Transmedial Patterns and Design of Legal Serious Games: a Case Study

Nicola LETTIERI¹, Ernesto FABIANI², Sebastiano FARO³, Rosario DE CHIARA⁴
¹ISFOL, Institute for the Development of Vocational Training, Corso D’Italia 33, Roma, 00198 Italy, Tel. +39 06854471, n.lettieri@isfol.it
²Dipartimento di Studi Economici Giuridici e Sociali (SEGIS) dell’Università degli Studi del Sannio, Piazza Areechi II Benevento, 82100 Italy, Tel +39 0824305310, ernesto.fabiani@unisannio.it
³Institute of Legal Information Theory and Techniques, Via de’ Barucci 20, Firenze, 50127, Italy, Tel: +39 05543995, faro@ittig.cnr.it
⁴University of Salerno, Via Ponte don Melillo, Fisciano (Salerno), 84084, Italy Tel: +39 089969703, dechiara@dia.unisa.it

Abstract: The paper focuses on the instructional and interaction design of legal serious games. The use of serious games in the undergraduate and vocational legal education is still relative rare and, most of all, still lacks solid theoretical guidelines concerning the overall design of learning experience. On the base of an experimental research focused on the development of a serious game for teaching civil adjective law, the paper analyses the emerging paradigm of transmediality (transmedia storytelling and transmedia interaction) and its possible connections with the instructional design of a legal serious game, considering the specific needs and features of legal education.

1. Introduction

There are many reasons to look at serious games (SGs) as an effective supporting tool for legal education. As a matter of fact, the experiential learning which is provided by SGs, appears to be able to satisfy fundamental needs of undergraduate and vocational legal learning: a jurist not only has to know abstract regulations and case law, but he also has to learn practical skills whose acquisition can be certainly made easier by simulation of real activities.

In particular, by the interaction with a SG simulating legal transactions (a trial, an administrative procedure, the drafting of a contract etc.), user can learn through tests and errors, observing the effects produced in the simulated scenario by his own actions, maturing therefore a deeper understanding of the relations that tie the various aspects of the legal phenomena depicted by the game.

This paper analyses the emerging paradigm of transmediality (transmedia storytelling and transmedia interaction) and its possible connections with the instructional design of a legal SG, considering the specific needs and features of legal education. It also presents a research project aimed at developing/trying out a learning environment for the creation of on line role playing games simulating civil trials. The results gathered during an experimentation carried on in a civil procedure law class at the University of Benevento will be described. Didactical, methodological, and technical features of the project will be also discussed. Last Section of the paper will provide general recommendations for the design of SGs for legal education.
2. Designing Legal Serious Games

The overall design of a new learning tool is an important and tricky issue. The instructional design, the practice of arranging media and content to help learners and teachers to transfer knowledge most effectively, is influenced by two factors which cannot be ignored: contents and cultural context. The designer of a legal serious game, therefore (i) has to consider how the specific nature of legal contents, the cultural context of legal education and the specific needs of legal education can affect the choice of instructional and interaction design models and (ii) has to carefully choose the instructional design models that better suite its learning goals. Legal education has at least three major objectives, considering its specific purposes:

1. Providing core theoretical legal knowledge (general legal principles, norms, legal doctrines);
2. Ensuring the acquirement of “practical” legal skills (understanding and writing legal texts; solving legal problems; relational skills etc.);
3. Combining both theoretical and practical learning methodologies.

From a methodological point of view, legal education is characterized by:

- Traditional teaching methods based on the presentation of theoretical concepts (handbooks, lectures);
- Experiential learning practices (legal clinics, moot courts, mock trials), based on the simulation of various kinds of judicial and extrajudicial legal transactions (trials, administrative procedure, legal counselling etc).

A constant specific feature of legal education is the wide and recurring use of written texts. Law is strictly connected with the use of written and spoken language [1]. In a didactic perspective, then, reproducing legal transactions means, for the most part, reproducing activities that have to do with the use of texts (beyond simulating legal interactions with real persons, decision making, legal reasoning etc.), namely reading, interpreting and grasping legal texts and producing legal texts (write a contract, a legal advice, a judicial proceeding etc.). A careful consideration has to be given to this aspect by instructional designers: e.g. in designing a moot court, they have to ask students to write judicial proceeding (orders, fiats, deeds). The interpretation of the ambiguous legal language is another crucial issue: for instance, relevant mistakes in the conduct of lawyers and judges derive from misunderstanding of judicial proceedings due to lack of skill in interpreting legal documents.

Designing a legal SG implies the awareness of these issues and the choice of interaction models resulting from these premises. As a consequence, in developing legal SG, a relevant role has to be reserved to utilization and production of legal texts (besides all other functionalities provided by ICTs).

3. The Emerging Paradigm of Transmediality

Considering the objectives and features of legal education, useful suggestions in designing a legal SG can be derived from the analysis of new media and videogames world. The paradigm of transmediality, recently described as the emerging narrative and interaction model in the field of new media, appears to be an interesting reference model.

The world of new media and game design has been marked, in the last years, by the rise of the cultural model of “transmediality”, i.e., the wide use of different media both in structuring narratives and in designing game interaction. The concept of transmediality, has been utilized with different meanings:

a) Transmedia storytelling

In January 2003 issue of MIT Technology Review, Henry Jenkins [2] describes how increases in the complexity expected by audiences from their entertainment, in the
feasibility of sharing digital resources across multiple media forms, and in the entertainment industry’s hunger for profitable multi-media franchises are fostering the growth of a new type of entertainment. Jenkins defines the result of this combination “transmedia storytelling”, the telling of a story using multiple media types.

In transmedia storytelling, the first chapter of a narrative might be a book, the second a film, the third a video game. According to [3]: “A transmedia story unfolds across multiple media platforms with each new text making a distinctive and valuable contribution to the whole”.

Although each component can be experienced individually, they all clearly exist in relation to each other in the larger transmedia story. An audience member could theoretically consume just games, just films, just books or any other object, but the connections between them will improve the experience as a whole.

b) Transmedial worlds

A concept similar to “transmedia storytelling” is represented by “transmedia worlds”, a cultural and communication model theorized to state abstract content systems from which a repertoire of fictional stories and characters can be actualized or derived across a variety of media forms. What characterises a transmedial world is that audience and designers share a mental image of the “worldness” (a number of distinguishing features of its universe). It can be argued that applying this concept to the analysis of cyberworlds can reveal interesting results, as well as being a useful tool for designers of cyberworlds to plan their contents [4]. Subjects interacting with the transmedial world in any of its actualizations (for example a book, a film, a game) can recognize the world by its abstract properties. A transmedial world is more than a specific story, although its properties are usually communicated through storytelling. For instance, the transmedial world of Tolkien’s Middle Earth is more than the book trilogy called “The Lord of the Rings”, and it includes the films, the board games, the computer games, the fan fiction, the landscapes painted by graphic artists, etc.

c) Transmedial interaction

Another interesting pattern for our survey is transmedial interaction [5]. The world of videogame is witnessing the emersion of a new game design paradigm: fictional worlds that lay in background in new videogames are even more spread across different media. Players’ access to game is made possible by different devices. Human-human and human-machine interactions pass off computer games, video, texts. This way, a new category of interaction design has been established. Transmedial interaction design, therefore, can be described as follows:

![Transmedia interaction diagram]

Figure 1. Transmedia interaction
4. Transmediality in Designing Legal Serious Games

In the light of what has been said so far, transmediality appears to be an interesting model for the design of legal serious games.

As a matter of fact, a clever use of different media (text, game elements and video) in designing scenarios and interactions could be a suitable solution, a design approach matching the specific needs of legal education. This statement is supported by various recent surveys on the possible use of SGs in the legal field [6] [7].

If we think to apply the transmedial paradigm to the design of a legal serious game, the use of different media for presenting the simulated scenario has to be designed paying attention in particular to the relevance of text in this context. Referring to the scheme shown in figure 1, it should be possible to proceed that way:

ACTION: the scenario and the learning materials offered to the students are shared across different media:
- **Game**: the scenario of the SG is built through game interactions. Elements of storytelling (facts and juridical issues) are set and described:
  - by tutors taking an active part into the Role Playing Game, assuming the role of persons involved in legal activities;
  - by Non Player Characters controlled by the computer that, interacting with students, contribute to the construction of the plot.
- **Video**: other elements of the scenario are illustrated through videos portraying real legal transactions.
- **Text**: the plot of the simulation is also presented through written legal documents consistent with the scenario and the developments of storytelling.

FEEDBACK: players provide feedback and interact with the game using different media:
- **Game**: players intervene in the game interacting with other players and with Non Player Characters controlled by the computer, making choices and carrying out activities reproducing real legal transactions.
- **Text**: players write legal documents affecting developments of storytelling and used also for the assessment of their learning performance.

The interaction and instructional design is organised as graphed in the following figure.

![Figure 2. Transmedia design in a legal serious game](image)

5. A Case Study: the Simulex Project

The above discussed model has been applied in a project focused on the simulation of civil trial trying to exploit serious games’ learning paradigm to integrate, in a blended perspective, the theoretical and practical aspects of legal education.
The research, carried out in Italy, involved three partners with different backgrounds: a public research institute working in the field of vocational training (Isfol); the Department of Computer Science of the University of Salerno and the University of Benevento Law School where the environment has been tested in an experimental civil procedure law class. Simulex is an authoring system for the creation of online role playing games simulating, potentially, any kind of legal proceedings. The system has been designed to support both teachers in building scenarios and students in playing simulations. This Section presents major results achieved by the project and describes how the trasmedial paradigm has been implemented in the project.

Simulex was tested within a three months class of civil adjective law created for students with a strong legal background. The course was built around the simulation of a civil trial concerning a claim for damages. The learning environment was used to create, manage and participate to the simulated trial.

The teacher used Simulex to create the starting scenario, to interact with students, to determine the development of the trial giving players feedback (messages and documents delivered to the parties through the platform) about the effects of their actions on the procedure and to upload and share learning materials and interactive exercises (multiple choice; drag into category; drag into order).

On the other hand, students used the learning environment to take part to the simulation writing and exchanging documents and acts, filling on line exercises, chatting with other students and downloading learning and normative materials.

User testing involved 15 voluntary students split into three groups that, under the supervision of a tutor, played the role of lawyers of three parties to the suit (plaintiff, defendant, third party) interviewing clients, drafting procedural documents (letters, pleadings, deeds etc.) and taking part in hearings. The role of the judge was played by the teacher, who also took the part of “master” of the game.

According to the blended learning approach underlying the project and in order to fill the gap between legal theory and concrete trial practice, online interactions were accompanied by traditional lectures about theoretical topics (norms, doctrines, case law) related to the specific ongoing trial stage. For the same goal (and coherently with the trasmedial paradigm sketched above), some trial stages, like witnesses examination or client interview, were simulated in face to face lessons and recorded. The clips were stored on the platform to allow students later references for further deepening and for a final discussion. The trial ended with a verdict pronounced by the simulated judge and with a general debriefing.

Coherently with the structuring of the learning experience, student’s assessment was designed in order to evaluate, at once, both theoretical knowledge and practical skills acquired by each player. Hence students were assessed considering:

- Documents (letters, deeds, pleadings etc.) written during the trial;
- Legal skills and expertise shown during the simulation (correctness of procedural choices, respect of civil procedure law norms; compliance with the legal terms);
- Interactive exercises and questionnaires filled on line;
- Activities performed during face to face game sessions (e.g. witness examination);
- Final examination on theoretical concepts.

6. Technology

In this section we will shortly summarize the technological details of the implementation of the system. The rationale behind the decisions we took is to implement a videogame that can be played by using just a browser. The whole game is hosted on a lightweight server and can be easily deployed. Simulex is intended to provide a game experience that can span...
across different weeks and that can be carried out both in synchronous and asynchronous mode. Each game is a simulation based on a certain scenario.

The same scenario can be used for different simulations involving different players. A fundamental building block for creating a running simulation is a library of jurisprudential literature that can be used as additional material by players. Each scenario runs on a simulated time pace (e.g. one real time day corresponds to three in-game days) that aims at reproducing time intervals and deadlines that are commonly involved in legal procedures. A simulation involves a set of static and dynamic data, which are mainly produced by each player, following the role each player assumes within the game.

The architecture of the learning environment Simulex was based on three tiers implementing the model-controller-presenter design pattern:

The model tier is instantiated by a database system and some dedicated parts of the file system and provides persistence across multiple game sessions. This layer is responsible for all the data in the system: stores scenarios descriptions, user roles and documents and, for running sessions, keeps log files for all actions that take place within the system.

The controller implements all the logic and moves data back and forth from/to the server and the player. While this layer is logically to be considered as a unity, it is actually implemented both on the server and the client: on the server side are deployed the necessary scripts to check consistency of operations, and on the client side (e.g. within the browser) there is the logic enforce limitations and checks on data formats.

The presenter tier is deployed in the user browser and is in charge to present data to user and render the videogame user interface (UI). The design of the UI is quite complex. The architecture of the system can be divided into functional blocks:

- The database server that provides the implements the model tier;
- The web server which is in charge to host the controller functionalities and the web pages which are actually rendered in the browser;
- The browser which collects user inputs and renders user interface, implementing the presenter tier.

The database and the web server blocks actually run on a server machine that also collects all the log files and implements the authentication service also. The system is based on a LAMP (Linux-Apache-MySQL-Python) server that is hosted by a virtual machine. This assure a rapid deployment of the whole system even in a classroom with no Internet connection. The application user interface is written in Adobe Flex.

7. Major Outcomes

The end of the trial has been followed by a survey geared to ascertain the results of the project on a methodological, didactical and technical level.

Teachers and students have been interviewed to determine the real impact of the use of a serious game in a law class and to draw useful recommendations for the future developments of the project.

According to the results of our survey, we can state that the use of Simulex within the civil procedure law class has shown, both for the students and the teachers, some interesting outcomes that encourage further investigations.

First of all, students have reported a bigger interest in the studied subject and a greater involvement in learning activities. The theoretical and abstract study of law is often perceived heavy and even boring, to some extent: students are asked to memorize a huge quantity of norms and sentences with few or even none connection at all with concrete experiences.

In the course of the trial, players have shown to really appreciate the idea of learning civil procedure law through a computer gaming simulation mixing both the advantages of a practical learning methodology and the appeal of a videogame. During the interview, many
students declared they have learned much more from the mistakes made in the simulated trial (e.g. run into a forfeiture) than from the theoretical study of procedural norms.

The competition between the parties to the suit, in addition, increased learners’ motivation. Brilliant results accomplished by students in the final examination confirm this. According to teacher’s and tutors’ attestation, learners mastered appropriately legal institutions and theoretical concepts that prove particularly complex when faced only through traditional/theoretical lessons.

On the other hand, after a few difficulties in getting acquainted with the environment and its tools, law teachers appreciated Simulex’ capacity to ease the study of difficult legal topics through a new engaging method. The learning experience allowed by the combination of traditional lectures, gaming interactions, on line and face to face simulations showed a great power to foster both the deepening the theoretical knowledge of law and the acquisition of practical legal skills essential for jurists and legal practitioners. The use of Internet, and the consequent freedom from space and time restrictions concurred to the success of the course.

The results so far described, understandably, stem not only from technology and gaming design patterns, but also from a learning method holding together the strengths of traditional practices of legal education and the learning virtues of serious games. In a wide sense we can say that the main outcome of the project was the validation of a new perspective for computer-based legal education.

In the legal field, communication and information technologies are still too often used just to share, even if in a new way (via the Internet, through hypertexts and hypermedia), traditional learning contents (norms, sentences, lectures, tests etc.). The power of serious games, instead, is to enable innovative forms of experiential legal learning helpful both in a theoretical and a practical perspective; both in civil and common law countries.

Teachers of legal disciplines can take advantage of the mentioned results in different ways. Scenarios unfolding in SGs can be used to design learning experiences aimed both at acquiring substantive legal concepts and professional skills.

Furthermore simulations can be deployed to build scenarios involving different disciplines (e.g., civil law and criminal law) like very often happens in real trials and professional activities where legal issues pertaining different area s of legal curriculum appear strictly intertwined). This opportunity will be useful not only in academic education but also in vocational training and lifelong learning.

8. Future Developments and Recommendations

The survey carried out after the end of the class, suggested a series of improvements, here below summed up, that represent a “to do” list for the future development of the project. A new release of Simulex should include:

- More realism in mimicking legal interactions (e.g. procedural technicalities, civil trial scheduling);
- Wider use of multimedia (video of real hearings; videochat);
- Graphical improvements (user interface; conceptual maps);
- New exercises with more advanced interactions
- Dynamic Difficulty Adjustment system to improve gameplay and the learning efficacy of the exercise;
- Design of more intuitive tools in order to ease both teachers and students in creating, managing and playing the simulation;
- More competition elements;
- More advanced systems for the access to learning materials (classification schemas, thesauri, legal ontologies).
As final remarks, on the basis of our experience, we can say that in designing courses on legal issues, simulation should be considered as a key tool to be put beside traditional lectures, seminars and materials in order to strengthen the effectiveness of learning activities.

As to the design of computer gaming simulations, this requires a strongly interdisciplinary approach. The direct involvement of different expertise (from computer to cognitive scientists, from game designers to pedagogists) is essential to maximize the payoff of this methodology. In particular, the participation of content experts (jurist, legal practitioners), right from the stage of interaction/instructional design, is required to provide users with scenarios strongly rooted in real experiences they will face in their daily jobs.

References