

Classroom Introduction of a Video Game on Italian Grammar

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Abstract: Despite Italian teachers' strong interest in the use of games, especially the digital ones, there are several critical issues due to their lack of familiarity with games/video games thus making games' adoption in teaching complex because teachers have only limited time to prepare and play a game-based learning game. Therefore they feel uncertain about using games in class due to their limited knowledge of digital games and find it difficult to identify appropriate assessments, they also find it difficult to integrate video games effectively and efficiently into their classroom, it is also difficult for them to choose appropriate games for teaching. Additionally the school/administration doesn't assist their effort to support and improve their skills in game-based learning. The learning of the fundamentals of the Italian language and grammar are described and defined by the Italian Ministry of Education within the "National Indications for the 'Italian Language' Curriculum". However, multiple difficulties often make it arduous to learn the basics of the Italian language. The video game "Ross and the Sgrammanebbia" - which can be translated as "Ross and the Un-grammar-Fog" - is a didactic grammar web video game that has a correspondence between the levels and the topics of the textbook as well as giving the teacher a valid help to organise a didactic path studied on the curricular skills. In order to define the useful guidelines for an effective introduction of the game in the classroom, participatory qualitative-quantitative research was prepared on the methods that a small group of teachers put in place to design the training activity with video games. The research focused on: analysis of the educational design skills for the use of games: definition of learning goals, assessment methods and identified teaching strategies; evaluation of the pedagogical activities implemented to facilitate the introduction of games in the classroom; analysis of the roles played by the teacher during all the phases of the training activity - from the design of the training activity to the introduction of the game in the classroom, to evaluation.

Keyword: lower secondary school, Italian grammar, videogame in education, designing teaching activities, lack of game literacy, teacher's roles in the game-based learning

1. Introduction

In recent years, the interest in games within educational processes has grown exponentially. As the Danish researchers Hanghøj and Brund (2011, p 125) pointed out, despite the fact that research on the educational use of game now has a history of over fifty years, it has mostly examined the effects on learning or an attempt has been made to "identify the intrinsic learning potential of particular play projects" (ibid.), focusing mainly on individual projects and classroom experiments in which games have been investigated in students, focusing the research mainly on the teacher-student interaction (e.g. Tzu et al, 2012) or on teacher's facilitation during the game (Hanghøj and Brund, 2011).

This research focus has in fact neglected to investigate the teacher's pedagogical dimensions, such as the design solutions or teaching strategies that the teacher adopts when teaching through play. These shortcomings would seem to highlight a lack of reflection on the pedagogy of play in educational processes, and the many observations on the importance and potential of play in educational activities were not followed by broader considerations of the teacher's activities, as well as teaching practices and processes before, during and after play, how to design activities supported and enhanced by play, and the roles that students and teachers assume within learning activities (Kangas et al., 2017a).

2. Issues

Play is not sufficient to create the learning environment within the classroom context, but a dynamic relationship between teaching and learning is always necessary and is linked to the playful experience and design competence of the teacher or trainer. The increase in the number of educational activities that use games in their various manifestations has neither led to a massive adoption of the use of games within schools nor, above all, to an increase in teachers' competence in the use of games for teaching: knowledge of a game includes the identification of its technical characteristics, the pedagogical position and the content embedded within a game (Foster et al., 2011).

Research has found that pre-service teachers report that they do not feel adequately prepared to incorporate play within their curriculum (Allsop et al., 2013; Takeuchi and Vaala, 2014); in particular, factors influencing teachers' use of games mainly include their inability to (a) *Analysis of games* - in the absence of a deep familiarity with games, in addition to a low perceived value of the educational opportunities offered by games (Kenny and Gunter, 2011), the teachers' ability to design and implement games is undermined (Egenfeldt-Nielsen, 2004). For the effective inclusion of games in the classroom, researchers emphasise as a prerequisite that the teacher

is competent to play the game he or she wants to use (Baek, 2008; Hirumi, 2010; Ketelhut and Schifter, 2011). (b) *Game integration*: knowledge of the game alone does not automatically make the teacher competent in teaching with games, even when texts on the game are available or the teacher has years of teaching experience (Eastwood and Sadler, 2013; Magnussen, 2007). The aim of game integration is to combine knowledge of game characteristics with teachers' teaching and curricular experience (Ritzhaupt et al., 2010; Rice, 2007). This primarily involves the teacher adopting multiple pedagogical roles to facilitate students to intentionally connect their experiences within the game to those within their curriculum.

Several factors that affect the introduction of play in educational activities have been identified in the international scientific literature. Those that can be ascribed to the teacher are (Hanghøj, 2013): poor/absent game literacy, presence of prejudices about the role and meaning of play in society and culture, difficulties in translating curricular learning goals into playful activity and/or play, difficulty in identifying and selecting the most appropriate game and integrating it effectively and efficiently within the training activity and difficulties in identifying appropriate assessment methods for learning goals and play objectives.

Besides teachers, students, school, family, and territory should be taken into consideration (Andreoletti and Tinterri, 2023), for the purpose of the present article this will not be discussed in detail.

2.1 The teacher's roles

The research by Kangas et al. (2017a) highlights the importance of the teacher's active role in the integration of games intended for learning into teaching: depending on the learning objectives and the game context, the teacher's role varies from leader to facilitator, from organiser and planner of learning activities to guide and tutor during game sessions.

The roles that the teacher assumes during classroom activity are central, not only in connecting game-based learning to the curriculum, but also in connecting the world of play to the real world and in evaluating the processes and outcomes of game-based learning (Kangas, 2010b; Meyer and Sørensen, 2011; Watson et al, 2011). However, the teacher does not always know how to be supportive of students in play (Magnussen, 2007). This means that it is possible for a teacher to hinder or even nullify the learning potential in a game based on roles he or she assumes during the learning activity. These roles require skills that may not be intuitive and that are not normally acquired through training courses or essays on games.

Hanghøj (2013) highlights how the teacher moves among four different roles, taking on the role of instructor, director, guide and evaluator from time to time. These roles are not mutually exclusive: it is normal for a teacher to take on several roles at once and to switch from one to the other quickly.

Player: The teacher assumes this role usually before the start of the lesson. Experimenting with the game before bringing it into the classroom prepares the teacher to understand what roles the students will assume during the activity, to identify any critical issues the students may face and what kinds of support the teacher should put in place to help them.

Instructor: This role concerns the planning and communication of the general objectives of a game scenario in relation to certain learning goals and is an integral part of most teachers' daily practices.

Guide/Observer: The teacher supports or encourages students in their attempts to achieve particular learning objectives during the game activity.

Playmaker/Initiator: Teacher's ability to manage tasks, roles, objectives and dynamics within a particular game scenario seen from the player's point of view.

Referee: The teacher helps the participants to play together and/or facilitate the type of competition.

Character: When the teacher assumes the role of a character within the game or when he or she inserts himself or herself within the narrative expressed by the game.

Discipline Expert/Advisor: The teacher always remains the discipline expert and, during the game activity, can act as an advisor to the players in matters related to the subject of the game.

Evaluator: The teacher's ability to assess the outcomes of the play activity and the students' learning experiences.

Teacher roles should not be understood as ideal types or normative goals for teaching with games; rather, they can be seen as heuristic categories based on the empirical analysis of teachers' game practices.

3. Search

3.1 Participants

In order to analyse the use of video games within the classroom activity, it was decided to identify a small number of classes in which to directly observe how on the one hand the teacher proposes the game as well as linking it to the educational goals, organising and managing the classroom activity, while possibly arranging supplementary activities and evaluating the educational activity; on the other hand, the students are involved in the educational activity integrated with the game, how they play the game, their attitudes towards a video game specifically designed for learning grammar.

So as to define the sample, it was at first decided to adopt a non-probabilistic (Creswell, 2013) reasoned-choice sampling (Ferrarotti, 2006), identifying a suitably selected group of classes in the first year of secondary school, in which the teachers in charge of the Italian course had adopted the textbook combined with the video game. The search for teachers, which took place between January and February 2023, went through a process of dissemination of the project within teachers' organisations, which made it possible to identify 14 teachers, subsequently reduced to 10.

The sample consists of:

- 10 female teachers, who taught Italian in the first classes of secondary school;
- 10 classes involved from 6 different schools, 2 in the urban area of the city of Turin (Piedmont region) and 4 in the urban area of the city of Milan (Lombardy region);
- 2 classes belong to 1 Private School in the city of Milan; the other 8 classes belong to 5 State schools in the cities of Milan and Turin;
- 185 students involved (92 boys and 93 girls) aged between 11 and 12.

3.2 Subject

The subject of this research is "Ross e la Sgrammanebbia", an online video game related to the fundamentals of Italian grammar, produced by Deascuola (a school publishing operator in Italy based in Milan) and developed by Tiny Bull (an Italian video game developer based in Turin). There is a correspondence between the game levels and the topics of the textbook to which it is appended, and it offers the teacher a valuable aid in organising a didactic path designed around curricular skills.

The game is a adventure game and is composed of three main components: a narrative component acts as a link between the minigame and educational activities; a purely game component with skill challenges and hand eye coordination game; a learning component: the use of game language and of game dynamics in interactive learning activities is very limited cause of the lack of knowledge of the teacher's game dynamic.

The game was completed in about 11 months divided as follows: 3 months for conception, 3 months for design and 5 months for implementation and testing.

3.3 Methodology

An integrated qualitative-quantitative research approach was chosen - selecting the most suitable one according to the objectives of the research at different stages of the project (Cresswell and Plano Clark, 2011; Cresswell, 2014) - in order to investigate the ways in which teachers design the training activity integrated with the game, manage the game-integrated teaching activity in the classroom and evaluate the activity as a whole.

Phase 1 - Teacher's relationship with games and video games (second half of March 2023)

The first step, initiated after the identification of teachers between January and February 2023, concerned the analysis of the sample of teachers selected for the project and used a questionnaire with structured and semi-structured questions administered using the Google Form platform (CAWI technique).

Phase 2 - Design of teacher training activities (end of March 2023 - second ten days of April 2023)

The second step aimed at analysing the teachers' level of mastery of educational design using two separate instruments: administration of a questionnaire with structured and semi-structured questions using the Google Form platform (CAWI technique) and delivery of the game-supported training activity design sheet.

Phase 3 - Observation of classroom activity (end of April 2023 - first ten days of May 2023)

The third step, the very heart of the research, focused on how the teacher manages the classroom activity with the aid of the video game “Ross e la Sgrammanebbia”, it took place through an ethnographic approach (Corbetta, 2003; Babbie, 2010) given by observing participants during the lesson.

Phase 4 - Analysis of classroom training outcomes (first-second decade of May 2023)

The fourth and final step, in the days immediately following the classroom observation, was structured with a qualitative-quantitative approach, based on a questionnaire and a semi-structured interview administered at two consecutive times: the questionnaire, administered to teachers using the Google Form platform (CAWI technique), aimed to evaluate the training activity carried out; following the administration of the questionnaire, a semi-structured interview lasting approximately 60 minutes was organised, based on the analysis of all the elements collected (questionnaire, design and observation).

3.4 Experimentation

Classroom experimentation was planned over a single lesson lasting between one and two hours and managed through observation. The analysis of the time actually devoted to the game in relation to the time devoted to the entire teaching activity shows how the teachers acted heterogeneously: at one extreme, the game was reserved for a minimal portion of the overall lesson activity (18 minutes out of a total of 85, i.e. 21% of the time) and, at the other extreme, the game took up the entirety of the scheduled time (42 minutes, i.e. 100% of the time).

4. The teacher as mediator of the video game in the classroom between poor game literacy, educational goals, game objectives and pedagogical dimensions

Given the critical issues highlighted, the aim of the research was to understand what the possible obstacles were to the introduction of a video game specifically designed for the teaching and learning of the elements of Italian grammar present in the Curriculum for the first grade of the lower high school and to identify the most effective strategies to facilitate its appropriation by the teacher and its effective introduction within the classroom teaching activity.

This article seeks to provide an initial response to these critical issues by considering the following three aspects.

4.1 Lack of familiarity with the game (game literacy)

The sample of teachers in the research is in line with what is indicated in the literature on Game Literacy (Kenny and Gunter, 2011) as only 3 of them (n=10) use games in their everyday life outside their professional activity. The analysis of the indicated titles highlights ‘hobby’ games and video games on personal smartphones of the ‘casual’ genre. 4 teachers indicate that they have had previous experience of introducing games/videogames in the classroom. The analysis of the types of games highlights a “low” and “simplified” use of the game, as the titles indicated can be traced back to behaviourist online solutions (Egenfeldt-Nielsen, 2007) or to knowledge assessment tools “disguised” with gamified mechanics (Kahoot!, Mentimeter etc.).

Research indicates that teachers who make little use of play in their daily lives find it difficult to *perceive the value of the educational opportunities offered by play* and to *benefit from the potential that play can express*. As indicated above, the causes of this low/absent play experience are multiple and, mainly, can be traced back to ideological reasons about the role and meaning of play in society and culture (Hanghøj, 2013). The consequences of the lack of playfulness are most evident when one compares what emerges from the planning produced by the teacher, what is observed during the activity and the evaluation given by the teacher to the activity carried out in the classroom in relation to the possible scenarios that the video game “Ross e la Sgrammanebbia” can take on in the teaching activity (Chart 1).

Without consolidated personal experience of ludic activity and the use of games that are not referable to behaviourist learning models (Gee, 2003; Egenfeldt-Nielsen, 2007; Andreoletti, 2023), with the mere experimentation of the game to be used, the teacher finds it very difficult to identify all the possible scenarios that the game may take on during the teaching activity and will tend to trace the purposes of the game within consolidated and socially shared practices (exercise, socialisation). An analysis of the designs shows that teachers indicate only four possible scenarios: exercise space, socialisation moment, point of view examples and evaluation tool.

The self-assessment carried out at the end of the classroom activity also investigated the types of scenarios attributed to the video game and shows how the teachers rethought the purposes the game served during the lesson. The number of scenarios increased, not only consolidating those previously identified in the design

(socialisation moment, exercise space, assessment tool) but also identifying different purposes closely linked to disciplinary aspects (stimulus for self-reflection, reflection stimulus, content systems).

It was, however, the observational moment in the classroom that highlighted how the teacher managed the game in the classroom by also attributing scenarios not previously identified in the design or considered in the self-assessment phase. The observation identified the use of scenarios more related to disciplinary aspects (content systems, exercise space, reflection stimulus, evaluation tool) and not only to motivational/social aspects (socialisation moment).

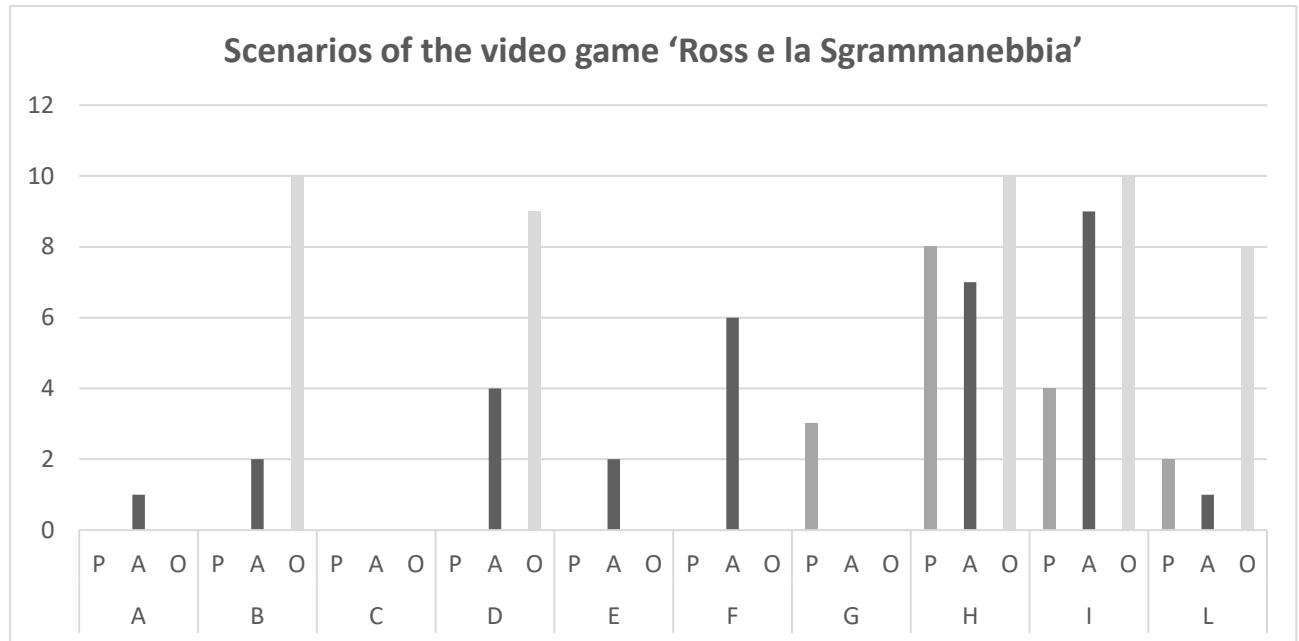


Chart 1: Comparison of the video game scenarios between Teacher's planning (P), Evaluation of the activity by the teacher (A), External observation of the implemented activity (O).

Scenario legend: (A) Self-expression, (B) Content systems, (C) Simulation and manipulation of systems, (D) Stimulus for reflection, (E) Introduction (gateway) of technologies, (F) Stimulus for self-reflection, (G) Examples of viewpoints, (H) Exercise space, (I) Socialisation moment, (L) Evaluation tool.

4.2 Difficulties in translating learning goals with playful objectives in the game

The reading shows that the teacher's lack of practice with play and playfulness both on a personal and professional level does not facilitate the definition of disciplinary goals in relation to playful objectives and vice versa, makes it difficult to define the evaluation methods for educational goals and playful objectives and limits playful activity to the motivational dimension, a mere exercise of content, a moment of socialisation.

In relation to this aspect, it emerged that 9 teachers only attribute cross-curricular functions to play: they mainly point to motivational aspects for the effectiveness of play in learning and the achievement of curricular goals, without however providing any scientific basis to justify their convictions. In line with this aspect, the three main purposes for which games/video games should be introduced in the classroom identified by teachers are motivational (fostering interest in the subject), social (learning together with others) and exercise (consolidating content already learned through repetition). This aspect becomes more evident when the teacher indicates the possible goals of the activity - it emerged that they would use the game/videogame mainly to achieve transversal competences (8 teachers "Personal, social and learning to learn competence", 5 "Functional literacy competence" and 5 "Digital competence"), while only 5 teachers identify the goals in the National Indications for the "Italian language" curriculum.

From the questionnaire proposed prior to the activity, it appears that the most critical issues lie in specific stages of the activity design.

The solutions adopted for linking the disciplinary goals to the objectives of the game: 3 teachers explicitly state that they do not know how to do it, 2 teachers indicate the motivational and social aspects as a solution for the linking, 2 teachers propose vague and generic ways and only 2 indicate ways of linking the narrative and content

aspects of the game to the educational goals. In the questionnaire proposed after the activity in which the game was presented, only one teacher highlights this aspect as critical.

The ways of assessing the outcomes of the video game action within the training activity: 3 teachers express the fact that they do not know how to do it, 1 teacher indicates a generic solution without going into detail on the methods, 3 use self-assessment grids for the students and the teacher's observation of their attitude, 2 teachers indicate specific ways of assessing (written verification and creation of a product on the activity's contents). This critical issue is present to the teachers and is indicated by 50% of the sample in the questionnaire following the activity.

An analysis of the teacher-produced plans, carried out by means of an evaluation grid (scale from 0=absent to 5=well described) relating to the description and evaluation of the disciplinary goals, play objectives, products, and activity phases, shows that (Chart 2).

1. Teachers were generally able to define and evaluate the "classical" aspects of teaching:
 - good/very good (Q. =4) description of the training aims;
 - good/very good (Q. =4) description of disciplinary goals and objectives;
 - good/very good (Q. =4) definition of activity phases;
 - discrete/good (Q. =3; Q. =4.5) definition of assessment methods for disciplinary goals and objectives;
2. the sample showed difficulties when it came to defining game-related aspects:
 - low/optimal (Min.=2; Q. =2.75; Q. =5) description of the play objectives;
 - absent/discrete (Q. =0; μ e=2; Q. =3) definition of playful goal evaluation instruments;
3. the sample was very heterogeneous when it came to indicating the products of the training activity:
 - absent/good (Q. =0; μ e=3.5; Q. =4) in the indication of the products of the activity;
 - absent/optimal (Q. =0; μ e=4; Q. =5) in indicating how the products of the activity are evaluated.

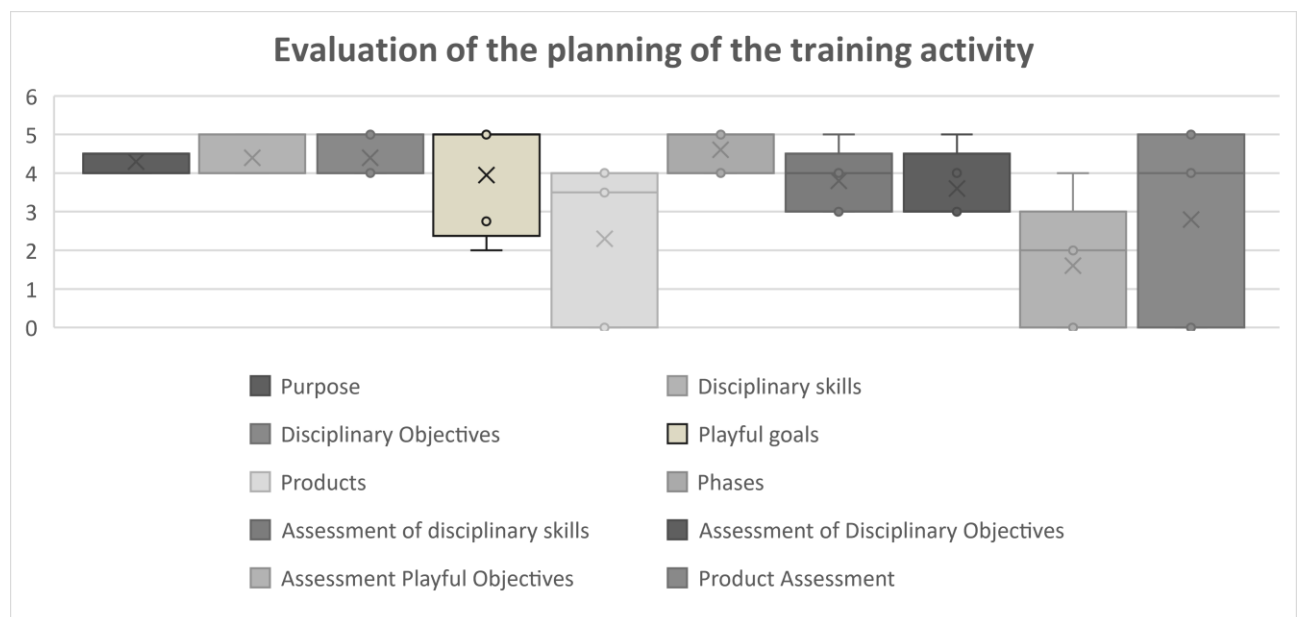


Chart 2 - Evaluation of the training activity design sheet

The teachers themselves are aware of their shortcomings, as 5 teachers indicate as their main critical issue the lack of competence in the use of games in general and 4 the lack of knowledge of games/video-games appropriate to the teaching activity. One of the possible reasons is indicated by 4 teachers as the lack of appropriate technology for the use of video games. From the analysis of the answers given, it can be seen that no teacher indicated Difficulty in introducing games/videogames within the curriculum and Difficulty in assessing game objectives as possible criticalities.

4.3 Reduced focus on appropriate pedagogical models

A further consequence of the teacher's lack of experience with play and play does not make it easy for the teacher to define the possible roles that the teacher can assume during the course of the educational action in order to facilitate the students in linking the playful experiences to the educational objectives of the discipline.

As with the previous two points, the comparison of what emerges from the teacher's evaluation of the activity in the classroom with what is observed during the activity in relation to the possible roles (Chart 3), shows how the lack of playful experience also affects the teacher's ability to identify the roles he or she can take on during the training activity (Hanghøj, 2013; Andreoletti and Tinterri, 2023).

The self-assessment shows that all teachers see themselves as Guide/Observer, a role in which the teacher "supports or encourages students in their attempts to achieve particular learning objectives during the play activity" (Tzuo et al, 2012; Barab et al, 2012; Andreoletti and Tinterri, 2023) and only a minority see themselves in process-related (Director/Author/Initiator, Player, Referee) or task-related roles (Discipline Expert/Advisor, Instructor, Evaluator).

Observation, however, shows a different scenario: the emergence of a teacher who not only manages and organises the training activity (Instructor), but also 'slips' between the different roles during the use of the game in the classroom (Guide/Observer, Discipline Expert/Consultant, Evaluator, Referee, Director/Author/Initiator, Game Character), alternating between those related to the task and those related to the process.

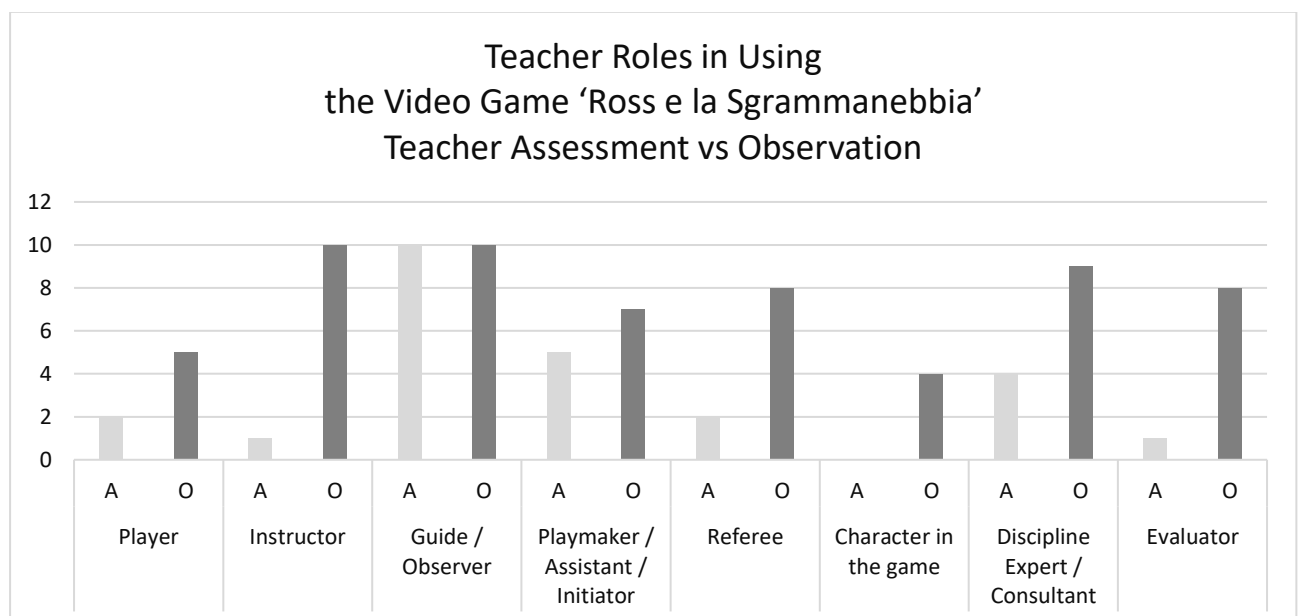


Chart 3: Comparison of the roles assumed by the teacher during the training activity between Teacher evaluation of the activity implemented (A) and External observation of the activity implemented (O)

As Hanghøj (2013) points out, teachers - during a teaching activity in which play is present - take on different levels of participation, moving between being active/interventionist and being passive/observer. As the Danish researcher himself points out, the choice to remain "on the side-lines of the activity" is not always due to unfamiliarity with the game, but is dictated by a conscious pedagogical choice, as it would be wrong for them to interrupt the students' experience of immersion in the game.

5. Conclusion

The use of games in Italian schools and educational contexts is still very limited (Allsop and Jessel, 2015; Loperfido et al. 2019) and directed towards a function of pure entertainment or exercise (Nicholson, 2011) rather than as a real learning environment. The reasons for this discrepancy are, at least in part, due to scepticism regarding the effectiveness of video games in promoting learning. Many teachers seem to be stuck in a "transition phase", as the interest in a resource, which at least on paper is extremely effective, hardly translates into adequate learning episodes when moving around the classroom, due to the virtual lack of personal experience of the teacher's gaming culture, from the very limited, if not absent, training practice with games. Teachers report that they do not feel adequately prepared to include games in the curriculum (Allsop et al., 2013; Takeuchi & Vaala, 2014), as they find it difficult to identify games that align with learning objectives (Molin,

2017) and due to indications on operating methods found online or obtained through training courses that are often unsuitable and qualitatively questionable.

Starting from these considerations and at the request of the teachers interviewed in the final phase of the research, some possible operational trajectories were identified to facilitate the introduction of the game into teaching practices and at the same time work on the main critical issues.

The first viable solution involves the preparation of laboratory-style training activities in which the teacher can be accompanied in the design of training courses in which the mechanisms with which to translate and align disciplinary goals with the objectives of the game and vice versa are understood and, at the same time, actively manipulate the games, hypothesise training paths in which they can be introduced, and directly discuss the experiences implemented with other teachers.

A second solution involves the presentations of games, also via the web, in which other teachers, game-based learning experts and researchers show the different possibilities with which the game can be introduced within the training activity.

As it can be well understood, it is necessary to identify a systemic strategy, which involves all the main actors of the Italian school system in a synergistic and systematic common action, starting from the Ministry of Education first and foremost through all the entities connected to staff training incoming teacher (university training courses for teachers) and in service (trade unions, trade organisations, training agencies, publishers of textbooks and school services and schools). The common objective is to train a competent teacher who knows how to plan training interventions aimed at learning curricular goals with the help of games and video games.

Besides these we cannot fail to consider the first ever educational agency: the family. Initiatives at a local and national level to communicate what the role of school is today, what it means to learn and what to teach and what the role of play as a resource for learning can and should be.

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