

## Potential of Interactive Learning Objects (ILOs) as Non-Face-to-Face Learning Among Trainee Teachers in the Philippines

(Potensi Objek Pembelajaran Interaktif (ILOs) sebagai Pembelajaran Tidak Bersemuka dalam Kalangan Guru Pelatih di Filipina)

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### ABSTRACT

*Teaching practicum is designed to provide teaching experiences to trainee teachers for the leadership role they are expected to perform as regular teachers. During practicum, trainee teachers are often away from the immediate supervision of their teachers for consultation. It is for this reason that online Interactive Learning Object (ILO), was introduced to serve them immediate answers related to teaching practice. This mixed method study aimed to evaluate the effectiveness of the ILO in terms of the manipulability, attractiveness, clarity and comprehensibility, interactivity, applicability, and its perceived strengths and weaknesses, as perceived by 70 trainee teachers and three faculty members. The ILO was introduced to the respondents for two weeks, and data was collected afterwards using online survey and online interview. Results indicated a high level of acceptability of the ILO among the respondents. Furthermore, suggestions to improve the ILO were also voiced by the respondents. The findings implicate that ILOs have the potential to be remedial learning objects for trainee teachers that will bridge the distance between them and their supervising teachers for consultation. The use of ILOs in the delivery of e-learning and distant learning undoubtedly needs to be considered by educational institutions.*

*Key Words: Cyber instruction, interactive learning object, non-face-to-face learning, trainee teachers, secondary School*

### ABSTRAK

*Praktikum mengajar direka untuk memberikan pengalaman mengajar kepada guru pelatih untuk peranan kepimpinan yang akan dilaksanakan mereka sebagai guru biasa. Semasa praktikum, guru pelatih selalunya jauh dari pengawasan segera guru mereka untuk rundingan. Atas sebab inilah Objek Pembelajaran Interaktif (ILO) dalam talian diperkenalkan untuk memberi mereka pembelajaran segera berkaitan dengan amalan pengajaran. Kajian kaedah campuran ini bertujuan untuk menilai keberkesanan ILO dari segi manipulasi, daya tarikan, kejelasan dan kepekaan, interaktiviti, kebolegunaan, dan kekuatan dan kelemahannya seperti yang dirasakan oleh 70 guru pelatih dan tiga ahli fakulti. ILO diperkenalkan kepada responden selama dua minggu, dan data dikumpulkan kemudiannya menggunakan kaji selidik dan temu bual dalam talian. Dapatan menunjukkan tahap penerimaan ILO yang tinggi dalam kalangan responden. Selain itu, cadangan untuk menambahbaik ILO juga disuarakan oleh responden. Penemuan ini mengimpkalisasikan bahawa ILO mempunyai potensi untuk menjadi objek pembelajaran remedial bagi guru pelatih yang akan menghubungkan jarak antara mereka dan guru penyelia mereka untuk perundingan. Penggunaan ILO dalam penyampaian e-pembelajaran dan pembelajaran jauh perlu dipertimbangkan oleh institusi pendidikan.*

*Kata Kunci: Pengajaran siberl objek pembelajaran interaktifl pembelajaran tidak bersemuka; guru pelatih; sekolah menengah*

### INTRODUCTION

Teaching training is an integral part of any teacher education program. It is during and through this experience that pre-service trainee teachers put into actual practice the theories they learned into a real

classroom setting (Marais & Meier 2004; Kiggundu & Nayimuli 2009; Gan 2013; Ganai et al. 2015; Ulla 2016; Foncha et al. 2015). Moreover, practicum teaching is internationally recognized as one of the most important aspects of the teacher education program curriculum. In fact, since the 19<sup>th</sup> century,

practicum teaching has remained unchallenged, being a significant element in the preparation of generations of teachers. The practice teaching experience not only allows student-teachers to put their university-acquired knowledge into practical use but also the experience helps them confirm that they have chosen the right career (Kiggundu & Nayimuli 2009). It is therefore important that these trainee teachers must be “well-monitored, supervised, and guided by their supervising teachers through online discussions and classroom teaching observation for them to become prepared” (Ulla 2016, p. 236).

In the Philippine context, the practice teaching program is one of the requirements for the Bachelor of Secondary Education (BSE), Bachelor of Elementary Education (BEE) for some degrees in the Bachelor of Arts (BA) programs (Ulla 2016). Any students taking these programs are not allowed to graduate without undergoing through the practice teaching experience. Usually, the practice teaching experience is done either inside the teacher education institution campus, to the public elementary or secondary schools within the vicinity of the teacher institution, or to the basic education department of college or university. Related to this, the Department of Education in the Philippines issued a guideline regarding the roles of teacher education institution and the school division superintendents related to the practicum teaching of the pre-service teachers (“DepEd Order 39, S. 2005,” 2005). Furthermore, the Commission on Higher Education issued a memorandum detailing the program specifications of the degrees Bachelor of Elementary Education (BEE), and Bachelor of Secondary Education (BSE) (“CMO 30 s. 2004,” 2004).

Despite the enriching experience during the practice teaching, the journey is not always smooth. Scholars (Foncha et al. 2015; Ganal et al. 2015; Kiggundu & Nayimuli 2009; Marais & Meier 2004) identified challenges and difficulties met by practice teaching students. Among these challenges include environmental problems, which refers to the problems on the teacher’s adjustments with the pupils or students. Example of this problem is how the trainee teacher, being perceived by the students as neophyte or not quite experienced in the teaching practice, will be accepted by the pupils or students. In addition, environmental problems also include lack of teaching resources as well as a lack of discipline among learners and even with the cooperating educators. Furthermore, this problem may also include the geographical distance where the practice teaching students is assigned, either away from home or from the university for consultation purposes. In addition, problems such as maintaining interest of pupils and students, individualizing instruction, providing appropriate reinforcement, inability to develop the

lesson in relation to the objectives, and lack of skills in preparing curriculum material add up to the list in this category. Lastly, scholars identified that trainee teachers could face support problem, where sometimes they would encounter situations where the permanent (cooperating) teachers are not friendly and do not want to interact with trainee teachers, or that the supervising teacher from the university do not pay regular visits to practicing schools. Furthermore, some schools lack instructional materials that are needed for effective teaching. Such challenges may hinder the trainee teacher’s capability to fully maximize the practicum teaching experience (Foncha et al. 2015).

As such, it is therefore imperative that these problems faced by the trainee teachers be addressed in order to lessen their prevalence and thereby help the trainee teachers develop and sustain self-efficacy as they perform their practicum teaching practice with quality and excellence (Ganal et al. 2015). If these challenges are not addressed properly, it may cause anxiety to the trainee teachers. It may even affect trainee teachers’ performance during teaching practice and can hamper their ability to derive maximum benefit from the exercise, or at its worst, affect their perception of the teaching profession in the long run (Kiggundu & Nayimuli 2009; Mannathoko 2013).

Trainee teachers are yet in their infancy stage of the actual teaching practice; they should be well-monitored, supervised and guided by their supervising teachers through online discussions and classroom teaching observation for them to become prepared (Kaneko-Marques 2015; Ulla 2016). It is thought that interactive learning objects as a non-face-to-face learning material for practicum trainee teachers can provide them the support they need while in the practice. Interactive learning objects are small, reusable chunks of instructional media reassembled by a teacher in ways that support each individual’s instructional goals which are deliverable over the internet and which can be accessed by anyone anytime at anywhere simultaneously (Holden & Westfall 2010; Wiley et al. 2000). According to scholars, by proliferating and integrating technology in the Philippine education system, the transformation of teaching and learning process increases the academic achievements of Filipino college students.

In line with the identified problem stated above, Interactive Learning Objects (ILOs) were developed as supplementary learning materials for the trainee teachers. The aims of this study were to evaluate the effectiveness of the ILO from the perspective of the trainee teachers. This study seeks to answer the following research questions:

1. What are the perceived acceptability levels of the ILO in terms of manipulability, attractiveness,

- clarity and comprehensibility, interactivity, and applicability?
2. What are the perceived strengths and weaknesses of the ILO?

#### INTERACTIVE LEARNING OBJECTS (ILOs) IN EDUCATION

There is no single, formal definition of learning objects (LOs). Scholars on education and technology defines learning objects in various ways. For example, Wiley (2002) defines LO as “any digital resource that can be reused to support learning.” Cramer & Oshkosh (2006) refers LO as any instructional materials that are small and in different formats, shapes and purposes found on the Internet which can be used to illustrate, support, supplement or assess student learning. Kay & Knaack (2007) describes LO as “interactive web-based tools that support learning by enhancing, amplifying, and guiding the cognitive processes of learners.” and Maceviciute & Wilson (2008) explains LO as “any entity, digital or non-digital, that may be used for learning, education or training.” In summary, LOs are small chunk of learning materials available on the internet provided to aid which can be accessed by anyone, anytime at anywhere simultaneously for the purposes of enhancing the learning experience of the learner.

Students learn more powerfully, and remember over a longer period, and thus able to apply the concepts constructively, when they are actively engaged in a self-driven learning activity than when they are engaged in a passive, sitting-and-listening classroom setup. The synergy of the combined power of education and technology can build dynamic teaching and learning experiences to both the educators and learners needed to power the digital economy. Considering the present economy, the use of LOs can help to effectively reduce the costs of education (Wiley 2002; Cramer & Oshkosh 2006; Maceviciute & Wilson 2008).

LOs offer a wide range of advantages for both educators and learners. Among the advantages are ease of use, reusability, interactivity, and visual supports (Bowen et al. 2012; Montrieux et al. 2015; Koh 2017). In addition, LOs also help support exploration, investigation, constructing solutions, and manipulating parameters instead of memorizing and retaining a series of facts. Feedback, which is very relevant to the immediate condition of the learner is also provided by LO. For the benefit of the educators who design and prepare learning object, which is basically time-consuming for a start, LOs can be transportable, reusable and can be stored in a way that allows convenient identification and retrieval from a repository. And for the benefit of the users/learners,

LOs can be used by multiple people in multiple locations simultaneously and can be accessed repeatedly without the boundaries of time or location. LOs can be presented in a class but its true power comes when individual students utilize the materials to support their current learning needs (Wiley 2002; Allan 2005; Cramer & Oshkosh 2006; Kay & Knaack 2007; Maceviciute & Wilson 2008).

Previous studies on the use of ILOs have proven its effectiveness on student learning particularly in distance or online learning situations. For example, in a study conducted by Huppertz et al. (2014), it was found out that the use of ILOs allows learners to navigate through the lessons/topics multiple times. It also allows the learners to assess their own performance on a given lesson which eventually enabled them to navigate through more complex lessons or skills on their own pace of learning. Similarly, in a study done by Maboe (2017), learners who are using ILOs get support from their peers which indicated that using ILOs allowed them to communicate and learn collaboratively, and these skills are vital in the 21<sup>st</sup> century. Furthermore, using ILO as an interactive tool for distance learning makes the students feel they are connected with, and they get support from their lecturers.

#### DEVELOPMENT AND IMPLEMENTATION OF INTERACTIVE LEARNING OBJECTS (ILOs)

The ILO used in this study was developed using the Robert Gagne’s Nine Events of Instruction model. Robert Gagne proposed a series of events which follow a systematic instructional design process. The instructional design model focuses on the outcomes or behaviours of instruction or training. In the development of the ILO in this study, the following nine events have been adapted from Gagné, Briggs, and Wager (1992).

1. Gain attention of the students: This stage ensured that the learners are ready to learn and participate in activities by presenting a stimulus to gain their attention. In the ILO, this was done by presenting what the ILO is all about and what they can get from it.
2. Inform students of the objectives: The home page of the ILO clearly stated the objectives or outcomes that the students are expected to have learned or achieved during the course. The description of the required performance was clearly stated.
3. Stimulate recall of prior learning: This stage helps students make sense of new information by relating it to something they already know or something they have already experienced. In the ILO, this was done by posing questions that

- stimulate recall about their understanding of previous concepts.
4. Present the content: This stage, the ILO designer used strategies to present and cue lesson content to provide more effective, efficient instruction. The lessons and topics were organized and presented in chunk content in a meaningful way. There were also explanations and illustrations through the video presentations. The lesson presentations were varied to cater different learning styles.
  5. Provide learning guidance: The students were provided with different of strategies to help them in learning content and of resources available. In the ILO, learning strategies included visualizing, use of examples and non-examples to help students see what not to do or the opposite of examples.
  6. Elicit performance: This stage activates student processing to help them internalize new skills and knowledge and to confirm correct understanding of these concepts. In the ILO, this step utilized open-ended questions to ask students to elaborate or explain details and provide more complexity to their responses.
  7. Provide feedback: Providing feedback of students' performance was employed by the features of the Google form which automatically informs the designer of the student's performance; hence the feedback can be immediately provided to the student.
  8. Assess performance: Assessment in the ILO was done in different ways: through EdPuzzle, Proprofs and Google Forms. Assessment items were developed to check whether the intended achieved by the students.
  9. Enhance retention and transfer to the job: To help learners develop expertise, the evaluation part of the ILO was designed so that the students are able to perform the expected learning outcome. In this case, it is regarding the practicum trainee teacher's ability to write a SMART learning objective.

The Interactive Learning Object (ILO) was developed using several Web 2.0 tools available on the internet. Web 2.0 refers to the different kinds of emerging web-based technologies that allow the users to share and exchange knowledge by way of collaborative editing, communicating, publishing, and commenting, and to edit and change the content of knowledge published on the web, enabling the students to produce and share content in innovative ways and in real-time (Yücel 2017). Because of this development in technology, the growing use of Web

2.0 technologies allows the educators with opportunities to facilitate twenty-first century learning environments (Sadaf et al. 2016). In this way, students can be active learners; they become equal partners in the learning process as they collaborate and create knowledge in a social manner (Ching & Hsu 2012).

In the development of the ILO, *Wix* was used as the platform because it is a powerful and user-friendly tool. Using *Wix* as a platform bears advantages for the instruction designers. These advantages include a collection of excellent designer templates that the instruction designer can choose from, the innovative drag-and-drop website builder, its multilingual feature which allows the designer to translate the content in just a few clicks, and it automatically creates a mobile-friendly version of the site which can be edited separately thereby allowing the designer to create an optimized mobile experience. Finally, *Wix* has available help and support online (Fordham 2019).

Lessons and topics were developed into videos using *Screencast-O-Matic* and were uploaded to YouTube. These developed videos were then hyperlinked to the ILO platform. Videos from other channels which are related to the topic were also borrowed and hyperlinked to the platform. Lessons available on the internet were also hyperlinked. The designer also developed infographic using *Canva* and these lessons were also hyperlinked to the platform.

For the assessment of learning, quizzes were developed using the *EdPuzzle* application. Some quiz items were borrowed from *Proprofs* and hyperlinked to the platform. The teacher-made tests were developed using the google form and were embedded in the platform as well.

The ILO was implemented through Facebook groups. Facebook was deemed as the most feasible avenue to implement the ILO because it is the widely used social media in the Philippines. Facebook was established in 2004 and since then, it has enabled individuals all over the world to connect to one another, communicate, develop and maintain friendships. Because Facebook is the most inexpensive and convenient way to communicate with a social network, it is considered as the world's most well-liked social network service with an estimated 1 billion users since its launch in 2004. In Philippines alone, as of 2012, there are about 30 million active users making the country as the 8th country in the world with high number of Facebook use. Studies reveal that in Philippines, more than 80% of adults aged 18 to 29 years old visit social networking sites such as Facebook (Gemora 2015; Kulidtod & Pasagui 2017; Labrague & Dean 2014).

## RESEARCH METHODOLOGY

### RESEARCH DESIGN

This study employed the concurrent embedded mixed method research design, which is a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative methods in a single study or a series of studies to understand a research problem (Creswell & Clark 2011). This design primarily employed the quantitative data from survey questionnaire to establish manipulability, attractiveness, clarity and comprehensibility of the ILO. Subsequently, the qualitative data were collected concurrently through open-ended questions to measure the perceived strengths and weaknesses of the ILO, which served to augment the explanation of the empirical evidence gathered from quantitative data (Almeida 2018). In this research design, the supposition is that by combining both the quantitative and qualitative method, the study can provide a better answer and explanation of the research problem and research questions than either method can provide when employed alone (Johnson & Onwuegbuzie 1963). This research has been approved and obtained ethical approval from the Department of Education in Cagayan de Oro City, Philippines. All the respondents have consented to the study before they were involved in it.

### POPULATION AND SAMPLE

The population of the study included 90 student teacher trainees, and five teacher training supervision lecturers from a Philippine state university. The students were deployed to practice teaching among different secondary schools in the Department of Education, Cagayan de Oro City, Philippines.

The sample consisted of 70 student teacher trainees and three supervision teacher training lecturers. The respondents were obtained through purposive sampling procedure because they are the source of information that are deemed to be most appropriate to answer the research questions, and thereby satisfy the information needed for this study (Cohen et al. 2007). The selection criterion was that the respondents must be registered student teacher at the time the study was conducted who are deployed for actual teaching practice; for the teachers, they must be supervising student teacher trainees for at least two semesters to have a grasp of the phenomenon being investigated. Table 1 shows the demographic profile of the respondents.

A total of 70 student teacher trainees deployed to different secondary schools in the Department of Education in Cagayan de Oro City, Philippines participated in the study. Among the respondents were 79 per cent (55) female and 21 per

cent (15) male. They were between 19 to 35 years old. In addition, there were three faculty members who participated in this study. All of the supervising teachers were master’s degree graduates.

### DATA COLLECTION AND ANALYSIS METHOD

To collect data on the student teacher trainees’ perception of the acceptability of the ILO, a survey questionnaire was used as the instrument. The research instrument used in this study was a modification from the Learning Object Peer Review Rubric developed by the Wisconsin Online Resource Center Interactive, and from the questionnaire used by Pabro & Dionisio-sese (2018). It consists of 23 items, and each item was measured with five-point Likert scale (1: Totally Unacceptable; 2: Unacceptable; 3: Neither Unacceptable Nor Acceptable; 4: Acceptable; 5: Totally Acceptable). The questionnaire was used to evaluate the manipulability, attractiveness, clarity and comprehensibility, interactivity and applicability of the ILO. The data were collected at the end of eight-weeks implementation of the ILO, which was conducted in November and December 2018.

Five criteria were used to measure the acceptability of the ILO under study. These five criteria were: i) manipulability, ii) clarity and comprehensibility, iii) interactivity, iv) attractiveness, and v) applicability. Manipulability, with four items, refers to the ease of use in any preferred gadget. Attractiveness, with four items, refers to its aesthetic appeal. Clarity and comprehensibility, with five items, refers to the logical and clear organization and presentation of the lessons embedded. Interactivity, with five items, refers to ease of search and access towards the whole package of the learning object and materials as well as assessment for learning. Attractiveness, with five items, refers to pleasantness to the sense of seeing for the users. And applicability, with five items, refers to the significance of the learning object contents to the student’s needs.

Before the questionnaire was administered, the content validity was assessed by three students from the same state university to make sure that the items can be clearly understood by the respondents. A pilot test was performed among 30 students from the same university. Reliability test was performed using Cronbach’s alpha and the results are shown in Table 2. It can be observed that all items that were administered in the actual survey met the internal consistency criterion of the research instrument. However, three items were deleted from the original draft of the research instrument after the pilot testing. CLA1 was deleted due to low loading, and APL3 and APL4 were deleted due to high loading which may cause multicollinearity issues (see Table 3). Only after the validity and reliability of the questionnaire were

established that the instrument was administered online through Google Form. Quantitative data analysis was performed using SPSS version 24. To describe the level of acceptability of the ILO, a range of mean score was derived from the five-point Likert and thus described based on each level as presented in Table 3.

For the qualitative data, three open-ended

questions which were integrated in the survey questionnaire were used to obtain information on the perceived strengths and weaknesses of the ILO. Furthermore, online interviews were also conducted through Facebook messenger video call to triangulate the quantitative and qualitative data that were gathered. The interview protocol is presented in Table 4. Thematic analysis was performed using NVivo 10.

TABLE 1. Demographic profile of the respondents

Characteristics	Average Age	Frequency	Percentage	Academic Qualification
<i>Supervising Lecturer</i>				
Female	32	2	67%	Master's graduate
Male	37	1	33%	Master's graduate
<i>Student Teacher Trainees</i>				
Female	21	55	79%	Undergraduates
Male	21	15	21%	

TABLE 2. Reliability test result (Cronbach alpha criterion)

Variable	No. of Cases	Cronbach's Alpha	Mean	Variance	SD	N
Manipulability	30	0.70	17.13	4.81	2.19	4
Interactivity	30	0.80	17.53	4.12	2.03	4
Clarity	30	0.75	17.55	3.69	1.92	4
Attractiveness	30	0.79	21.83	5.59	2.37	5
Applicability	30	0.88	13.5	3.29	1.82	3

TABLE 3. Description of the 5-point Likert scale questionnaire and basis for analysis of the data

Range of scores	Description	
1.00 – 1.80	Totally Unacceptable	The ILO is totally not suitable and is not relevant
1.81 – 2.60	Unacceptable	Many features of and topics in the ILO cannot be utilized and are not relevant to the students
2.61 – 3.40	Neither Unacceptable nor Acceptable	The ILO is useful, but the student is not decided whether to use it or not
3.41 – 4.20	Acceptable	Many features of and topics in the ILO can be utilized and are relevant to the students
4.21 – 5.00	Totally Acceptable	The ILO is totally suitable and is relevant to the students.

TABLE 4. Interview protocol for the open-ended question and online interview

Questions to gather general responses:

1. What is the good thing that you can commend about this learning website?
2. Which aspect of this learning website needs to be improved?
3. How can this learning website be improved?

Questions to probe in-depth explanation to general responses:

1. Please explain your answer to this question.
2. What do you mean by this statement...please elaborate more

TABLE 5. Mean, standard deviation and description of criteria for measuring the acceptability of the ILO

Criteria /Items	Question statements	SD	% D	% NA	% A	% SA	% M	Description
<i>Manipulability</i>								
MAN1	The website is compatible to my gadget.	0	0	0	14	20	28	Totally acceptable
MAN2	The website can be used without difficulty.	0	0	6	9	13	19	
MAN3	The speed of loading for the lesson content is fast.	0	0	0	0	9	13	
MAN4	I can easily access the hyperlinked content to the website.	0	0	3	4	7	10	
<i>Clarity and comprehensibility</i>								
CLA2	The arrangement of the lesson content is well-organized.	0	0	0	0	9	13	Totally Acceptable
CLA3	The objectives of the lesson are clearly presented.	1	1	1	1	8	11	
CLA4	The discussion of the lessons in the video can be easily understood.	1	1	0	0	3	4	
CLA5	The presentation of the lesson served for different learning styles.	1	1	0	0	4	6	
<i>Interactivity</i>								
INT1	The website has search feature.	0	0	4	6	9	13	Totally Acceptable
INT2	I can interact with the learning materials, e.g. responding to apply higher-order thinking skills	1	1	1	1	5	7	
INT3	I can get all the learning and assessment materials in one website.	0	0	0	0	3	4	
INT4	The website contains all the information and materials needed to complete the activity.	1	1	2	3	5	7	
INT5	I can use the website easily on my gadget	0	0	0	0	2	3	
<i>Attractiveness</i>								
ATT1	The colors used in the website are pleasant to the eyes.	0	0	2	3	4	6	Totally acceptable
ATT2	The colors used for the text and background are well-contrasted.	2	3	3	4	12	17	
ATT3	The font style and size used can be read easily.	2	3	3	4	12	17	
ATT4	The icons used for each item were labelled appropriately.	0	0	1	2	4	6	
<i>Applicability</i>								
APP1	The topic is significant to me as practice teacher.	1	1	0	0	4	6	Totally acceptable
APP2	The assessment of learning was in line with the lesson objective.	1	1	0	0	2	3	
APP5	The variation of the lesson presented helped me understand the topic well.	1	1	0	0	4	6	

## FINDINGS AND DISCUSSION

### PERCEIVED ACCEPTABILITY LEVELS OF THE ILO

The summary of the findings of the data analysis are shown in Table 5 presenting the corresponding mean score, standard deviations and description of each item per criteria.

It can be observed from Table 5 that a majority of the respondents have shown total acceptance of the ILOs presented to them, as indicated by the mean score for each criterion such as manipulability (M=4.37), clarity and comprehensibility (M=4.51), interactivity (M=4.41), attractiveness (M=4.50), and applicability (M=4.62). However, it is worthy to note that there were also some students who strongly disagree, disagree, and neither disagree nor agree with the statements in each item. Although these responses are minimal compared to those who indicated total acceptance to the ILO, these need to be addressed as this information could lead the instructional designer to better improve future instructional material designs using ILO. The reasons to these responses are explained in the qualitative data that were gathered during the open-ended survey and online interview.

### PERCEIVED STRENGTHS AND WEAKNESSES OF THE ILO

Findings on the perceived strengths and weaknesses of the ILO were obtained through analyzing the qualitative data from the open-ended questions in the questionnaire and from online interviews. Four themes emerged which were labelled as: (a) affective effect, (b) facilitative effect, (c) technical effect, and (d) "More, please!." Table 6 shows the codes and themes that emerged from the thematic analysis.

TABLE 6. Codes and themes emerged from thematic analysis

Codes	Themes
Excellent, very good, enlightening, challenging, entertaining, enjoyable	Affective Effect
Accessible, interactive, enhancing, easy to understand, all-in-one website, integrative, effective	Facilitative Effect
Well-managed, well-explained, integrates ICT and millennial, clear audio, good graphics, well-designed, colourful	Technical Effect
More examples, more assessment, include other topics, put animation, include a page that the user can keep track his/her progress	More, Please!

#### Affective Effect

Affective effect, based on the result of the qualitative analysis, refers to the perceived positive emotions that the respondents felt when using the ILO. One student

shared that the ILO "*enlightens [her] to pursue teaching profession*" while another student claimed that "*it challenges [her] to study so [she] can answer the assessment.*" Another student also reported that the ILO "*is entertaining*" and he "*enjoyed it a lot and learned better from it compared to when [he] just read information from book or listen to boring lectures.*"

The findings imply that designing instructional material particularly intended for non-face-to-face learning should contain features that will elicit positive emotions to the learners. It should be remembered that social interaction as stated by Nugent (2009), which is vital for supervising teacher and teacher trainee relationship, is absent for non-face to face learning. Hence, this aspect of instructional material should be considered in the design. Thus, the responses of the students in this study based on their experience upon using the ILO agrees with the emphasis of Cramer & Oshkosh (2006) that LO is most potent when it meets the emotional individual and current needs of a learner.

#### Facilitative Effect

Facilitative effect refers to the perceived significance and relevance of the ILO to the teacher trainees' needs while they are in their practice teaching period. One of the students claimed that the lessons presented in the ILO "*are easy to understand*", thereby it "*enhances [their] capability in writing learning objectives*. Moreover, students also mentioned during the interview that the ILO is also "*helpful because it is one-package learning.*" In fact, one student said that "*everything [she] needs to learn about writing SMART learning objectives is on this one website.*" During the online interview with the supervising teachers, they shared that the ILO was "*very effective especially to trainee teachers who don't need to go to the classroom to be refreshed with the lessons they need on while in the field for practice teaching.*"

Deducible from the students' and teachers' responses, ILOs indeed aid in facilitating students' learning. This agrees with the reasoning of Harakchiyska (2010) stating that ILOs should be designed in a manner that will help solve learning problems by way of developing e-learning materials that will challenge the students and allow them to interact with other users/learners outside the classroom, can be used again and are portable.

#### Technical Effect

Technical effect is related to the perceived ease of manipulability of the ILO, how the ILO contents are organized, and how the lessons are presented and discussed especially on videos. One of the students



shared during the open-ended questionnaire that the ILO was *“interactive and very accessible and easy to use.”* Another student happily shared that she enjoys the ILO a lot because it caters her interest in technology. She said that the ILO *“integrates ICT and very millennial.”* Another student also shared that *“the Learning Website is very nice because it is well-managed”, “every topic is not boring because it is well explained in every video”,* the ILO *“contains clear audio and good graphic presentation”,* and that it was *“well-designed, colorful and meaningful.”*

In agreement to the students' responses is the conclusion of Pabro & Dionisio-sese (2018) emphasizing that the attractiveness of the ILO such as font style, colors, lay-out, use of animation and clip arts, properly labeled graphs and charts adds to the usability of ILO. This agrees to the tips provided by Roberts, Newman, and Schwartzstein (2012) related to meeting the millennials' learning needs. They mentioned that e-learning materials for millennials should be so designed that it bears *“aesthetically appealing educational presentations (p.3).”* The findings from this study and the reports from previous literature imply that ILO should be designed in a manner that even the non-technology individual will not have difficulty navigating the tool. Similarly, the arrangement of the content embedded in the ILO must also be logically arranged in order not to cause cognitive overload among users (Wang et al. 2018)

More, Please!

The *“More, please!”* is the term borrowed from the respondents themselves which would indicate areas or aspects of the ILO that need to be improved. Overall, phrases such as *“Excellent!”*, *“Very good!”*, *“Everything is at its best!”*, and *“It is very nice!”* indicated that the ILO was strongly and totally acceptable for the students as it can help them to improve their practicum experience.

However, no matter how nice or how positive the feedbacks were from the students, there will always be constructive criticism which are welcomed ideas to help improve the instructional designers in improving future projects. Statements from the students include:

*“Please add more videos.”*

*“More examples to help understand the topic better.”*

*“More assessments please.”*

*“Include other parts of the lesson plan in this website.”*

*“Put animation.”*

*“Improve the voice, please.”*

*“The website must contain a page that will enable the learner to track his/her progress.”*

The narratives that the respondents honestly provided served as feedback as well as an answer to the reasons why some students ticked the low scale to some of the question items during the survey. This somehow will serve as a guide for instructional designers to consider when developing and creating instructional materials which are especially intended for distance learning.

#### CONCLUSION AND RECOMMENDATIONS

This study evaluated the acceptability of ILO in terms of manipulability, attractiveness, clarity and comprehensibility, interactivity, applicability, and its strengths and weaknesses as perceived by the student teacher trainees in a Philippine state university. It was revealed that: i) The ILO is an effective supplemental interactive learning material that can enhance their knowledge gain, ii) it is aesthetically pleasing, although improvements can still be made with regards to its graphics and audio quality of the video, iii) it was successful in showing clarity of purpose and learning outcomes, as well as on its iv) perceived applicability, and v) it was sufficiently interactive as a teaching tool. Overall, based on the weighted mean of each criterion, all values indicate that the ILO was a strongly acceptable tool for supplementary teaching and learning of the trainee teachers. Similarly, the narrative data strongly support the empirical findings. While there are areas that need to be improved, the respondents shared that the ILO has helped them gain knowledge in a creative, facilitative and interactive manner. The findings implicate that ILOs have the potential to be remedial and backup learning objects for the trainee teachers that will serve them immediate learning lessons while they are in the field (practicum schools) away from their supervising teachers for consultation. It is thereby recommended that the topics to be designed and developed as ILOs should be based on the needs of the practicum students. A survey would be much recommended before designing ILO so that the topic and the lesson content would be highly relevant to their needs. The use of ILOs in the delivery of e-learning and distant learning undoubtedly needs to be considered by educational institutions, especially the supervising teachers of the practicum teaching program as studies support the claim that this method can enhance students' confidence during their experience of practice teaching.

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