



INTERACTIVE NON-FORMAL LEARNING ENVIRONMENTS AS A FRAMEWORK FOR INTELLECTUAL UPBRINGING THROUGH ENGLISH LANGUAGE ACQUISITION AT PRIMARY SCHOOL AGE

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Abstract: This article presents a pedagogically grounded model for English language acquisition at the primary school level, developed and tested within a non-formal educational environment. The research is situated in the theoretical framework of the pedagogy of upbringing, which emphasises the importance of action, play, and meaningful communication for sustaining curiosity and intrinsic motivation among young learners. In this context, the digital technology Funtronic, popularly known as the “magic floor”, is examined not as a stand-alone technical innovation but as an educational mediator embedded in the cultural setting of the library. The model is based on a two-stage organisation of learning. In the preparatory phase, pupils create and present linguistic materials through creative activities that foster expression and cooperation. In the interactive phase, these materials are transformed into digital games projected onto the floor, enabling pupils to engage with the content through movement, collaboration, and emotional involvement. This structure underscores the interplay between creativity and technology as a pathway towards intellectual upbringing, where language learning is integrated with bodily activity, imagination, and social interaction. The empirical study involved third- and fourth-grade pupils divided into experimental and control groups, both attending extracurricular clubs in a library setting. Quantitative analysis focused on four key indicators: learning engagement, active vocabulary, correct pronunciation, and the ability to construct simple sentences. The findings reveal that the experimental group achieved significantly higher results across all indicators, alongside increased motivation, stronger willingness to collaborate, and more positive attitudes towards learning compared with their peers in the control group. This demonstrates that the integration of interactive technologies within cultural environments can serve as a practical and effective strategy for early foreign language education.

Keywords: Funtronic; magic floor; non-formal education; early language acquisition; interactive learning; educational technology; library-based learning; PlayLearn Model; pupil engagement; vocabulary development.

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Introduction

The subject of the present study is the acquisition of English at the primary school level within a non-formal educational environment, where learning is organised as an experience that engages both bodily activity and emotional involvement. Contemporary pedagogy of upbringing presupposes conditions that reduce tension and sustain the learner's intrinsic motivation by shifting the emphasis from mechanical memorisation towards meaningful activity, play, and communication. In this context, interactive technologies function as an educational factor that directs attention, stimulates thinking, and maintains a sustained interest in linguistic knowledge. Spaces such as libraries and cultural centres provide a natural setting for such an organisation of learning, as they combine cognitive activity, emotional security, and social interaction without the evaluative pressure characteristic of formal instruction. The research task is to examine whether a two-stage pedagogical design, based on creative preparation and subsequent interactive

practice with the Funtronic projection floor, leads to measurable improvement in English language acquisition and learning engagement among pupils in the third and fourth grades. The theoretical framework builds upon the notion of educational learning through action and meaningful play, in which language is acquired in a context of voluntary participation, cooperation, and a positive emotional climate. The empirical study involves a comparison between experimental and control groups situated in a non-formal setting of interest clubs within a cultural and library institution, thereby enabling the tracing of cognitive and behavioural effects across clearly defined indicators. The anticipated contribution is twofold. On the one hand, the study proposes a model of pedagogical mediation that translates the principles of the theory of upbringing into a practically applicable procedure for early language education without pressure. On the other hand, it substantiates the role of the interactive floor as a medium for directing attention and linking linguistic content with movement, image, and situation, thereby supporting the



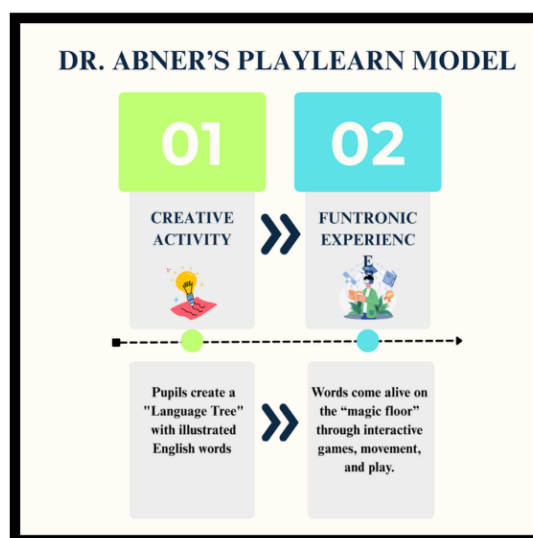
development of active vocabulary, accurate pronunciation, and basic sentence-construction skills. In this way, the study justifies the research necessity of a model that integrates the cultural environment of the library, creative preparation, and technologically mediated play as a coherent pathway towards intellectual upbringing through the acquisition of English.

Discussion

The study of English through interactive methods in a non-formal educational environment, specifically by means of Funtronic which functions as a projection-based magic floor, demonstrates considerable potential in the field of early language education. This approach integrates playful dynamics, physical movement and instruction in a context that removes the sense of pressure and stress often associated with traditional modes of teaching. In this way it provides an environment in which the acquisition of a new language takes place naturally and without strain. The conceptual distinction between formal, non-formal and informal learning, as presented in the scholarly literature, is of central importance for understanding this approach. Johnson and Majewska describe non-formal learning as a form of hybrid situated between the formal and the informal, insofar as it is both structured and purposeful while at the same time offering learners freedom and intrinsic motivation [1]. It is precisely this characteristic that renders the approach particularly applicable in a non-formal educational environment beyond the classroom, where the hardware–software system Funtronic creates a magic floor for the learning of English in a playful and open format directed towards specific educational goals. Empirical results from the use of such technologies indicate that the combination of movement, visual stimuli and game-based situations exerts a significant influence on pupils' cognitive development, especially with regard to concentration, planning ability and cognitive flexibility. These observations are corroborated by findings in the international research literature. For instance, Hyniewska and her colleagues report that a ten-week programme of work with an interactive floor led to measurable improvements in children's executive functions [2]. A comparison between their findings and the present study demonstrates that the effectiveness of such technologies is not an isolated phenomenon but forms part of the wider scholarly discourse on the relationship between physical activity, play-based approaches and cognitive development. During the course of the experiment it was observed that play involving movement and visual stimuli enhanced children's concentration and engagement, while at the same time motivating them to assimilate new knowledge in a natural and low-stress context. Empirical evidence in the international research literature likewise confirms the impact of multisensory interactive systems on learning at the primary school level. Franca Garzotto and her colleagues report that platforms such as "Magic Room", which employ sensors to monitor movement and gesture, substantially increase engagement and lead to higher educational attainment [3]; [4]. Research in the Bulgarian context also highlights the value of non-formal environments for competence development. Dimova emphasises that the triad of teacher, parent, and child is central to preschool education, since such cooperation supports smoother transitions between family and educational institutions, prevents problematic behaviour, and fosters the acquisition of key social and citizenship competences [5]. Although the present study is focused primarily on linguistic outcomes, the same principle applies: the library as a cultural space not only facilitates language learning in a low-pressure setting but

also encourages trust, cooperation, and shared responsibility among educators, families, and pupils. These results delineate the scientific framework within which the present study with Funtronic can be situated. Unlike Magic Room, where the primary emphasis lies on multisensory stimulation, Funtronic is embedded within a language-educational model in which the learning of English takes place in a non-formal environment through play and a positive emotional climate. The outcomes observed in the Funtronic experiment are consistent with established international research, yet they extend these findings by applying them within a specific language-educational framework. This provides grounds for regarding Funtronic not merely as a technical innovation but as an educational factor that transforms learning into an experience engaging the intellect, the body, and the emotions of the learner.

Figure 1. Model



Source: Conceptual model developed by Dr. Avi Abner. All rights reserved.

The study conducted demonstrates a clear need to seek new approaches to English language acquisition at the primary school level. Traditional methods frequently generate tension and lead to the perception of the language as a difficult subject of study, whereas contemporary pedagogical practice requires the creation of conditions in which knowledge is acquired through experience, engagement, and positive emotion. In this context, Dr. Abner developed an original model that integrates the use of Funtronic as a play-based technological environment with a set of complementary activities designed to foster a lasting affinity among pupils for language learning and for cultural institutions such as libraries. The model consists of two stages. In the first stage, pupils participate in a creative activity that is not connected to the technological platform. They constructed a "language tree," a cardboard structure on which they placed English words of their own choice, accompanied by illustrations. This activity took place in a non-formal environment, enabling children to combine language learning with artistic expression and with a sense of belonging to a cultural space. In this way, their creativity was activated and a positive emotional relationship with learning was established. In the second stage, Funtronic was employed to transfer the associations already created into a dynamic, game-based format. Pupils interacted with the magic floor, where the words they had previously produced during the creative exercise appeared as interactive tasks requiring them to jump on the correct image, to match words with pictures, or to construct short

sentences through movement. This two-stage progression from creative activity to technological play-based experience consolidated language skills and established a sustainable educational model: children did not learn under pressure, but through free expression, social interaction, and the joy of achievement. The model proposed by Dr. Abner thus unites the principles of educational theory with the practical application of digital technologies. It demonstrates that effective acquisition of English at the primary school level can be achieved not through pressure or mechanical memorisation, but through a play-educational symbiosis in which the library, the cultural environment, and interactive technology function as mutually reinforcing educational factors.

Figure 2. Operational Process



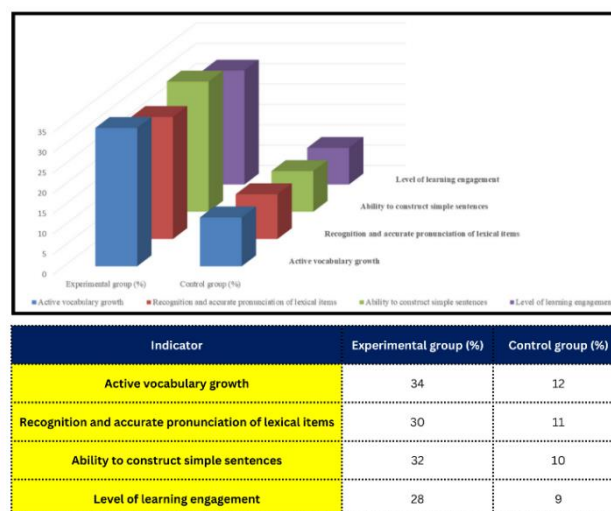
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Findings

The results of the conducted experiment reveal clear differences between the experimental and the control groups. Regarding the indicator active vocabulary growth, the experimental group achieved a 34% increase, compared to only 12% in the control group. This finding demonstrates that the integration of creative activities with the Funtronic “magic floor” significantly supports the acquisition and active use of new lexical items. In terms of recognition and accurate pronunciation of lexical items, the experimental group improved by 30%, while the control group reached merely 11%. This indicates that the embodied and game-based practice provided by Funtronic enhances both the auditory recognition of words and their correct articulation. The indicator ability to construct simple sentences also shows a considerable advantage for the experimental group, which reached 32% improvement, in contrast to 10% in the control group. This suggests that the two-stage model, beginning with creative language tasks and moving to interactive floor-based activities, fosters a natural transition from word-level learning to meaningful sentence production. The most striking difference appears in the level of learning engagement. Pupils in the experimental group displayed an increase of 28%, while the control group achieved only 9%. These results confirm that the PlayLearn model developed by Dr. Abner creates a positive emotional climate and reduces tension during language learning. Engagement was observed not only as focused attention during the activities, but also as sustained motivation to participate in further sessions held in the cultural and library environment. Overall, the data confirm that Dr. Abner’s PlayLearn Model applied in a non-formal

educational environment provides more effective outcomes than traditional methods. The model does not rely on mechanical memorisation or teacher-imposed pressure; instead, it transforms English language acquisition at the primary school age into a creative, embodied, and socially engaging experience.

Figure 3. Observed Outcomes



Source: Designed and developed by Dr. Avi Abner. All rights reserved.

The findings of the present study indicate that English language acquisition at the primary school age can be strengthened when learning unfolds within carefully designed non-formal environments that privilege playful embodiment, creative preparation, and low-pressure interaction. The two-stage PlayLearn model led to consistent gains in active vocabulary growth, recognition and accurate pronunciation of lexical items, construction of simple sentences, and sustained learning engagement. These outcomes align with contemporary accounts of teaching English to young learners, which emphasise age-appropriate tasks, multimodal input, and meaningful participation rather than rote form practice. Current handbooks and textbooks converge on the view that young learners thrive when language is encountered through purposeful activity, narrative, and discovery in contexts that allow movement, exploration, and social interaction, rather than through abstract decontextualised drills. In this respect, the present model operationalises principles widely articulated in up-to-date TEYL scholarship and offers a concrete pathway for classroom-adjacent implementation in libraries and cultural spaces [6]; [7]. From a cognitive-pedagogical standpoint, the results are consistent with the embodied cognition perspective, which argues that sensorimotor engagement can scaffold conceptual processing and memory. The creative pre-activity and the subsequent Funtronic-based practice provide a coherent sequence that first builds semantic associations and ownership of meaning, then consolidates these associations through movement and visually salient feedback. Such sequencing resonates with the evidence that bodily interaction with learning materials can enhance attention, encoding, and recall in young learners. In addition, the positive emotional climate observed during sessions accords with research on learner engagement that foregrounds the interplay between interest, autonomy support, and relational warmth in sustaining participation over time [8]; [9]. Pedagogically, the model advances current technology-enhanced language learning agendas by demonstrating how digital tools can

be situated within a broader educative design rather than used as isolated novelties. Materials are not simply delivered on a screen or surface. Instead, they are curated to mediate interaction, to invite decision making, and to channel attention to form-meaning mappings. This approach follows contemporary guidance on materials development that calls for principled use of multimodality, careful staging of challenge, and ecological alignment with the learners' social worlds. In practical terms, libraries and cultural centres emerge as powerful non-formal sites where the model can be implemented with fidelity, since these spaces legitimately support curiosity, quiet focus, and collaborative exploration without the evaluative pressure that often accompanies formal lessons [10]. First, primary English programmes should consider partnering with local libraries to institutionalise cyclical sessions that mirror the two-stage design. The creative pre-activity can be varied across cycles, for example mini storyboards, picture-word galleries, followed by Funtronic. Second, assessment practices should capture growth in engagement and collaborative behaviours alongside linguistic outcomes, reflecting the current consensus that learning for young children is inseparable from affect and social participation. Overall, the study contributes an implementable, research-informed model that is faithful to what leading textbooks recommend for young learners while offering a distinctive, low-stress pathway that aligns formal goals with non-formal affordances.

Conclusion

The study highlighted the significance of the non-formal educational environment as an educative factor that expands the boundaries of traditional teaching and creates new pathways for the acquisition of English at the primary school level. The proposed model with Funtronic demonstrated that the combination of creativity, movement, and digital interactivity can transform the learning process into a coherent practice that develops not only linguistic skills but also a positive disposition towards learning. The contribution of this research is twofold. On the one hand, it demonstrates that the library can be established as a legitimate partner in the educational process, functioning as a cultural arena for creative and cognitive activities. On the other hand, it shows that technologies should not be regarded as ends in themselves, but as instruments for building an educative dynamic in which the pupil participates actively, independently, and with an enhanced sense of achievement. The results confirmed that the two-stage organisation of creative preparation followed by interactive practice on the magic floor supports sustainable development of vocabulary, accurate pronunciation, and the ability to construct meaningful sentences. In addition, higher levels of engagement and reduced tension were observed, mitigating the difficulties that often accompany foreign language learning at an early age. The PlayLearn Model therefore unites the principles of educational theory with the practice of contemporary digital learning, providing evidence that effective acquisition of English can be achieved through cooperation between cultural institutions, technological environments, and pedagogical mediation. This study also opens perspectives for future work involving larger samples of pupils, cross-curricular applications, and analysis of the long-term effects of such models. In this way, it outlines a pathway towards sustainable language education in which knowledge is accompanied by the development of creativity, cooperation, and self-regulation.

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