LEARNING TECHNOLOGIES AT THE IDC – 2014

Online Report

Written by Idan Almog, Head of the Advanced Learning Technologies
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"Nothing is more powerful than an idea whose time has come."
— Victor Hugo
**A – Background**

The Interdisciplinary Center (IDC) Herzliya is a leading Israeli academic institution. IDC’s ten schools offer innovative, dynamic undergraduate and graduate programs that educate Israel’s future business, juridical, high-tech, communications, economics and civic leaders.

The Advanced Learning Technologies (ALT) unit has been founded at the end of 2012. Our main goal is to establish an innovative high-quality teaching & learning environment at the IDC. In this report we present a short summary of our activities.

**The ALT Unit’s main activities**

- **Multi-Directional Teaching Model** (page 4)
  Developing a new teaching model called the Multi-Directional Teaching model. In this model we aim to introduce a new dialog concept in IDC’s classes, in order to give more focus on student's thoughts and ideas.

- **Our innovation! IDC's Lecturer's Toolkit** (page 6)
  Exploring and investigating diverse cutting edge "Learning Technologies" tools and classifying it into defined pedagogical-Didactic categories. Our end product is the "Lecturer's Toolkit", a unique solution that enables IDC's lecturers to select the best tools suitable for their didactic needs.

- **Experiments & Implementation** (page 7)
  Initiating & and managing the implementation of full Learning Technologies "solution programs" at IDC's classes.

- **Future Academy Thinking Group**
  Leading a group of IDC's students, visioning the future of the academy.

- **Strategic Research**
  Investigating & analyzing the educational technologies world trends.

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**IDC’s Learning Technologies steering committee**

Dr. Noam Lemelshtrich-Latar, Dean of Communication
Prof. Mario Mikulincer, Provost
Mr. Nir Caftori, Director of Technologies, Information & Computing
Mr. Idan Almog, Head of the Advanced Learning Technologies unit
B – Scalability

- During 2014 the unit has proved its ability to replicate work methods & large scale implementation programs, while relaying on minimal resources (only 1 FTE in its staff), and in a short time frame (1.5 years of field work).
- As today, the unit works with dozens of professors, and affects the learning experience of more than 1,100 students.
- Our goal is to reach in the coming couple of years a long term sustainable critical mass of faculty that will be engaged to the use of our solution, in order to be better prepared for the challenges of the 21th century.
  - We assume that around 40%-50% of our faculty will be involved in some way in such activities.
  - Our implementation concept of a "learning technologies" expert, with a pedagogical expertise, working closely with each faculty to build its personalized solution, a well-supported set of digital tools and pedagogic methods, will allow us to continue to grow with a minimal staff in order to make the change.

Implementation Numbers

- The unit has conducted ALT experiments / activities with 28 lecturers.
  - 10 of those lecturers were identified by the unit as "Game Changers": Lecturers that their participation in our program has led to a significant change in their courses.
  - More than 1,100 students have participated in our "game changing" activities.
- More than 200 "Class interactions" activities
- More than 35 "Digital Questioners" activities
- 12 "Collaborative Learning" groups / advanced forums
- 14 "Instructional Movies": Containing advanced instructional elements.
- 12 "Regular Recordings": Class debates documentary, Experts interviews, etc.
C – Approach

The Multi-Directional Teaching Model

"Class Interactions"

- At part of the need to strengthen the important "face to face" meeting between lecturers and students, the unit has developed a new teaching model.
  - **The known classical teaching model** (frontal teaching), encourages the lecturer to be active during most of the lesson, while the students are passive / "sleeping".
  - **The Multi-Directional Teaching model** encourages students to actively participate in an ongoing dialogs and share their thoughts, feelings, knowledge & ideas throughout the lesson. In this method the knowledge flows in multiple directions (lecturer <> students <> students)

- **The added Value**
  - Active students are more engaged students
  - The ongoing interactions improve class communication.
  - The interactions help to reflect students' knowledge & understanding.
  - The interaction platform encourages introvert students to participate in class dialogs.

- "Class Interactions" platforms: Poll Everywhere, SMS-HIT
"Collaborative Learning", after the lesson

- As parallel step to "Class Interactions", the unit encourages lecturers to use social groups' platforms, and advanced Q&A forums in order to promote knowledge collaboration.

- In addition to improved communication and peers collaboration, we aim for "peers learning". Our goal is to create an open environment in which students answer peers questions as part of the courses' learning processes.

- "Collaborative Learning" environments: Facebook group, Piazza group, AfterClass group.

**Piazza group (Discrete Mathematics)**

**Defining a function**

When I asked to define a function, can I define it as a set of ordered pairs? For example:

A={1, 2, 3}, f:A→A, f={(1,2), (2,1), (3,3)}

I believe that's okay but I want to be sure since all examples in solutions have the form:

f(1)=2, f(2)=1, f(3)=3

**The students' answer**, where students collectively construct a single answer

A function is a subset of the cartesian product A×A, so you should be able to write it that way...

~An instructor (Ori Lahav) endorsed this students' response~
Our innovation: IDC's Lecturer's Toolkit

- "If you can't bit them, join them" – the battle on the attention
  In recent years, The lecturers are finding themselves in an ongoing competition against diverse technological instruments, content & social platforms – All are fighting on students' attention.

- The Solution: The Lecturer's Toolkit
  - Facing with the described challenge, we've decided to actively harness new technologies that can help lecturers to create a new dialog forms in their classes, improve communication, engage and interact with their students.
  - The unit explores and investigates diverse cutting edge "Learning Technologies" tools, and classifies them into pedagogical categories.
  - Our end product is "The Lecturer's Toolkit", a unique solution that enables IDC's lecturers to select the best tools suitable for their didactic needs.

- We aim to
  - Improve communication, dialogs and class interactions
  - Strengthen collaborative learning
  - Moving from passive learning into active learning

- Demo: For our demo, click here (link).
  * In the demo we present 2 of our main categories: "Instructional Movies" & "Class interactions".

IDC's Lecturer’s Toolkit

Collaborative Learning

Class Interactions

< Poll Everywhere
< SMSIT

Enrichment Tools

Course Site

Instructional Movies

Digital Questioners

*In the demo we present 2 of our main categories: "Instructional Movies" & "Class interactions".*
Case Studies: The story of 3 "Game Changers"

In this section we'll give you a short glimpse to some of the uses of our innovation.

Dr. Boaz Ben-David, Psychology
Course: Introduction to Cognitive Psychology

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Interactions:</td>
<td>During the course boaz uses more than 12 interactions, from these types:</td>
</tr>
<tr>
<td>Poll Everywhere</td>
<td>• &quot;Multiple Choice&quot; questions</td>
</tr>
<tr>
<td></td>
<td>• &quot;Word Cloud&quot; (associations) questions</td>
</tr>
<tr>
<td></td>
<td>• &quot;Clickable Image&quot; (hot spot) questions</td>
</tr>
<tr>
<td>Instructional Movies</td>
<td>Boaz is our &quot;game changer&quot; in the &quot;Instructional Movies&quot; category. We've produced 8 instructional movies (4 in Hebrew + 4 in English). Here is a link to our products (English) – <a href="link">Click here</a> * 4 more movies are in the making processes.</td>
</tr>
<tr>
<td>Recordings</td>
<td>Throughout the entire course, Boaz uses numerous short video &amp; audio clips, in order to increase students' engagement, and simplify complex theories.</td>
</tr>
<tr>
<td>Special: Live broadcast</td>
<td>In one of the lessons, we've set a live-stream broadcast from a smart phone to the lecturer screen (as part of a class experiment).</td>
</tr>
</tbody>
</table>

Class Interactions: Clickable Image

Where do you think one can find instant coffee in this kitchen? Click on the most likely location.

Instructional Movies: Introduction to Cognitive Psychology

Class Interactions: "Word Cloud"

In one word, what is the first thing Robi has to do? [Start this poll to accept responses]

Instructional Movies: Signal Detection Theory

A new stereo!
The ringtone will be less distinct
A change in the perceptual sensitivity - smaller D-prime
Less hits
Less correct rejections

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Page 7 of 13  Advanced Learning Technologies ©
### Dr. Karni Lotan, Sustainability

#### Course: Globalization and Regulation of the Environment

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active Learning:</strong></td>
<td><strong>Google forms</strong></td>
</tr>
<tr>
<td></td>
<td>Karni is our &quot;game changer&quot; in the &quot;Active learning&quot; category. In each lesson, Karni's students are asked to answer short digital questioners called &quot;Now it's your turn&quot;. These questioners encourage active learning &amp; attentiveness. While activated, the students are given 5 minutes to answer 1 to 3 questions, related to the first part of the lesson.</td>
</tr>
<tr>
<td><strong>Peers Review:</strong></td>
<td><strong>Google forms</strong></td>
</tr>
<tr>
<td></td>
<td>At the start of each lesson, a group of students are asked to make a presentation in front of their classmates. During the presentations, the class is asked to fill-in &quot;peers review&quot; digital questioner. The &quot;peers review&quot; affects 50% of the presenters' grade.</td>
</tr>
<tr>
<td><strong>Class Interactions:</strong></td>
<td><strong>Poll Everywhere</strong></td>
</tr>
<tr>
<td></td>
<td>As part of the &quot;active learning&quot; agenda, Karni also uses basic Class Interactions (&quot;Multiple-Choice &amp; &quot;Word Clouds&quot;).</td>
</tr>
<tr>
<td><strong>Special:</strong></td>
<td><strong>Experts video interviews</strong></td>
</tr>
<tr>
<td></td>
<td>We've produced 11 short videos featuring &quot;Talks with experts&quot;. In these videos, the experts were asked to share their thoughts about the course material related dilemmas. Here is a link to our products (in Hebrew) – <a href="https://example.com">Click here</a></td>
</tr>
</tbody>
</table>

**Class Interactions: "Multiple-Choice" question**

![Multiple-Choice question](image)

**Active Learning: Google forms (Now it's your turn)**

![Google form](image)

**Special: recorded "talks" with experts**

![Talks with experts](image)
### Prof. Orit Tykocinski

Courses: Introduction to Psychology, Psychology Processes in Decision Making, Social Psychology

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class Interactions: Poll Everywhere</strong></td>
<td>Orit is our &quot;game changer&quot; in the &quot;Class Interactions&quot; category. The digital interactions system is an integral part of most of Orit’s lessons. Here are the various interaction types being used by Orit:</td>
</tr>
</tbody>
</table>
| **Basic interactions** | • "Open" questions  
• "Multiple Choice" questions  
• "Word Cloud" (associations) |
| **Advanced interactions** | • "Segment responses": presents the combination of 2 polls' responses.  
• "Clickable Image" (hot spot): Allows visual knowledge mapping / encourages visual thinking. |

#### Class Interactions: "Clickable image" question

**Where is the "Terminal"? Indicate its location by clicking on this image.**

Start this poll to accept responses

Total Results: 109

#### Class Interactions: "Word Cloud"

For image "a" you saw...

Submit responses at PollEv.com/oritt

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BRUSH</strong></td>
<td>27%</td>
<td>59%</td>
</tr>
<tr>
<td><strong>CENTIPEDE</strong></td>
<td>22%</td>
<td>67%</td>
</tr>
<tr>
<td><strong>COMB</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEETH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Class Interactions: "Segment responses"

In an affective interaction, students are connected to the lecturer (not to Facebook)
D – Engagement

Monitoring & Control (students' feedback)

- In cases that we identify a significant use of learning technologies, the unit runs short survey in order to investigate the impact of its program on students' learning experience.
- 409 students filled our feedback surveys.
- In the next sub-sections you’ll see a high-level summary of the student's feedback:

1. Ratings summary

The students were asked to rate our main activities from 1 to 5 (1 = low support, 5 = High support).

* As you can see below, students express high satisfaction and support of the ALT unit's program.

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Number of Participants</th>
<th>Average of Support (rate scale: 1 to 5)</th>
<th>% of High support level (voted 4 or 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The general use of Learning Technologies</td>
<td>409</td>
<td>4.36</td>
<td>82.05%</td>
</tr>
<tr>
<td>Class Interactions</td>
<td>379</td>
<td>4.35</td>
<td>83.26%</td>
</tr>
<tr>
<td>Instructional Movies</td>
<td>92</td>
<td>4.51</td>
<td>90.57%</td>
</tr>
<tr>
<td>Collaborative Learning</td>
<td>133</td>
<td>4.17</td>
<td>75.86%</td>
</tr>
<tr>
<td>Digital Questioners (for active learning)</td>
<td>41</td>
<td>4.49</td>
<td>90.00%</td>
</tr>
</tbody>
</table>
2. Textual feedback highlights

As part of the survey, students were given an option to write an anonymous textual feedback.

As you can see below, many of the students recognize the added value of our program, resulting from: strengthened classroom interactions, promotion of "active learning" and "cooperative learning", increased engagement, etc.

* More than 80% of the textual feedbacks were classified "positive / supportive".

<table>
<thead>
<tr>
<th>Category</th>
<th>Feedbacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ALT program</td>
<td>• The use of highly technological means creates a more diverse and enriched course, and supports additional layers of understanding.</td>
</tr>
<tr>
<td></td>
<td>• Excellent combination. Enhances learning. Helps to remember. Makes the lesson more interesting.</td>
</tr>
<tr>
<td></td>
<td>• I thought the use of technology in class was helpful, especially in the course and made it more interesting and interactive. I really enjoyed how the teachers incorporated it in the course material.</td>
</tr>
<tr>
<td>Class Interactions</td>
<td>• I think it improves the learning experience because it keeps the students active and thus the students are less likely to drift off and do something else. Students stay engaged in the class and actively have to participate.</td>
</tr>
<tr>
<td></td>
<td>• ...It is interesting to see what other people think!</td>
</tr>
<tr>
<td></td>
<td>• The 'Poll-ev&quot; in the middle of the class were a nice &quot;pause&quot; and a good method for keeping the class focused and alert waiting for them.</td>
</tr>
<tr>
<td>Instructional Movies</td>
<td>• The instructional movies do help. I am a very visual learner.</td>
</tr>
<tr>
<td></td>
<td>• ...In addition, the videos really allow experiencing the lesson again at home.</td>
</tr>
<tr>
<td></td>
<td>• Great videos. They help a lot to understand difficult subjects, and create lots of fun and experiential learning atmosphere.</td>
</tr>
<tr>
<td>Collaborative Learning</td>
<td>• The technologies were helpful to the learning. It was nice to be able to share relevant information on the Facebook group.</td>
</tr>
<tr>
<td></td>
<td>• I think the facebook group allowed an easier and more &quot;up-to-date&quot; access to talking with the T.As and asking course related questions.</td>
</tr>
<tr>
<td>Digital Questioners</td>
<td>• Fantastic. Requires you to be in focus throughout the course and lecture!!!</td>
</tr>
<tr>
<td></td>
<td>• This application requires students to listen and participate, leaving them &quot;on the alert&quot;.</td>
</tr>
</tbody>
</table>
Appendix A: Class Interactions

Prof. Mario Mikulincer, Psychology
“Response Segmentation” advanced feature

Dr. Boaz Ganor, Government
“Multiple-Choice” question

Ms. Rachel Thomas, Learning Strategies
“Multiple-Choice” question

Dr. Sarit Guttmann-Steinmetz, Psychology
“Word Cloud” open question

Dr. Anat Bronstein Klomek, Psychology
Regular open question

Prof. Niron Hashai, Business
“Multiple-Choice” question
Appendix B: Instructional Movies

- Instructional movies are short movies that present focused, clear & engaging explanation of main / complicated theories / concepts / ideas of the course. These movies are used as part of the lesson or for before / after class learning.

- The unit has developed a unique concept for instructional movies, using low production resources. Here are the main work stages:
  - First, we identify the main theories / concepts / ideas of the course.
  - Then we write engaging scripts that can help to simplify those concepts, using instructional design methods.
  - Finely, at the editing stage, we integrate the added value of technology (supporting Images & animations, visual illustrations, graphic organizers, etc.) in order to "break" the complex content.

- For our movies demo, click here (link)