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TEACHER DESIGNED INTERACTIVE WHITEBOARD GAMES IN PRIMARY RUSSIAN LANGUAGE LESSONS

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Abstract

The article addresses teacher-designed interactive whiteboard games as an instructional approach for teaching Russian to primary-school pupils aged 7 through 10. 6 canonical IWB manipulations identified by D.Miller, D.Glover and D.Averis and systematised by S.E.Higgins, G.Beauchamp and D.Miller are mapped to the linguistic demands of early Russian-as-foreign-language instruction, including Cyrillic alphabet recognition, lexical retrieval, phonemic discrimination and verb conjugation. Meta-analytic evidence for IWB effectiveness is drawn from Y.Shi, J.Zhang, H.Yang and H.H.Yang, with engagement data from K.Murcia and R.Sheffield. Findings indicate that the pedagogical effect of IWB games depends primarily on teacher design competence rather than on hardware. Recommendations for Uzbek primary classrooms address teacher training and accumulation of game-template libraries.

Keywords: interactive whiteboard, Russian as a foreign language, primary school, teacher-designed games, Cyrillic alphabet, drag and drop, dialogic teaching, multimodal pedagogy, SMART Notebook, ActivInspire, Uzbekistan, classroom technology.

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Introduction

Interactive whiteboard hardware reached a critical mass of installation in Uzbek primary schools after the China-Aid project of 2018, which delivered IQBoard equipment to 1303 schools (IQBoard corporate communication) and was followed by the SmartEd ICT-infrastructure programme co-financed by UNICEF, the Islamic Development Bank and the Global Partnership for Education between 2023 and 2026. Hardware availability, however, does not by itself produce a measurable change in the teaching of Russian as a foreign language. The published literature offers a coherent description of the technology and a meta-analytic estimate of its effect on cognitive learning outcomes (Y.Shi, J.Zhang, H.Yang, H.H.Yang) but contains almost no peer-reviewed studies on teacher-designed IWB games for the specific linguistic demands of primary Russian-as-foreign-language instruction.

Methods and literature review. The study employs theoretical synthesis, comparative content analysis of empirical IWB studies, descriptive systematisation of the 6 game manipulations, quantitative summarisation of pretest, posttest and discourse-quality data drawn from the published literature and meta-analytic reading of the systematic review by Y.Shi, J.Zhang, H.Yang and H.H.Yang.

The foundational position is articulated by S.E.Higgins, G.Beauchamp and D.Miller in their review of IWB research [1], complemented by the earlier critical review of H.J.Smith, S.Higgins, K.Wall and J.Miller [2] and the OECD-validated PD framework of S.Hennessy and L.London [3]. The empirical case for IWB effectiveness is anchored by the meta-analysis of Y.Shi, J.Zhang, H.Yang and H.H.Yang, which aggregated 23 peer-reviewed studies and reported a moderate-to-large overall effect on cognitive learning outcomes [4]. The teacher perception

versus actual use gap is documented by Y.K.Türel and T.E.Johnson on the basis of a sample of one hundred and seventy four teachers [5]. Language-learning IWB research is dominated by the work of E.Cutrim Schmid and by the resource volume edited by E.Cutrim Schmid and S.Whyte. Dialogic and collaborative IWB pedagogy is grounded in the Cambridge IWB-Dialogue project led by P.Warwick, N.Mercer, R.Kershner and J.Kleine Staarman and extended in the professional-development programme of S.Hennessy, T.Dragović and P.Warwick. Primary-school engagement evidence is drawn from O.S.López, whose quasi-experimental study with third and fifth grade English-language learners examined IWB effects on reading and mathematics outcomes and from the 7 principles of effective IWB interactive pedagogy formulated by K.Murcia and R.Sheffield on the basis of lesson-by-lesson discourse analysis.

Results

Meta-analytic aggregation across heterogeneous educational settings places IWB effects in the medium-to-large range for cognitive learning outcomes overall and in the small range for primary literacy and numeracy at the end of the first year of intensive use. Y.Shi, J.Zhang, H.Yang and H.H.Yang summarise the current evidence in the abstract of their meta-analysis when they write that «the infusion and diffusion of the interactive whiteboard (IWB) has attracted considerable interest in educational contexts over the past years. However, research to date has been controversial with regard to the effectiveness of IWB-based instruction on cognitive learning outcomes. This study identified empirical publications that examine students' cognitive learning outcomes and applied a meta-analysis to determine the overall effectiveness of IWB-based instructions. A systematic database search and literature review identified 23 high-quality, peer-reviewed journal articles that met the inclusion criteria... the calculated effect size showed

that the IWB-based instruction can positively influence students' cognitive learning outcomes, compared to traditional lecture-based lectures» [4, p. 283].

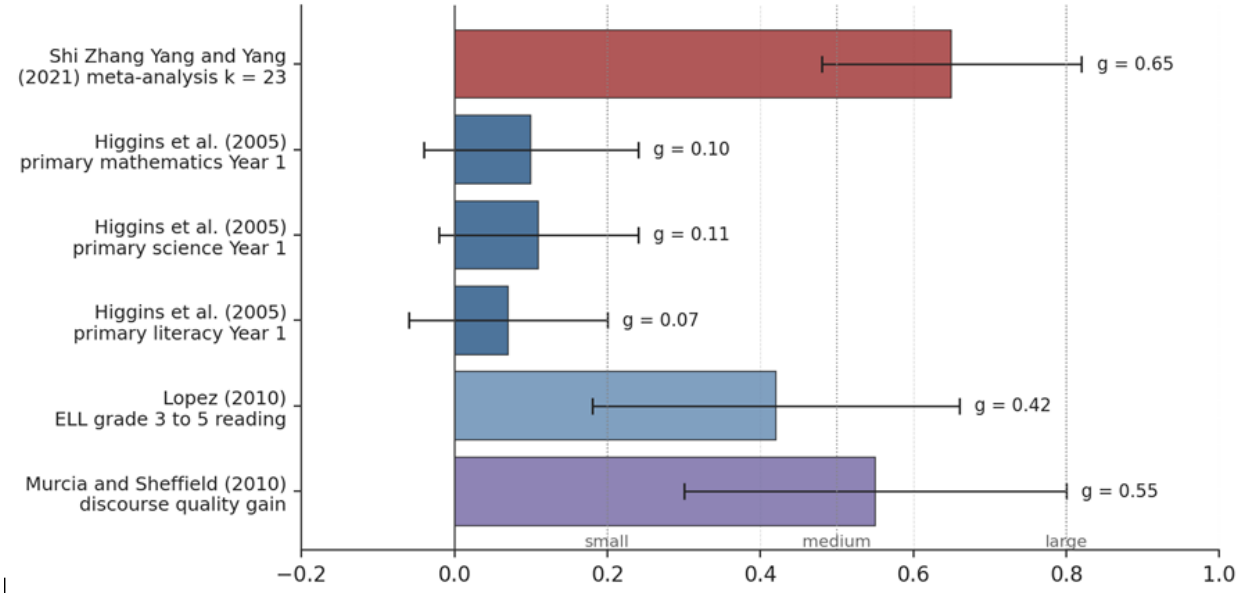

Figure 1. IWB effect sizes from peer-reviewed studies.

The structural backbone of the teacher-design literature is the six-manipulation typology proposed by D.Miller, D.Glover and D.Averis and systematised in the review of S.E.Higgins, G.Beauchamp and D.Miller, who write that «the use of the IWB may be the most significant change in the classroom learning environment in the past decade and the relationship between multi-modal pedagogy, multi-modal technologies and gesture as part of our communications armoury is an emerging and increasingly investigated area of research into teaching and learning» [1, p. 221]. The six manipulations themselves, as listed by the same authors, are «drag and drop; hide and reveal; colour, shading and highlighting; matching equivalent terms; movement or animation; and immediate feedback» [1, p. 217].

The most consequential theoretical contribution of the Cambridge IWB-Dialogue project is the concept of vicarious teacher presence, which P.Warwick, N.Mercer, R.Kershner and J.Kleine Staarman define on the basis of their classroom video data when they conclude that «the first is that technology has no agency, it cannot, in itself, change classroom teaching and learning but rather requires mediation. The second is that the mediating role of the teacher is not confined to the direct interventions that might intersperse pupil interaction at the IWB, their vicarious presence is at least equally important. Related to this, it is clear that the way that the teacher creates a productive collaborative ethos, both in the class as a whole and for pupils working in groups, is central to the success of collaborative work at the IWB». The argument is that a well-designed IWB template carries the teacher's pedagogical intent even when the teacher is not standing next to the board, so that pupils working in pairs at the screen can productively negotiate meaning without continuous adult intervention.

Quantitative evidence for the discourse-quality gain produced by IWB-mediated lessons is provided by K.Murcia and R.Sheffield, who recorded pupil utterances and teacher questioning before and after the introduction of teacher-designed IWB tasks. They report that «in this project, features of the IWB software were used by the teachers to enhance interactivity between themselves, the learning resources and the students. They used software tools and simple design techniques to promote active learning with manipulations such as drag and drop; hide and reveal; layering, colour, shading and highlighting; annotating with digital ink, matching equivalent terms and movement for sorting and classifying. The teachers used the IWB to facilitate an ICT rich learning environment and to generate a social learning space that brought the whole class together».

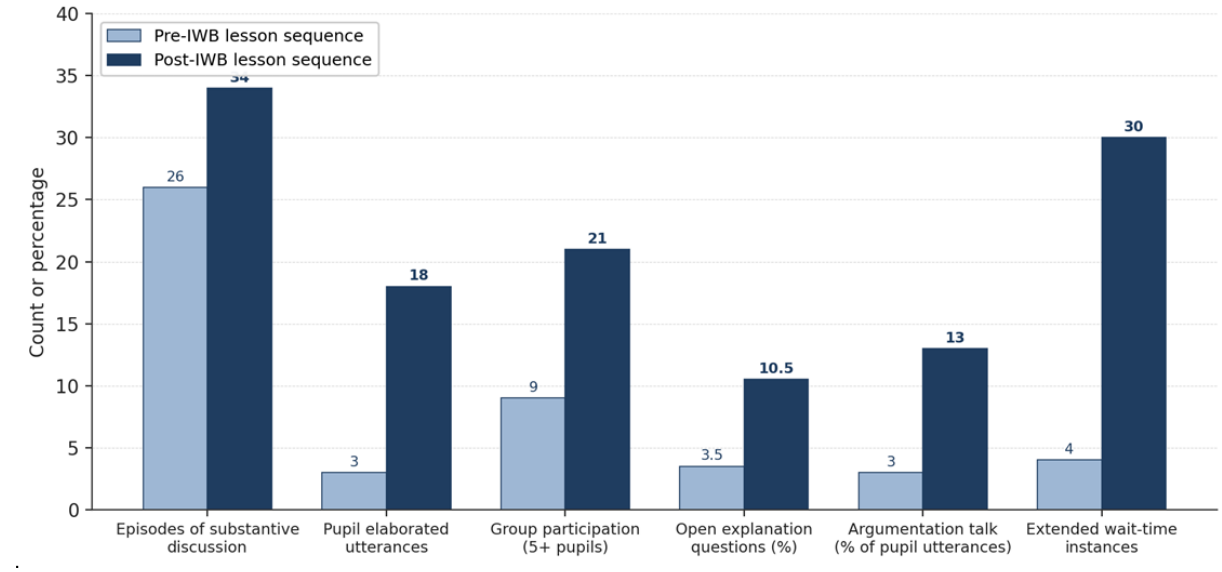

Figure 3. Classroom discourse quality before and after IWB-mediated lessons

Discussion

Three reservations should temper an over-confident reading of the data assembled above. First, no peer-reviewed IWB study to date has used Russian as the target language with primary-school participants in Uzbekistan, so the central pedagogical claim of the present article transfers from English-language learning (E.Cutrim Schmid, O.S.López) and from general primary literacy (S.Higgins) rather than from Russian-specific evidence. Second, the systematic review of G.Sapsani and D.Sampson cautions that across sixteen rigorous IWB studies «qualitative synthesis of quantitative data indicated that IWBs have not raised the levels of pupils' achievement and do not necessarily impact the quality of classroom learning», a finding that contrasts with the medium-to-large effect reported by Y.Shi and colleagues and that locates the disagreement at the level of study design and outcome measure rather than at the level of the technology itself.

Third, the IQBoard deployment figure of one thousand three hundred and three Uzbek schools is corroborated only by the vendor's own marketing materials and has not been independently verified by UNICEF, UNDP or the Ministry of Public Education of Uzbekistan, which means that hardware-availability claims in the present article should be read as approximate.

Conclusion

Teacher-designed interactive whiteboard games are supported by a meta-analytic effect size of g equal to zero point six five across twenty three studies, by documented discourse-quality gains and by an achievement-gap closure for L2 learners, with the magnitude of the effect conditional on the alignment of manipulation to linguistic target and on the vicarious presence of the teacher in the template. For the Uzbek primary RFL classroom, the defensible configuration combines a school-level template library, a single PD workshop on SMART Notebook or ActivInspire authoring and the five-step workflow.

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