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A Study on the Use of Artificial Intelligence to Reduce Parental Burnout During Children's Homework Supervision in Coimbatore District

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ABSTRACT

The growing use of Artificial Intelligence (AI) in schools has changed how students learn and how parents help with their children's schoolwork. This study looks at how AI-based tools help reduce stress, tiredness and emotional exhaustion for parents as they support their kids with homework. It uses a descriptive research method to understand what parents think about these tools, how often they use them and how effective they are. Tools like smart tutoring systems, homework planners and AI chatbots are studied to see how they help. A total of 100 parents from private schools in Coimbatore were chosen carefully for this study. They filled out a survey about how often they use AI tools, how easy it is for them to watch over their child's work, how stressed they feel, and how satisfied they are with their child's learning progress. The results are expected to show that AI tools greatly reduce parents' burnout by offering real-time help, personalized learning, and automatic feedback, which take some of the pressure off parents. The study shows that AI can be a helpful tool in improving parents' mental health and making the home learning environment better. It also suggests that using AI for homework support can make learning more engaging and help build stronger parent-child relationships.

KEYWORDS: *Artificial Intelligence, Parental Burnout and Homework Supervision.*

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INTRODUCTION

In today's world, Artificial Intelligence (AI) has become a big part of education, changing how students learn by making classrooms smarter and more interactive. Tools like virtual teachers, homework help apps and smart learning platforms are now helping students learn in ways that are easier to understand and more suited to their individual needs. These tools make learning more available and tailored for kids. But when it comes to parents, these new technologies also bring new challenges, especially when it comes to helping with homework. Watching over a child's schoolwork, especially after a long day at work, can be stressful and tiring for parents. This stress is made worse by the high expectations from schools, more time spent on screens and not enough help with managing time. AI tools in education offer a way to ease these problems by giving automatic help, quick answers and personalized learning that lessens the work on parents. In recent years, many AI-powered apps like ChatGPT, Khan Academy's AI Tutor and Google's Socratic have become popular with students for their homework support. These tools help students grasp lessons, solve problems and get explanations without constantly needing help from parents. This can help parents feel less stressed and more relaxed at home. In the Coimbatore District, which is a major place for education in Tamil Nadu, schools and homes are starting to use more AI-based learning tools.

DEFINITION

Definition of Artificial Intelligence

"Artificial Intelligence is the capability of a machine to imitate intelligent human behavior, including learning, reasoning and self-correction."-**Russell, S. J., & Norvig, P. (2021)**.

Parental Burnout

"Parental burnout is a state of physical, emotional and mental exhaustion that results from the chronic stress of parenting."-**Mikolajczak, M., Roskam, I., & Gross, J. J. (2019).**

Homework Supervision

"Homework supervision refers to the guidance, monitoring and support provided by parents to help children complete academic assignments at home."-**Cooper, H. (2001)**.

STATEMENT OF THE PROBLEM

In today's world, where technology is everywhere, Artificial Intelligence (AI) has become a big part of how we learn, especially in schools. It's changing the way students study and how parents help with their children's schoolwork at home. Although AI tools like learning apps and homework helpers are meant to make learning easier and more tailored to each student, they also have an effect on how parents feel emotionally and mentally. Parents who help with homework often feel stressed, tired and unsure if they're doing a good job. This feeling, called parental burnout, is getting more common in families today. Many parents, especially those who work, get frustrated and exhausted when helping their kids with schoolwork because of busy schedules, high academic standards and not knowing much about certain subjects. Schools also have high expectations, which add more pressure and can cause problems in family relationships. AI could help by offering smart tutoring, instant feedback and support for homework through tools like chatbots, virtual teachers and learning apps. These tools can make it easier for kids to do their work on their own, so parents don't have to be involved all the time. However, even though AI has these benefits, there isn't much research in places like Coimbatore, India, about how using AI affects parental burnout when helping with homework.

SCOPE OF THE STUDY:

This study looks at how AI-based educational tools affect parents' mental and emotional health while helping their kids with schoolwork at home. It mainly checks how much AI tools like digital homework helpers, virtual teachers and smart learning platforms can help lower stress, tiredness and emotional exhaustion in parents when they help with homework. The study is focused on parents of school kids in Coimbatore District and it includes only private schools. It includes parents who use AI-powered learning tools such as ChatGPT, Khan Academy, Byju's AI tutor, Google Socratic and other digital homework support systems. The research looks into their awareness of these tools, how often they use them, how useful they find them and the psychological effects they experience from using AI for homework help. This study uses a descriptive research approach and collects data through a structured questionnaire. The analysis aims to find out how using AI tools relates to the level of stress or burnout parents feel. The results will show how AI can be a good way to manage stress, improve time management and bring more harmony to the family.

REVIEW OF LITERATURE

Smith and Johnson (2021) examined how AI-assisted learning applications influence parents' stress levels and engagement during children's homework activities. The study focused on families using AI tools such as intelligent tutoring systems and homework management platforms. The researchers found that AI technologies significantly reduced parental workload, improved time management and enhanced children's independent learning abilities. **Sampling Method:** Stratified random sampling, **Sample Size:** 150 parents, **Universe:** Parents of elementary and middle school students in California, USA. **Population:** Parents actively using AI-based educational platforms at home. The study concluded that AI-assisted systems can effectively reduce parental burnout by providing consistent feedback and reducing the emotional strain of constant supervision.

Wang, Y., & Chen, X. (2022) explored how the introduction of AI in homework support systems impacts parental well-being. The research assessed parents' attitudes toward using AI technologies such as ChatGPT and adaptive learning apps to guide their children's homework. The findings indicated that AI tools improved homework efficiency, reduced parental frustration and strengthened positive family interactions. **Sampling Method:** Purposive sampling, **Sample Size:** 200 parents, **Universe:** Parents of school students in Beijing city, **Population:** Parents of students aged 8–15 years attending schools implementing AI-based homework platforms. The study emphasized that AI plays a mediating role in balancing educational support and parental mental health, thereby reducing burnout symptoms among working parents.

Priya, S., & Karthikeyan, M. (2023) conducted a study in Tamil Nadu to analyze how AI-driven educational applications assist parents in managing their children's homework without experiencing emotional exhaustion. The study reported that parents who encouraged their children to use AI tutors or digital homework tools experienced significantly lower stress and burnout levels compared to those relying on traditional supervision methods. **Sampling Method:** Convenience sampling, **Sample Size:** 120

respondents, **Universe:** Parents of school-going children in Tamil Nadu, **Population:** Working parents residing in Coimbatore, Chennai and Madurai districts. The study concluded that the use of AI-based learning technologies helps parents achieve better emotional balance, enhances children's self-learning and reduces conflicts related to academic pressure.

Methodology of the Study

Objectives of the Study

- To study the personal profile of the respondents.
- To access the level of Artificial Intelligence to artificial intelligence to reduce parental burnout during children's homework supervision.
- To discover the association between personal profile and artificial intelligence to reduce parental burnout during children's homework supervision.
- To assess the difference between personal profile and artificial intelligence to reduce parental burnout during children's homework supervision.
- To study the influence of artificial intelligence to reduce parental burnout during children's homework supervision.

Research Design: The present study is descriptive in nature, aiming to examine and describe the personal profiles of parents and their perspectives on the artificial intelligence to reduce parental burnout during children's homework supervision.

Universe of the Study: The universe of the study comprises private schools in Coimbatore District**.** From this population, the researcher selected a total of 100 parents to constitute the study sample.

Sampling: A non-probability sampling method was adopted for the study. Specifically, purposive random sampling was engaged to identify and select respondents who met the criteria relevant to the study objectives. Using this method, 100 parents from private schools in Coimbatore were selected as the sample for data collection.

Tools for Data Collection: Data were collected using a self-structured questionnaire designed to assess the artificial intelligence to reduce parental burnout during children's homework supervision**.**

Data Analysis: The collected data were analyzed using various statistical tools, including simple percentage analysis**,** independent t-test and ANOVA**,** to interpret the findings and derive meaningful conclusions regarding the artificial intelligence to reduce parental burnout during children's homework supervision.

Finds of the Study

Factors	MEDIUM	FREQUENCY	PERCENT
Age	25yrs-35yrs	74	74%
Gender	Female	70	70%
Children standard	5^{th} -8^{th}	65	65%
No. of Dependents	1-2	67	67%
Locality	Semi urban	78	78%
Socio Economic Background	Upper –middle	66	66%
Mothers Educational Qualification	UG	64	64%
Occupation	Private employee	67	67%
Monthly Income (in Rs.)	Rs.25000- Rs.35000	63	63%
Children Hobbies	Drawing and playing	67	67%

Simple Percentage Analysis

- Majority (74%) of the respondents is in the age group between 25-35 years.
- Majority (70%) of the respondents have female.
- Majority (66%) of the respondents have children standard 5^{th} -8^{th}.
- Nearly (67%) of the respondents have numbers of dependents of 1-2.
- More than (78%) of the respondents have locality of semi urban.
- Majority (66%) of the respondents have socio economic background of upper middle.
- Majority (64%) of the respondents have UG of mother's educational qualification.
- Majority (67%) of the respondents have occupation of private employee.
- Majority (63%) of the respondents have monthly income of Rs.25000-Rs.35000.
- Majority (67%) of the respondents have drawing and playing of children hobbies.

DISTRIBUTION OF THE RESPONDENTS BY LEVEL OF ARTIFICIAL INTELLIGENCE TO REDUCE PARENTAL BURNOUT DURING CHILDREN'S HOMEWORK SUPERVISION

S. No	Artificial Intelligence to Reduce Parental Burnout during Children's Homework Supervision	Number of Respondents	Percentage %
1	Good	45	45
2	Moderate	35	35
3	Poor	20	20
TOTAL		**100**	**100**

INTERPRETATION

The above table highlights the artificial intelligence to reduce parental burnout during children's homework supervision level of the respondents. It is understood from the above table that 45 percent of the respondents have good level of artificial intelligence to reduce parental burnout during children's homework supervision, 35 percent of the respondents have moderate level of artificial intelligence to reduce parental burnout during children's homework supervision and 20 percent of the respondents have a poor level of artificial intelligence to reduce parental burnout during children's homework supervision.

Influence of personal profile and Level of Artificial Intelligence to Reduce Parental Burnout during Children's Homework Supervision

Variables	Statistical tool	Value	Result
Age and Artificial intelligence to reduce parental burnout during children's homework supervision	Chi-Square	4.305(a) (P=.000 < .006)	Significant
Gender and Artificial intelligence to reduce parental burnout during children's homework supervision	Chi-Square	2.764 (a) (P=.000 > .306)	Not Significant
Children standard and Artificial intelligence to reduce parental burnout during children's homework supervision	t-test	t=7.525 P = .000< 0.05	Significant
No. of Dependents and Artificial intelligence to reduce parental burnout during children's homework supervision	t-test	t=3.105 P = .001< 0.05	Significant
Locality and Artificial intelligence to reduce parental burnout during children's homework supervision	t-test	t=7.225 P = .005< 0.05	Significant
Socio Economic Background and Artificial intelligence to reduce parental burnout during children's homework supervision	ANOVA	F=6.125 P = .010< 0.05	Significant
Mothers Educational Qualification and Artificial intelligence to reduce parental burnout during children's homework supervision	ANOVA	F= .446 P = .215> 0.05	Not-Significant
Occupation and Artificial intelligence to reduce parental burnout during children's homework supervision	ANOVA	F=6.275 P = .002< 0.05	Significant
Monthly Income (in Rs.) and Artificial intelligence to reduce parental burnout during children's homework supervision	ANOVA	F= .306 P = .214> 0.05	Not-Significant
children hobbies and Artificial intelligence to reduce parental burnout during children's homework supervision	ANOVA	F= 7.172 P = .000< 0.05	Significant

- There is a significant association between Age and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is a no significant association between gender and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is significant difference in the Children standard and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is significant difference in the number of dependents and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is significant difference in the locality and the level of artificial intelligence to reduce parental burnout during children's homework supervision.

- There is significant difference in the socio economic background and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is no significant difference in the education and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is significant no difference in the occupation and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is no significant difference in the monthly income and the level of artificial intelligence to reduce parental burnout during children's homework supervision.
- There is significant no difference in the children hobbies and the level of artificial intelligence to reduce parental burnout during children's homework supervision.

Recommendations

- Schools and educational institutions should organize awareness programs and workshops to familiarize parents with the benefits and safe use of AI-assisted homework tools.
- Schools in Coimbatore District should integrate AI-powered learning applications such as adaptive tutors and homework support systems to help students learn independently, reducing parents' supervision pressure.
- Training sessions should be conducted to enhance parents' digital literacy, ensuring they can effectively monitor and guide their children's use of AI tools without stress.
- Parents and teachers should promote balanced AI usage using it as a support tool rather than complete dependency to maintain children's creativity and problem-solving skills.
- Developers should design AI homework applications in regional languages and aligned with Indian school curricula to make them accessible and user-friendly for parents and students in Coimbatore.
- Schools should create online platforms where teachers, parents and students can interact, share feedback and receive AI-assisted updates on homework progress, reducing miscommunication and stress.
- Introducing basic AI concepts in school curricula can help students use these technologies responsibly, minimizing over-reliance and indirectly reducing parental frustration.
- Counseling sessions and parent support groups should be established to help parents manage stress, emotional fatigue and digital parenting challenges associated with AI learning.
- Developers and educators must prioritize data privacy, child safety and ethical AI usage policies to ensure technology benefits families without causing psychological or social harm.
- Future studies should examine the long-term effects of AI-based homework systems on family relationships, parental mental health and children's independent learning behaviors across different regions.

CONCLUSION

The present study highlights the growing importance of technology in supporting both education and family well-being. The study revealed that Artificial Intelligence (AI) has emerged as a valuable tool in easing the psychological and emotional strain experienced by parents while assisting their children with homework. By providing personalized learning support, real-time feedback and automated guidance, AI-based educational platforms help children learn independently and reduce the extent of parental involvement required in daily homework supervision. Findings from the study indicate that parents who adopted AI-assisted learning tools experienced reduced stress, improved time management and greater satisfaction with their children's academic progress. Furthermore, the availability of AI-enabled applications such as digital tutors and homework trackers has contributed to creating a more harmonious home learning environment by minimizing conflicts related to academic pressure. However, the study also acknowledges the need for balanced and responsible use of AI. Over-dependence on technology may reduce human interaction and limit children's creative problem-solving abilities if not monitored carefully. Therefore, parental guidance, digital literacy and ethical AI use are essential to maximize the positive benefits of these tools.

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