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Effectiveness of Educational Method without After-school Homework on Learning, Academic Enthusiasm and Parental Satisfaction of Fourth Grade Elementary Students

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ABSTRACT

Objective: The present study aimed to evaluate the effectiveness of a pedagogical approach eliminating traditional homework on learning outcomes, academic enthusiasm, and parental satisfaction among fourth-grade elementary students.

Methods: A quasi-experimental design with pre-test and post-test was employed. The study was conducted at Shahid Dehloran Girls' School during the 1401–1402 academic year with 60 fourth-grade students. Participants were assigned, based on pre-existing class structures, to an experimental group (n=30) and a control group (n=30). The experimental group engaged in in-class, skill-based activities in place of traditional homework for one semester, while the control group continued the conventional homework routine. Data were collected through a researcher-developed academic performance test, the Academic Enthusiasm Questionnaire (Fredricks et al., 2004), and a researcher-designed parental satisfaction questionnaire. Data analysis included descriptive statistics, independent samples t-tests, and Analysis of Covariance (ANCOVA).

Results: The results indicated that the pedagogical approach without traditional homework significantly improved student learning, academic enthusiasm, and parental satisfaction compared to the conventional method. These effects were statistically significant at the 99% confidence level ($p < .01$).

Conclusions: The findings suggest that replacing traditional homework with structured in-class activities can enhance academic performance, foster enthusiasm for learning, and increase parental satisfaction. This approach may serve as an effective alternative to conventional homework practices in elementary education.

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Introduction

Students are widely recognized as paramount human capital within any society, possessing the potential to propel societal advancement and development through the synergistic application of youthful dynamism, knowledge, and cultivated competencies. Across nations, a considerable proportion of national income is allocated annually to education. Educational systems are perpetually under pressure to enhance their efficacy, wherein the academic attainment of learners serves as a primary determinant of institutional success (Asarta & Schmidt, 2017). Consequently, numerous educators incorporate homework as an ancillary pedagogical tool aimed at augmenting students' academic achievement. Homework has traditionally constituted an integral component of student curricula and perennially represents a focal point of concern for educators, learners, and parents alike (Cylao, 2023). While certain academic tasks are undertaken within the classroom setting, others are designated for completion outside of school hours, conventionally termed 'homework' or 'evening assignments.' Typically, homework is assigned by educators with regular frequency, often daily, facilitating student engagement with course material through diverse activities including, but not limited to, completion exercises, written compositions, memorization tasks, problem-solving, and practical experimentation (Valentini & Cooper, 2001).

Notwithstanding its protracted recognition as an indispensable constituent of learning and an integral facet of the educational enterprise (Madani, Amini, & Kashanian, 2022)—defined as encompassing all academic pursuits undertaken beyond the confines of the classroom and formal schooling (Mousavi Nara, 2019)—a significant cohort of students reportedly harbours ambiguity regarding the rationale for, and the perceived utility of, completing assigned homework (Akiyoka & Gilmore, 2013; Bambinoti, 2013). Such assignments are frequently perceived by students as incongruent with their personal interests, engendering reluctance towards their completion (Katz, Kaplan & Guta, 2009). [S1] Furthermore, empirical evidence indicates that take-home assignments may constitute a significant antecedent of stress and anxiety among students across the academic continuum (Dolin et al., 2021; Dumont et al., 2014; Katz et al., 2012; Persman et al., 2015) and have been correlated with deleterious effects on students' physiological well-being and sleep quality (Sava & Negro, 2023). For elementary school populations, homework and evening assignments can curtail engagement in physical activities, outdoor recreation, and discretionary leisure pursuits (Klang, 2021; Michoud et al., 2015). Additionally, during this formative stage,

crucial developmental domains, particularly socio-emotional maturation, may be constrained by diminished opportunities for peer interaction and play (Wataratti, 2009). [S1] Concurrently, contemporary educational paradigms increasingly underscore the importance of not only academic achievement and progression but also the emotional and psychological welfare of students (Cyla, 2023; Mohe, Katz, Cohen & Alci, 2020; Rodríguez et al., 2022). Nevertheless, scholars reviewing the pertinent literature concede that the preponderance of research has predominantly investigated the instrumental role of homework in enhancing academic performance, affording comparatively less scholarly scrutiny to its ramifications for students' emotional and psychological states and familial well-being (Nouri-Hiyati & Rahya, 2023; Negro & Sava, 2022; Cyla, 2023; Modoul & Vary, 2018; Rodríguez et al., 2019). Indeed, homework has the potential to precipitate familial discord (Vale et al., 2019), particularly when characterized by excessive repetition, a lack of intellectual stimulation, or its imposition as a punitive measure.

Given that students dedicate a substantial quantum of their out-of-school hours to assignment completion, parents consequently emerge as pivotal stakeholders, assuming a significant participatory role in their children's learning trajectories (Brugger et al., 2019; Pomerantz et al., 2012). The methodologies through which parents engage with their children to facilitate effective assignment completion exhibit considerable variation in terms of qualitative efficacy. Empirical investigations reveal a heterogeneous spectrum of outcomes associated with parental involvement: instances of positive correlation with student achievement (Kleimans et al., 2012; Nicholas & Steider, 2014), occurrences of neutral impact (Deflorio & Bliakoff, 2015; Missil & Others, 2015), and circumstances yielding deleterious consequences. Parental perceptions of homework are diverse: some construe it primarily as an instrument for content memorization, whereas others perceive it as a mechanism for occupying children domestically, under the assumption of autonomous student completion. Nevertheless, such idealized expectations of augmented learning or benign entertainment via assignments frequently founder against the pressures engendered by substantial workloads. This burden, impacting both students and parents, often culminates in considerable dissatisfaction, frustration, and interpersonal tension. Congruent with the observations of Grelink & Apastaleris (2002), an increased volume of assignments correlates with heightened parental pressure, which subsequently manifests as augmented parental control over children's academic activities. This phenomenon is corroborated by multiple researchers, who

report that a significant number of students experience pronounced negative affective states during homework completion (Leon & Richard, 1989). Such emotional distress is often exacerbated by parental involvement in varied assignment types (Als-Kwest et al., 2008) and frequently intensifies into student resistance and disaffection concerning assignment completion (Pomerantz & Eaton, 2001; Silinski & Others, 2015). Furthermore, findings pertaining to parental involvement and satisfaction suggest that its efficacy and benefit are contingent upon adequate facilitation of in-school learning, positive academic performance, and student contentment with homework (Wu, Brugger, Oh & Pomerantz, 2022). Conversely, in the absence of these conditions, parental involvement may precipitate adverse outcomes; rather than fostering children's autonomy, initiative, and volitional choice, parents may adopt a more directive, controlling stance, thereby inducing anxiety and excessive emotional entanglement (Di Stefano et al., 2020; Zahiri, 2017). Instances occur wherein parental assistance in assignment completion extends to the actual execution of tasks on behalf of their children (Sava & Negro, 2023). This practice can substantially encroach upon familial time, deplete parental energy reserves (Holland et al., 2021; Renning, 2011; Hampden et al., 2013), and, in some cases, precipitate intra-familial conflict (Vale et al., 2019). Consequently, a considerable contingent of parents advocates for the abolition of homework and evening assignments (Cyla, 2023).

Beyond the substitution of conventional assignments with technology-mediated and digital activities, school-centric tasks predicated on the design of individual and collaborative projects may significantly aid students in the acquisition of diverse subject matter and foster intrinsic motivation for meaningful engagement. The replacement of homework with competency-oriented individual and group assignments holds the potential to markedly mitigate its adverse consequences, particularly when such tasks are executed within the school environment under pedagogical guidance and with active student participation. Conventionally, assignments are dichotomized into static (or fixed) and dynamic (or active) categories. Static assignments, entrenched in traditional homework paradigms, depend exclusively on the iteration and practice of textbook material, often neglecting individual learner variability. Such an approach tends to foster rote memorization and superficial learning, conforming to predetermined schemata. Conversely, dynamic assignments accentuate active student learning via the meticulous design of tasks and skill-based learning activities, thereby promoting engagement, critical reasoning, and

demonstrable performance (Skill-based Assignment Implementation Plan, 2022). This pedagogical orientation integrates students' extant knowledge, attitudinal dispositions, and practical skills within authentic, real-world contexts pertinent to exigent life issues.

A considerable body of research has scrutinized the impact of in-class learning activities and competency-based assignments as viable alternatives to traditional homework. For example, Wexler (2019) documented a case wherein a second-grade educator successfully eliminated homework, suggesting that its utility in enhancing academic outcomes for elementary students is not unequivocal. O'Neill's (2020) findings indicated that collaborative group activities augmented student engagement and cultivated greater enthusiasm for learning. The synergistic application of two critical components—collective goals and individual accountability—has been shown to yield highly positive academic results, concurrently fostering collaboration and improved interpersonal dynamics among students. Moradi (2021) underscored the efficacy of problem-based and inquiry-oriented pedagogical methodologies in enhancing student enthusiasm and academic attainment. Similarly, Miller et al. (2021) highlighted the advantages of project-based learning as a substitute for conventional homework. Cooper (2020) demonstrated that students in instructional settings devoid of homework achieved superior scores on mathematics and science assessments, alongside reporting reduced levels of fatigue. Paytel (2007) observed that homework is not the sole post-school activity capable of fostering learning; numerous leisure pursuits can also inculcate crucial academic concepts and essential life skills. The critical factor lies in establishing an optimal equilibrium between leisure activities and structured learning. Furthermore, Emerson and Menchen (2010) advocated for directing educators and parents towards skill-centric and collaborative assignments as opposed to traditional homework, proposing this paradigmatic shift as a strategy for elevating the quality of learning.

Shah Mohammadi (1401) further demonstrated a statistically significant positive correlation between perceived classroom structure components—namely, interest generation, appropriate challenge, learner choice, and enjoyment—and students' adoption of mastery and performance goal orientations. The research of Mohibi and Aminah (1399), as well as Madani, Amini, and Kashanian (1401), has explored the narratives and perspectives of elementary school educators concerning initiatives to abolish homework and substitute it with competency-based assignments. These studies concluded that, from the educators' viewpoint, such a substitution would likely yield

positive impacts on student learning, contingent upon the fulfillment of specific implementation prerequisites. Agha Mohammadhosseini et al. (1399) determined through their research that homework constitutes a significant stressor for both students and their parents. A comparative study by Mahani and Bahrami (1401) revealed that a cohort of students exempt from homework exhibited superior academic motivation and satisfaction levels compared to their counterparts. Takht-Ravan et al. (1400), upon examining the merits and demerits of learning environments without homework, concluded that the correlation between homework and academic achievement remains equivocal, and that homework's encroachment on time for play and leisure contributes to dissatisfaction among students and parents.

Furthermore, a body of evidence and scholarly research (Miller et al., 2018; Zangouri and Pino, 2020; Li et al., 2014) indicates an evolving expectation for educators to transcend traditional pedagogical roles, instead cultivating student agency by positioning them as active participants within the instructional process. This paradigm shift entails a departure from emphasizing rote memorization and adherence to prescribed procedures, towards the design of projects and learning scenarios authentically derived from real-world contexts and students' lived experiences (Miller, Sorens, and Karajkik, 2021). Implementing such an approach necessitates fundamental transformations within classroom learning ecosystems and broader educational frameworks. Educators are thus encouraged to prioritize the design of meaningful and dynamic educational activities that foster collaborative work and robust interaction among students, as opposed to relying predominantly on didactic lecturing supplemented by homework intended for mere practice and repetition of curricular content (Allen and Hedrya, 2020; Miller and Brown, 2019).

Given the challenges associated with homework—including student reluctance, limited academic benefits, and parental dissatisfaction—this study explores the effectiveness of replacing homework with skill-based classroom activities to improve student learning and motivation. This study investigates whether replacing traditional homework with skill-based classroom activities enhances students' academic motivation, parental satisfaction, and overall learning outcomes in elementary education.

Material and Methods

This study employed an applied research paradigm, utilizing a quasi-experimental, pre-test/post-test control group design to investigate the research subject. The primary statistical population comprised all 60 fourth-grade female students enrolled at the 'Shahid Dehloran' school during the 1401-1402 academic year. Additionally, the parents of these students were identified as a secondary component of the statistical population, pertinent to specific research objectives (e.g., assessing parental satisfaction).

Sample determination was predicated on the implementation of the homework-free educational intervention over one academic semester, commencing at the beginning of the academic year. Given the logistical impracticality of reallocating students post-enrollment, sampling leveraged the pre-existing, school-administered division of fourth-grade students into two intact classes, each comprising 30 individuals. These intact classes were subsequently designated as the experimental group and the control group, respectively.

To achieve the research objectives, students in the control group adhered to the conventional pedagogical model: they attended class as usual and, throughout the semester, received daily homework assignments for home completion following in-class teacher instruction. Conversely, the experimental group underwent a semester-long intervention characterized by the elimination of traditional homework, which was substituted with structured individual and collaborative classroom-based activities. Consequently, no after-school homework was assigned to this cohort.

The pedagogical approach for the experimental group was meticulously designed, grounded in established learning theories, and involved the application of diverse active teaching methodologies tailored to specific subject matter. Educators facilitated a range of individual and group learning activities—implemented pre-, during-, and post-instruction—to foster comprehensive student engagement and deep conceptual understanding. This methodology afforded students opportunities for peer-to-peer knowledge sharing, collaborative review of challenging concepts, project-based learning, and participation in group activities within the classroom. Furthermore, students were encouraged to engage in self- and peer-assessment, thereby cultivating a sense of agency and mutual responsibility in the learning process. The role of the teacher extended beyond direct instruction to encompass facilitation, informational resourcing,

corrective feedback, supplementary support, and overall guidance within the learning trajectory of the students.

Classroom activities and assignments were strategically designed to align with textbook curricula while also catering to students' interests and developmental capabilities; provisions for temporal flexibility in task completion were incorporated. Necessary resources for certain activities were procured through collaborative student participation. Each 45-minute instructional session was typically structured to allocate approximately 15 minutes to teacher-led instruction and explanation of new material, with the subsequent 30 minutes dedicated to student engagement in a variety of dynamic activities. These included educational games, group projects, manipulative-based tasks, artistic endeavors, recitations (e.g., Quran, poetry), dramatic performances, Socratic dialogues, focused discussions, practice exercises, and student-led presentations. Illustrative examples of these alternative in-class activities, differentiated by subject, are detailed in the subsequent table:

Table 1. Sample Activities to Replace Homework

Lesson Title	Sample activities to replace homework	Documentation
Quran	Practice and repeat Quranic verses after listening to Quran reciters Group reading of verses Paired games for repeating and correcting pronunciation of verses Group performances of Quranic messages Screening relevant Quranic films	
Persian	Group discussions about the themes of Persian lessons to enhance thinking skills Use of storytelling and creative performance to clarify and reinforce learning Educational games for learning new vocabulary meanings Preparing and creating cards for related words, synonyms, and antonyms Designing stimulating individual activities to strengthen creative writing and paragraph writing skills Creative spelling activities through individual and group games Poem recitation from the book as pairs and groups	 

Social Studies	Group discussions and implementing a courtroom teaching method based on the lesson topics Engage in question-and-answer games while considering speed and scoring Present personal interpretations of the lesson in drawing or writing activities Study the lesson topic and ask each other questions Interview parents and others outside the classroom and present findings Identify a problem, find an answer by following research steps, and present the results	
Mathematics	Various math games Hands-on math activities Creating tools for understanding math concepts Problem-solving worksheets completed individually and evaluated by peers	
Science	Design of group and project-based activities Exploration-based games Conducting scientific demonstrations Performing various experiments in the classroom, school environment, or laboratory Creating tools to understand science concepts Nature visits	 
Art	Various painting techniques done individually or in groups Collage with different materials and an exhibition of the created works Artistic activities integrated with other subjects Crafting based on topics from other subjects Creating props for group performances	

The tools used in this research based on the studied variables included three items as detailed below:

1 Academic Motivation Questionnaire: To collect data on students' academic motivation, the questionnaire developed by Fredricks et al. (2004) was utilized. Given that academic motivation is a multidimensional construct comprising various behavioral, cognitive, and motivational

components (Martin, 2008, p. 269), this questionnaire was selected to assess all three desired components. This questionnaire also includes students' attitudes towards school and their ability to meet performance expectations. It consists of 15 items, each containing three subscales: behavioral, emotional, and cognitive. Items 1-4 relate to the behavioral motivation subscale, items 5-10 relate to emotional motivation, and items 11-15 pertain to the cognitive motivation subscale, following a Likert scale from 1 (very low) to 5 (very high). The reliability coefficient for this scale was reported as 0.86 by its developers, and in a research study by Abasi et al. (2015), it was found to be 0.66 using Cronbach's alpha.

2.Learning Test: To measure the learning level of students and their academic performance, a test designed by the researcher (teacher) was used. This test was developed with the collaboration of several fourth-grade teachers, the fourth-grade educational supervisor, and input from professors regarding the course topics of the fourth-grade curriculum, consisting of 30 questions. In addition to its validity being confirmed by professors and cooperating fourth-grade teachers, its reliability was calculated using Cronbach's alpha, resulting in a reliability coefficient of 0.856.

3.Parental Satisfaction Questionnaire: To assess parents' opinions about the no-homework education plan and their level of satisfaction, a researcher-developed questionnaire was utilized. The reason for using a questionnaire instead of interviews was to prevent researcher bias. The questionnaire questions were pilot-tested on a number of parents after the initial design, leading to the correction and adjustment of some questions. The final questionnaire addressed several main axes, including opinions about teacher performance, student performance in various subjects, opportunities and alternative activities to replace homework, different skills of students, overall satisfaction with the school, etc., posed in the form of 30 questions and evaluated on a five-point Likert scale ranging from very good to very poor. The content validity of the questionnaire was confirmed by professors, the school principal, and the educational supervisor, with a reliability coefficient of 0.914 obtained via Cronbach's alpha. Since the reliability coefficient for this questionnaire was estimated to be over 0.70, it has an appropriate reliability for field execution and implementation.

To analyze the obtained data, descriptive statistics, frequency tables, means, and standard deviations were used. For inferential statistics, independent t-tests and one-way analysis of covariance (ANCOVA) were conducted using SPSS software version 22.

Ethical consideration; Throughout the study, participants' information was kept confidential, informed consent was obtained, and it was ensured that participation was voluntary and would not cause harm.

Results

Descriptive Findings: The information about the participating students and parents in the research is presented in the following tables:

Table 2. Frequency of Students Participating in the Research

sample	Frequency	Grade	Gender
Experimental Group	30	Fourth Grade	Female
Control group	30	Fourth Grade	Female
Total	60	Fourth Grade	female

The study sample comprised a total of 60 fourth-grade female students, who were equally allocated to an experimental group (n=30) and a control group (n=30).

Table 3. Information about Parents Participating in the Research

Parent Information	**Frequency**	**Percentage**	**Cumulative Frequency**
Parent gender			
female	14	46.66%	100%
male	16	53.34%	
Educational level			
High school	6	10%	10%
Associate Degree	4	6.67%	16.67%
Bachelor's Degree	11	36.67%	53.34%
Master's Degree and Higher	9	30%	100%
Number of Children			
Only child	5	16.67%	16.67%
Tow children	21	70%	86.67%
Three children	3	16.67%	100%
More than three children	1	3.33%	

As detailed in Table 3, the demographic profile of the 30 participating parents indicates a composition of 14 mothers and 16 fathers. Educational attainment within this cohort varied: 6 parents held a high school diploma, 4 possessed an associate degree, 11 had attained a bachelor's degree (representing the largest proportion at 36.7%; n=11), and 9 held a master's degree or a more advanced qualification.

With respect to family structure, the predominant family size reported was two children; only one family indicated having more than three children. Furthermore, the age of all participating parents fell within the 30 to 45-year range.

Inferential Findings:

To examine the research hypotheses, inferential statistical procedures were utilized. As a preliminary step, the Kolmogorov-Smirnov test was employed to assess the normality of the research data's distribution, a critical factor in determining the appropriateness of subsequent parametric versus non-parametric analytical techniques.

Table 4. Kolmogorov-Smirnov Test Values for Research Variables

Variable	Z value	Significance level
Learning	1.278	0.085
Academic Motivation	2.365	0.095
Parental Satisfaction	1.45	1.021

As shown in Table 4, the significance level values (greater than 0.05) indicate that the Kolmogorov-Smirnov test was not significant, suggesting that the distribution of the data is normal and allowing for the use of parametric tests to test the research hypotheses.

Hypothesis One: No-Homework Education Affects Learning in Fourth Grade Students.

To test the first hypothesis, the average learning values between the experimental and control groups were compared, measuring the impact of the no-homework protocol.

Table 5. Independent T-Test Values for Comparing Learning Variables Between Experimental and Control Groups

Subjects		Theoretical Mean	Experimental mean	Standard Deviation	T value	P
Mathematics						
Pre-Test	experiment	30	23.80	2.64	0.668	0.418
	Control	30	25.36	4.72		
Post-Test	experiment	30	35.44	3.53	9.77	0.000
	Control	30	26.89	4.58		
Science						
Pre-Test	experiment	30	25.93	3.31	0.569	0.394

	Control	30	26.81	4.26		
Post-Test	experiment	30	34.44	3.91	8.45	0.000
	Control	30	25.49	4.89		
Persian						
Pre-Test	experiment	30	27.29	3.21	0.597	0.512
	Control	30	27.58	4.03		
Post-Test	experiment	30	37.91	3.03	8.63	0.000
	Control	30	27.02	4.17		

As seen in Table 5, there was no significant difference in the mean learning of the three main subjects—Mathematics, Science, and Persian—between the experimental and control groups before the experiment (the no-homework protocol). However, after implementing the protocol in the experimental group, there was a significant increase in the mean learning outcomes. The independent t-test between the experimental and control groups regarding the learning variable showed a significant difference, indicating that this change resulted from the application of the no-homework teaching protocol.

Table 6. Results of One-Way ANCOVA on Pre- and Post-Test Learning for Experimental and Control Group

Source	SS	DF	MS	F Value	p	Effect Size
Pre-test	279.444	1	279.444	1.082	0.471	0.490
Post-test	759.256	1	759.256	47.793	0.000	0.504
Group Interaction	4921.845	1	4921.845	309.814	0.000	0.868

The results delineated in Table 6 indicate a statistically significant effect of group membership on students' learning outcomes. The magnitude of this effect is substantial; an effect size of 0.504 suggests that the implemented protocol (which differentiated the experimental and control groups) accounts for approximately 50.4% of the variance in these learning outcomes. Consequently, the

intervention demonstrated significant efficacy in enhancing the learning levels of students within the experimental group.

Hypothesis Two: No-Homework Education Affects Academic Motivation of Fourth Grade Student

In testing the second hypothesis, the mean values of the academic motivation variable were compared between the experimental and control groups to assess the impact of the no-homework teaching protocol.

Table 7. Independent T-Test Values for Academic Motivation in Experimental and Control Group

Students group		Theoretical Mean	Experimental mean	Standard Deviation	T value	Significance Level
Pre test	Experiment	45	34.80	3.27	1.89	0.554
	Control	45	33.44	2.16		
Post test	Experiment	45	43.72	1.65	10.24	0.000
	Control	45	34.85	2.36		

As shown in Table 7, there was no significant difference in the average academic motivation between the experimental and control groups before the experiment (homework-free teaching protocol). However, after implementing the protocol on the experimental group, the average academic motivation in the experimental group significantly increased, and the independent t-test between the experimental and control groups regarding the variable of academic motivation indicated a significant difference. Therefore, it can be concluded that this change occurred as a result of the application of the protocol.

Table 8. One-way Analysis of Covariance (ANCOVA) for Pre- and Post-Tests of Experimental and Control Groups regarding Academic Motivation

Source	SS	DF	MS	F Value	P	Effect Size
Pre-test	412.390	1	412.390	2.002	0.361	0.624
Post-test	1434.058	1	1434.058	72.051	0.000	0.605
Group Interaction	2998.926	1	2998.926	150.674	0.000	0.762

The results in Table 8 indicate that the effect of the group on the variable of students' learning motivation is significant. Considering the effect size (0.605), it can be said that 60% of the variance related to the differences between the experimental and control groups is due to the interaction

effect of the protocol. Thus, the intervention has significantly affected the increase in motivation in the experimental group.

Hypothesis Three of the Research: Homework-free teaching affects the satisfaction of parents of fourth-grade elementary school student.

In testing the third hypothesis of the research by comparing the mean values of the parents' satisfaction variable, we can measure the impact of the homework-free teaching protocol:

Table 9. Independent t-test Values for the Variable of Parents' Satisfaction Regarding Homework-free Teaching

Students group		Theoretical Mean	Experimental mean	Standard Deviation	T value	P
Pre test	Experiment	91	75.52	3.48	0.84	0.482
	Control	91	76.36	4.26		
Post test	Experiment	91	89.33	4.34	13.5	0.000
	Control	91	75.83	3.05		

As observed in Table 9, there was no significant difference in parents' satisfaction regarding homework-free teaching in the pre-test. However, after implementing the protocol on the experimental group, the average satisfaction of parents in the experimental group increased significantly, and the independent t-test between the experimental and control groups concerning the parents' satisfaction variable showed a significant difference. Therefore, it can be concluded that this change occurred as a result of implementing the homework-free teaching protocol.

Table 10. Results of One-way ANCOVA with Pre- and Post-Test Measurements for Parents' Satisfaction in Experimental and Control Groups

Source	SS	DF	MS	F Value	P	Effect Size
Pre-test	175.255	1	175.255	0.466	0.601	0.276
Post-test	1037.405	1	1037.405	1037.405	0.000	0.367
Group Interaction	5789.516	1	5789.516	5489.516	0.000	0.754

The results in Table 10 indicate that the effect of the group on the variable of parents' satisfaction is significant. According to the effect size (0.367), it can be concluded that 36% of the variance related to the differences between the experimental and control groups is due to the interaction effect of the protocol. Thus, the intervention conducted significantly increased the satisfaction of parents of the experimental group.

Table 11. Results of ANOVA for the Effect of the Protocol on Learning, Academic Motivation, and Parents' Satisfaction

Variance	SS	DF	MS	F Value	P	Effect Size
Learning	759.256	1	759.256	47.793	0.000	0.504
Motivation	1434.058	1	1434.058	72.051	0.000	0.605
parent's satisfaction	1037.405	1	1037.405	27.262	0.000	0.367

As observed in Table 11, based on the significance level (less than 0.05), the protocol (homework-free teaching) significantly affects learning, motivation, and parents' satisfaction, with effect sizes of 0.504, 0.605, and 0.367, respectively. This indicates that the variance related to the differences between the experimental and control groups has been explained. Therefore, given the significance of the ANOVA results, it can be concluded that the main hypothesis of the research is confirmed with 99% confidence and a margin of error of 0.01.

Discussion

Research on homework, or assignments, is an important topic that has attracted the attention of specialists and researchers. This study aims to evaluate the effectiveness of homework-free teaching and replacing it with skill-based and school-oriented activities on academic motivation, learning, and parental satisfaction of fourth-grade elementary students. The research was conducted as a case study at the Shahid School for Girls in Dehloran . The first hypothesis of this research examined the effectiveness of homework-free teaching on the learning of fourth-grade elementary students. The results indicate that the intervention implemented significantly enhanced the learning level of students in the experimental group, thus confirming the first hypothesis. The findings align with the results of previous research conducted by Mohabbi Amin (2020), Mohammadi and Rahmani (2019), Mahanai and Bahrami (2022), Takht-Ravan et al. (2021), Shah Mohammadi (2022), Moradi (2021), Carr (2013), Wexler (2019), O'Neil (2020), Miller et al. (2021), Cooper (2020), Patil (2007), Emerson and Lollin (2018), Miller and Brown (2018), Miller, Sørensen, and Krejcik (2021), Allen and Hedria (2020), Zangouri and Pino (2015), Lee et al. (2014), and Smith (2020). All these studies stress that, at the elementary level, homework has little impact on student learning, and using alternative methods to homework can improve students' learning.

In explaining the findings of this research, it can be stated that, according to psychological theories, learning occurs when students are not passive recipients of information. However, many common teaching methods, influenced by past teaching practices and based on traditional behaviorist perspectives, fundamentally view teaching as the act of "delivering" and presenting facts and information to students, with homework assigned as an educational supplement for practice and repetition. Initially, it may seem that homework is effective and leads to more learning; however, factors such as the misalignment of assignments with students' interests, ignoring individual differences and assigning identical tasks to all, memory-centered assignments, the excessive volume and time-consuming nature of these tasks, among many other reasons, lead students to lack interest and motivation for consistently completing assignments. They view it merely as a mandatory obligation, which results in either avoidance of these tasks or, if forced, a lack of focus and attention while completing them. In such cases, only low-level skills, like memorization and recall, are enhanced, preventing deep learning .

Today, learning is not merely interpreted as memorization and information transfer; rather, it is the ability to apply learned concepts in real life and solve real-world problems. Homework does not foster this type of learning. Learning occurs when, instead of imposing repetitive and memory-focused assignments, emphasis is placed on active classroom sessions. Teachers should facilitate the educational process in a way that allows students to have a meaningful role in acquiring their knowledge. In other words, abandoning homework and repetitive assignments, and replacing them with various learning situations and activities such as discussions, educational games, group projects, artistic activities, hands-on tasks, demonstrations, experiments, field activities, research, exploration, etc., provides deeper opportunities for learning specific subjects.

The second hypothesis of the research, regarding the impact of a homework-free teaching model on academic motivation, was also significant. The results showed that 60% of the variance regarding the difference between the experimental and control groups stemmed from the interaction effect of the implemented protocol, thereby confirming the second hypothesis as well. The findings of this study are consistent with the research of Mahanai and Bahrami (2022), Shamahmadi (2022), Mohabbi Amin (2020), Aghamohammad Hosseini et al. (2020), Akiyoka and Glisor (2013), Mebmnouti (2013), Moradi (2021), O'Neil (2020), Katz, Kaplan, and Kota (2009), Dolin et al. (2021), Dumont et al. (2014), Katz et al. (2012), Persman et al. (2015), Sawa and Negro

(2023), Miller et al. (2021), and Michoud et al. (2015). All of these studies emphasize that homework leads to stress and psychological pressure among students, reducing their motivation and interest. Additionally, the time spent on homework consumes a significant amount of students' time, limiting their opportunities for physical play or other leisure activities, which leads to a lack of interest in completing assignments. On the other hand, regarding the results of this hypothesis, it can be stated that the use of alternative methods to homework, such as group activities and individual and group projects conducted in the classroom, significantly enhances motivation and enthusiasm. Engaging in classroom activities fosters friendly relationships, promotes social skills, and instills a sense of belonging, leading students to develop a positive attitude towards school and the classroom. Students feel satisfaction and empowerment when given responsibilities in the classroom, engaging in various activities both individually and collectively, and participating in their own learning. Participatory and active learning approaches provide equal educational opportunities for all students, allowing each student to learn at their own pace and style. Competition transforms into camaraderie and interaction, enhancing the spirit of cooperation and participation, and making learning an enjoyable process that increases students' motivation and enthusiasm. In other words, eliminating homework and replacing it with stimulating and active classroom activities enables students to actively participate in the learning process rather than merely being passive listeners, leading to greater enthusiasm and effort in academic tasks.

In the third hypothesis of this research, which focused on parental satisfaction, the results indicated that parents were satisfied with the implementation of homework-free teaching, confirming this hypothesis as well. The findings are consistent with many studies, including those by Shamahmadi (2022), Aghamohammad Hosseini et al. (2020), Mahanai and Bahrami (2022), Sila (2023), Negro and Sawa (2022), Noori-Hiyati and Rahya (2023), Wu et al. (2020), Holland et al. (2021), Hampden et al. (2013), Graling and Apastalris (2002), Misil et al. (2015), Wald et al. (2019), Selinixeln et al. (2015), Rodríguez et al. (2019). All these studies agree that academic assignments and homework contribute to pressure and dissatisfaction among parents, with most of them wanting homework to be eliminated or reduced.

To explain the results, it can be stated that parents, as educational partners, play a significant role in their children's learning. Many studies have pointed out that parental involvement and the way

they support their children in completing assignments are critical to their success. However, parents often lack the necessary skills for effective engagement in their children's homework (McCormick et al., 2020), which they typically do not receive. Furthermore, the excessive volume of assignments creates psychological stress and pressure on both students and parents. Some students refuse to complete their homework and show little interest in it, compelling parents to invest significant time in coaxing their children to finish it, or they often end up completing a substantial portion of the assignments themselves. These issues, along with work-related stress and time constraints, contribute to parents' dissatisfaction and disturb the harmony and positive relationships among family members, which explains the general parental discontent regarding their children's homework.

The results of this study, which confirmed the above hypothesis, indicate that parents were aware of the execution process of homework-free teaching for their children and found this method to be beneficial and aligned with their children's interests and capabilities. This approach not only satisfied parents but also led to better grades, reduced stress, increased motivation to study, more active participation in class, and enhanced enthusiasm and self-confidence among students.

Therefore, based on the findings of this research, it is recommended that teachers, instead of assigning repetitive and excessive homework, utilize diverse and relevant activities in the classroom and provide opportunities for collaborative learning among students. It is also suggested to prioritize the needs and interests of students, paying attention to their individual differences, and to replace traditional homework with various activities that arise from real-life issues and needs. This way, students can acquire different skills through these activities, which will enhance their enthusiasm for lessons and school.

Additionally, considering that the changes brought about by technology and the introduction of modern technologies into the field of education cannot be overlooked, it is recommended to consider educational and course-related activities based on technology, gamification, and the use of online resources instead of traditional homework and assignments.

The present study is subject to certain limitations that merit consideration when interpreting its findings. Firstly, the restricted scope and specific demographic characteristics of the research sample may circumscribe the generalizability of the results to more diverse or larger populations. Secondly, the relatively brief duration of the intervention and data collection period could

potentially impinge upon the ascertainment of long-term stability and persistence of the observed effects. Thirdly, the possibility of response bias, potentially stemming from social desirability tendencies among participating parents and students, cannot be entirely discounted, particularly in relation to self-reported measures. Fourthly, while efforts were made to control key variables, the study did not exhaustively account for all potential extraneous factors, such as nuanced aspects of individual familial and scholastic environments, which may have exerted some unmeasured influence on the outcomes. Finally, inherent constraints associated with the employed measurement instruments might have limited the precision and comprehensive capture of the constructs under investigation, thereby potentially affecting the depth and granularity of the data interpretation.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of Farhangian University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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