



Exploring the Foundations of Lifelong Learning: How Educational Games and Music Shape Children's Behavior, Educational Experiences and Environments

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ABSTRACT

Family learning is crucial in forming a child's early years and laying a solid basis for their future growth and development. Children's behavior and learning experiences can be strongly influenced by educational games and music in the home setting, which will ultimately have an impact on how they learn. With a focus on the planned behavior theory, instructional music and games, children's behavior, and environments, this study investigates how family learning affects schoolchildren's learning experiences in China. The current study collected data from school-going children in China, SPSS macros are employed in the data analysis process. A mixed methods technique is used in the research to collect and analyse both qualitative and quantitative data. To collect data at a specified moment, a cross-sectional design is used. The study recognizes the drawbacks of its limited sample size, which may limit generalizability because it exclusively comprises Chinese school-age children. The results of this study add to our knowledge of how family learning affects children's educational experiences by emphasizing the mediating role of children's behavior and the significance of fostering supportive learning settings. Despite the drawbacks, it is advised that future research use larger and more diverse samples, longitudinal designs, and advanced analytical techniques to provide a more thorough understanding of the intricate relationships between family learning, educational interventions, children's behavior, and learning outcomes.

Keywords: Parental Involvement, Educational Games, Children's Behavior, Educational Support, Learning Experience.

INTRODUCTION

Children in their early years learn a tremendous amount from their environment, with their families serving as their main teachers. Children's cognitive, emotional, and social development can be significantly impacted by playing educational games with them and introducing them to music (Ribeiro, Cunha, Silva, Carvalho, & Vital, 2021). Parents may create a dynamic environment that encourages curiosity and a love of learning by introducing educational games into family learning activities (Myers, Rosen, Zucker, & Shiloh, 2020).

Music helps kids develop socially and emotionally via sentiments and community. Family music helps kids learn, says Shermatova (2021). Music and educational activities help families learn. Spieker and Koren (2021) say

instructional music and activities help families engage kids. The child's cognitive and social growth depends on this dynamic engagement. Melodies and rhythms help kids bond. Fun and learning go together in music. The engaging exercises teach kids life skills. Family music and educational games improve kids cognitively, socially, and emotionally (Shermatova, 2021; Spieker & Koren, 2021). Children are more likely to act focused and actively engage in the learning process when they find the material engaging and interesting. This raised involvement may result in better focus and long-lasting enthusiasm for academic tasks. Fun, excitement, and rewards are frequently present in educational music and games (Cheung & Ng, 2021; Nichols, 2020). These factors can increase kids' motivation levels and increase their desire to participate in and study. Children's cognitive abilities can be strengthened and their overall intellectual development can be aided by regular exposure to these activities. Children may as a result show greater memory retention, enhanced problem-solving abilities, and the capacity for both creative and analytical thought (Angel-Alvarado, Quiroga-Fuentes & Gárate-González, 2022; Kuba, Rahimi, Smith, Shute & Dai, 2021).

Children who receive educational support are better able to control their emotions. Children learn how to recognize and effectively manage their emotions when they feel supported and understood in the educational setting (Mailizar, Burg & Maulina, 2021). Children who are better equipped to deal with difficulties, frustrations, and disagreements may behave better as a result of this. Children have the opportunity to hone and enhance their social skills through educational help. Children gain crucial social skills including communication, cooperation, empathy, and problem-solving through group projects, collaboration, and interactions with classmates and teachers (Vučković, Ručević & Ajduković, 2021). These abilities help kids navigate social settings and form strong relationships, which leads to more positive behavior (McCormack, Doyle-Baker, Petersen & Ghoneim, 2020). Parents may foster a love of learning and a growth mindset in their children by being enthusiastic, encouraging inquiry, and praising their efforts. Regular conversation between parents and children helps children develop their linguistic skills. The study analyses how these factors affect children's behaviour and home learning. Talking, reading, and listening to toddlers improves verbal and nonverbal communication, say Acar, Chen, and Xie (2021).

The study found that home learning prepares kids for school. According to research, home educational games and music improve children's social, cognitive, emotional, and behavioural development, academic achievement, and enjoyment of learning. The study's impact on parents, educators, and politicians is examined. Understanding family learning, educational games, and music may help stakeholders increase learning and holistic development. Waluyandi, Trihastut, and Muchtarom (2020) claimed this research can assist in establishing educational plans that meet children's developmental requirements and maximise their potential. The study shows how family dynamics, instructional activities, and the learning environment affect Chinese schoolchildren's conduct and education. The present study established its own planned behavior theory. The objectives of the study are: 1. Children's behavior plays a mediating role between educational games and learning experiences. 2. Children's behavior plays a mediating role between music education and the learning experience. 3. Children's behavior plays a mediating role between educational support and learning experience. 4. Children's behavior plays a mediating role between educational games and environmental commitment. 5. Children's behavior plays a mediating role between music education and environmental commitment. 6. Children's behavior plays a mediating role between educational support and environmental commitment. 7. Parental involvement plays a moderating role in children's behavior and learning experience. 8. Parental involvement plays a moderating role in children's behavior and environmental commitment.

LITERATURE REVIEW

Educational Games

A special type of computer software that is both entertaining and instructive is called educational games. It may expertly combine information with games, provide learners with genuine problems, and encourage learning (Vanbecelaere et al., 2020a). Software that has a specific educational goal is referred to as an educational game. These games can provide a realistic environment and boost a learner's internal motivation. The idea of instructional games is still not well-understood by the academic community as a whole (Yu, Gao & Wang, 2021).

Reading Games

Reading games are instructional activities created to improve reading abilities and encourage literacy growth. Teachers, parents, and those looking to improve their reading skills in a pleasant and interesting way can all use these activities (Baigi, Aval, Sarbaz & Kimiafar, 2022). Reading games can work on phonics, vocabulary, comprehension, and fluency, among other reading-related skills. Make word-based bingo cards rather than ones with numbers. Players mark the words that correspond to the words called out on their cards (Shute et al., 2021).

The vocabulary and recognition of sight words are strengthened by this game. Players take turns coming up with terms that rhyme with a specified word during the Rhyme Time game. This game improves phonics and phonemic awareness. Each participant adds a sentence to a chaining narrative (Çelik, Bilgin & Yıldız, 2022). Due to the requirement that players pay attention to and expand upon what others have said, this game encourages imagination, narrative, and comprehension. Write sight words on index cards and strew them throughout the room as part of the sight word swat. Players race to locate and swat the appropriate card with a flyswatter after a word is called out. Playing this game helps kids learn sight words. Team up the players for the reading relay (Jacob Habgood & Ainsworth, 2011). A text or sentence is read aloud by each team member in turn, who then delivers it to the person behind them. Fluency and collaboration in reading are enhanced by this game. Write sentences on index cards, but switch around the word placement (Videnovik, Trajkovik, Kjøning & Vold, 2020). Players compete to shuffle the deck and construct meaningful words. Playing this game improves grammar and comprehension. Give players a list of criteria (such as words that begin with a particular letter or have a certain number of syllables) and ask them to locate words that satisfy those criteria in the Word Detective game. This game improves word association and vocabulary. Players simulate emotions or situations from a book or novel while others try to deduce the title or plot. This is known as reading charades. Understanding and analytical thinking are encouraged by this game. Use illustrations from books to make puzzles (Talan, Doğan & Batdı, 2020; Zeng, Parks & Shang, 2020). The text must be read by the players, then they must find the related image. This game ties comprehension of visual information to reading. Prepare a list of inquiries regarding writers, books, and literary components for your reading trivia. The players' reading skills are evaluated by the questions they must answer. This game promotes literary awareness and reading comprehension (Rahimi et al., 2021).

Light Games

A piece of instructional software called “Light Game” aims to make learning information entertaining and interactive. It includes components that encourage students and improve their learning experiences, such as game dynamics, obstacles, incentives, and progress tracking (Ryan-Enright, O'Connor, Bramham, & Taylor, 2022). Interactive games, tasks, assessments, and simulations improve education under the "Light Game" project. Participatory and practical learning aids comprehension. Users can measure their progress and achievements by measuring pupil progress in Light Game. Badges, levels, and scores promote lifelong learning and accomplishment (Chow et al., 2020). Light Game adaptively customises education. Curriculum can adapt students' learning styles. To optimize learning, adaptive algorithms change task difficulty based on performance (Rahimi et al., 2021). Light Game features audio, video, and images. Kids learn and retain difficult topics with visuals. A multimedia programme is more immersive and engaging than traditional education. Light Game encourages student competition and cooperation. Community and teamwork are fostered by leaderboards, cooperative tasks, and multiplayer choices (Vanbecelaere, 2020b). Students compete constructively to learn. Light Game requires quick responses to help students discover strengths and weaknesses. Exams and quizzes test understanding and knowledge for individualized learning. Teachers and parents can actively participate in education by monitoring learning goals, changing curriculum, or adjusting difficulty (Kacmaz & Dubé, 2022). Light Game aims to make learning fun and effective. Gamification and interactivity engage and teach students (Talan et al., 2020). Light Game's self-monitoring, customization, multimedia, cooperation, and instant response make it a unique teaching and learning tool.

Planned Behavior Theory

This study examines the complex relationship between planned behaviour theory (PBT), educational games, music, and early childhood Chinese schoolchildren's behaviour and family learning. The PBT relates educational games, music, kids' behaviour, and learning. PBT evaluates Chinese students' academic and behavioural performance (Cop, U. V. & A. A. Alola, 2020). Based on their perspectives, PBT believes Chinese kids use educational games and music. The study indicated that parents and educators who view educational games and music as fun, beneficial, and successful motivate kids to learn. Learning requires positive views towards educational materials.

PBT uses subjective norms—beliefs about peer pressure and significant others' influence on behaviour (Baigi et al., 2022). The study indicated that instructors, parents, and others can influence Chinese children's views on instructional games and music. Celebrity endorsements can help kids learn and behave. Educational benefits from the game and music network. According to Kim (2020), PBT includes perceived behavioural control—task completion confidence. Research says Chinese kids need control over educational games and music. Building student confidence in these methods improves teaching and proactive learning. Chinese children's education is holistically studied by PBT. Understanding Chinese schoolchildren's complex education requires examining attitudes, subjective standards, and perceived behavioural control. To improve learning settings, teachers, parents,

and lawmakers must understand psychological and social variables that influence children's participation in educational games and music. Finally, planned behaviour theory is used to research Chinese schoolchildren's early life: familial learning. The impacts of educational games and music on children's behaviour and learning are investigated utilizing attitudes, subjective standards, and perceived behavioural control. Academically enriching and psychologically and socially sensitive classrooms result from this understanding.

The way Chinese kids perceive their ability to engage in and gain from educational music and activities may influence their behaviour and academic results. If kids believe they can use these resources and that they are helpful, they are more likely to participate fully and display positive learning behaviours (Landers, 2023). Behavioural intention is a representation of motivation and readiness for a particular task. Schoolchildren's attitudes, subjective norms, and perceived behavioural control may all have an impact on their intent to actively participate in and learn through educational games and music (Negara et al., 2021). Children are more likely to behave well and learn better when they genuinely desire to participate in educational activities and music. Environmental influences, in addition to the PBT's main elements, are extremely important in determining how children behave and learn (Sok, Borges, Schmidt, & Ajzen, 2021). The educational environment, which includes institutional rules, resources available, and teacher support, can make or break the integration of educational music and games. The accessibility of technology, the availability of relevant learning resources, and the focus on integrating these technologies into the curriculum can all have an impact on children's behavior and overall educational experiences (He, Cheng, Swanson, Su, & Hu, 2022).

Previous Studies

Children's behavior in these areas can moderate how educational interventions affect learning experiences (Figure 1). This behavior enables children to thoroughly explore and derive value from instructional music, games, and other resources, improving learning experiences (Ning & Downing, 2012). How kids behave when it comes to self-control and goal setting may help explain how educational interventions affect students' learning experiences. Cooperation, socialization, and emotional support affect youngsters' education. Music, school, and other supports improve emotional well-being, motivation, engagement, and learning (McCormack et al., 2020). Knowing kids can handle and express their emotions helps learning. Cop et al. (2020) relate educational games, self-regulated learning, and learning outcomes. Self-regulated learning includes planning, goal-setting, and monitoring. Researchers study how self-regulated learning influences educational game participation and results. Educational games taught self-regulated youngsters less. Setting goals and tracking progress may help self-regulated learners more than educational games (Trigwell & Prosser, 2020). Parents and teachers benefit from emotional management and self-regulated learning. Child emotional resilience expression and management improve learning environments and education. Self-regulated learning systems let youngsters control school and results. Research reveals teaching is hard. Self-regulated learning and emotional control affect kids. Teachers and parents can establish an emotionally and intellectually stimulating learning environment by noticing and nurturing these traits. Cop et al. (2020) suggest addressing external elements like educational games and internal processes like self-regulated learning to improve children's education.

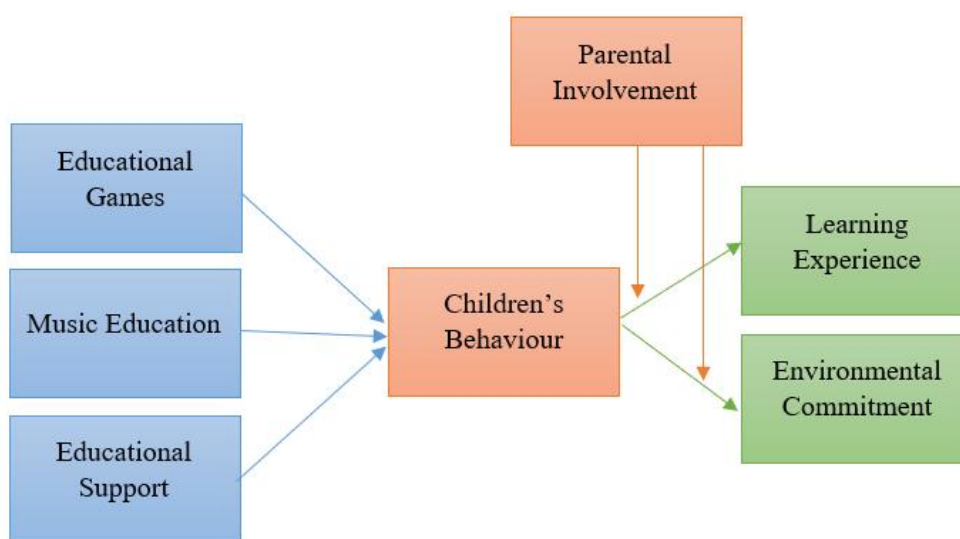


Figure 1. Study Framework

Student behaviour moderates the complex relationship between academic success and music training, say

Vanbecelaere et al. (2020a). Good behaviour, enthusiasm, and motivation help kids study. Student participation affects music class performance, says data. Happiness, engagement, and motivation boost music class performance. Yu et al. (2021) examine student behaviour and how collaboration and socialization improve education. Results illustrate these variables' complex interaction. Kids benefit from schooling and stress management (Sendawula, Bagire, Mbidde, & Turyakira, 2020). Yu et al. recommend testing learning, support, and emotional control. Emotional management improves child well-being and education. Schooling can harm youngsters, but stress management and mood regulation can assist. Child, learning, and educational aid are confusing in this study. Emotional and social skills training. Research says teaching kids emotional regulation may boost learning. Research illustrates education's complexity. Student conduct and involvement affect academic achievement-music course relationship, suggest Vanbecelaere et al. (2020a). Emotional management affects learning and educational aid through teamwork and social contact, according to Yu et al. (2021) These studies indicate intricate relationships between schooling and youth well-being.

Kids learn about the environment from educational games. Shermatova (2021) suggests enjoyable, interactive educational activities to raise environmental awareness and responsibility. Kids acquire environmental awareness through resource management and conservation games. Kids learn responsibility and environmental awareness by playing these games. Besides games, educational music affects students' environmental attitudes. Alea, Fabrea, Roldan, and Farooqi (2020) suggest instructional music can emotionalize environmental issues. Eco-themed music can inspire kids to preserve the environment. Music may teach youngsters empathy and responsibility, making them eco-conscious. According to Baigi et al. (2022), music makes kids eco-conscious. Famous songs and wise words promote environmental awareness. Teachers and parents can use music's emotional power to promote environmental protection. Dialogue, experiential learning, and environmental education improve youngsters' behaviour (Acar et al., 2021). Students learn about environmental sustainability intellectually and practically through integrative environmental education. Experience helps students understand and commit to environmental challenges. Educational games, music, help, and environmental commitment interact with children's behaviour. Through recycling, resource conservation, and projects, kids show environmental concern. Such behaviours enhance environmental awareness and good values, according to Dahlawi, Milnes, and Swallow (2020) and Tariq, Yasir, and Majid (2020). Environment education through games and music is dynamic. These touching methods encourage kids to safeguard the environment. Together with educational aid and a comprehensive environmental education curriculum, these tactics change children's behaviour and promote a lifetime environmental commitment. These methods may help schools and parents raise environmentally conscious children.

Nichols (2020) examines children's environmental behaviour and instructional video games. Study: educational games increase youngsters' environmental behaviour. Educational games may affect environmental commitment, but the study doesn't analyse kids' behaviour. Vanbecelaere et al. (2020a) say environmental knowledge mediates instructional music and children's environmental perspectives. Children's understanding influences instructional music's environmental consciousness. Teaching youngsters about the environment through music can change their conduct unconsciously. Nichols (2020) claims school support substantially influences children's environmental behaviour. The study found that education increases environmental awareness and happiness. While the mediating function of conduct was not directly addressed, this shows that the educational support environment may alter environmental commitment attitudes and behaviours. Educational assistance influences environmental commitment, say Shute et al. (2021). The study highlights schooling's impact on children's environmental attitudes and actions, not behavior's mediation. These findings imply educational interventions may affect kids' environmental commitment. Educational activities, music, and school support raise kids' environmental awareness. Finally, Nichols (2020), Vanbecelaere et al. (2020a), and Shute (2021) show the complicated link between educational interventions, environmental knowledge, attitudes, and behaviours. Educational activities, music, and supportive environments improve children's environmental behaviour, according to research. These findings help educators, governments, and parents teach kids environmental responsibility. These studies show that educational interventions affect children's environmental commitment in numerous ways. Kids' environmental behaviour improves with educational video games, music, and supportive schools. Youth environmental stewardship was successful, even if behavior's mediating function wasn't always addressed. These insights can assist educators, policymakers, and parents in designing more effective and integrated environmental education programmes.

Parents help kids learn and behave well, boosting their education and well-being. Kim (2020) notes that parental praise for positive behaviour encourages cooperation, self-control, and engagement. Parental praise helps kids achieve. Positive reinforcement promotes learning. Clear behaviour and learning norms can also inspire kids (Ribeiro et al., 2021). Setting standards for responsible behaviour, time management, and goal achievement helps kids learn and behave. Kids learn discipline from clear expectations. Positive parenting

substantially affects children's behaviour and education. Parents' actions inspire youngsters. Kids copy their parents' collaboration and communication (McCormack et al., 2020). This modelling improves youngsters' behaviour, social skills, and learning. Communication and cooperation between parents and children improve education and conduct (Dahlawi et al., 2020). Collaboration, appreciation, and feedback from parents foster a good learning environment. The parent-child bond shapes children's behaviour and education. Family involvement in education makes learning pleasurable. A holistic parenting style promotes academic performance and character through positive reinforcement, clear expectations, and excellent behaviour. Kids are more inclined to replicate good parenting after seeing and internalizing it. Finally, parental participation enhances education and behaviour. Parents boost learning and character by detecting, praising, setting clear expectations, modelling positive behaviour, and fostering teamwork and communication. Active participation enhances kids' conduct and lifelong learning. Parents help kids succeed in school.

Research, like Vučković et al. (2021), highlights parental involvement in children's academic development. Self-control, focus, and academics increase with conversations, encouragement, and parental support. Children's intellectual and behavioural growth requires parental participation. Mailizar et al. (2021) emphasize parental involvement's impact on children's behaviour and academic progress. Parental expectations and support considerably affect children's behaviour and academic success. Research demonstrates that caring parents boost academic performance. Binder, Nadere, and Matthes (2020) also show that parental expectations and support considerably impact children's behaviour and academic progress. The study shows parents affect kids' behaviour and education. Zhang et al. (2020) note parental influence on children's behaviour and schooling. The study implies parental involvement boosts IQ and conduct. Outside academia, parenting impacts children and environmental advocacy. Recycling and energy-saving parents motivate kids (Sendawula et al., 2020). Green parents change kids' behaviour and safeguard the environment. Parents like eco-friendly kids, say Cop et al. (2020). Praise for kids' eco-friendliness promotes sustainability. Parental participation affects children's intellectual and behavioural development, research shows. Parents help kids learn and safeguard the environment. Well-rounded parenting with rewards and academic and environmental activities helps kids.

Books, resources, and activities for kids raise environmental awareness. Parents shape kids' environmental awareness and behaviour. Tariq et al. (2020) believe legal enforcement, clear expectations, and environmental education can affect children's behaviour and awareness. Children can actively learn about their environmental impact from their parents. Water and rubbish concerns must be explained to kids. Eco-friendly choices and responsibility can be taught by parents. Kids can learn about the environment through community projects. Local cleanups, environmental education, and groups (He et al., 2022). Practical projects teach kids responsibility and community. Home environmental activities may shape kids' values. Maybe parents' environmental duty. Family environmental projects foster purpose, sustainability, and accountability. Myers et al. (2020) examined how parental involvement influences children's behaviour and beliefs. The study may have shown how parents influence kids' environmental understanding and behaviour. Trigwell and Prosser (2020) found parental engagement moderates children's pro-environmental behaviour. Parental involvement greatly boosts children's environmental commitment and behaviour. Finally, parents strongly affect kids' environmental commitment. Involve youngsters, provide resources, participate in community projects, and set clear expectations to teach environmental stewardship. Environmental acts of families affect kids' conduct and awareness.

Encourage parents to be eco-friendly, provide resources for eco-friendly activities, and address environmental issues to impact children's environmental behaviour. Parents influence kids' environmental responsibilities. Cop, Sendawula, Trigwell, and Prosser (2020) found parental involvement boosts children's environmental activity. Cop et al. (2020) observed that parental involvement in various activities improved children's environmental commitment. In addition to teaching, they advocated sustainability and attended environmental activities. Parental efforts taught kids environmental responsibility. Parental involvement affects children's environmental awareness and behaviour (Vanbecelaere et al., 2020b). Parents' environmental actions improve kids' knowledge and behaviour. Eco-parents behave. Kids will recycle, preserve energy, and make sustainable choices if their parents do. Family participation gives kids life experiences outside school. Community cleanups and recycling teach kids. Environmentalism and fun learning are fostered. Finally, encouraging parents to be eco-friendly, providing green activities, and addressing environmental issues enhances children's environmental awareness. Studies reveal parents must teach kids environmental awareness.

Hypothesis Development and Conceptual Framework

H1: Children's behaviour mediates educational games and learning.

H2: Children's behaviour affects music education and learning.

H3: Children's behaviour mediates learning experiences and educational support.

H4: Educational games and environmental commitment are mediated by children's behaviour.

H5: Children's behaviour mediates environmental commitment and music teaching.

H6: Children's behaviour mediates educational support and environmental commitment.

H7: Parental involvement moderates children's behaviour and learning.

H8: Parental involvement moderates children's behaviour and environmental commitment.

METHODOLOGY

A mixed methods research strategy was used in this study, combining quantitative and qualitative procedures. Data analysis followed a quantitative methodology, while data gathering followed a qualitative methodology. Open-ended inquiries and semi-structured interviews were used to collect qualitative information from the participants. A questionnaire was administered to the students, consisting of closed-ended questions. The questionnaire aimed to gather quantitative data regarding the frequency of engagement in educational games and singing music, as well as the perceived impact on learning outcomes. For data collection, the target population for this study comprised school-going children in China. A cross-sectional time horizon was utilized for primary data collection, involving a sample of 339 students. To ensure a sufficient response rate, 400 questionnaires were circulated in total. The statistical analysis was completed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics (such as frequencies, means, and standard deviations) were computed to provide an overview of the quantitative data. Macros were used as a statistical test to analyze the “family learning is the first stage of life: the impact of educational games and music towards children behavior and leanings influencing educational experiences and environment”. All the statistical tests, Correlation analysis and inferential statistics were employed, as appropriate, to examine relationships and determine statistical significance. Prior to data collection, participants' or their legal guardians' informed consent was sought.

IDs, not names, safeguard study privacy. Privacy is needed for school-age study participants. Researchers can collect loads of data without compromising participant privacy with unique IDs. Survey and monitor schoolchildren's opinions and interactions with educational games and music. These methods examine how educational interventions affect kids' behaviour. Using qualitative data, academics can study how educational games and music affect children's development. Many methods can be used to study kids' educational material consumption. Educational games and music show kids' interests, actions, and relationships. Schoolchildren's fine-grained information and distinction interactions are detected. Researchers use qualitative interviews to gather participant viewpoints. Data triangulation builds trust. Qualitative interviews and observations reveal how games and music teach kids. This expertise is needed for kid intervention and training. Researchers can spot trends, preferences, and difficulties that quantitative tools cannot. Music and classroom activities help. Engagement, behaviours, and more are in big data. These classroom exercises help researchers understand children's behaviour and learning environment. Finally, qualitative research examines children's complicated educational gaming and music experiences. Solid knowledge enables child-specific instruction. Effective and personalized education helps youngsters achieve.

Instrument

A questionnaire was given to Chinese schoolchildren to evaluate the study paradigm. The poll targeted singers and students. A sample of musical and academically active children was chosen to reflect the study's interests. To measure each variable according to the context of the study different sources were used to adapt the items. To measure music education, a total of 3 items were adopted from the scale (Rucsanda, Belibou, & Cazan, 2021). For educational support 3 items were also adopted from Stenhoff, Pennington and Tapp (2020), to measure the children's behavior 3 items were adopted from Dahlawi et al. (2020), and for parental involvement, 4 items were adopted from the scale developed by (Waluyandi et al., 2020). To measure the dependent variable learning experience total of 5 items were adopted (Z. Sokhanvar, Salehi, & F. Sokhanvar, 2021). For the other dependent variable of the study environmental commitment, 6 items were adopted (Sendawula et al., 2020). All the adopted items were used for the questionnaire to gather the data for analysis and testing the hypotheses. Demographic information was also collected from the respondents on the basis of close-ended questions.

RESULTS

Demographics

The demographic information in **Table 1** highlights how the current study proves that family learning is the first stage of life and investigates the effects of planned behavior theory, educational music and games, and children's behavior and leanings on educational experiences and environments for schoolchildren in China. Children who attended school had a clear hierarchy of importance based on factors like gender, age, academic level, games, musical training, and location. Table 1 displays the demographic segmentation.

Table 1. Demographic Profile

Demography	Description	No. Of Responses	%
Children's	Boys	220	65
	Girls	119	35
Age	4-6	69	21
	6-8	150	44
	Above 8	120	35
Education Level	Grade 1-3	80	24
	Grade 3-6	140	41
	Above Grade 6	119	35
Educational Games	Light Games	210	62
	Reading Games	129	38
Learning Music	Singing Poems/Stories	190	56
	Singing Songs	149	44
Area	Urban	230	68
	Rural	109	32

Table 1 results show that the children of boys of school in China 65% and girls 35%. The age of school children in China 4-6 was 21%, 6-8 was 44% and above 8 was 35%. The education level of school children in China grades 1-3 were 24%, grades 3-6 were 41% and above grade 6 were 35%. The educational games played in school related to light games were 62% and reading games were 38%. The music learning in school singing poems/Stories were 56% and singing songs were 44%. The area of school children in China urban was 68%, and rural was 32%.

Descriptive Statistics

Descriptive statistics are used to enumerate and describe a dataset's key features. Measurements of central tendency (mean, median, and mode), measurements of dispersion (standard deviation, variance, and range), and measures of form (skewness and kurtosis) are just a few descriptive statistics metrics that may be calculated for variables in SPSS. Skewness gauges a distribution's asymmetries. Whether the data is slanted left or right is indicated. Skewness may be zero, positive, or negative. Kurtosis gauges a distribution's peak or flatness in relation to a normal distribution. It discloses the existence of outliers or extremely high numbers (Stockemer, 2018). A statistical measure known as the standard deviation can be used to quantify how variable or dispersed a data set is. It gauges how far the mean is deviated from by each individual data point. While a lower standard deviation denotes less unpredictability, a higher standard deviation indicates greater data variability. In statistics, the mean is a frequently used indicator of central tendency. It also goes by the name average and denotes the arithmetic mean of a group of data. **Table 2** presents the descriptive statistics for the study variables.

Table 2. Descriptive Statistics

	N	Mini	Maxi	Mean	SD	Skewness	Kurtosis
EG	339	1.00	4.50	1.8001	.70190	.723	.480
ME	339	1.00	3.33	1.3284	.53507	1.816	2.623
ES	339	2.00	5.00	4.5379	.56596	-1.190	1.495
CB	339	1.00	4.33	1.4926	.65185	1.459	2.237
PI	339	1.00	3.50	1.5288	.60851	1.185	.453
LExp	339	1.00	3.40	1.4242	.55364	1.337	1.325
EC	339	1.00	3.17	1.4651	.54650	1.092	.371

Note: “EG = Educational Games, ME= Music Education, ES = Educational Support, CB = Children’s behavior, PI = Parental Involvement, LExp= Learning Experience, EC = Environmental Commitment”.

Reliability of Variables

A scale or measurement instrument's internal consistency or reliability is evaluated using reliability tests in SPSS. These tests are frequently used in the social sciences, psychology, and education to confirm that a survey or questionnaire's items accurately and consistently measure the desired concept. Cronbach's alpha, which varies from 0 to 1, is the dependability coefficient that is most frequently published (Okagbue, Oguntunde, Obas, & Akhmetshin, 2021). A higher number denotes a higher level of internal consistency. A Cronbach's alpha above 0.70 is generally preferred, though this can change based on the particular situation and the make-up of the construct being assessed. **Table 3** and **Figure 2** represent the values of Cronbach Alpha.

Table 3. Reliability Test

	N of Items	Cronbach Alpha
Educational Games	4	.827
Music Education	3	.746
Educational Support	3	.806
Children’s behavior	3	.875
Learning Experience	5	.875
Parental Involvement	4	.763
Environmental Commitment	6	.847

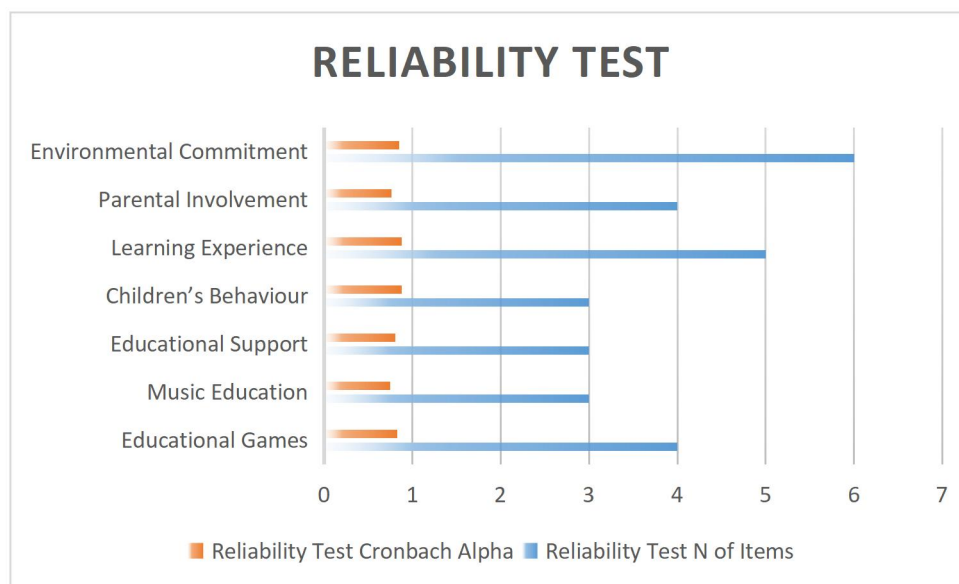
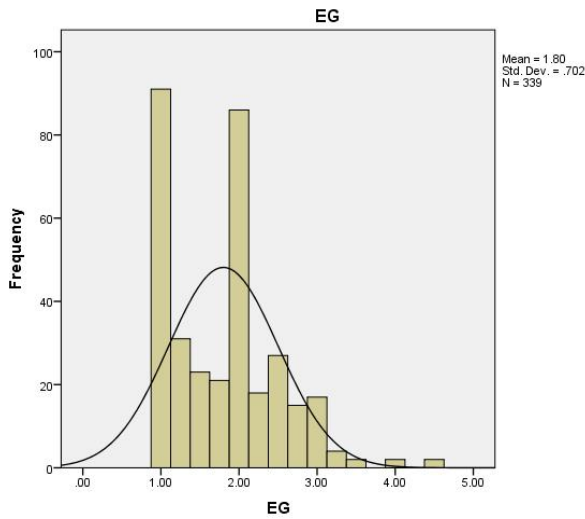


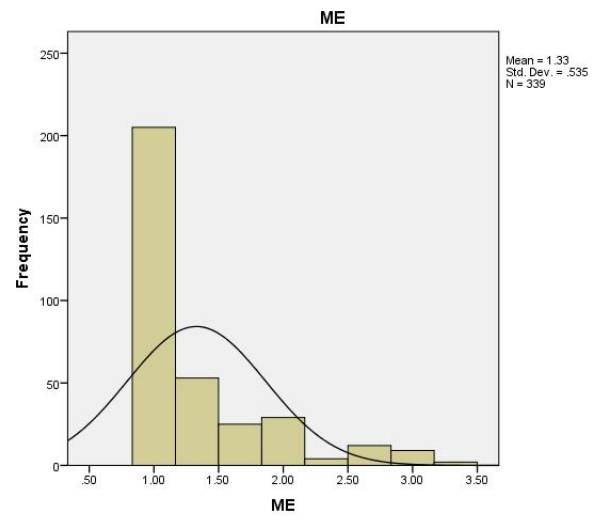
Figure 2. Reliability Test

Frequencies

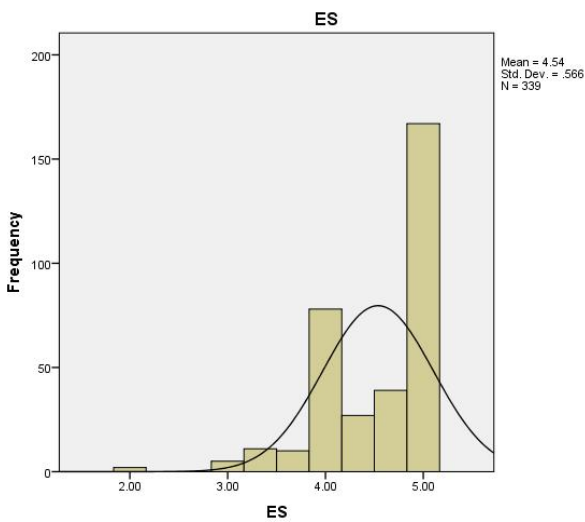
Frequencies describe the count or quantity of each distinct value in a variable. It offers details on the prevalence and distribution of various values within a data set. Frequencies are frequently employed to investigate nominal or categorical variables. Each histogram shows the percentage of cases that fall into each of the variable's many categories (Domínguez, 2019). Histograms work best with nominal or categorical variables that have a limited number of divisions. The variable(s)' unique values are shown in one column of the frequency table, together with the frequency (count) of each value. It gives an overview of the frequency with which each number appears in the information set. According to **Graphs** (1,2,3,4,5,6,7), educational game (Mean = 1.80, SD = 0.702), music education (Mean = 1.33, SD = 0.535), educational support (Mean = 4.54, SD = 0.506), children’s behavior (Mean = 1.49, SD = 0.652), parental involvement (Mean = 1.53, SD = 0.608), learning experience (Mean = 1.42, SD = 0.553) and environmental commitment (Mean = 1.47, SD = 0.546) respectively.



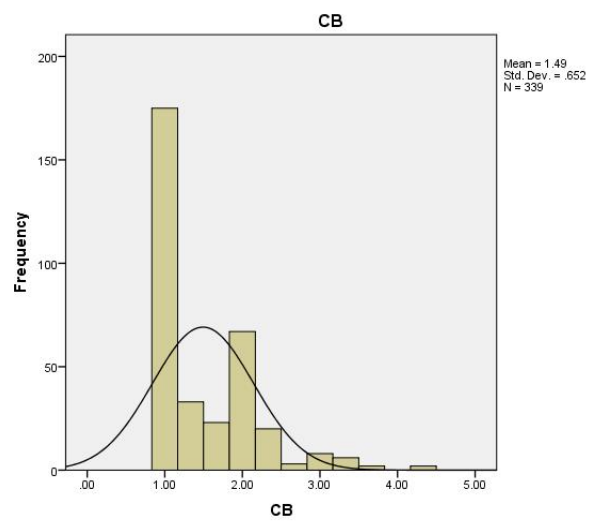
Graph 1. Educational Games



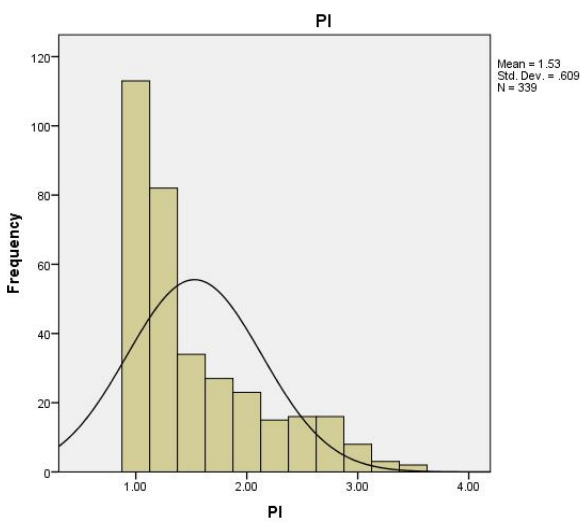
Graph 2. Music Education



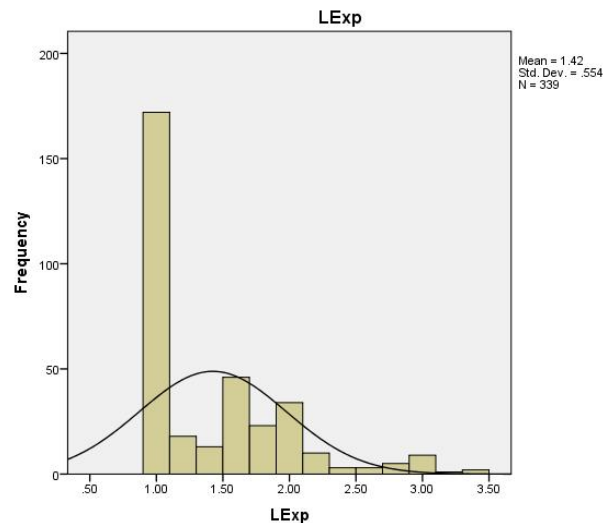
Graph 3. Educational Support



Graph 4. Children's Behavior



Graph 5. Parental Involvement



Graph 6. Learning Experience

	EG	ME	ES	CB	PI	LExp	EC
N	339	339**	339**	339**	339**	339**	339
Pearson Correlation	.726	.712	-.637	.669	.627	.896	1
Sig. (2-tailed)	.0001	.0001	.0001	.0001	.0001	.0001	
EC							
Sum of Squares and Cross-products	94.093	70.386	-66.580	80.496	70.507	91.653	100.948
Covariance	.278	.208	-.197	.238	.209	.271	.299
N	339**	339	339**	339**	339**	339**	339**

Note: "EG= Educational Games, ME= Music Education, ES= Educational Support, CB= Children's behavior, PI= Parental Involvement, LExp= Learning Experience, EC= Environmental Commitment".

KMO Test

The KMO test evaluates how well the variables included in the factor analysis were sampled. It evaluates if the variables are appropriate for factor analysis and whether there is sufficient shared variance to support factor extraction. The KMO statistic has a range of 0 to 1, with values nearer 1 suggesting better factor analysis suitability. A KMO rating of 0.6 or 0.7 or above is typically regarded as satisfactory. To determine whether the correlation matrix between the variables is appropriate for factor analysis, Bartlett's Test of Sphericity is utilized (Pallant, 2016). It investigates the null hypothesis that the population's variables are uncorrelated. It evaluates whether there is sufficient correlation between variables to continue with factor analysis, to put it another way. A significant p-value (usually less than 0.05) indicates that the correlation matrix is appropriate for factor analysis when the test yields a significance level (p-value). **Table 5** shows the perfect KMO value which is significant.

Table 5. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.842
Bartlett's Test of Sphericity	1942.413	1009.894
	21	10
	.0001	.0001

Mediating Analysis

A statistical method called mediation analysis is used to look at how an independent variable could indirectly affect a dependent variable through a mediator variable. Understanding the fundamental mechanism or procedure by which the independent variable affects the dependent variable is useful. The PROCESS macro created by Andrew Hayes can be used to conduct mediation analysis in SPSS (Abu-Bader & Jones, 2021). This macro enables regression-based estimation and testing of mediation models. It's important to remember that mediation analysis just shows the underlying mechanism by which variables are associated; it does not prove causality. Valid mediation analysis requires a sound study design, theoretical rationale, and consideration of assumptions. According to **Table 6**, children's behavior has a mediating impact between educational games and learning experience (T value = 10.663, P value = 0.0001). Children's behavior has a mediating impact between music education and learning experience (T value = 10.742, P value = 0.0001). Children's behavior has a mediating impact between educational support and learning experience (T value = -5.547, P value = 0.0001). Children's behavior has a mediating impact between educational games and environmental commitment (T value = 7.673, P value = 0.0001). Children's behavior has a mediating impact between music education and environmental commitment (T value = 6.539, P value = 0.0001). Children's behavior has a mediating impact between educational support and environmental commitment (T value = -4.870, P value = 0.0001).

Table 6. Mediating Analysis

Model 4	Coefficient	T Value	P Value
Educational Games->Children's behavior->Learning Experience	0.3925	10.6635	0.00001
Music Education->Children's behavior->Learning Experience	0.4931	10.7427	0.00001
Educational Support->Children's behavior->Learning Experience	-0.3061	-5.5476	0.00001
Educational Games->Children's behavior->Environmental Commitment	0.2935	7.6737	0.00001
Music Education->Children's behavior-> Environmental Commitment	0.3191	6.5390	0.00001
Educational Support->Children's behavior-> Environmental Commitment	-0.2643	-4.8703	0.00001

Moderating Analysis

The regression model would contain the independent variable, the moderator variable, and their interaction term. The interaction term's significance reveals whether moderation is present. It is crucial to assess moderation effects with caution and take into account theoretical grounds for the interaction (Abu-Bader & Jones, 2021). Understanding the boundary conditions and context-specific impacts of the independent variable on the dependent variable is made easier with the use of moderation analysis. According to **Table 7** and **Figure 3(a,b)**, parental involvement plays a moderating effect on children's behavior and learning experience (T Value= 11.9581, P Value= 0.0001). Parental involvement plays a moderating effect on children's behavior and learning experience (T Value= 12.4243, P Value= 0.0001).

Table 7. Moderating Analysis

Model 1	Coefficient	T Value	P Value	Decision
Children's behavior* Parental Involvement-> Learning Experience	-1.0381	11.9581	0.00001	Supported
Children's behavior* Parental Involvement-> Environmental Commitment	1.0223	12.4243	0.00001	Supported

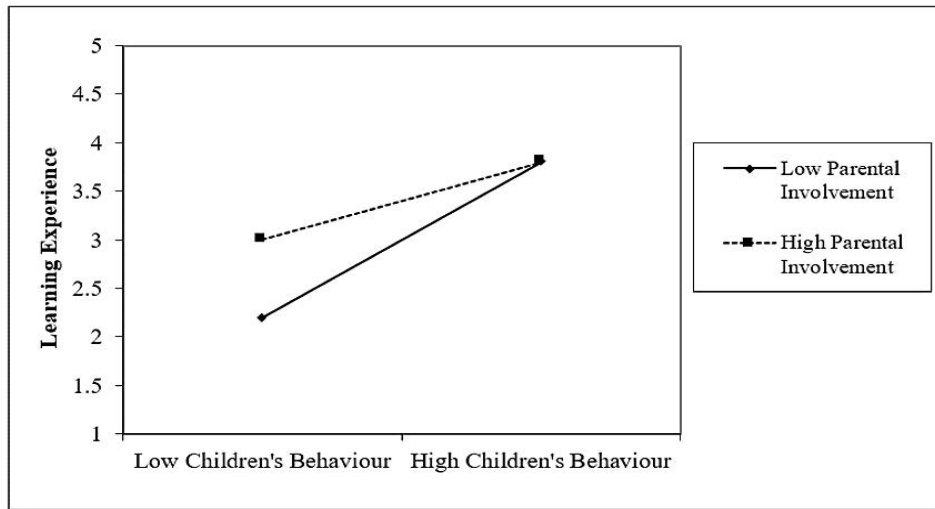


Figure 3a. Moderation Effect 1

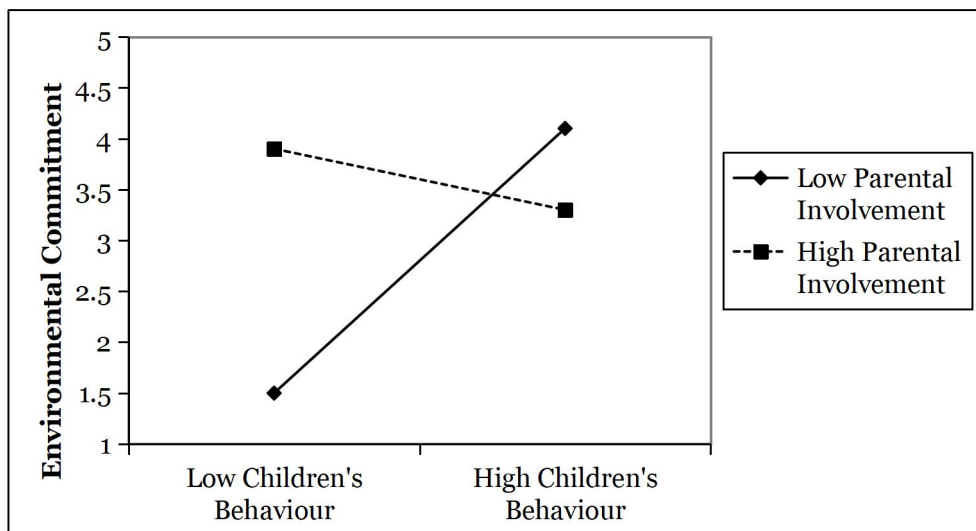


Figure 3b. Moderation Effect 2

DISCUSSION

The current study establishes that family learning is the foundation of life and investigates the impact of planned behavior theory, educational music and games, children's behavior, and settings on learning for schoolchildren in China. Incorporating both qualitative and quantitative analysis, this research study examines how games are used in the classroom. To precisely determine the impact of game activities on children's educational support and environmental commitment within this framework and in accordance with the study's goal, a quantitative assessment was first employed. Each hypothesis was accepted.

The result shows that children's behavior plays a mediating role between educational games, music education, and educational support and learning experience. However, how students act while using instructional games might affect how beneficial they are. Children who use educational aids, actively participate in educational games and music education activities and show a higher degree of enthusiasm and investment in their learning. Learning involves overcoming challenges and recovering fast (Zeng et al., 2020). Persistence helps kids achieve. Academic performance, development attitude, and accomplishment improve with this behaviour. Being robust means lasting. Academic setbacks teach resilient students. Skills are gained through proactive learning. Persistence and determination boost learning resilience. Determined kids tackle tough topics and tasks. Persistence boosts critical thinking, problem-solving, and academic success. Academic performance improves with determination. Lessons from problems improve study habits. This strategy expands knowledge and experimentation. Socialization and cooperative learning improve education. Collaborative learning works. Social learning promotes teamwork. Academic success requires student resilience and determination. Academic performance improves. Together with cooperative learning and social involvement, these habits prepare kids for academic and real-world obstacles.

The study found that children's behaviour mediates educational games, music, support, and environmental commitment. Music, games, and other resources teach kids about conservation, sustainability, and the environment. These instructional methods raise kids' environmental awareness. Education and music raise kids' environmental consciousness. The proactive approach promotes sustainability and environmental awareness. According to Ryan-Enright et al. (2022), children's behaviour mirrors their environment. Study: students' interactions with teaching tools like music and games may disclose environmental ethics and concepts. Kids gain from music, educational video games, and environmental education. Educational environmental ethics empowers and enhances learning. Empowerment drives eco-action. Educational tools can help students be environmentally conscious. Community empowerment involves environmental campaigning, which requires teamwork. A game or song can teach environmental stewardship. The study found children's behaviour affects educational interventions and environmental commitment. Games, music, and resources motivate and teach kids about the environment. The paper suggests fostering such habits in children to equip them to solve environmental issues.

The study found that parental involvement moderates children's behaviour and schooling. Parental involvement improves kid conduct. Parents may help kids excel in school by fostering self-control, perseverance, participation, and collaboration. Support from parents enhances kid conduct and learning (Cop et al., 2020). Parents model behaviour and provide resources. Kids grow with responsibility, sensitivity, and attention. The study found that kids naturally copy their parents' good practices. Teaching through behaviour. Researchers found that parents help kids learn. Parental involvement impacts kids' development outside school. This promotes education and behaviour. Growth tracking, parent-teacher engagement, and constructive feedback are widespread. This channel informs parents of their child's behaviour, personality, and progress. The study found that open communication strengthens parent-teacher relationships and empowers parents to participate in their children's education. The study indicated that parental participation improves children's behaviour and education. Good parenting makes learning fun. Participation improves kids' education and behaviour.

Parental involvement, child conduct, and environmental commitment are linked. Studies reveal that parental participation moderates children's conduct and environmental commitment. Family role models affect children's environmental conduct. Parents teach kids about energy conservation, recycling, and sustainability. Modelling encourages environmental behaviour in children (Acar et al., 2021). Environmental responsibility is taught by parents. Recycling and environmental activities boost children's environmental commitment, study finds. Participation teaches environmental responsibility and practical skills. Parents can reduce negative behavior's educational effects. Parents may help kids excel in school by promoting self-control, perseverance, active engagement, and collaboration. Parental praise and criticism improve child behaviour and development, the study concluded. Parent teachers' mentor and model. Research shows kids mimic accountable, learning-sensitive, and focused parents. Modelling teaches kids beyond environmental commitment (Yu et al., 2021). Parents affect children's behaviour and environmental goals, the study indicates. Parents promote greenness and cheerfulness. The study shows that parental involvement affects children's behaviour and environmental commitment. This

connectivity emphasizes the need for parents and schools to teach values and sustainability. Parents can reduce children's behavior's negative effects on schooling, according to the study. Parental support improves learning. Parents who promote self-control, perseverance, and collaboration improve academic performance and school life. The study shows family support makes studying pleasurable. Parental support may make learning fun. Support improves parent-child learning and relationships. Parental involvement affects more than behaviour. Parental care and attentiveness help youngsters grow. These attributes may be adopted by children, modelling environmental dedication beyond other schooling areas. This study reveals how parental participation affects kids' behaviour and environmental commitment. Parents instill environmental and personal values through modelling, activities, and education.

CONCLUSION

Family education, planned behaviour theory, learning environments, activities, music, and child behaviour impact Chinese children's upbringing. The planned behaviour hypothesis states that attitudes, perceived behavioural control, and subjective norms influence action intention. In family learning, child learning attitudes, family expectations, and learning control affect academic performance. When student interventions involve attitudes, family expectations, and perceived learning control, planned behaviour theory works. These features can help instructors and parents build successful academic aid programmes. Educational games and music help Chinese students. Research shows that educational games and music improve memory, focus, and cognition. These family learning items encourage curiosity and academic success. Parental behaviour impacts learning. Positive, supportive homes with involved parents boost academic performance. Misguided influence or abandonment can demoralize academics. Since the home environment affects learning, schools must give academic development tools and build family ties. Home-school cooperation is encouraged. Both scenarios help Chinese pupils. The school encourages academics, family, and good behaviour. Family education is essential for Chinese kids. Planning behaviour theory, educational games, music, and child behaviour impact family learning. These traits create a holistic and dynamic learning environment that boosts Chinese students' grades and behaviour. Schools, teachers, and parents must collaborate to help students achieve academically and build healthy families.

IMPLICATIONS

Practical Implications

Family lifelong learning includes parents academically. Teachers and the government must encourage parent-led homeschooling. Parental advice, resources, and training help kids learn. Learners benefit from planned behaviour theory. Good behaviour is promoted by educational techniques that address children's attitudes, subjective norms, and perceived behavioural control. Knowing this helps parents form home-school partnerships. Educational games and music teach kids. Game and music education encourage creativity, engagement, and learning. Home learning benefits from music and activities. Child conduct impacts learning. Parents and teachers should promote self-control, cooperation, and participation. Children learn better when parents set standards, model good behaviour, and applaud good work. Since the environment affects growth, children need good learning environments. Active learning, teamwork, and curiosity should be promoted in schools. Parental aid may include a nicely organized home study environment with easy access to learning resources and a study place. Finally, families' crucial role in children's education must be valued for lifetime learning. Planning behaviour theory helps teachers and policymakers improve child learning. Interactive games and music help learning. Parent-teacher partnerships should promote education. Comprehensive lifelong learning helps kids thrive. Family-based lifetime learning puts parents in school. Politicians and teachers must encourage family learning and fun. Parents need information, help, and training. Home-school partnerships foster growth in many ways. Planning behaviour theory trains youngsters. School improves children's attitudes, subjective norms, and behaviour. Help parents support their children's education and provide a language for educators and families to learn. Games and music encourage interactive learning. Teachers can employ music and activities. These exercises make learning fun and improve cognition, creativity, and engagement. Give kids this to simplify and improve homeschooling. Child behaviour affects learning, so we need excellent behaviour. Parents and educators must teach children responsibility, self-regulation, collaboration, and engagement. To motivate kids, set expectations, behave nicely, and reward success. Learning environments affect child development. Schools should promote

inquiry, teamwork, and participation. A clean home study may help. Simple materials and care help kids learn. Family lifetime learning demands collaboration. Parental involvement and planned conduct theories boost learning. Interactive learning activities supported by educators and parents provide a dynamic learning environment. Lifelong holistic learning promotes skills and improves kids' learning environments.

Theoretical Implications

In family learning, planned behaviour theory explains behavioural goals and variables that affect children's learning. The findings show how attitudes, subjective standards, and perceived behavioural control affect children's behaviour and learning, validating the theory's instructional value. This programme studies how psychology affects kids' learning. The impacts of music and instructional games on learning add to technology and arts in the classroom studies. Music and educational games improve children's school experiences and performance, study shows. This highlights the need for engaging learning activities for different styles. Understanding how children's behaviour affects learning streamlines educational approaches. This emphasizes how human behaviour impacts education. These findings help theoretical frameworks that examine the dynamic relationship between interventions, behaviour, and learning to design more effective educational strategies. Ecological science emphasizes human-environment interaction in learning situations. This perspective promotes supportive family and classroom learning environments. Recognizing the environment's impact on learning processes and results helps us understand how children's environments shape education. It emphasizes school well-being, involvement, and attitudes to increase children's learning.

LIMITATIONS AND FUTURE DIRECTIONS

Analysis of boundaries and new study alternatives can help us understand how family learning, planned behaviour theory, educational interventions, children's behaviour, and the environment affect Chinese students' learning results. Increase research and address study weaknesses. Small survey size may mislead Chinese pupils. Larger sample sizes improve external validity and study representation of Chinese students. Chinese pupils may be the sole age or culture studied. Future research should include toddlers and children from other cultures to examine how family learning influences them. Multi-method studies may use qualitative and quantitative methods. Despite their limitations, combining techniques can complicate and deepen the study. Researchers must utilize these methods carefully to avoid data collection and interpretation biases. Logical results integration and qualitative and quantitative differences assessment are needed for solid conclusions. Addressing restrictions and pursuing new research routes would help scholars understand family learning, planned behaviour theory, educational interventions, children's behaviour, and China's environment. Studying and improving research methodologies can help us understand education and create effective therapies. Although SPSS macros speed up analysis, they have limitations. To thoroughly evaluate and verify data, researchers need more statistical analytic tools. Diversifying analytical methods improves study reliability. Learning outcomes can be investigated through longitudinal family learning, child behaviour, and educational intervention research. Links and growth are studied longitudinally. This method highlights the complicated relationship between family learning, child behaviour, and learning results. Future studies could use subjective and empirical data. Family and child behaviour and learning research benefit from qualitative and quantitative methodologies. Comparative educational or cultural studies may aid. Family learning, educational activities, and children's behaviour may reflect cultural and environmental influences on academic performance. Comparative study helps cultural and educational adaptations.

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