AGBL: THE ATTITUDE OF ITALIAN TEACHERS TOWARDS THE USE OF GBL IN EDUCATIONAL ACTIVITIES

AGBL: L'ATTEGGIAMENTO DEGLI INSEGNANTI ITALIANI VERSO L'UTILIZZO DEL GBL NELLE ATTIVITÀ EDUCATIVE

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ABSTRACT
Despite the recognized pedagogical value of Game-Based Learning (GBL), its diffusion in the Italian school system is hindered by perceptions, competencies, and curricular constraints. The study, based on the AGBL questionnaire administered to a heterogeneous sample of teachers, highlights that familiarity with games and specific training facilitate its adoption, while training gaps, difficulties in curricular integration, and cultural resistance limit its use.

Nonostante il riconosciuto valore pedagogico del Game-Based Learning (GBL), la sua diffusione nella scuola italiana è ostacolata da percezioni, competenze e vincoli curriculari. Lo studio, basato sul questionario AGBL somministrato a un campione eterogeneo di docenti, evidenzia che familiarità con il gioco e formazione specifica ne facilitano l'adozione, mentre carenze formative, difficoltà di integrazione curricolare e resistenze culturali ne limitano l'impiego.

KEYWORDS
Game Based Learning (GBL); Acceptance of Digital Game-Based Learning (AGBL); Italian teachers
Game Based Learning (GBL); Acceptance of Digital Game-Based Learning (AGBL); Insegnanti Italiani

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1. Introduction

Games have been a part of human culture for millennia, serving various purposes, from entertainment to socialisation and skill development. In the past decades, advances in digital technology have facilitated the emergence of game-based learning (GBL) as a form of pedagogical innovation in formal and nonformal education. One of the main advantages of GBL is its ability to engage students, which can help them stay motivated and focused on learning (Hartt et al., 2020). Additionally, it encourages active learning and can be personalised to fit the needs of individual students (Orji et al., 2017). Games also provide immediate feedback, which can help students learn more quickly and understand their mistakes (Plass et al., 2015). Collaboration is another benefit of GBL, as it promotes social skills and teamwork (Chen & Law, 2016). Studying GBL must, therefore, represent "the integrated viewpoints of cognitive, motivational, affective, and sociocultural perspectives", including both game design and game research as complementary aspects of the learning process (Plass et al., 2015).

Despite the potential of GBL, the implementation of these types of interventions in real educational settings has faced multiple barriers and constraints that reduce their impact. Barriers related to the cost of equipment (Moizer et al., 2009), inequities in access to technology (Hsu, et al., 2011), entertainment risks to education activity (Rowan, 2016; Baalsrud et al., 2013), the available time required to implement games in one day lesson (Justice & Ritzhaupt, 2015; Baek, 2008), teachers gender and their motivation and abilities to deal with technology (Hamlen, 2010; Justice & Ritzhaupt, 2015), lack of game customisations (Embi, 2008; Javora et al., 2021), difficulties in obtaining game analytics and analysing student progress (Hauge et al., 2014), and educators and parents worries about using games in education (Barko & Sadler, 2013; Koh et al., 2011) are some of the constraints caused by the adoption of games in education.

To maximise the potential of GBL, it is crucial to identify and address these barriers and develop effective intervention strategies.

Barriers in Game-Based Learning

The acceptance of GBL and DGBL is viewed as a component of the broader acceptance of educational technologies. Davis (1986) introduced the Technology Acceptance Model (TAM), which highlights perceived ease of use and perceived usefulness as the primary factors affecting an individual's intention to adopt a new

resource, environment, or technology. Ertmer (1999) categorized the barriers to integrating new tools into education into two main types:

- *external (first-order) barriers*, which include limited technological and instrumental resources, access and usage capabilities, teacher training, and support during use;
- *internal (second-order) barriers*, which encompass teachers' beliefs about their roles in relation to students, as well as curriculum and assessment practices.

Supporting Ertmer's findings, Koh et al. (2012) suggest that teachers' perceptions are shaped by external factors like policies and curricula, and internal factors such as personal interest and attitudes toward play.

First-Order Barriers in Game-Based Learning

First-order barriers are typically practical and logistical challenges that hinder the implementation of GBL. These barriers are often more tangible and immediate, involving factors such as technology, resources, and infrastructure.

- **Technological Barriers**
  Technological barriers are among the most frequently cited first-order barriers to GBL. These include issues such as insufficient access to digital devices, poor internet connectivity, and the lack of compatible hardware or software. For instance, studies have shown that many schools, particularly in developing regions, struggle with limited resources, which makes it difficult to integrate digital games into the curriculum (Hamid et al., 2024) (Sousa et al., 2023). Additionally, the rapid evolution of technology poses another challenge, as educators often find it difficult to keep up with the latest tools and platforms (Fante et al., 2024, Fernández-Raga et al., 2023).
- **Resource-Related Barriers**
  Resource-related barriers are closely linked to technological challenges. Many educators report a lack of high-quality, curriculum-aligned games that can be effectively integrated into their teaching practices. This scarcity is further compounded by the limited availability of training opportunities for teachers to develop the necessary skills to use GBL effectively (Jiang & Ziden, 2024) (Khan, 2024). Furthermore, the development of custom games tailored to specific educational needs is often costly and time-

consuming, making it inaccessible to many institutions (Fernández-Raga et al., 2023).

- **Infrastructural Barriers**
  Infrastructural barriers refer to the physical and organizational structures that support GBL. These include issues such as classroom setup, time constraints, and the availability of technical support. For example, teachers often face challenges in managing technology in the classroom, which can disrupt the learning process and reduce the effectiveness of GBL (Hamid et al., 2024) (Sousa et al., 2023). Additionally, the lack of administrator support and clear policies for implementing GBL can further exacerbate these challenges (Tawfik et al., 2021).

Second-Order Barriers in Game-Based Learning

Second-order barriers are more abstract and relate to the attitudes, beliefs, and pedagogical practices of the teacher. These barriers are often more deeply rooted and can have a significant impact on the successful implementation of GBL.

- **Attitudinal and Behavioral Barriers**
  Attitudinal barriers are a significant second-order challenge in GBL. Many educators may be skeptical about the effectiveness of GBL or may perceive it as a distraction rather than a valuable learning tool. This skepticism can stem from a lack of understanding about how games can support learning objectives or from negative experiences with poorly designed games (Aggleton et al., 2024) (Sousa et al., 2023). Additionally, some educators may resist the integration of GBL due to concerns about its impact on traditional teaching methods or the potential for decreased student focus (Rüth et al., 2022).
- **Pedagogical Barriers**
  Pedagogical barriers are closely tied to the design and implementation of GBL activities. These barriers include challenges such as aligning games with curriculum standards, integrating games into existing lesson plans, and assessing student learning outcomes effectively. For instance, educators may struggle with selecting games that are both engaging and educationally relevant, as well as with designing activities that promote higher-order thinking and deep learning (Oprean et al., 2023; Paller, 2023).

Furthermore, the lack of scaffolding and support for teachers in using GBL can hinder its effective integration into the classroom (Villa et al., 2023a).

- **Cultural and Social Barriers**
  Cultural and social barriers are another important second-order challenge. These barriers include issues such as the diversity of student needs, the inclusivity of games, and the cultural relevance of game content. For example, games may not always cater to the diverse needs of students, particularly those with disabilities or from different cultural backgrounds (Rye & Sousa, 2023). Additionally, the social dynamics of the classroom can influence the effectiveness of GBL, as some students may feel uncomfortable participating in game-based activities or may experience social exclusion (Titus & Ng'ambi, 2023).

Fokides and Kostas (2020) note that teachers often do not incorporate play into their teaching due to internal (second-order) barriers, such as their own views and attitudes toward play or other teaching resources, which are based on their pedagogical beliefs, even when external (first-order) barriers have been addressed.

Strategies to Overcome Barriers in Game-Based Learning

Addressing the barriers to GBL requires a multifaceted approach that involves stakeholders at all levels of the educational system. The following strategies can help overcome both first-order and second-order barriers:

- **Professional Development and Training**
  Providing teachers with professional development opportunities is crucial for overcoming both technological and pedagogical barriers. Training programs should focus on developing teachers' technological proficiency, as well as their ability to design and implement GBL activities effectively (Jiang & Ziden, 2024) (Khan, 2024). Additionally, professional development should emphasize the alignment of GBL with curriculum standards and the assessment of student learning outcomes (Villa et al., 2023b; Andreoletti, 2023; Andreoletti, Tinterri, & Dipace, 2024a; Andreoletti, Tinterri, & Dipace, 2024b; Davis, 1989).
- **Resource Development and Availability**
  Increasing the availability of high-quality, curriculum-aligned games is essential for overcoming resource-related barriers. This can be achieved

through the development of open educational resources (OERs) and the promotion of collaboration between educators and game designers (Fernández-Raga et al., 2023) ("A Framework for Analogue Game-modification Learning: Guidelines to Lower Barriers for Games in Education", 2023). Additionally, schools and institutions should invest in the necessary infrastructure to support GBL, including hardware, software, and technical support (Hamid et al., 2024).

- **Policy and Administrative Support**
  Strong policy and administrative support are critical for addressing infrastructural and cultural barriers. Educational institutions should establish clear policies and guidelines for the implementation of GBL, and administrators should provide teachers with the necessary resources and support to integrate GBL into their practices (Tawfik et al., 2021) (Sousa et al., 2023). Additionally, policymakers should promote the development of inclusive and culturally relevant games that cater to the diverse needs of students (Rye & Sousa, 2023).
- **Community Engagement and Collaboration**
  Engaging with the broader educational community can help address attitudinal and social barriers. This includes fostering collaboration between educators, game designers, and researchers to develop effective GBL strategies and share best practices (Aggleton et al., 2024) (Sousa et al., 2023). Additionally, involving students and parents in the design and implementation of GBL activities can help build support and address concerns about the effectiveness of GBL (Titus & Ng'ambi, 2023).

2. Methods

For the purposes of the study, the Acceptance of Game-Based Learning (AGBL) questionnaire (Andreoletti & Tinterri, 2023) was used. This instrument was developed to assess teachers' attitudes toward adopting games as a teaching methodology. The questionnaire is based on the Technology Acceptance Model (TAM) (Davis, 1989) and integrates the TPACK (Technological Pedagogical Content Knowledge) framework and its extension TPACK-G, which is specific to the game-based learning context (Mishra & Koehler, 2006).

The instrument is structured into three sections: the first section collects demographic information (age, gender, school level, years of teaching experience, and geographical area); the second section uses a 4-point Likert scale to measure the four construct dimensions of the TPACK-G model — Game Knowledge, Game Pedagogical Knowledge, Game Content Knowledge, and Game Pedagogical Content Knowledge (Joshi et al., 2015); the third section explores the application context of Game-Based Learning. The tool was validated through internal consistency analysis (Cronbach's α) and Confirmatory Factor Analysis (CFA), resulting in a final version comprising 13 items, with good model fit indices (CFI = .989; TLI = .986; SRMR = .0216; RMSEA = .0437) (Tavakol & Dennick, 2011; Harrington, 2009).

The survey was administered in Computer-Assisted Web Interviewing (CAWI) mode via Google Forms, a technique that enables efficient, rapid, and low-cost data collection while promoting sample heterogeneity and size (Couper, 2000). The questionnaire was distributed to a random sample of 2,752 Italian teachers across all school levels. The sample displayed high heterogeneity in terms of gender, age (M = 44.6, SD = 7.81), and years of experience, ensuring good representativeness.

Data analysis was conducted using Jamovi software (v. 2.4), which enabled the calculation of descriptive statistics to characterize the sample and inferential analyses to test the research hypotheses (The Jamovi Project, 2021). In particular, ANOVA and linear regression were used to examine the effect of independent variables (age, gender, school level, teaching experience, and geographical area) on the AGBL dimensions, with the aim of identifying significant differences and predictive relationships regarding the integration of games into teaching practices (Bussolon, 2020).

3. Results

First, the changes of the age variable according to the school grade were observed. To do that, the Welch's One-way ANOVA and Games-Howell Post-hoc test were used.

	F	df1	df2	p
Age	68.5	6	414	<.001

Table 1. Age Differences Across School Grades (Welch's ANOVA) Games-Howell Post-hoc

p <.001 is significant and the test indicates that the mean age of teachers varies significantly according to the school grade in which they teach.
Test of Normality (Shapiro-Wilk): W = 0.996, p < 0.001
The very low p-value suggests a violation of the normality assumption, i.e., the data do not follow a normal distribution. For this, a Welch ANOVA, which is robust to normality violations, was used.
Test of Homogeneity of Variances (Levene): F = 23.0, p < 0.001
The p-value indicates a violation of the hypothesis of homogeneity of variances (variances are not equal between groups). The use of Welch ANOVA is therefore appropriate, as it does not require equal variances.

ANOVA tells if there are differences in age according to the grade, but it does not specify where. Thus, in order to know which groups differ, it is necessary to perform a Games-Howell post-hoc test.

		I do not teach	Primary school	Secondary School I grade	Secondary School II grade (high school)	Secondary School II grade (vocational)	Secondary School II grade (technical)	Preschool
I do not teach	Mean difference	—	-7.86	-1.18	-3.80	-2.61	-2.6350	-7.449
	p-value	—	<.001	0.952	0.047	0.356	0.357	<.001
Primary school	Mean difference		—	6.68	4.05	5.25	5.2205	0.407
	p-value		—	<.001	<.001	<.001	<.001	0.993
Secondary School I grade	Mean difference			—	-2.63	-1.43	-1.4568	-6.271
	p-value			—	<.001	0.115	0.143	<.001
Secondary School II grade (high school)	Mean difference				—	1.20	1.1697	-3.644
	p-value				—	0.587	0.650	<.001
Secondary School II grade (vocational)	Mean difference					—	-0.0260	-4.840
	p-value					—	1.000	<.001
Secondary School II grade (technical)	Mean difference						—	-4.814
	p-value						—	<.001
Preschool	Mean difference							—
	p-value							—

Table 2.
Age Differences Across School Grades (Games-Howell Post-Hoc Test)

Primary school teachers are significantly older than Lower Secondary School and Higher Secondary School (high school, technical, vocational).
Lower Secondary School teachers are younger than secondary school teachers of Higher Secondary School (especially high school) and significantly younger than preschool teachers.

Second, the changes of the gender variable according to the school grade were observed.

Gender	In which school grade do you teach?							Total
	I do not teach	Primary School	Secondary School I grade	Secondary School II grade (high school)	Secondary School II grade (vocational)	Secondary School II grade (technical)	Preschool	
Female	54	545	827	229	253	231	98	2237
Male	13	55	237	58	74	68	1	506
N/A	1	1	3	0	3	1	0	9
Total	68	601	1067	287	330	300	99	2752

χ^2 Tests

	Value	df	p
χ^2	80.9	12	<.001
N	2752		

Table 3.

Gender Distribution across School Grades (Contingency Table)

The data show that gender and school grade are significantly associated. Females are found to be significantly more present in preschool and primary school, while gender is more balanced (although with female dominance) in the Secondary School. The chi-square test confirms that this distribution is not random.

Third, the differences of AGBL 1-5 according to the school grade were also observed.

	F	df1	df2	p
AGBL1	4.52	6	490	<.001
AGBL2	12.86	6	492	<.001
AGBL3	2.27	6	494	0.036
AGBL4	2.43	6	490	0.025
AGBL5	4.01	6	488	<.001

Table 4.

Differences in AGBL 1–5 Scores across School Grades (Welch's ANOVA)

The ANOVA states that there are significant differences between the different school grades in which the teachers teach. AGBL2 has the strongest difference (F=12.86), which means that the daily use of games is a topic on which the groups differ greatly.

Afterwards, a Games-Howell post-hoc test for each AGBL was performed in order to understand how the rating of AGBL from 1 to 5 changed based on teachers' school grade.

Post-hoc analysis of the data on the statement AGBL 1 "Play-based training can increase students' motivation for learning" revealed some significant differences between school grades. Primary teachers believe significantly more strongly than I grade Secondary School teachers that play can increase motivation (Mean difference = 0.1308, p-value = 0.006). Preschool teachers believe more strongly than I grade Secondary School teachers in the motivating ability of play (Mean difference = -0.2290, p-value = 0.008). Preschool teachers are significantly more convinced than (vocational) II grade Secondary School teachers (Mean difference = -0.2455, p-value = 0.016). Finally, even compared with (technical) II grade Secondary School teachers, Preschool teachers show much higher confidence in the motivational effectiveness of play (Mean difference = -0.2491, p-value = 0.013).

Analysis of the Games-Howell post-hoc test related to the statement AGBL2 "Games can be used daily in the classroom" reveals very marked significant differences, especially with respect to the Preschool teacher group. Primary School teachers believe significantly more in the possibility of daily use of games than their colleagues in I grade Secondary School (mean difference = 0.247; p-value <.001) and vocational II grade Secondary School (mean difference = 0.2163; p-value = 0.003).

Preschool teachers are significantly more supportive of the daily use of games than:

- Primary (mean difference = -0.360; p-value <.001),
- I grade Secondary School (mean difference = -0.607; p-value <.001),
- II grade Secondary School (High School) (mean difference = -0.551; p-value <.001),
- II grade Secondary School (Vocational) (mean difference = -0.577; p-value <.001),
- II grade Secondary School (Technical) (mean difference = -0.527; p-value <.001).

The Games-Howell post-hoc analysis related to the AGBL3 statement “Game-based learning needs sound and structured instructional activity design” shows that the differences between school groups are largely insignificant. In other words, in general, teachers of all school grades seem to be fairly aligned in recognizing that games, to be effective, must be carefully designed.

Data analysis of the AGBL4 statement “Game-based learning requires specially designed assessment modalities and tools” shows that no statistically significant differences emerge between school grades; all p-values are greater than 0.05, indicating that the observed differences in averages are not large enough to be considered statistically significant. In other words, the belief that game-based learning requires specially designed assessment modes and tools is widely shared in a similar way by all groups considered.

Data analysis of the AGBL5 statement “Game-based learning is a future trend in education at all levels” shows that in most cases no significant differences emerge. The only statistically significant differences emerge: between Secondary School of II grade (high school) and Preschool, where a significant difference is observed (mean difference = -0.369, p-value < .001). This means that preschool teachers believe significantly more in the future importance of play than high school teachers. Between Secondary School of II grade (vocational) and Preschool, another significant difference emerges (mean difference = -0.292, p-value = .011). Again, preschool teachers are more supportive of play-based learning than vocational secondary teachers.

4. Discussion

The present study, conducted using the AGBL questionnaire, provides a nuanced and empirically grounded picture of Italian teachers’ attitudes toward Game-Based Learning (GBL), revealing both a general openness to the methodology and the existence of significant barriers—both first-order (infrastructural) and second-order (cognitive and cultural)—that hinder its widespread adoption.

The most obvious finding to emerge from the analysis is that both age and gender are significantly associated with the school grade taught, and in turn, with differing levels of receptiveness to GBL. Specifically, preschool and primary school teachers, who are typically older and predominantly female, exhibited significantly more favorable attitudes toward game-based methodologies. These educators scored

higher on statements regarding the motivational potential of games (AGBL1), as well as the feasibility of daily game use in the classroom (AGBL2), compared to their colleagues in secondary education. Conversely, secondary school teachers—particularly those in vocational and technical tracks—showed more skepticism toward GBL, confirming a pattern aligned with second-order barriers described by Justice and Ritzhaupt (2015).

This pattern is particularly striking in the analysis of AGBL2, which exhibited the largest differences among all items. Preschool teachers strongly believe in the everyday applicability of game-based methods, significantly more so than teachers in all other school levels. The primary school group also reported higher confidence compared to teachers in both lower and upper secondary schools. These differences underscore how GBL is still perceived as more compatible with early childhood pedagogy, where play is an integral part of the curriculum, than with secondary education frameworks, where curricula are often rigid and assessment-driven.

The analysis of AGBL1 also revealed that preschool and primary school teachers believe more strongly in the motivational value of play for learning than secondary school teachers, especially those in vocational and technical tracks. This confirms the idea that pedagogical beliefs regarding the value of engagement and intrinsic motivation play a key role in shaping teachers' willingness to implement GBL (Plass et al., 2015; Chen & Law, 2016).

Interestingly, no significant differences were observed for AGBL3 and AGBL4, suggesting a general consensus among teachers that effective game-based learning requires well-designed instructional planning and dedicated assessment tools. This shared understanding supports the notion that teachers, regardless of their school level, recognize the need for structure and intentionality when implementing GBL. This finding resonates with the theoretical foundations of the TPACK-G framework, which emphasizes the integration of pedagogical, content, and technological knowledge (Joshi et al., 2015).

One interesting finding is that beliefs about the future of GBL (AGBL5) still reflect some disparities. Preschool teachers are more confident in the long-term educational relevance of GBL than secondary school teachers, particularly those in high school and vocational settings. This suggests that optimism toward GBL as a

sustainable educational trend is higher among educators who are already embedded in pedagogical environments where play is legitimized.

Moreover, the positive correlation between belief in the motivational value of games (AGBL1) and the need for strong instructional design (AGBL3) highlights the interdependence between pedagogical convictions and digital competence, as described in recent literature (Hu & Sperling, 2022; Rüth et al., 2022). This suggests that fostering such beliefs through professional development may indirectly promote more effective and meaningful use of digital tools in the classroom.

Factor analysis further validated the internal consistency and construct validity of the AGBL instrument, confirming that the five dimensions measured can be understood as manifestations of a unified latent construct—teachers' general attitude toward GBL. This strengthens the tool's psychometric robustness and supports its use in future large-scale studies on educational innovation.

Another important finding relates to teacher seniority: younger teachers, with fewer years of service, showed greater optimism about GBL's future integration into education. This reinforces the strategic role of initial teacher training in promoting innovative pedagogical approaches (Kaimara et al., 2021; Villa et al., 2023a). Embedding GBL principles in early professional development could help overcome resistance stemming from entrenched beliefs or lack of exposure.

As mentioned in the literature review, while GBL is widely recognized as a promising and innovative pedagogical approach, its actual implementation remains uneven across educational levels. A comprehensive and systemic effort—including school policies, teacher training, institutional support, and cultural change—is essential to ensure that GBL is not perceived merely as a novelty for early education, but as a legitimate and effective approach across all school grades. GBL must thus be framed not only as a didactic tool but also as a cultural and institutional innovation, whose impact depends on pedagogical, structural, and professional dynamics (Sousa et al., 2023; Hamid et al., 2024).

Conclusions

The objective of this study was to examine Italian teachers' attitudes toward the use of Game-Based Learning (GBL) in educational contexts, through the administration of the AGBL questionnaire, developed based on the TPACK-G

framework (Joshi et al., 2015; Andreoletti & Tinterri, 2023). In line with international literature, the findings confirm that GBL is a highly promising educational methodology capable of fostering intrinsic motivation, active learning, and socio-cognitive development (Plass et al., 2015; Chen & Law, 2016; Hartt et al., 2020).

Despite this potential, the widespread implementation of game-based practices remains limited. Teachers encounter both first- and second-order barriers, as theorized by Ertmer (1999), which include infrastructural and organizational constraints as well as resistance linked to pedagogical beliefs and professional culture. Among these, a lack of game literacy—defined as insufficient pedagogical competence in using games effectively—emerges as a critical issue (Chen et al., 2020). This deficiency negatively affects both the quality and frequency of GBL integration, particularly in upper education levels.

The data also highlight a more favorable attitude toward GBL among early childhood and primary teachers, and among teachers with fewer years of experience. These patterns suggest that openness to innovative methodologies is influenced by generational and professional factors.

In light of these findings, initial and in-service teacher training emerges as a strategic lever. The national education reform introduced by the Italian DPCM (Decree of the President of the Council of Ministers) on August 4, 2023, foresees new qualification paths for teachers: 60 ECTS for pre-service teachers and 30 or 36 ECTS for certified professionals. It is advisable that these programs incorporate hands-on modules specifically focused on GBL, including game design, pedagogical planning, and assessment strategies (Villa et al., 2023a). Additionally, the National Recovery and Resilience Plan (PNRR) provides financial support and training frameworks, particularly through the Ministry of Education's 2022 guidelines for professional development.

For GBL to become a structural component of teaching practice, a systemic approach is necessary—one that integrates pedagogical, technological, and institutional dimensions (Fokides & Kostas, 2020). This includes inclusive school policies, organizational support, leadership engagement, and the professional recognition of games as epistemologically valid and educationally effective tools (Davis, 1989; Plass et al., 2015).

This study addresses a gap in Italian literature by validating a tool for measuring teachers' attitudes toward GBL and offering data-driven recommendations for designing effective training interventions aligned with current educational challenges and innovation policies.

Author contributions

This article has been developed jointly. Massimiliano Andreoletti wrote paragraph 1, Maria Clara Dicataldo wrote paragraph 2, Marika Lamacchia wrote paragraph 3 and Conclusions, Francesco Facciorusso wrote paragraph 4.

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Appendix

AGBL – Acceptance of Digital Game-Based Learning

Item	Item Statement
AGBL1	Digital game-based learning can enhance students' motivation to learn.
AGBL2	Digital games can be integrated into everyday classroom activities.
AGBL3	Digital game-based learning requires well-structured instructional design.
AGBL4	Digital game-based learning requires specifically designed evaluation methods.
AGBL5	Digital game-based learning represents a future trend across all educational levels.