



ISYDE2023

Italian Symposium on
DIGITAL EDUCATION

Reggio Emilia, 13 - 15 September 2023

Innovating Teaching & Learning.
Inclusion and Wellbeing for the Data Society

Tommaso MINERVA & Annamaria DE SANTIS (Eds.)

Conference PROCEEDINGS



ISYDE2023

Italian Symposium on

DIGITAL EDUCATION

Reggio Emilia, 13 - 15 September 2023

Conference PROCEEDINGS

Proceedings of the Italian Symposium on Digital Education, ISYDE2023
Reggio Emilia (Italy), September 13-15, 2023

Edited by

T. Minerva, A. De Santis
SIE-L, Società Italiana di e-Learning
University of Modena and Reggio Emilia

Copyright © 2024
PUBLISHED BY PEARSON
WWW.PEARSON.COM
ISBN: 9788891936516

Preface

ISYDE, *Italian Symposium on Digital Education*, is the yearly conference organized by the *Italian e-Learning Society* (SIE-L, <https://www.sie-l.it/>) in line with previous conferences (EMEMITALIA and SIEL), whose organization was interrupted by the COVID-19 pandemic.

As it resumes its conference activities, SIE-L aims to broaden the focus from *e-Learning* and media education to *Digital Education* in a wider meaning as a concern emerging from recent years' experiences.

ISYDE addresses and debates the major transformations induced by technologies in the processes of training, learning, continuing education and knowledge construction as well as citizenship and interpersonal relations.

The 2023 edition focused on “Innovating Teaching & Learning. Inclusion and Wellbeing for the Data Society”.

As always alongside the pinning down of the main thread, the conference served as a meeting point and sounding board for the research, experiences, developments and technological applications that are fostering development in the following significant, though not exhaustive, subject areas: AI in Education; Digital Citizenship; Blended Learning; Career Development and Training; Collaboration Projects and Networks; Computer Supported Collaboration; Digital Inclusion; Data Literacy & Education; Digital Literacy; Digital mediated diseases and behavioral risks; Digital Wellness; Distance Learning in Times of Crisis; e-Content Management and Development; Educational Software & Serious Games; e-Learning; Emerging Technologies in Education; Experiences in Education and Research; Faculty Development and Higher Education; Gaming and Gamification in Education; Learning Spaces; Pedagogical Innovations in Education; Post-Digital Education; Third Spaces Literacies; Trends and Issues in Education.

Topics refer to application areas, including: University; School; Continuing Education; Public Administration; Health Care; Society; Culture; Technology Use, Integration, and Development; Business.

The conference was held at the University of Modena and Reggio Emilia (Italy) from September 13 to 15, 2023.

Participants presented more than 50 contributions in ten Sessions that we merged into four Sections in the proceedings:

- Artificial Intelligence and Analytics (7);
- Design (5);
- Games, Social Networks, and Virtual/Augmented Reality (8);
- Scenarios, Experiences, and Research Reports (12).

The conference, as also shown in the Plenary Sessions, prepared the ground for the process of innovation of higher and lifelong education toward the design and establishment of nationwide *Digital Education Hubs*, which represent the new challenge faced by Italian universities.

Tommaso MINERVA
Annamaria DE SANTIS

Steering Committee

- **Tommaso MINERVA**
President of Italian e-Learning Association
University of Modena and Reggio Emilia
- **Elena CALDIROLA**
University of Pavia
- **Mauro CALISE**
University of Naples “Federico II”
- **Annamaria DE SANTIS**
University of Modena and Reggio Emilia
- **Paolo FERRI**
University of Milan-Bicocca
- **Antonio MARZANO**
University of Salerno
- **Stefano MORIGGI**
University of Modena and Reggio Emilia
- **Chiara PANCIOLO**
University of Bologna
- **Maria RANIERI**
University of Firenze
- **Piercesare RIVOLTELLA**
University of Bologna
- **Marina RUI**
University of Genoa
- **Susanna SANCASSANI**
Polytechnic of Milan

Scientific Advisory Board ^(1/2)

- **Giovanni ADORNI**
University of Genoa
- **Daniele AGOSTINI**
University of Trento
- **Mario ALLEGRA**
National Research Council, CNR – Palermo
- **Luisa AMENTA**
University of Palermo
- **Daniela ANDREINI**
University of Bergamo
- **Michele BALDASSARRE**
University of Bari
- **Claudia BELLINI**
University of Modena and Reggio Emilia
- **Raffaella BOMBI**
University of Udine
- **Bruno BONIOLO**
Italian e-Learning Society
- **Fabrizio BRACCO**
University of Genoa
- **Marina BRAMBILLA**
University of Milan
- **Filippo BRUNI**
University of Molise
- **Alessia CADAMURO**
University of Modena and Reggio Emilia
- **Donatella CESARENI**
Sapienza University of Rome
- **Paolo CHERUBINI**
University of Pavia
- **Letizia CINGANOTTO**
University for Foreigners of Perugia
- **Maria CINQUE**
LUMSA, Rome
- **Salvatore COLAZZO**
University of Salento, Lecce
- **Enricomaria CORBI**
University Suor Orsona Benincasa, Naples
- **Pio Alfredo DI TORE**
University of Cassino - Southern Lazio
- **Loretta FABBRI**
University of Siena
- **Laura FEDELI**
University of Macerata
- **Gianni FENU**
University of Cagliari
- **Giovanni FERRI**
LUMSA, Rome
- **Silvia FIGINI**
University of Pavia
- **Giuliana FRANCESCHINIS**
University of Eastern Piedmont
- **Giovanni FULANTELLI**
National Research Council, CNR - Palermo
- **Giovanni GANINO**
University of Ferrara
- **Andrea GARAVAGLIA**
University of Milan
- **Lorella GIANNANDREA**
University of Macerata
- **Francesco IACOVIELLO**
University of Cassino - Southern Lazio
- **Loredana LA VECCHIA**
University of Ferrara
- **Giuseppina Rita Jose MANGIONE**
National Institute for Documentation, Innovation and Educational Research, INDIRE
- **Marina MARCHISIO**
University of Turin
- **Agostino MARENGO**
University of Foggia
- **Rebecca MONTANARI**
University of Bologna
- **Alberto MONTRESOR**
University of Trento
- **Federica PAGANELLI**
University of Pisa
- **Andrea PERALI**
University of Camerino
- **Donatella PERSICO**
National Research Council, CNR - Genoa

Scientific Advisory Board (2/2)

- **Corrado PETRUCCO**
University of Padua
- **Mario PIREDDU**
University of Tuscia, Viterbo
- **Antonella POCE**
University of Rome Tor Vergata
- **Giorgio POLETTI**
University of Ferrara
- **Luigi ROMANO**
University Parthenope of Naples
- **Teresa ROSELLI**
University of Bari
- **Veronica ROSSANO**
University of Bari
- **Sabrina ROSSI**
Ca' Foscari University of Venice
- **Katia SANNICANDRO**
University of Modena and Reggio Emilia
- **Valentino SANTUCCI**
University for Foreigners of Perugia
- **Adolfo SCOTTO DI LUZIO**
University of Bergamo
- **Maurizio SIBILIO**
University of Salerno
- **Bruna SINJARI**
University of Chieti-Pescara
- **Adriano TOMASSINI**
University of Parma
- **Roberto VECCHI**
University of Bologna
- **Gianni VERCELLI**
University of Genoa
- **Alex WEISSENSTEINER**
Free University of Bozen

Local Organizing Committee

- **Cinzia TEDESCHI**
University of Modena and Reggio Emilia
- **Barbara FERRARI**
University of Modena and Reggio Emilia
- **Claudia BELLINI**
University of Modena and Reggio Emilia
- **Katia SANNICANDRO**
University of Modena and Reggio Emilia

Section 1

Artificial Intelligence and Analytics

ASSESSING AI LITERACY: A FRAMEWORK-BASED APPROACH Gabriele BIAGINI, Stefano CUOMO, Maria RANIERI	1
ARTIFICIAL INTELLIGENCE: A CASE STUDY IN THE EDUCATIONAL CONTEXT OF YOUNG UNIVERSITY STUDENTS Giovanna DI ROSARIO, Paolo FERRI	15
FORMATIVE ASSESSMENT IN EMERGENCY REMOTE TEACHING. STUDY OF TEACHERS' BELIEFS AND PRACTICES Marco GIGANTI, Renata VIGANÒ	26
THE DESIGN AND IMPLEMENTATION OF THE ONLINE BACHELOR'S DEGREE IN SPANISH LANGUAGE AND LITERATURE AT THE UNIVERSITY OF BURGOS AND THE NEW CHALLENGES FACING CHATGPT Marta SANZ MANZANEDO, Sonia SERNA SERNA	38
A MOODLE-BASED DECISION SUPPORT SYSTEM TO SUPPORT SCHOOL GOVERNANCE Antonio MARZANO, Sergio MIRANDA, Rosa VEGLIANTE	49
ONLINE APPLICATION FOR THE EARLY DETECTION OF STUDENTS AT RISK OF FAILING THROUGH ARTIFICIAL INTELLIGENCE Giacomo NALLI, Andrea MARCONI, Sašo KARAKATIČ, Lucija BREZOČNIK, Anita MONTAGNA, Daniela AMENDOLA, Renato DE LEONE	56
BLENDING IVR WITH AI IN TEACHER TRAINING FOR LANGUAGE EDUCATORS Ilaria COMPAGNONI	63

Section 2

Design

DEVELOPMENT OF A FIRST DRAFT PROTOTYPE OF 360 SYNCHRONOUS INTERACTIVE TELEPRESENCE Andrea GARAVAGLIA, Ilaria TERRENGHI, Maurizio DE NINO	76
A FRAMEWORK FOR LEARNING DESIGN AND SELF-REGULATED LEARNING: FIRST RESULTS OF SUPERRED PROJECT Alice ROFFI, Gabriele BIAGINI, Stefano CUOMO, Maria RANIERI	86

**ACADEMIC INTEGRITY IN ONLINE ASSESSMENT: TOWARDS
THE DEVELOPMENT OF A PROPOSAL FOR GUIDELINES
AND EDUCATION RESOURCES** 96

Katia SANNICANDRO, Annamaria DE SANTIS, Claudia BELLINI, Tommaso MINERVA

**FROM VIDEO TO LEARNING PROP: A TOP-DOWN APPROACH
TO IMPROVE THE EFFECTIVENESS OF MULTIMEDIA RESOURCES
IN MEDICAL EDUCATION** 108

Floriana VINDIGNI, Francesco RIGONI, Elisabetta GALOPPINI,
Elena AMADIO, Vito MOSCATO, Cristiano FURIASSI

**IMPARIAMO: HOW TO ENGAGE A LARGE POPULATION
OF NON-DIGITAL WORKERS** 113

Carlo TOGNONI, Michele LAVAZZA, Davide MAIELLO

Section 3

Games, social networks, and virtual/augmented reality

**GAMES AND VIDEO GAMES AS SCENARIOS TO SUPPORT DIGITAL
LITERACIES: THE FIRST RESULTS FROM THE INTERNATIONAL PROJECT
YO-MEDIA (YOUNGSTERS' MEDIA LITERACY IN TIMES OF CRISIS)** 119

Alessandra CARENZIO, Simona FERRARI, Stefano PASTA

**A MAPPING OF INSTRUCTIONAL SCENARIOS FOR GAME-BASED
LEARNING** 131

Andrea TINTERRI, Massimiliano ANDREOLETTI

**DETERMINING BEHAVIORAL INTENTION TO USE DIGITAL
GAME-BASED LEARNING IN PROMOTING 21ST CENTURY LEARNING
AND TEACHING AMONGST STEM PRE-SERVICE EDUCATORS** 144

Nonhlanhla GUMBI, Duduzile SIBAYA, Admire CHIBISA

**THE ELECTRONIC MIDWIFE: SELF-EDUCATION THROUGH VIDEO GAMES
AS A FORM OF MAIEUTICS** 156

Fabrizio FULIO BRAGONI

**PILOT STUDY ON THE ADOPTION BY TEACHERS OF A VIDEO GAME
FOR LEARNING ITALIAN GRAMMAR** 163

Massimiliano ANDREOLETTI

**DIGITAL GAMES TO PROMOTE TRANSFORMATIVE EMOTIONS
AND SUPPORT MORAL DEVELOPMENT** 176

Chiara SCUOTTO, Stefano TRIBERTI, Maria Luisa IAVARONE

**AUGMENTED DIDACTIC: AUGMENTED REALITY FOR LEARNING
AND MOTIVATION THROUGH A MULTIDISCIPLINARY APPROACH** 184

Luna LEMBO, Elèna CIPOLLONE, Pietro OLIVA

**AUGMENTED AND VIRTUAL REALITY: AN INNOVATIVE APPROACH
TO LEARNING "DIGITAL HUMANITIES"** 195

Vivien VALLI, Nadia CARLOMAGNO

Section 4

Scenarios, experiences, and research reports

PREBUNKING AS PREVENTIVE ECOLOGY: THE CASE OF CONSPIRACY THINKING Stefano MORIGGI, Nicola BRUNO	203
UNIVERSITY AND HIGH-LEVEL CONTINUOUS AND RECURRENT EDUCATION: ELEMENTS FOR A LIFELONG LEARNING ENGINE MODEL Bruno BONIOLO	209
DIGITAL EDUCATION IN PUBLIC ADMINISTRATION: RESULTS AND CHALLENGES. THE EXPERIENCE OF THE “REGIONE IN FORMAZIONE” PROJECT BY FEDERICA WEB LEARNING Francesco BIZZARRO, Giuseppe SANCHEZ, Gabriele AMBROSANIO	217
INSIDE BLACK MIRROR: MEDIA, SOCIETY, EDUCATION. A MULTIDISCIPLINARY WORK FOR THE STUDY OF MEDIA AND AUDIOVISUAL EDUCATION AT SCHOOL Alessandra CARENZIO, Elisa FARINACCI	227
CAN A ROBOT TAME CHILDREN’S FEAR? A SYSTEMATIC REVIEW INVESTIGATING THE FUNCTIONALITY OF SOCIAL ROBOTS IN THE HOSPITAL CONTEXT Lino ROSSI, Enrico ORSENIGO, Maria VALENTINI, Marinella GARGIULO, Elisa BISAGNO, Alessia CADAMURO	237
PRODUCING DIGITAL ARTIFACTS TO COUNTER “DIGITAL EDUCATION POVERTY” IN THE LOGIC OF THIRD SPACE LEARNING Stefano PASTA, Michele MARANGI	248
EDUCATIONAL NETWORKS AS A LEVER FOR CHANGE. THE ITALIAN SCHOOL TOWARDS A “NEW NORMALITY” Andrea NARDI, Laura PARIGI, Giuseppina Rita Jose MANGIONE	260
UNBLACK BOXING REALITY THROUGH LOGIC AND PHILOSOPHY OF LANGUAGE: TEACHER KNOWLEDGE AND NEW PATHS FOR TECHNOLOGY EDUCATION Luca ZANETTI, Cristina COCCIMIGLIO, Margherita DI STASIO	280
TECHNOLOGICAL AND DIGITAL CAPITAL OF PARENTS: A CONSTRUCT TO ANALYZE DIGITAL SKILLS Giorgio CECCHI, Sara MORI	287
PNRR AND SCHOOL INNOVATION BETWEEN INCLUSIVE PROCESSES AND POTENTIAL SCENARIOS Massimiliano LO IACONO, Rosa SGAMBELLURI	294
MOOCS AS PART OF A THREE-PRONGED APPROACH TO UNIVERSITY ORIENTATION Ilaria MERCIAI	303
INCLUSIVE TEACHING: BLACKBOARD ALLY AND ACCESSIBILITY IN CATHOLIC UNIVERSITY Luigi D’ALONZO, Sara GENGGHI, Flavia Maria SCOTT, Elena TASSALINI	309

From Video to Learning Prop: a top-down approach to improve the effectiveness of Multimedia Resources in Medical Education

Floriana VINDIGNI, Francesco RIGONI, Elisabetta GALOPPINI,
Elena AMADIO, Vito MOSCATO, Cristiano FURIASSI

University of Turin, Turin (ITALY)

Abstract

In 2019 a multimedia project named Videolibrary was launched at the Department of Clinical and Biological Sciences of the University of Turin, Italy. The project aims to make video resources available for students attending the MD program in Medicine and Surgery. This article shows the development of e-contents for medical education starting from videos. Media contents, initially produced by an outside supplier, were later reworked by means of H5P, an open-source authoring tool which allows creators to produce reusable interactive contents. The result was the transformation of three 30-40 minute videos into three interactive learning props, hosted on the Moodle platform, that is the Learning Management System used at the University of Turin.

Keywords: Medical Education, Learning Prop, Multimedia, Video.

1. Introduction

Over the last decade, the increasing use of technology in medical education has drawn the attention of the research community (see, among others, Taslibeyaz et al., 2016; Ahmet et al., 2018; Srinivasa et al., 2020). Among educational media, videos are possibly the most widely used due to their easy accessibility and capabilities, hence becoming prominent for the learning transformation of all individuals.

While studying research trends in the literature on video usage, Taslibeyaz et al. (2016, p. 873) evidence that video resources promote effective learning and knowledge retention, thus having a positive impact on the acquisition of clinical skills. In addition, Ahmet et al. (2018, p. 1150), while analyzing a set of research works which explored the influence of videos in surgical education, conclude that video-based education can produce significant effects on surgical training. Moreover, Srinivasa et al. (2020, p. 689) report that online media are valuable educational tools also in postgraduate medical education. Finally, according to Discore (2010, p. 10), at present there are several websites, such as MedlinePlus and New England Journal of Medicine (NEJM), which publish reliable and quality videos. However, these platforms are less popular if compared to, for instance, YouTube, which constitutes the preferred choice, regardless of a certain variability in both the educational quality and validity of the videos published therein. This fact represents a critical issue for the use of media in education, especially as far as novice learners are concerned, as they might not immediately recognize information quality.

On a final note, even videos posted on trustworthy platforms seldom meet a specific learning objective. Hence, such lack of specificity represents a caveat when using video resources in education. As a possible solution to this problem, in-house design and production of videos exploiting internal resources should be relied upon.

2. Materials and Methods

In 2019 a multimedia project named Videolibrary was launched at the Department of Clinical and Biological Sciences of the University of Turin. The project's goal is to make certified quality video resources available to students who attend the MD program in Medicine and Surgery. Videolibrary is

hosted on the Moodle platform, the Learning Management System (LMS) used at the University of Turin. Videos were produced both by the university's Web and E-learning Staff and by an outside supplier which, after winning a tender, was appointed to release twelve media contents for the project. The videos, which originally included an Italian soundtrack, were dubbed into English at a later stage. For the sake of accessibility, every video was eventually subtitled in both languages.

By adopting a top-down approach, this article describes the transformation of the three videos related to urological topics into three learning props. Design, production and postproduction activities were carried out by the supplier in close contact with the urology professor, though without the supervision of the Web and E-learning Staff. The results were three 30-40 minute videos on the following topics: Access to the Upper Urinary Tract, Access to the Lower Urinary Tract and Minimally Invasive Surgery.

3. Results

In line with Multimedia Learning Theory (MLT), Mayer (2001) offers several recommendations concerning educational videos, especially on how to improve their effectiveness. In particular, he points out the importance of segmentation, namely the chunking of the information string, thus granting learners the possibility to engage with smaller pieces of information once a new topic is given. Segmenting can be achieved by creating short(er) videos, i.e. no longer than 6 minutes, or by including pauses within a video. Moreover, Bransford et al. (2000) report that non-interactive environments, such as linear videos, are much less efficient than interactive ones. Indeed, interactive videos allow learners to explore and revisit specific parts and make the learning process engaging and more effective.

Therefore, starting from these premises, videos were reworked by using H5P, an external plug-in integrated into Moodle, in order to produce three learning props. Among the resources available inside H5P, the 'Interactive Book' was chosen because it enables users to create props with different content types, such as interactive videos, image hotspots, questionnaires and multiple-choice quizzes.

Since the same type of editing procedure was performed for all three videos, only the one related to the 'Access to the Lower Urinary Tract' topic is described herein as a representative case. The first step involved segmenting the whole video into clips, later used to create an "Interactive Book" (Figure 1) divided into the following chapters:

1. Introduction;
2. Endoscopic Instruments;
3. Endoscopic Procedures;
4. Pathologic Findings;
- 4.1. Pathologic Findings: Test Your Knowledge;
5. Basic Endoscopic Procedures.

The clips were embedded both as non-interactive videos (chapter 1) and interactive videos (chapters 2, 3 and 5).

As for interactive videos, bookmarks (Figure 2), which allow learners to skip from a specific part of the clip to another, and single-choice questions for self-assessment with feedback (Figure 3) were inserted to enhance the learning experience.

As far as chapter 4 is concerned, an image hotspot (Figure 4) was implemented. The longer clip related to chapter 4 was further subdivided into seven shorter clips, one for each different pathologic finding. These seven clips were then embedded into a single bladder image as interactive hotspots, each of them placed in the pertinent pathology zone.

In this case, the single-choice questions for self-assessment were added separately (paragraph 4.1).

As reported above, H5P allows producers to create reusable interactive content packages that improve the learning process by making it more engaging and effective. Moreover, according to Nightingale et

al. (2019, p. 13), additional contents incorporated into videos can improve their accessibility and inclusiveness, particularly for people with Specific Learning Disorders (SLDs).

By following the top-down approach described, additional contents are not considered in the design phase. Their use was in fact limited, despite the large variety of H5P contents available. Therefore, to improve the learning process, particularly for students with SLDs, supplementary contents must be planned during the design phase. Unfortunately, as these learning props have been available on Moodle only since April 2023, no feedback from students is available yet.

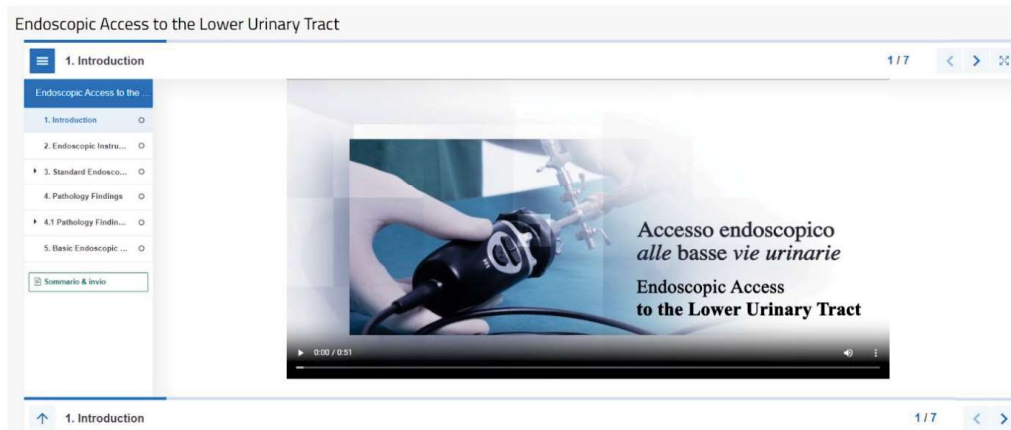


Figure 1 - Interactive Book on the Moodle Platform.

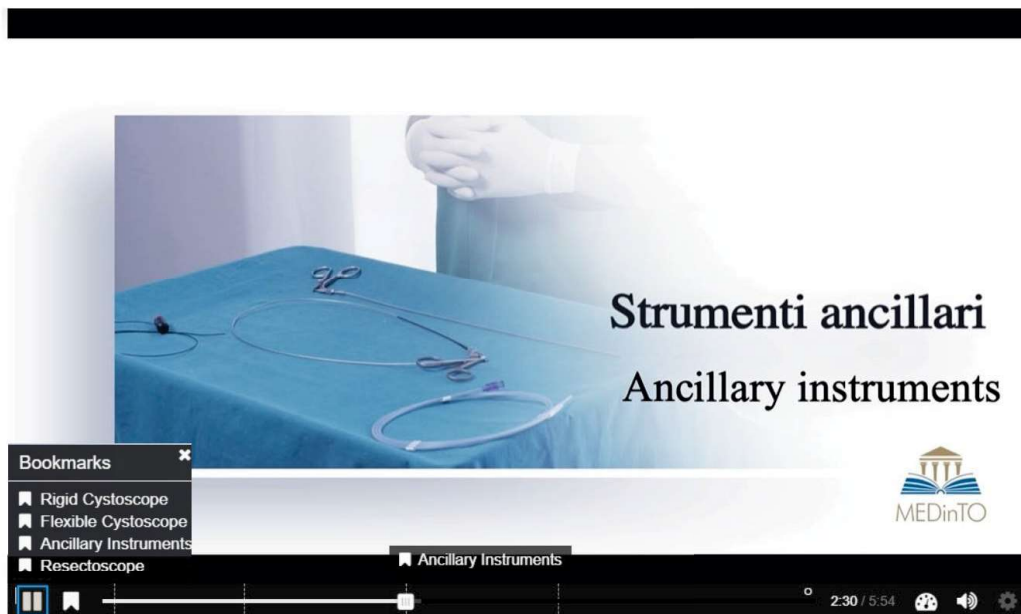


Figure 2 - Bookmarks on the interactive video.

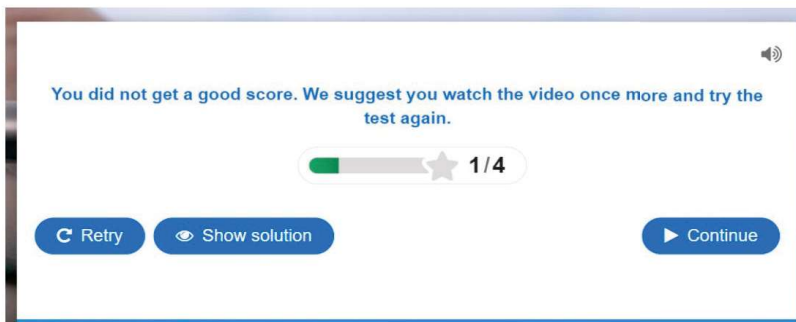
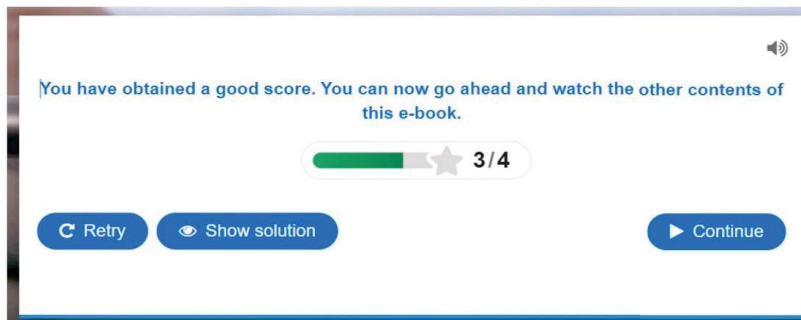
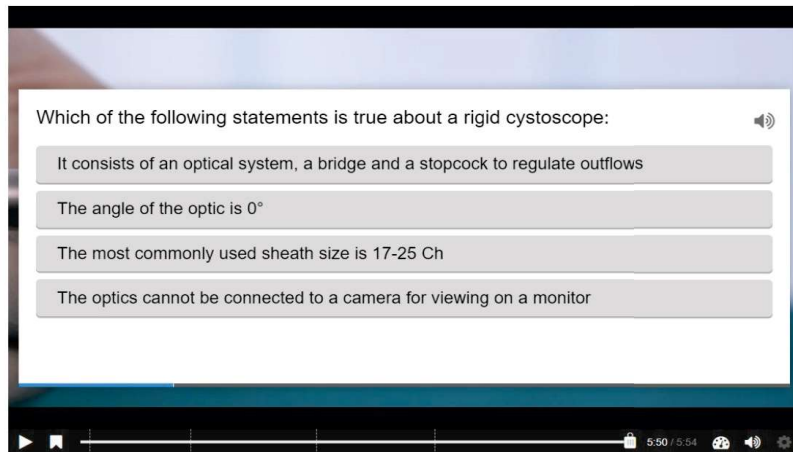


Figure 3 - Single-choice questions with feedback.

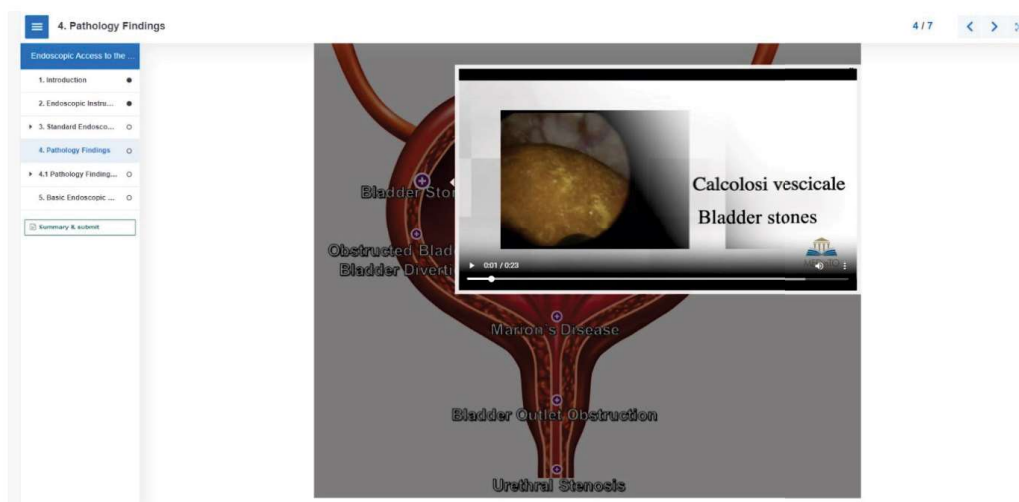


Figure 4 - Image hotspots.

4. Conclusions

The Videolibrary project is in constant development and, as a work in progress, the opposite approach, i.e. bottom-up, is also being tested. The final goal of this experimentation is to support both professors and the outside supplier in designing and producing new videos which, with the supervision of the Web and E-learning Staff, manage to follow the recommendations of Multimedia Learning Theory (MLT).

Moreover, an ad hoc employee bonus program was launched by the University of Turin in April 2023: the final goal of the program consists in defining a framework to support the stakeholders involved in video production for teaching and dissemination of contents in the medical area. Surveys, flowcharts, guidelines and a standardized protocol are being set up as part of an operational toolkit. Starting from the critical issues mentioned above, the program is also intended to make full use of both human and financial resources.

References

- Ahmet, A., Gamze, K., Rustem, M., & Sezen, K.A. (2018). Is Video-Based Education an Effective Method in Surgical Education? A Systematic Review. *Journal of Surgical Education*, 75(5), 1150-1158.
- Bransford, J.D., Brown, A.L., & Cocking, R.R. (2000) (Eds.). *How People Learn: Brain, Mind, Experience, and School*. Washington, DC: National Academy Press.
- Dinscore, A., & Andres, A. (2010). Surgical Videos Online: A Survey of Prominent Sources and Future Trends. *Medical Reference Services Quarterly*, 29(1), 10-27.
- Mayer, R.E. (2001). *Multimedia Learning*. Cambridge: Cambridge University Press.
- Nightingale, K.P., Anderson, V., Onens, S., Fazil, Q., & Davies, H. (2019). Developing the inclusive curriculum: Is supplementary lecture recording an effective approach in supporting students with Specific Learning Difficulties (SpLDs)? *Computers & Education*, 130, 13-25.
- Srinivasa, K., Chen, Y., & Henning, M.A. (2020). The Role of Online Videos in Teaching Procedural Skills to Post-graduate Medical Learners: A Systematic Narrative Review. *Medical Teacher*, 42(6), 689-697.
- Taslibeyaz, E., Aydemir, M., & Karaman, S. (2016). An Analysis of Research Trends in Articles on Video Usage in Medical Education. *Education and Information Technology*, 22, 873-881.