Implementation Conditions of Board Games as an Educational Technology in the Classroom

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Abstract: Board game-based learning (bGBL) has demonstrated potential to promote both curricular learning and key competencies such as communication, collaboration, critical thinking, and creativity. Existing research often examines these outcomes separately and offers limited guidance on the sustainable implementation of analogue board games as a feasible alternative to other educational media in everyday classroom practice. This action-research project, *Bildungsmedium Gesellschaftsspiel* at *Laborschule Bielefeld* and Bielefeld University, addresses this gap by investigating how board games can be implemented as an additional learning method across school forms, age groups, and subjects. The project focuses on three interrelated questions: how enabling conditions for bGBL can be identified and analysed; whether board games can support teaching that accommodates diverse learner needs and promotes participation across school types and age groups while remaining aligned with curricular objectives; and whether subject-specific board games may help to alleviate stress during cover lessons for teachers and pupils. This research combines long-term classroom observations, a workshop informed by Clarke's situational analysis approach, questionnaires, interviews, group discussions, and qualitative content analysis. Participants include teachers and pupils from several schools. Preliminary findings indicate that bGBL represents a highly complex learning situation shaped by teacher experience, group dynamics, learners' board game experience, curricular aims, accessibility, classroom organisation, and the quality of instructional guidance. Classes unfamiliar with playing board games require explicit support in learning game procedures, participation rules, and collaborative practices. Based on evidence of isolated learning effects, this project seeks to support broader implementation across educational contexts. The long-term aim is to develop an empirically and theoretically grounded teaching framework, including practical guidance on implementation for teacher education, inclusive practice, school organisation, and curricular use of board games.

Keywords: Board game-based learning (bGBL), Education, Analogue games, Action research, Educational media

1. From a Complex Field Problem to a Research Question

Research on board game-based learning (bGBL) frequently addresses individual aspects such as motivation, interaction, competency and curricular learning outcomes or game design: board games seem suitable as an educational technology in the classroom (Noda et al., 2019, Rajković, 2020, van Bebber-Beeg & Herde, 2017). They offer a particularly efficacious medium for the development of interrelated competencies by embedding them within motivating, interactive contexts. Previous studies indicate that these competencies can be trained using board games (Bartolucci et al., 2019, Bayeck, 2020, Pinedo et al., 2022, Rye et al. 2025). The research team refers to the 4Cs (communication, collaboration, critical thinking and creativity) as a reference point, as these competencies are addressed in German curriculum plans in various federal states, i.e. North Rhine-Westphalia (lehrplannavigator.nrw.de) to help pupils deal with the ever-changing VUCA-world (volatile, uncertain, complex and ambiguous). Research has also demonstrated their potential to support the acquisition of factual knowledge: Sousa & Rye (2023) observed a rise in studies around 2021, showing that board games found their way into classrooms. Since 2024, there has been a continuous rise in studies and handbooks being published (Waburg et al. (2026), Sousa et al. (2025), Karla & Post (2024), Mehringer et al. (2020)).

What remains missing is a comprehensive didactic framework for applying bGBL. Research has examined inventing games (Nautiyal et al. 2024), individual approaches (Thorgersen 2024), mapping board games with cognitive and executive processes (Tinterri et al. 2025a) or classroom settings (Erdogan et al. 2022), but have not yet been synthesised into a comprehensive framework (Tinterri et al. 2025b; Bayeck 2020).

During the first research cycle, the team recognised that bGBL creates a particularly complex classroom situation and decided to identify enabling conditions as a first step towards addressing this research gap. Although bGBL has been used by motivated enthusiasts for several decades, its systematic integration into teacher education remains limited. The first observation cycles in 2024 identified two further conditions for implementing bGBL in school settings: alignment with appropriate curricular or competence-development objectives, and consideration of the specific setting, since bGBL may function differently during lessons, school clubs or recess.

This approach is situated within the action-research setting of *Laborschule Bielefeld*: The *Wissenschaftliche Einrichtung Laborschule* (Research Unit Laborschule) at Bielefeld University bridges the gap between educational practice and research. This research unit works in close collaboration with the *Laborschule Bielefeld*, an

experimental school, to conduct innovative teacher research projects. These projects are designed to investigate, develop, and evaluate new approaches to education. This research project is entitled *Bildungsmedium Gesellschaftsspiel* which may be translated as "Board Games as an Educational Technology". Its main research question is: *What conditions enable the use of board games as an educational technology in classroom practice across different subjects and age groups?*

2. A Multi-perspective Design for a Didactic bGBL Framework

Given the project's limited resources, a comprehensive didactic framework, including a practice-oriented guide, is intended to be developed as part of an associated doctoral dissertation to synthesise the project's findings. The project developed organically through an iterative research process. This iterative process is consistent with the principles of Grounded Theory (Glaser & Strauss, 1998) and will inform the development of a comprehensive didactic approach to bGBL.

Table 1: Overview of the Research Process

Research Phase and Period	Participants / Data Sources	Data Collection and Analysis Methods	Preliminary findings	Implications for the next phase
2023 – 2025	*bGBL Club* (ages 9 – 11), 16 pupils and *bGBL Class* (age 12), 21 pupils, established in 2024, ongoing until 2029	observation protocols on lesson planning (English, German, Social Sciences), structure and feedback (ongoing until 2029)	bGBL in the classroom is a complex situation: -structure -planning -curricular integration -competency learning -accessibility …	identify enabling conditions
	Schule & Spiel community magazine (grey literature), 5 articles	content analysis		
	teachers from different schools (n=48)	online questionnaire		
2025 – 2027	Cover Lessons Project (English, German, Geography, History, Arts, Mathematics, group lessons)	implementation phase	n/a	n/a
	1 female (P.E, English, German, Social Sciences, currently teaches Board Games Class and Board Games Club), 1 female (Natural Sciences and Mathematics), 1 male (P.E. and Natural Sciences), 1 male (English, German, History)	Situational Analysis Workshop	-practical experience is essential for implementation by non-gamers -games accessibility -low-level instruction guidelines	create an interview guideline for teachers to confirm, deny and identify other enabling conditions at several schools
	3x2 teachers from *Laborschule* 2x2 teachers from other schools 2x6 pupils from *Laborschule* 1 game designer and retired teacher and author	group discussions and interviews, content analysis to identify enabling conditions	n/a	n/a
2027 – 2029	Special needs teachers, pupils from other schools, experienced board game teachers		n/a	n/a
	Cover Lessons Project participants (teachers, pupils)	interviews, content analysis	n/a	n/a

The enabling conditions identified may provide a foundation for further research into why board games remain a relatively marginal educational technology despite the potential benefits reported in the literature. Dr. Arnd Kierchhoff (Bielefeld University) guided four teachers through a situational analysis workshop session in January 2026, to identify enabling conditions at *Laborschule*. Drawing on Clarke's situational analysis (2012), the workshop mapped the human and non-human factors influencing board-game application. Based on the initial situational (messy) map, interviews were conducted with teachers from several schools to identify differences regarding enabling conditions, aiming for sustainable integration of board games into teaching, focusing on lesson organisation, teacher training, inclusion and accessibility.

3. Preliminary Findings and Conclusion

Depending on factors such as teacher experience, group composition, pupils' prior experience, curricular objectives, and classroom organisation, the use of board games differs considerably from that of other classroom technologies and varies between elective courses and subject-specific lessons. Classes unfamiliar with playing board games require more organisational support and explicit instruction. Also, participation rules and collaboration do not develop automatically.

Discussions about classroom practices within the *Schule & Spiel* network suggest that bGBL can be used productively as an additional educational technology. Findings from the Situational Analysis session on enabling conditions are being prepared for publication, while interviews based on guidelines derived from a *situational messy map* are being analysed. Following a successful implementation period, the cover lessons project is expected to provide further insights into lesson structures and curricular connections.

After the first interviews, it became apparent that the data pointed to further areas requiring analysis: subject-specific instruction, lesson structures, extracurricular options (recess), organisational requirements, and the effects of board-game use on student well-being.

Drawing on the project's findings and subsequent research, the doctoral dissertation will develop a comprehensive didactic framework that combines theoretical foundations with practical resources. Evaluating the framework's implementation in practice may constitute an important avenue for further research.

Ethics Declaration: All research conducted at *Laborschule Bielefeld* has to be approved by the *Gemeinsame Leitung* board which functions as the ethics committee. For any research at *Laborschule*, parents accept research in the classroom, but are free to deny their permission at any time. For the board games class research and all interviews, consent forms were signed.

AI Declaration: An AI-based language tool (www.fobizz.com, an educational platform) was used to support the correct translation of selected words or phrases from German into English. The full text was subsequently reviewed and revised by the author and a colleague for proofreading. The author remains responsible for the accuracy and meaning of the translated text.

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