9^3, 8^1, 7^3$</td>
</tr>
</tbody>
</table>
## Survey Elements

Confidence in applying the concepts to other settings  
(1 = Not at all; 10 = Highest)

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<th></th>
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</thead>
<tbody>
<tr>
<td>Avg</td>
<td>5.6</td>
<td>6.9</td>
</tr>
<tr>
<td>Range</td>
<td>1-10</td>
<td>1-10</td>
</tr>
<tr>
<td>Mode</td>
<td>$10^7, 7^3, 2^3$</td>
<td>$10^3, 8^3, 7^3$</td>
</tr>
</tbody>
</table>
QUALITATIVE SURVEY ELEMENTS

Information is valuable and meaningful for my future academic goals
(1= Not at all; 10= Highest)

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<th>9:00</th>
<th>10:00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Avg</strong></td>
<td>7</td>
<td>7.9</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>1-10</td>
<td>4-10</td>
</tr>
<tr>
<td><strong>Mode</strong></td>
<td>$10^3, 8^5$</td>
<td>$10^5, 9^2, 8^3, 7^2$</td>
</tr>
</tbody>
</table>
CONCLUSIONS

1. Scores from traditional strategy higher than scores from game and clickers
2. Qualitative remarks were positive and the expectation was that quantitative figures would reflect higher scores on technology. Not so.
3. Explanation might lie in the level of involvement by students beyond the classroom.
4. A meta analysis by Cohen, 1981 provides evidence that students’ perceptions of the effectiveness of a course is a moderately to highly correlated with students’ learning, thus offering validation for students’ perception as a useful source of information about the learning variables.
CONCLUSIONS

A meta analysis by Cohen, 1981 provides evidence that students’ perceptions of the effectiveness of a course is a moderately to highly correlated with students’ learning, thus offering validation for students’ perception as a useful source of information about the learning variables.

Approximately 20 out of 30 students, 67% of the population believed that Spanish at the Intermediate level would be valuable and meaningful for their future academic goals.

That notwithstanding, the level of involvement fell short of the ideal for various and sundry reasons ranging from working full time to providing basic care for dependents at home, children to grandparents.
CONCLUSIONS

Such ingredients make for undesirable numbers of uninvolved students who per force:

• neglect studies
• spend little time on campus
• stay away from extracurricular activities
• have infrequent contact with faculty or other students

such that the academic endeavor becomes the peripheral rather than core undertaking.
RECOMMENDATIONS IN LIGHT OF ASTIN’S INVOLVEMENT THEORY

Astin describes the ‘Involved Student’ as one who:
devotes considerable if not maximum amounts of physical and psychological energy to the academic experience.

Our recommendation is that providers at all levels of the academic enterprise commit to and take deliberate steps (starting with a reassessment of priorities, and a redistribution of resources) towards converting every student on its campus into ...
RECOMMENDATIONS IN LIGHT OF ASTIN’S INVOLVEMENT THEORY

A highly involved student who can afford to:
• devote considerable energy to studying
• spend much time of campus
• participate actively in student organizations
• interact frequently with faculty members and other students