Blended Learning and Collaborative Virtual Reality: The Perfect Recipe for Achieving an Experience-based and Long-lasting Learning

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We are an educational institution with presence in the national territory through our 31 campuses, and internationally in 13 countries through 21 locations and international liaison offices.
A flexible educational model that provides students with higher autonomy, freedom, and a more personalized education.
Is this enough to create long-lasting learning, student engagement, and satisfaction?
Virtual Reality

It involves the immersion in the digital simulation of a world in which the user can manipulate the objects and interact with the environment.

*(EduTrends, December 2015)*
Virtual Reality

- Increase students’ motivation and enhance learning sources
- Plan the activities to get the full advantage of technology based on learning by doing strategies
- The student experience implies his/her immersion in the learning environment

Image: Freepik.com
Blended Learning + Collaborative Virtual Reality

Image: Pixabay
• Does CVR increase student engagement and commitment to their own learning process?
• Does CVR help professors to create a more experiential classroom breaking the physical barrier and enabling students to live real-life situations?
• Does CVR promote real-time interaction among students in different geographical locations?
• Does CVR promote peer learning?
Our experience

Negotiation Techniques and International Trade
The student should be able to develop the competencies to analyze conflicts though negotiation, using a conflict resolution model. The student should possess or develop the knowledge of basic aspects when negotiating, for example, negotiation planning and implementation, factors that influence the process and outcome of any negotiation, and negotiation in an international context.
# Our experience

<table>
<thead>
<tr>
<th>Fall 2018</th>
<th>Spring 2019</th>
<th>Fall 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor: 1</td>
<td>Professor: 2</td>
<td>Professor: 1</td>
</tr>
<tr>
<td># Students: 18</td>
<td># Students: 35</td>
<td># Students: 15</td>
</tr>
<tr>
<td>Campuses: 3 (Guadalajara,</td>
<td>Campuses: 3 (Guadalajara,</td>
<td>Campuses: 3 (Mexico City,</td>
</tr>
<tr>
<td>Monterrey, Queretaro)</td>
<td>Monterrey, Queretaro)</td>
<td>Monterrey, Guadalajara)</td>
</tr>
</tbody>
</table>

**Experience with VR**
- Lecture (Diplomacy in negotiation)
  - Case: Bacchus Winery
- Experience with VR (professor 1)
  - Lecture (Diplomacy in negotiation)
  - Case: Galáctica SUV
  - Case: Bacchus Winery
- Experience with VR (professor 2)
  - Theoretical class (Nash equilibrium and /Integrative win-win approach)
  - Case: Augusto Restaurant
- Case: Bacchus Winery
- Experience with VR (professor 1)
  - Lecture (Nash equilibrium and /Integrative win-win approach)
  - Case: Augusto Restaurant
  - Case: Bacchus Winery
Our experience
Our experience
Our experience
Our experience
Lecture Class

Video Lecture Class
Video Case Negotiation
Video “What students said”
What students said

It's a different way to learn.

It's an excellent way to really interact with students from different campuses.

It seems to me that it is a very different experience and that it helps you a lot to live something real.

My experience was good, it keeps me more active and feels more real.

I loved it! It was an experience that I did not think I would have.

I really liked it, it surprised me in a satisfactory way, and I was very happy with the results and with the interaction that occurs with these activities.
What students said

It was very pleasant, I liked it a lot because I got more into the role and for a moment, I forgot everything else.

I think it was incredible to have a negotiation in virtual reality and even more because I achieved my goals.

I liked being in this negotiation since we could see different characteristics of other cultures, I liked being able to customize my avatar according to my role.

Very cool, I got out of there and talked to everyone. I was very impressed with what I had just experienced. It felt very real.

A more personal negotiation, because I really felt like talking to a person.
### Lecture: CVR vs Zoom

<table>
<thead>
<tr>
<th></th>
<th>Collaborative Virtual Reality</th>
<th>Zoom</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will repeat the experience</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>It helps me to better apply the theory</td>
<td>78%</td>
<td>22%</td>
</tr>
<tr>
<td>It helps me to better understand the theory</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td>It promotes a more real experience</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>It promotes real-time interaction</td>
<td>98%</td>
<td>2%</td>
</tr>
<tr>
<td>Overall experience</td>
<td>93%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Case: CVR vs Zoom

- **IT BREAKS THE PHYSICAL BARRIER BY MAKING AN IMMERSIVE EXPERIENCE**
  - Collaborative Virtual Reality: 93%
  - Zoom: 7%

- **IT ENABLES ME TO LIVE REAL-LIFE SITUATIONS**
  - Collaborative Virtual Reality: 96%
  - Zoom: 4%

- **IT PROMOTES REAL-TIME INTERACTION**
  - Collaborative Virtual Reality: 96%
  - Zoom: 4%

- **OVERALL EXPERIENCE**
  - Collaborative Virtual Reality: 96%
  - Zoom: 4%
## Final grades

<table>
<thead>
<tr>
<th>Semester</th>
<th>Students with VR</th>
<th>Students without VR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2018*</td>
<td>91.59</td>
<td>88.15</td>
</tr>
<tr>
<td>Spring 2019**</td>
<td>90.27</td>
<td>86.67</td>
</tr>
<tr>
<td>Fall 2019***</td>
<td>94.67</td>
<td>89.4</td>
</tr>
</tbody>
</table>

*Fall 18: 18 students (with CVR) vs 134 students (without CVR)

**Spring 19: 35 students (with CVR) vs 125 students (without CVR)

***Fall 19: 15 students (with CVR vs 121 students (without CVR)

Grading scale used at Tec de Monterrey: 1 to 100

Minimum passing grade: 70
## Final Student Opinion Survey

<table>
<thead>
<tr>
<th>Semester</th>
<th>Professors with VR</th>
<th>Professors without VR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2018*</td>
<td>10</td>
<td>9.39</td>
</tr>
<tr>
<td>Spring 2019**</td>
<td>9.54</td>
<td>8.96</td>
</tr>
<tr>
<td>Fall 2019***</td>
<td>9.92</td>
<td>9.01</td>
</tr>
</tbody>
</table>

*Fall 18: 1 professor (with RV) vs 7 professors (without VR)

**Spring 19: 2 professors (with RV) vs 5 professors (without VR)

***Fall19: 1 professor (with RV) vs 6 professors (without VR)

Opinion Survey Scale used at Tec de Monterrey: 1 to 10

Minimum – 1, Maximum - 10
Conclusions: BL + CVR

1. Promote real-time interaction among students in different geographical locations
2. Create a more experiential classroom by enabling students to live real-life situations that are difficult to replicate in other environment
3. Promote peer-learning
4. Break the physical barrier by making an immersive experience
5. Increase student commitment to their own learning process in a fun way

Image: Pixabay
General tips to success

• Professor should share the roles without the other students knowing who their counterpart will be

• Record the session so the professor can review the students' understanding of cultural characteristics

• Prevent dizziness
  ○ Students need to practice with the CVR tools
  ○ Activities no longer than 20-30 minutes
Thank you

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