Supporting Educational Change in Tunisia: Instructional Design and Technology Training in Tunisian Higher Education Context

Victoria Abramena-Lachheb
Indiana University School of Education
201 N. Rose Ave.
W.W. Wright Education Building (IST Department)
Bloomington, IN, 47405-1006
vabramen@iu.edu

Ahmed Lachheb
Indiana University School of Education
201 N. Rose Ave.
W.W. Wright Education Building (IST Department)
Bloomington, IN, 47405-1006
alachheb@iu.edu

Gamze Ozogul
Indiana University School of Education
201 N. Rose Ave.
W.W. Wright Education Building (IST Department)
Bloomington, IN, 47405-1006
gozogul@indiana.edu

Keywords: instructional design, faculty technology training

Introduction

Instructional design and technology (IDT) as field of study and practice does not formally exist in the Tunisian higher educational system. This is apparent due to the absence of such degree in the Tunisian academia as well as the absence of specialized units that are dedicated to support teachers/instructors/faculty (whether at schools or universities) with their IDT needs.

Motivated to positively contribute to the educational reform in Tunisia and based on an expressed need—from a large regional university in Tunisia—for acquiring IDT skills, we (the authors) proposed to this university the idea of designing and delivering an IDT training to their faculty members. Funded by a local grant obtained from Indiana University, and by relying on the authors combined 20 years of experience in the IDT field, we designed, developed, and conducted a three-half day face-to-face training that targeted university faculty and instructors. After conducting the training, we conducted an evaluation study to investigate the effectiveness of the training and to determine its overall worthiness. In this paper we share the results of this evaluation study with the goal of informing the practice of international IDT communities.

Review of Literature

In this section we share highlights from the IDT literature that focus on IDT trainings in higher education contexts, and background information about the Tunisian higher education system. Key pieces of literature were identified through searching three online databases (Google Scholar, Academic Search Premier and Eric) and by applying the following selection criteria: peer-reviewed scholarly articles, books, books chapters, and reports.
An IDT training is crucial for faculty to know how to apply IDTs in their content areas. Several studies in IDT literature centering on the topic of faculty training in the area of IDT indicate the importance of training and provide useful suggestions on how to ensure the success of such trainings. For instance, to answer many questions related to teaching and learning, Leh (2005) states that training is a necessity for higher education faculty. As far as access and use of technologies are concerned, IDT training is argued to be a prerequisite for providing technology support (Ali, 2003). In investigating what makes IDT training successful (i.e., how to make it work and/or achieve it desired goals?), several scholars pose this question to find effective training strategies (Georgina & Hosford, 2009). Personalized, sustained, and contextualized trainings are among the strategies that afford a training to be successful as ‘one size does not fit all’ (de Vry 2003; Karlin, Ottenbreit-Leftwich, Ozogul, & Liao, In Press).

There are around 266 higher education institutions in Tunisia, including private and public. (EACEA, 2017). Several higher education reforms in Tunisia have been introduced over the last three decades. These reforms were primarily aimed at implementing the “new maitrise” (Bachelor of Arts program) (Daoud, 1996) and the introduction—in 2006—of a new degree system called L.M.D—License (Bachelor) Mastere (Master’s), Doctorate (Ph.D.). In the L.M.D system, academic progress is measured in credit hours (similar to the U.S. system), and 4 years worth of coursework is condensed into a 3-year span of time (EACEA, 2017).

Such reforms resulted in challenges for faculty to address their curriculum goals and implement their teaching methods due to the absence of IDT training opportunities and support structures (Lachheb, 2013). Considerable efforts are being made by Tunisian faculty and different higher education stakeholders to either change or abolish this system.

**Background of this Specific IDT Training**

Based on an expressed need for an IDT training from a regional large university in Tunisia, we gleaned information about the context of the training, potential attendees, and its overall logistics. Once we gathered all the information needed from the host university, we started drafting an outline of three workshops that formed the core of the training. Each workshop addressed the needs stated by the potential trainees, which were: (1) Basic introduction to instructional design: needs assessment and writing effective learning objectives, (2) Instructional methods, (3) Using free learning management systems.

While we did not follow a specific ID model, we kept our ID process close to the Kemp Instructional Design Model (Morrison, Ross, & Kemp, 2012). This model is characterized by non-linear structure with the nine independent core elements, such as designing the message, instructional strategies, content sequencing, instructional objectives, task analysis, learner characteristics, instructional problems, evaluation instruments, and instructional delivery (figure 1). This model allows the design process to be flexible and responsive to ongoing adjustments and revisions. In this context, the aforesaid instructional design model enabled us to design a training that thoroughly addressed the expressed learning needs of potential trainees. In addition to the Kemp ID model, we relied on evidence-based principles of media design and instruction such as: Contrast, Alignment, Repetition and Proximity (CARP, Reynolds, 2011), and Gagne’s (1992) Nine Events of Instruction in structing the different sessions of the training. We developed PowerPoint presentations (figure 2), handouts (figure 3) as well as a Canvas online course to host the training Resources (figure 4).

![Kemp ID Model](image)

**Figure 1. Kemp ID Model (Morrison, Ross, Kalman & Kemp, 2012)**
Figure 2. Examples of slides from a PowerPoint presentation developed for this training (Day 1, session 2: writing effective learning objectives)

Figure 3. An example of a handout (a case study) that was distributed to the faculty attending the training for a discussion activity.

Figure 4. A screenshot of the Canvas course site that was used for this training (trainee view)
The training was implemented by conducting three half-day workshops. Each workshop lasted 2 hours in a conference room, equipped with a computer and a projector, and participants could bring their own laptops and get connected to the university’s WIFI network. At the end of each workshop, participants were asked to complete an assignment and submit it through the training Canvas course site. The training was delivered by one of the authors in person due to his familiarity with the Tunisian higher education context and the culture. The training was delivered in English with frequent translation to French, since two trainees exhibited limited English proficiency and were more familiar with key concepts in the French language, e.g., conception pédagogique; instructional design in English.

Method of the Evaluation Study

This evaluation study followed a mixed-method approach (Creswell & Clark, 2011) and aimed to answer the following questions: EQ1: How satisfied were the faculty with their training experience? Why or why not? EQ2: What are the faculty’s learning gains obtained from this training?

Data collection

To answer each of the above questions, we first obtained IRB approval from our institution to ensure the evaluation study was ethically acceptable prior to starting it. We collected both qualitative and quantitative data by designing and deploying (an anonymous) survey questionnaire using Qualtrics (appendix 1). The survey included 23 items where training participants were asked to (1) evaluate the content of the training, (2) evaluate the format of the training, (3) evaluate the quality of the training materials (4) provide suggestions for improvements, (5) share ideas as to what trainings they would like to attend in the future, and (6) rate their overall training experience. At the end of the survey, training participants took a 9-item quiz to assess their learning gains from the training. The above described two sections of the survey allowed us to answer two of our evaluation questions—faculty satisfaction with their training experience and their learning gains.

Participants

The participants were the 13 university level instructors and faculty members who attended the three-half day training to gain IDT skills. Eleven faculty members were from various subject areas in the English department (literature, history and civilization, discourse analysis, pedagogy courses, etc.) and two instructors were from two different areas in the French department (writing, literature, and history). Nine participants agreed to complete the survey (69% completion rate) and were offered a small token of appreciation for their time.

Findings

Content and Format of the Training

Survey respondents were asked to rate the content of the training through multiple-choice, multiple-answer, and open-ended questions. Most of the respondents found the content to be very/somewhat interesting and engaging (87.5% and 12.5% respectively). 87.5% of the survey respondents found topics of the training to be appropriately challenging, and useful to their professional and personal lives (figure 5). Qualitative statements from survey respondents expressed that the content of the training was helpful, innovative, and informative (see table 1).
Figure 5. I believe the content/skills I learned in this training will be useful (check all that apply)

Table 1

Additional comments related to the training

Nothing (X2)
The training was very helpful and innovative in the Tunisian context.
I think the ideas shared in the training are out of the box.
I find the training to be quite helpful and useful for the audience in question.
It was engaging, informative and fun to attend.
Designing needs analysis plan is an important part of this training
No Comments
interesting and very useful to us. I got new knowledge of how to design objectives and choose the right verbs.
Knowing about the stages of instructional design helps us to improve our course design. We often do not follow them.

The survey respondents gave positive feedback regarding the format of the training. The majority of the respondents found the length of each session and the content of the training to be appropriate (88.99% and 62.50% respectively). Regarding the amount of assignments/homework that trainees were asked to complete, all respondents found the amount of assigned homework to be just right (nor too much, nor too little), and be very helpful/somewhat helpful in applying the newly acquired IDT skills (figure 6). Most of the respondents expressed appreciation for the discussion activities as they found them to be very helpful/somewhat helpful in learning the content (75% and 25% respectively). The demonstration of actual tools, e.g. Canvas LMS, was found to be effective/somewhat effective in helping the trainees discover new instructional design tools (50% and 50% respectively). In answering the question regarding activities (from least to most engaging), the survey respondents indicated that group activities and trainer demonstrations were the most engaging (see table 2).
Figure 6. Perceptions of effectiveness of assigned homework in helping participants learn IDT skills

Table 2

<table>
<thead>
<tr>
<th>Ranking of the various training activities implemented in training</th>
<th>1: Least Engaging</th>
<th>2</th>
<th>3</th>
<th>4: Most Engaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor-led demonstration of technology tools</td>
<td>0.00%</td>
<td>0.00%</td>
<td>25.00%</td>
<td>75.00%</td>
</tr>
<tr>
<td>Group activities/tasks to practice concepts/skills during workshops</td>
<td>0.00%</td>
<td>12.50%</td>
<td>12.50%</td>
<td>75.00%</td>
</tr>
<tr>
<td>Instructor's explanations of concepts about IDT</td>
<td>0.00%</td>
<td>0.00%</td>
<td>37.50%</td>
<td>62.50%</td>
</tr>
<tr>
<td>Open lab time to work on assigned projects while instructor helped you individually</td>
<td>0.00%</td>
<td>25.00%</td>
<td>37.50%</td>
<td>37.50%</td>
</tr>
</tbody>
</table>

Quality of the Training Materials

The survey respondents emphasized the high quality of the training materials. The quality of the visuals used in the materials was found to be of excellent quality (87.50%). When asked to indicate “how helpful did you find the training materials in helping you learn instructional technology and design skills?”, the survey respondents reported finding the materials to be very helpful/somewhat helpful (6 % and 33.33% respectively, figure 7).
Areas for Improvement

Through open-ended questions, the survey respondents indicated areas for improvements. When asked to state the thing they like the least about the training, the survey respondents commented on the timing of the training, internet connection and other aspects related to the training (table 3). Also, respondents indicated that the open lab time to work on assigned projects was the least engaging activity (see table 2 above).

Table 3

<table>
<thead>
<tr>
<th>What did you like least about the training?</th>
</tr>
</thead>
<tbody>
<tr>
<td>internet connection is not good</td>
</tr>
<tr>
<td>The number of the participants is not enough</td>
</tr>
<tr>
<td>the amount of details, it is too much.</td>
</tr>
<tr>
<td>the theoretical part of it maybe because I already had some background knowledge</td>
</tr>
<tr>
<td>The group activities</td>
</tr>
<tr>
<td>Internet connection was not very helpful</td>
</tr>
<tr>
<td>Timing. It was the end of the academic year. Many people were busy preparing for the holidays.</td>
</tr>
</tbody>
</table>

Overall Training Experience

The majority of respondents (87.5 %, figure 8) stressed the instructor’s excellent preparedness and presentation skills. The demonstration of technology tools was the most engaging part of the training. That is, 75% of the respondents found instructor-led demonstration of technology tools to be the most engaging (see table 2 above). That confirms that the content covered in the IDT training is relevant to the given academic context. Last, the majority of the survey respondents indicated their willingness to take/maybe take future IDT training (71% and 29% respectively) with the most of them showing preference toward an online format (figure 9).
Faculty’s Learning Gains Obtained from this Training

At the end of the aforesaid survey, respondents were asked to take a quiz, consisting of nine questions (2 possible points for each question, 18 total possible points). This quiz was designed with the aim of assessing the respondents’ learning gains from the IDT training. The mean score of respondents is 13.63 out of 18 possible points. Based on this score, it is possible to conclude that upon completion of the training, the respondents were able to define instructional design, needs analysis, explain the purpose of writing learning objectives, as well as describe each school of learning, e.g., behaviorism, cognitivism, and constructivism. The respondents exhibited a clear understanding of the purpose of writing learning objectives, as well as instructional strategies drawn from different learning theories.
The study findings highlighted the positive outcome of the IDT training that were designed, developed and delivered in a large regional university in Tunisia. Based on the findings of this study, we are encouraged to propose more trainings in the future for other universities in Tunisia. Our study also suggests the following future considerations: (1) Being aware of the cultural context is a critical factor in designing and in conducting a successful training. Specific organizational cultures should take precedent among other considerations when designing and delivering IDT trainings (Brown, 2003; Ertmer, 2005; Mayo et al., 2005). (2) An emphasis on innovative technological tools (such as LMS tools) will be more helpful for a similar target audience due to their basic familiarity with general learning theory and sound pedagogical practices. This is evident based on the data gathered from the survey respondents. (3) Trainees should be demonstrated examples of meaningful technology integration relevant to their context. As shown in the data, trainees found the activities relevant to their context to be the most engaging for them. (4) In addition to informational sessions, similar trainings should include practical or hands-on activities encouraging trainees to apply newly acquired knowledge and skills. (5) A rigorous needs assessment will be a key step to take before designing an IDT training. Without understanding the context of the training and being responsive to the need of our target audience, our IDT training could have been a failed training attempt.

References

Lachheb, A. (2013). Information technology effects on Tunisian college students, Tunisian English majors as a case study (Unpublished Master’s thesis). Grand Valley State University, USA.
Appendix 1: Survey Questionnaire

1- How helpful did you find the training materials in helping you learn instructional technology and design skills?
   - Very helpful
   - Somewhat helpful
   - Not helpful

2- The length for each of session was 2 hours:
   - Too long for the given content
   - Appropriate duration for the given content
   - Too short for the given content

3- The training spanned over 3 days (2 sessions a day):
   - Too long for the given content
   - Appropriate duration for the given content
   - Too short for the given content

4- The quality of the visuals used in the training materials was:
   - Excellent quality
   - Medium quality
   - Poor quality

5- The quality of the instructor’s training skills were:
   - Excellent quality
   - Medium quality
   - Poor quality

6- In general, I found the content of the training to be:
   - Very engaging/interesting
   - Somewhat engaging/interesting
   - Not interesting

7- In general, I found the topics covered in the training to be:
   - Too difficult
   - Appropriately challenging
   - Too easy

8- Please provide any additional comments related to the training:

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

9- Typically, you were asked to complete homework by the end of each day and a major project:
   - The amount of homework was too much
   - The amount of homework was about right
   - The amount of homework was too little

10- How effective did you find the assigned homework in helping you learn IDT skills?
    - Very helpful
    - Somewhat helpful
    - Not helpful
11- How helpful did you find the discussion activities during the training?
- Very helpful in learning the content
- Somewhat helpful in learning the content
- Not helpful in learning the content

12- The practice of demo-ing practical technology solutions like Canvas LMS was:
- Very effective in helping me improve my teaching practice
- Somewhat effective in helping me improve my teaching practice
- Not effective in helping me improve my teaching practice

13- Using a scale of 1 to 4, where 1 is least engaging and 4 is most engaging, rank the following training activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor led demonstration of technology tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor explanations of concepts about IDT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group activities/tasks to practice concepts/skills during workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open-Lab time to work on assigned projects while instructor helped you</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14- I believe the content/skills I learned in this training will be useful (check all that apply):
- Professionally (career related) and Personally (non-career related)
- Only professionally
- Only personally
- Neither professionally or personally

15- What were your expectations from this training? Please list 2:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

16- What did you like best about the training and why?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
17-What did you like least about the training?

18-Would you like to take additional IDT training?
- Yes
- Maybe
- No

19-Taking the same training in online course format would be
- Helpful for me to learn more about instructional design and its relevance to my practice
- Somewhat helpful for me to learn about instructional design and its relevance to my practice
- Not helpful for me to learn about instructional design and its relevance to my practice

21. Were the topics presented at the training sufficient to provide you with a good understanding of instructional design is. Why or why not?

22. Were the topics presented at the training showed the relevance to your practice?

23-Please provide any additional comments related to the training:

*The following quiz is meant to gauge your retention and understanding of the material presented during the IDT training, which took place July 10-12. The quiz consists of 10 questions.*

1. Which statement best describes instructional design (ID)?
   a. ID primarily refers to educational psychology (learning and cognition).
   b. The process of making learning efficient, effective, and less difficult.
   c. ID focuses on the analysis of best teaching practices

2. The purpose of instructional design (ID) is to (select all that apply)
   a. Help professors create visually appealing instructional materials
   b. Save time, money, and improve human performance
   c. Ensure seamless experience of using educational technologies in the classroom

3. Needs analysis (NA), first step in instructional design process, is conducted in order to... (select all that apply)
   a. Collect data on learner characteristics and learning context
   b. Identify needs correctly to know what exactly needs to be designed
   c. Analyze the context of the program where the course will be offered and to what extent the course is needed to cover a skill or a knowledge gap in the program

4. The most common needs analysis (NA) techniques are...(select all that apply)
   a. Anonymous survey of students (paper-based or online)
   b. Face-to-face interviews (structured or semi-structured)
   c. Checking previous achievement levels (grades or pre-test)
5. Upon completion of needs analysis, it is possible to know... (select two correct answers)
   a. Whether instruction is the only or not solution to improve human performance
   b. How many students enjoyed a particular course
   c. How the instruction needs to be improved

6. Instructors/professors need to write learning objectives in order to …
   a. Make their instructional materials more engaging
   b. Define the expected goal of a curriculum, course, lesson, or activity in terms of demonstrable skills or knowledge that will be acquired by a student as a result of instruction
   c. Activate students’ prior knowledge about the topic

7. What kind of verbs are used when writing learning objectives (select two correct answers):
   a. Actions verbs that describe mental activity: read, write, recite, identify, analyze, etc.
   b. Stative verbs that express a state rather than an action: feel, think, know, appreciate, etc.
   c. Verbs than can be measured: define, repeat, record, discuss, apply, etc.

8. Which learning objective is written in the correct format...
   a. Given a lecture, students will be able to learn what discourse analysis is
   b. For one hour, students will be able to know what the illocutionary act is
   c. At the end of the course, students will appreciate postcolonial literature
   d. Based on the lecture, students will be able to explain the Noam Chomsky's theory of transformational grammar

9. Please match each school of learning with its correct description

<table>
<thead>
<tr>
<th>Behaviorism</th>
<th>Instructor-centered approach; only observable behaviors explain learning; drill and practice strategies and rote memorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitivism</td>
<td>Cognition is what makes learning happen; the brain works like a computer; we learn differently depending on the type of input (Schema -&gt;schemata-&gt;learning)</td>
</tr>
<tr>
<td>Constructivism</td>
<td>Student-centered approach; learning happens when people interact with each other or work together; discussion and problem-based approach</td>
</tr>
</tbody>
</table>