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# Evaluating the development and impact of an eLearning platform: the case of the Switzerland Travel Academy

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## Abstract

Despite the increasing popularity of eLearning courses about tourism destinations, research on how they should be designed and what makes them usable in the eyes of the travel trade remains scarce. Trying to fill this gap, the main aim of this research is to find a suitable framework for evaluating online courses about tourism destinations. To do so, the creation process of the Switzerland Travel Academy by Switzerland Tourism is presented with a focus on evaluating not only the platform's usability, but also its impact on travel agents' knowledge about, and involvement with the tourism destination after the completion of the course. The proposed framework enhances the theoretical foundation in the eLearning domain, as well as might be used within practical developments of eLearning courses not only by tourism destinations, but also by other eLearning product developers.

**Keywords** Usability evaluation; Tourism training; eLearning; ADDIE model; Travel agents; DMOs

## 1 Introduction

In the last 20 years, the tourism industry has been deeply affected in all its main activities and experiences by the rapid development of Information and Communication Technologies (ICTs). To explain and study this phenomenon, a new tourism online environment has been developed and called eTourism. This new term refers to all the ICT tools used in the tourism industry which help processes such as planning, development, marketing and management (Buhalis & Law, 2008). In this new environment, both the role of the travel agent (TA) and that of destination management/marketing organisations (DMOs) have changed (Kalbaska, 2012), as with opportunities new challenges have been arisen.

TAs have mainly found themselves struggling with increasing competition caused by online booking sites (Cheyne, Downes, & Legg, 2006) and the risk of disintermediation. In fact, consumers, empowered by the increasing availability of information and offers on the Internet, have started to personally book their travels online. However, despite this apparent tendency, there are still many travellers who rely on TAs to book their holidays (Gollan, 2015; Lam, 2016) because the latter have the knowledge to make tourists' experiences unforgettable (Gollan, 2015) by building a relationship of trust and understanding with their clients (Jeong, Lee, & Kim, 2017). TAs have been changing their role, becoming valuable advisors to increasingly demanding clients rather than being dispensers of information and processors of transactions (Dilts & Prough, 2003). In their new role, TAs must keep their knowledge

updated to maintain their competitive advantage not only over other TAs but also over online travel agencies (OTAs) and online booking systems in general.

In the eTourism era, also DMOs have changed their role, strengthening their position of destination marketers (Bornhorst, Ritchie, & Sheehan, 2010; Gretzel, Fesenmaier, Formica, & O'Leary, 2006) and using ICTs for organising, managing and supporting the partners and industries involved in the production and delivery of the tourism experiences connected with the destination (Kalbaska, 2012). Among the new challenges for DMOs, increasing competition and information overload are to be mentioned, and this makes providing quality online information both to direct customers and trade partners such as TAs crucial (Choi, Lehto, & O'Leary, 2007). To do so, DMOs have, on the one hand, increased their presence online and on the other hand, have started to offer online learning experiences (eLearning) in the form of online training courses to better prepare travel professionals worldwide, so that they increase their knowledge on the destination and improve their performance in sales. Creating courses that are effective in satisfying TAs' needs by ensuring high usability becomes then essential for DMOs (Gollan, 2015). Despite the increasing popularity of such courses in the past decade, literature on how they should be designed and what makes them usable in the eyes of the TAs remains scarce. Trying to fill this gap, the main aim of this research is to find a suitable framework for evaluating eLearning courses about destinations. To do so, the creation process of the Switzerland Travel Academy (STA), the course by Switzerland Tourism (ST), is presented with a focus on evaluating the platform's usability and impact on TAs' knowledge about, and involvement with the destination Switzerland.

## **2 Literature review**

The diffusion of ICTs and the Internet has had a great impact on the tourism field. New opportunities and challenges have been raised for both DMOs and TAs: the latter need updated and exclusive information to satisfy increasingly demanding clients, while the former are presented with the necessity of reaching potential tourists through intermediaries and improving their destination's image. For this, DMOs should support TAs and provide them with the relevant information to properly sell the destination. eLearning, and destination training programmes in particular, have been considered as a good strategy with which DMOs can support intermediaries (Kalbaska, Lee, Cantoni, & Law, 2013; UNWTO, 2008), bridging the gap between the market requirements and the qualification strategies in the tourism industry (Cantoni, Kalbaska, & Inversini, 2009; Kalbaska, 2012). Because of the increasing popularity of eLearning, the necessity to better understand what the important elements that make an eLearning application good for the learner are has been recognised by many researchers (Althobaiti & Mayhew, 2015; Kakasevski, Mihajlov, Arsenovski, & Chungurski, 2008; Lin & Cantoni, Forth.), as low usability usually implies dropout rates (Zaharias, 2009).

A definition of usability that is widely accepted by scholars was given by the International Organization for Standardization (1998), according to which usability is the "extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (International Organization for Standardization, 1998). However, the definition of usability of eLearning programmes needs to be expanded by including more aspects

and connotations than for other information systems (Zaharias, 2009). According to researchers, usable, effective, and efficient eLearning systems should:

- be more user-centred rather than technology-centred (Srivastava, Chandra, & Lam, 2009), focus on learners' needs and aims (Theofanos & Redish, 2003), and allow them to complete their learning tasks (Venkatesh, Morris, Davis, & Davis, 2003);
- achieve “learnability, rememberability, efficiency in use, reliability in use, and user satisfaction” (Srivastava, Chandra, & Lam, 2009, p. 3898);
- be attractive, interactive and engaging, provide feedback, trigger curiosity, motivate, be challenging, and avoid anything that might interrupt the learning flow (Ardito, et al., 2004; Srivastava, Chandra, & Lam, 2009);
- consider the “affective domain of learning” (Zaharias, 2009, p. 75) (e.g. motivation to learn and engagement with the system);
- have a simple user interface to provide learners with the smoothest possible experience, while hiding the complexity of sophisticated and advanced functions (Triacca, Bolchini, Botturi, & Inversini, 2004).

In addition to new definitions, scholars have also proposed new frameworks for analysing and evaluating learning management systems (LMSs) from a pedagogical and institutional perspective (Lanzilotti, Ardito, Costabile, & De Angeli, 2006). Reeves et al. (2002) developed a protocol for eLearning heuristic evaluation, expanding Nielsen's heuristics (1995) and ensuring their suitability for the evaluation of eLearning programmes. The protocol includes fifteen usability and instructional design (ID) heuristics (Reeves, et al., 2002), which were also used as theoretical background for designing certain aspects of the Switzerland Travel Academy.

Guidelines for usability were also proposed by Ardito et al. (2004), who adapted the SUE inspection (Systematic Usability Evaluation) to the eLearning domain, deriving four dimensions of evaluation: presentation, hypermediality, application proactivity, and user's activity. Another adaptation was proposed by Triacca et al. (2004), who presented how MiLE methodology (Milano-Lugano Evaluation Method), widely used for usability evaluation of web applications, could be applied to eLearning systems. With a combination of scenario-based and heuristic-driven evaluations, this methodology considers “user requirements, their goals and scenarios of use” (p. 4405).

Furthermore, Lanzilotti et al. (2006) created a framework for designing and evaluating eLearning systems called TICS (Technology, Interaction, Content, Services), which integrates interactive dimensions with quality dimensions. Moreover, the authors developed the e-Learning Systematic Evaluation (eLSE) methodology, which merges inspection activities conducted by evaluators with user-testing. According to eLSE, the TICS dimensions should be used for the analysis of the system together with what the authors call Abstract Tasks (ATs) that outline which actions must be performed by evaluators to analyse specific objects.

Finally, Zaharias (2009) validated the efficiency of questionnaire-based usability evaluation, proposing a method that “extends conventional web usability criteria and integrates them with criteria derived from instructional design” (p. 8), addressing both

users and learners and assessing users' affective engagement, by suggesting users' motivation as a new type of usability measurement.

Ehlers (2004) took a different path, analysing the learner's perspective in the quality debate by conducting a survey with users with experience in eLearning. He investigated their preferences and idea of quality eLearning based on seven fields: tutor support, collaboration, technology, costs-expectations-benefits, information transparency of provider/course, course structure/presence courses, didactics (Ehlers, 2004).

Regarding the specific case of eLearning courses in tourism, at the regional level, the Ticino Switzerland Travel Specialist (TSTS) course was analysed both by Kalbaska et al. (2012) and Adukaite et al. (2014), who suggested that the "key elements of a usable eLearning course are: structure and content of the didactic materials, quality of the content (images, videos, maps), interactivity, and duration of the course, well designed testing activities and clear navigational paths" (Kalbaska, Jovic, & Cantoni, 2012, p. 34). At the national level, O'Donnell (2012) evaluated the effectiveness of New Zealand's eLearning programme from the users' perspective in terms of usability, access, design, navigation, instructions, completion time, recovery from mistakes, content, and provision, by analysing data collected through surveys and interviews with UK TAs (O'Donnell, 2012). Participants expressed a positive feedback regarding their eLearning experience, which helped them improve self-confidence, "motivation, product knowledge and awareness of the destination" (p. 103), which consequently led to better customer service.

In general, despite their scarcity, studies conducted so far show positive attitudes towards these courses both from DMOs' and TAs' perspectives, and this surely encourages further research on the topic. This research intends to fill the gap in, and contribute to the literature about eLearning in tourism by presenting a framework for evaluating eLearning courses and practically applying it to the Switzerland Travel Academy.

### **3 The Switzerland Travel Academy**

The Switzerland Travel Academy is the new version of Switzerland Tourism's eLearning course, whose creation was commissioned in March 2016 to a Swiss eLearning research and development lab, because of their expertise in eLearning in tourism, ID, and IT. The course is accessible at [www.myswitzerland.com/academy](http://www.myswitzerland.com/academy).

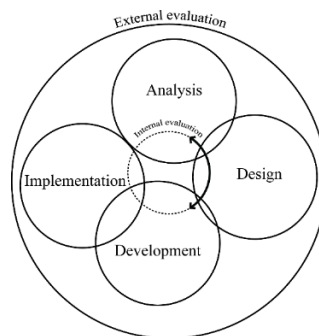
### **4 Methodology**

In order to give structure to the platform creation and development process, the ADDIE model was used as main guideline to organise the workflow and coordinate the different stakeholders. ADDIE is a five-phase model to create educational, instructive, and training tools and materials (Danver, 2016), and consists of analysis, design, development, implementation, and evaluation (hence, ADDIE). First conceived as a linear model presenting the five phases consecutively (Fig. 1), ADDIE has evolved throughout the years to become more dynamic and iterative.



**Fig. 1.** Linear ADDIE model, adapted from Piskurich (2006).

For the Switzerland Travel Academy project, a version of the model was sketched, adapting several models taken from the literature (Clark, 2015; Czaja & Sharit, 2013; Forest, 2014; Piskurich, 2006), to try to represent the platform’s creation and evaluation process in the best possible way. It is presented in Fig. 2.



**Fig. 2.** Proposed version of the ADDIE model.

Instead of presenting five consecutive phases, the model is circularly structured to represent the non-linearity of the creation process. Differently from the currently used ADDIE models, in this new model, the first four phases (analysis, design, development, and implementation) overlap to different extents, depending on how clearly the line between the phases can be drawn. Furthermore, the evaluation phase is divided into two types: external and internal, and includes all the other phases, instead of being presented as a fifth and last phase separated from the others.

#### 4.1 Internal evaluation

According to the proposed model, internal evaluation should be conducted during and/or after every phase of the model by the development team. The aim of internal evaluation is to identify quality/usability issues during the platform’s creation process. This allows for an instant recovery from errors, which, if left unspotted and unsolved until the end of the project, might even become greater and cause delay in its delivery. Solving an issue could mean re-analysing, re-designing, re-developing, and/or re-implementing some of the elements on the platform; hence, the two-sided arrow, indicating that the project flow must go both forward and backwards.

#### 4.2 External evaluation

Differently from internal evaluation, external evaluation should be conducted by people not familiar with the project once the alpha version of the platform is ready, to identify possible quality issues, inconsistencies, and aspects to improve that were not identified internally. In the case of the Switzerland Travel Academy, three types of external evaluation were conducted: expert reviews, usability testing, and impact analysis.

**Expert reviews.** In expert reviews, the product or system is evaluated by usability specialists and experts in the topic, who apply usability principles (heuristics) and professional experience to discover potential usability issues, at the same time considering the point of view of the end users (Rubin & Chisnell, 2008; U.S. Department of Health & Human Services, 2017). The traditional framework of expert reviews (Rubin & Chisnell, 2008) was adapted to the scope of the project, taking into consideration specific usability needs that were of greatest concern for the development team. The result was a two-part 30-minute test: for the first part, a validation test was designed with five specific tasks to be completed, while in the second part, experts were left free to navigate the platform using the think-aloud method (Nielsen, 2012). Participants were recruited via email; in total, nine experts (six females, three males) in the fields of tourism training, usability, ICTs, and instructional design, coming from Italy, Japan, Kosovo, Mozambique, and Switzerland, took part in the reviews at the end of January 2017.

**Usability testing.** The main purpose of this test was to complement the more technical results obtained from the expert reviews with content- and experience-related data. For this second study, international travel professionals were recruited via email, LinkedIn and FB in February 2017. Considering participants' different locations and time zones, their busy schedules as travel professionals, and the study's length and complexity, two online questionnaires were prepared using a web survey tool: one to be taken before navigating the modules on the platform and one afterwards, in order to compare the answers of the two questionnaires to see whether a change occurred after the participants studied on the Switzerland Travel Academy. Participants were asked, after filling in the first questionnaire, to access the course, to study its five core modules – “Welcome to Switzerland”; “Basic and practical knowledge”; “How to travel to and within Switzerland”; “Switzerland in 3, 5 or 10 days”; “News from Switzerland 2017” – and to take the final exam.

**Impact analysis.** As theoretical background, the first two levels of the four-level Kirkpatrick model (Kirkpatrick & Kirkpatrick, 2006) were mainly addressed in this platform evaluation: *reaction* (1<sup>st</sup> level, users' satisfaction with the course), to measure usability; and *learning* (2<sup>nd</sup> level, the extent to which users “change attitudes, improve knowledge, and/or increase skill[s]” (p. 22) after the course), to analyse the platform's impact. The remaining levels are concerned with users' behaviour after the course (3<sup>rd</sup> level), namely the extent to which knowledge acquired during the course is applied, and the results brought by it (4<sup>th</sup>) in terms of impact on activities and business outcomes.

In total, 8 international TAs – females (5) and males (3), aged 30 – 45 (3) and 45 – 60 (5), coming from Chile, China, Ghana, Peru, Poland, Serbia, Turkey, and the USA – took part in the usability testing and impact analysis.

## 5 Results

### 5.1 Expert reviews

During the first part of the expert reviews, no critical issues were found. On the other hand, non-critical issues arose during the testing, highlighting some usability issues, together with suggestions for improvement. When possible, solutions were found and suggestions implemented. The most important ones are summarised in the following table.

**Table 1.** Recommendations for the creation of an online course about a destination

<b>Topic</b>	<b>Issue / comment</b>	<b>Solution / Implementation</b>
<b>Welcome page (before log-in)</b>	Too much text on the page, important information should be more visible.	Text reduced and formatted to increase visibility of important information (i.e. using bold font, bullet lists, and shorter sentences).
	Important information missing (costs, completion time, contact email).	Information added.
	Mentioning how many people have received the certification might make the course more appealing for others.	A counter that automatically shows the number of certified travel professionals was added to the welcome page (before log-in).
<b>Instructions and requirements</b>	Clarity in the course' requirements (modules, exams, etc.) missing.	More exhaustive and clear explanations (less text but more pertinent) added.
<b>Media and interactions</b>	Add more quizzes (especially in the specialisation modules).	Suggestion implemented.
	Add more maps with reference points.	Suggestion implemented.
<b>Progress of the user</b>	User's progress not always visually clear.	Visual and textual elements added to ensure the traceability of a user's progress.

## 5.2 Usability testing and impact analysis

Eleven usability issues and suggestions for improvement resulted from the usability part of the evaluation questionnaire. Issues were fixed and suggestions were taken into consideration and implemented as much as possible.

Table 2 illustrates users' reaction to several elements of the platform (1<sup>st</sup> level of Kirkpatrick's model).

**Table 2.** Participants' evaluation of the usefulness of and engagement with the learning & evaluation materials, and instructions

<b>Learning &amp; evaluation materials / Instructions</b>	<b>Usefulness (1-5)</b>	<b>Engagement (1-5)</b>
Quizzes (multiple choice, image choice, drag & drop)	5.0	5.0
Eval. act. after modules ("Test your knowledge") and exams	5.0	4.9
Downloadable material	5.0	4.8
Texts	4.9	4.9
Instructions provided before each module and exam	4.9	4.9
Images with mouse over description	4.8	4.9
Links to external websites such as mySwitzerland.com	4.9	4.6
Interactive images with hotspots	4.8	4.8
Video	4.6	4.5
Key take-home messages	4.6	4.4



In general, the average scores provided for both usefulness and engagement were high, ranging from 4.4 to 5. An explanation for the usefulness of quizzes and exams/test your knowledge can be found in the fact that evaluation activities give users a good idea of where they stand in the learning process, helping them assess whether the relevant knowledge has been acquired. Furthermore, this result could also be read as an endorsement for the validity of the claim that active learning, in other words learning by doing, is very effective and should be integrated in eLearning platforms. When looking at the third column of the table, only quizzes received the highest score in terms of engagement from the user. This is an interesting result, which supports the idea that users are looking for interactivity and shows appreciation for the types of interactions designed and developed for the Switzerland Travel Academy. Videos and key take-home messages were considered less useful (4.6) and they were also rated as the least engaging, scoring an average of 4.5 and 4.4 respectively. To make the former more useful and engaging, some ad-hoc videos could be created for the platform and, taking the success of the quizzes and hotspots, some interactivity could be added into these videos. The key take-home messages, on the other hand, might have been perceived as less engaging because of their format. To improve their attractiveness, some images and graphic elements could be inserted.

In Table 3, participant's knowledge on Switzerland before and after the Switzerland Travel Academy is compared (2<sup>nd</sup> level of Kirkpatrick's model).

**Table 3.** Average level of knowledge on different topics expressed by travel professionals before and after the Switzerland Travel Academy

Topic	Before (1-5)	After (1-5)	Difference
Switzerland's top events	2.1	4.3	2.1
Switzerland's accommodation options	2.8	4.3	1.5
Switzerland's transportation system	3.3	4.6	1.3
Switzerland's must-sees and attractions	3.0	4.4	1.4
Switzerland's traditions and culture	2.6	3.8	1.2
Switzerland's top activities	3.4	4.4	1.0

The average level of knowledge indicated in the preliminary questionnaire has increased for every topic in the evaluation questionnaire, which indicates that in any case, some knowledge must have been acquired thanks to the Switzerland Travel Academy. It is also interesting to note that the highest increase in knowledge occurred for the topic with which participants expressed the least familiarity in the preliminary questionnaire, namely Switzerland's top events. This result can prove the usefulness of the "News from Switzerland" module, which informs users about the newest events and openings happening in the country.

Remaining on Kirkpatrick's second level, but looking at possible future applications of what acquired thanks to the course, Table 4 presents participants' average willingness to recommend Switzerland to their clients and their confidence in selling it before and after the Switzerland Travel Academy.

**Table 4.** Average level of agreement on two statements before and after the Switzerland Travel Academy

Statement (before)	Before (1-5)	After (1-5)	Statement (after)
I would recommend Switzerland to my clients as a holiday destination.	5.0	5.0	After having studied at the Academy, I would recommend Switzerland to my clients as a holiday destination.
I would feel confident in selling Switzerland to my clients.	4.5	4.8	After having studied at the Academy, I feel confident about selling Switzerland to my clients.

In this case, travel professionals' willingness to recommend Switzerland did not change after having completed the core modules on the Switzerland Travel Academy (in fact, it could not even change, unless decreasing from the maximum initial level). Regarding TAs' confidence in selling the country, there was only a slight improvement in the average level, which was already very high before their learning experience on the platform.

Regarding participants' opinion about Switzerland, no particular difference, if not for a slight increase, could be observed before and after the Switzerland Travel Academy (Table 5).

**Table 5.** Participants' average opinion about Switzerland before and after having studied on the platform

Opinion before the STA (1-5)	Opinion after the STA (1-5)
4.9	5.0

The results of the last two tables might be a consequence of the fact that, being the usability test quite demanding, people who took part in it had very good attitudes towards Switzerland and a good image of the destination already before taking the course, which is what has probably motivated them to join the study.

## 6 Conclusion

The aim of this research was to find a suitable framework for evaluating online courses about destinations, and to understand the impact that such tools can have on users' involvement with a destination in terms of knowledge and image. To achieve this aim, the project of the Switzerland Travel Academy, an online destination course at the national level, was used as a case study. A new evaluation framework was proposed combining and adapting the ADDIE model with Kirkpatrick's model, according to which evaluation of an eLearning platform should occur on two levels: internally and externally. In the case of the Switzerland Travel Academy, the platform was internally evaluated by the development team. Externally, first, expert reviews were conducted on the alpha version. Second, a usability test with TAs was performed to evaluate the platform from the end users' perspective, and third, its impact on their involvement with the destination, in terms of changes in knowledge and opinion was investigated. For this study, participants had to fill in a preliminary questionnaire, study the core modules on the platform, and complete an evaluation questionnaire.

Data collected from the internal and external evaluations provided insights on the most important aspects to ensure high platform usability and a good experience to the users, which are: simple and intuitive structure, straightforward and frequent instructions, clear requirements, and available contact/help function. Regarding the content, learning material should most importantly meet users' expectations, taking into consideration their needs and requirements, be exclusive, updated, varied, and interactive. By comparing the results of the preliminary and evaluation questionnaires, it was found that TAs' knowledge about Switzerland improved by studying the course, as well as their confidence in selling the country. Furthermore, the type of information provided proved to have an impact on users' image of the destination.

In general, results align with recent studies on what eLearning tools and programmes in other sectors should provide in order to be usable and effective and support researchers' beliefs that conventional web usability criteria should be extended, including user-related factors such as their needs and requirements. This paper contributed to the theoretical framework on eLearning in tourism by providing for the first time, according to the authors' knowledge, insights and inputs derived from actual experience of creating a destination eLearning course for a national DMO, and analysing its usability and impact on users. Nonetheless, as this study has just begun to scratch the surface of the vast research possibilities that can be conducted in this field, some suggestions are presented in the following chapter together with the limitations encountered.

## **7 Limitations and future research**

A first limitation that has to be mentioned is that the authors are aware that the conclusions drawn from the case study and the results of the questionnaires might not apply to all tourism destinations. A second limitation regards the time available to conduct the usability test, which was rather short to allow for the integration of the questionnaires' results before the platform's launch. For future research, in-depth interviews should be considered to complement the questionnaires' results to ask the participants for more details on certain answers. Third, being the usability testing quite demanding, people who agreed on taking part in the study had already a good opinion of and attitude towards the topic of eLearning and Switzerland, thus the results should be carefully interpreted.

Future studies could focus on the following aspects. First, a similar study should be repeated on a larger scale, so to include people with a lower opinion about Switzerland. Furthermore, it could be investigated whether a relationship does exist between variables such as users' opinion of the destination, perceived usefulness of eLearning tools, willingness to update their knowledge, satisfaction of the learning experience, and course completion rates. Second, the ADDIE model proposed in this paper should be tested on other eLearning platforms. In terms of usage, it could be of interest to understand users' behaviour on the platform through web analytics. Furthermore, eye tracking testing could be performed to understand, for example, how TAs study and on what they focus their attention, with the aim of improving the platform's usability and users' experience. Additionally, data on platform usage could be compared with the timing of holiday bookings (when clients start thinking about holidays, when they go to a TAs to book their holidays, etc.) to understand whether there is a correlation between clients' willingness to book holidays and TAs' study practices in order to increase their knowledge.

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