

Impact of Power Looms Noise on Cognitive Development of School Going Children under Age 10 Years in Faisalabad City

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Abstract

Mind is main part of the body. Our body is totally consisting on mind's working. The pinpoint of this study cognitive development is also related to mind. A healthy mind grows in a healthy environment. Any disturbance in environment can delay the mental development. Noise is the main factor in environment which plays an adverse role in delaying Cognitive development and cause many problems related to mind. This research "Impact of power looms Noise on cognitive development of school going children under age (10 years) in Faisalabad city" related to human development which deals with social sciences. This study is totally based on urban areas of Faisalabad city. Purposive sampling is chosen because those residential areas are required where power looms are existed and schools where power looms' noise is listened. Quantitative data is collected with the help of Interview Schedule. The data is analyzed by using computer software - Statistical Package for Social Sciences (SPSS). A large proportion of the respondents 100 percent reported that they were well aware about the term of power loom noise and the type and source of noise in class. Some variables showed strong associations i.e. 53.3 percent respondents did not paid complete attention on the lesson, in chi-square test the significant level was 0.583 and 50.0 percent respondents did not understand the lesson teaching by teacher in class due to power loom noise, in chi-square test the significant level was 0.348. In classroom 78.3 Percent respondents did not actively responded during the lesson of teacher, in chi-square test the significant level was 0.855. In school 51.7 percent respondents were attending the school irregularly; the chi-square the significant level was 0.828. Analysis indicated that in chi-square test there was a difference in chi-square value and significant level which showed the less cognitive abilities of respondents. Often 78.3 percent respondents narrated the daily lesson to teacher. 50.0 percent respondents felt angry in class room. 51.7 percent respondents quarreled with friends and they did not share the things with friends. 56.7percent respondents did not felt satisfied at school. Only 36.7 percent respondents thought that school discipline was a useful tool to acquire academic knowledge. Rate of giving answer to question of teacher after few seconds 63.3 percent , punishment in class 81.7 percent answering some time, type of problem due to high level of noise 75.0 percent answering headache, 76.7 percent answering that they remain worried to go back home hurry in school time, result depicted strong significant with majority of the selected variables. 63.3 percent respondents gave suggestions to control the noise that replace the power looms from the locality. Secondary data which was collected from the examination grades of school also showed that noise effects on the cognitive development of children, they had low grade C and D and below 50% marks.

1. INTRODUCTION

In the beginning people were not aware of noise pollution that the last stage is to become deaf .It is a very big problem. It affects on human and animal life. The types of noise pollution are cars passing by, airplanes, traffic, horns, sirens, alarms, loud people, children playing, barking dogs, building constructions, factories, industries etc. Noise causes hearing loss. Machinery should be used to decrease the noise and government should make some rules and laws to control noise which protect children from noise pollution. Children in school should be educated about the causes and consequences of the noise pollution (Blogger 2011).

Noise is the disturbance of discarded, out of control, changeable sounds and not essential noise into life of humans or individuals. The industrial revolution, the growth of cities and increasing transportation made the world noisier. The modern world is full of noise-producing and noise related technology like automobiles, air craft's, helicopter, motorcycles, snowmobiles, jet skis, leaf blowers, amplified music and bass-driven cars. The level of noise is increasing rapidly, which effect the life of people. Noise is hazard for the good mental and physical development. The office lost most of its financial support. States and cities were no longer supported in their efforts to decrease noise and the Office of Noise Abatement and Control (ONAC) had not published materials to educate the people about effects of noise. Its effects relate to hearing, the vegetative nervous system, the mental development, the language development, sleep and academic performance (Amended by WMA 2007 a).

Noise work like as stressor and increased load on the body leads to higher energy expenditure. It causes cardiovascular diseases which create hypertension, myocardial infection, angina pectoris or even apoplexy. The effects in the psychological field are likewise dramatic. The stress caused by environmental noise specially road traffic noise. It is a central concern not only in the industrial nations but also increasingly in the developing countries. Then U.S government approved legislation recognizing the danger growth of noise

pollution. It empowered the Office of Noise Abatement and Control (ONAC) within the Environmental Protection Agency (EPA) to reduce noise levels. The Federal government has accepted legislation to reduce noise in national parks for example prohibition snowmobiles. States and cities are on their own in controlling noise. Some cities are more successful than others. Traffic noise especially aircraft noise is the major cause of irritation which calls for better federal rule within the United States. By compare the European Union is finalizing a Noise Instruction that will require member states to make noise maps and increase action plans to reduce noise levels. Noise from snowmobiles, jet skis and supersonic jets has also included in the environment which affects animals' abilities to communicate, defend their young and companion. Worldwide, anti-noise groups believe that their governments are doing less work to reduce the noise pollution. The groups from the United States, Europe, Canada, Australia, Africa and Asia are connected together to educate both the public and government about the long-lasting dangers of noise pollution, influence of lower decibel (dB) level sounds. There should be a quiet and healthy environment around world. Sound up to 85 dB, for long time, causes permanent damage (Amended by WMA 2007 b). The people who do not like noise take action to avoid noise by moving away from noisy place. Noise affects the health; people should make actions to save from noise. This is the reason it has become a social aspect that children run away from the school and society lose a responsible citizen. As a sensitive and caring citizen it is necessary to chose this topic for research and try to get the data that how the student study in those school which are near power looms are effected from noise of power looms.

2. Objectives

To conduct an exploratory study on the impact of power looms noise on cognitive development of school going children under age (10) years and to prevent children from the power looms noise.

1. To investigate the sources of power looms noise.
2. To evaluate the effects of power looms noise on children.
3. To discover the effects of power looms noise on cognitive development of children.
4. To identify the effects of power looms noise on learning development of Children
5. To suggest some measures for the prevention of noise pollution effecting mental development of school age children.

3. REVIEW OF LITERATURE

Larrain, Maxwell and Evans (1993) pointed out that the effects of noise on children are mostly negative. Blood pressure in school going children is high due to school near to noisy area, which affects the physiological activities in children. Un-controlled noise makes the children weak to learn. They show less playing behavior. It also affects memory, concentration, perception and academic success. Language skills are related to reading skills and the noise effects to both. Pressure of noise is harmful in various ages of children, especially when language and skills are forming

Bhone and Hardind (1999), stated that the pattern of cell loss due to excessive contact to noise, damage the parts of ear i.e. apical; and basal halves of the cochlea and affect the function of hearing. Excess noise for 2 days produce hair-cell destroy which consists of several focal losses of outer hair cell, out phase, inner phase and inner hair cell of the cochlea.

Clark and Bhone (1999) presented that Noise-induced hearing loss is often un-noticed till destruction in the inner ear is occurred. Much is known about the harmful effects of noise. More efforts have been made to reduce the noises to prevent hearing in noisy environments. The people can be educated on the importance of preserving hearing in old age. Specialist Doctors (ENT) can help individuals on the importance of preserving hearing in the later life. The steps can be taken to prevent NIHL.

Shiedd and Dockrell (2003) Class room noise effects on learning of children. Learning requires greater listening effort and noise effects on listening. Children play different tasks in a day while noise badly effects on their ability to achieve tasks, cognitive development, speech, performance and spoken lesson.

Haines, Brentnall, Stansfeld and Llineberg (2003) wrote that the noise pollution is affected on quality of life and everyday activities, such as school work, homework and playing. The noise is affected the children in many ways. Children hear many types of noise in their environment, such as noise made by people for example, screaming and crying, the noise from animals and road traffic. The children expressed many emotions which are associated with the Negative emotions and positive emotions. "Annoyed" is the emotion followed by "happy" and "sad". Negative emotions are associated with traffic noise, industrial noise, sirens, alarms and nails on a blackboard. Positive emotions are linked to natural sounds such as the wind and household noises such as washing up, fans and the television.

Caric and Cudina (2001) said that manufacturing interventions included replacing windows, changing the traffic rules in the local area, smoothing traffic and insulting the gymnasium and the dining hall. Managerial intervention includes changing the school schedule, relocating the class rooms and reducing open-plan class rooms. Extra intervention included using table cloths and salience plates in the cafeteria, playing classic music

for back ground sound in various areas of the schools and installing velvet curtains. All these intervention reduces noises, but actual noise measures were not reported. Children complained about the schools, and performance and annual schools test improved by 10% after intervention.

Ernst (2011) told that children who come from highly noisy areas like weaving looms/textile factory etc can experience delayed language skills and anxiety. Theodore Wachs has studied environmental influences on early age development and suggested to make a questionnaire for help of parents to measure the level of "noise confusion" in their children. Waches says children need some quiet space at home. Otherwise they are more likely to have trouble adjusting to changing environments including school, socialization opportunities, and even ordinary outings to restaurants or religious services. The effects of noise can vary with the temperament and sex of a child. Those who have the most trouble are boys. The location of the family home can also have an effect on the children, poorer reading skills than those in quieter areas, according to findings of the New Scientist. Researchers at Cornell University in Ithaca, New York, suggest this is because children raised in noisy environments find it harder to recognize and understand human speech, reading etc. Chronic exposure to noise has been shown to be harmful to children of all ages.

Julia (2011) stated that noise pollution comes from variety of sources include traffic, airports, industries, factories and highly populated urban areas. Noise affects the sleep, eating behavior, mod argument and body role like respiration and heart rates. Humans are not able to sleep due to noise and performance in all parts of life noise affects health adversely. Loud noise causes stress and increasing the rate of respiration and heart.

4. Methodology

In social research, methodological techniques and ways of analysis plays an important role. The various tools and techniques used in the collection and- analysis of data for the present research is given in this chapter.

Universe

The totality and supposed humans, things or objects, the space, the outer space, the whole world is called universe.

This study will be conducted basically in urban area of Faisalabad city. Purposively three areas Mansoorabad, Farooqabad and Samanabad where power looms are present near the schools and five schools Ghazali Public school, Ijaz public school, Al-Mustafa Grammar high school, Cambridge foundation school, Bibi Amina school of Education are selected which are near the power looms.

Sample

It is difficult for Researcher to study the whole population, so they too k part of it, which present the whole population. Limited number or selected humans, things or objects from a population on a systematic or random basis is called sample. A sample is a portion, piece, or segment which t is represented to a whole population. Purposive sampling technique is chosen because those residential areas are required where power looms are existed and schools where power looms' noise is listened. The sample size is 60 respondents from 5 schools, 3 respondents from each class.

Interview Schedule

Questionnaire schedule is considered as a suitable tool to get the required information. The questionnaire schedule is in English language which is solved by the respondents. The Questionnaire schedule consisted on systemic sequence in accordance with the nature and importance of the questions. Quantitative data is collected with the help of well-structure Interview Schedule.

5. RESULT

This chapter deals with the analysis and interpretation of data. These are the most important step in search. Without these steps the Generalization and predictions cannot be made; which is the primary objective of the scientific research. Conclusions are drawn on the basis of the characteristics and attitudes of the respondents. The pinpoint of this study cognitive development is also related to mind. A healthy mind grows in a healthy environment. Any disturbance in environment can delay the mental development. Noise is the main factor in environment which plays an adverse role in delaying Cognitive development and cause many problems related to mind. This research "Impact of power looms Noise on cognitive development of school going children under age (10 years) in Faisalabad city" related to human development which deals with social sciences.

Table 6- Distribution of respondents according to give complete attention on the lesson teach by teacher.

Table 1- distribution of respondents according to know about noise.

	Level 1	Level 2	Level 3	Level 4	f	%
Yes	15	15	15	15	60.0	100.0
No	0	0	0	0	0	0
Don't know	0	0	0	0	0	0

Table 1 Shows result of: Distribution of respondents according to know about noise all levels of respondents 100 Know about noise.

Table-2 Distribution of respondents according to is there any type of noise in class.

	Level 1	Level 2	Level 3	Level 4	f	%
Yes	15	15	15	15	60.0	100.0
No	0	0	0	0	0	0
Don't know	0	0	0	0	0	0

Table 2 Shows result of: Distribution of respondents according to is there any type of noise in class, all levels of respondent 100 yes that there is type of noise in class.

Table 3- Distribution of respondent according to major source of noise in class.

	Level 1	Level 2	Level 3	Level 4	f	%
Children's noise	0	0	0	0	0	0
Teacher's noise	0	0	0	0	0	0
No noise	0	0	0	0	0	0
Power looms' noise.	15	15	15	15	60.0	100.0

Table 3 Shows result of: Distribution of respondent according to major source of noise in class all level of respondent 100.0 percent answering power loom's noise.

Table 4- Distribution of respondents according to distance between students and teacher is during the lecture.

	Level 1	Level 2	Level 3	Level 4	f	%
Less than 1 m	0	0	0	0	0	0
1 -2 m	15	9	8	4	36	60.0
2 -3 m	0	4	5	8	17	28.3
3 - 4 m	0	2	2	3	7	11.7
More than 4 m	0	0	0	0	0	0
Total	15	15	15	15	60	100.0

Table 4 Shows result of: Distribution of respondents according to distance, 60.0 percent there is 1-2 meter between students and teacher during the lecture.

Table 5- Distribution of respondents according to hear the clear voice of teacher in the class room.

	Level 1	Level 2	Level 3	Level 4	f	%
Yes	15	15	15	15	60.0	100.0
No	0	0	0	0	0	0
Don't know	0	0	0	0	0	0
Total	15	15	15	15	60.0	100.0

Table 5 Shows result of: Distribution of respondents according to hear the clear voice of teacher in class room. All levels of respondents 100 percent hear the clear voice of teacher.

Table 6- Distribution of respondents according to give complete attention on the lesson teach by teacher.

	Level 1	Level 2	Level 3	Level 4	f	%
Yes	1	3	2	3	9	15.0
No	9	8	7	8	32	53.3
Often	2	2	3	2	9	15.0
Some times	3	2	3	2	10	16.7
Total	15	15	15	15	60	100.0

Table 6 Shows result of: Distribution of respondents according to give complete attention on the lesson teach by teacher 53.3 percent do not give complete at tension on lesson.

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	38.438			
Final	36.489	1.950	3	.583

Link function: Logit.

Table 6 Chi-Square result is 1.950

Table 7- Distribution of respondents according to understand the lesson of teacher in class.

	Level 1	Level 2	Level 3	Level 4	f	%
Yes	0	3	2	4	9	15.0
No	8	7	8	7	30	50.0
Often	3	2	2	2	9	15.0
Some times	4	3	3	2	12	20.0
Total	15	15	15	15	60	100.0

Table 7 shows result of: Distribution of respondents according to understand the lesson of teacher in class 50.0 percent do not understand the lesson of teacher.

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	35.814			
Final	32.515	3.299	3	.348

Link function: Logit.

Table 7 Chi-Square result is 3.299

Table 8- Distribution of respondents according to actively respond during the lesson of teacher.

	Level 1	Level 2	Level 3	Level 4	f	%
Yes	2	2	3	3	10	16.7
No	13	12	10	12	47	78.3
Often	0	1	2	0	3	5.0
Some times	0	0	0	0	0	0
Total	15	15	15	15	60	100.0

Table 8 Shows result of: Distribution of respondents according to narrate the lesson to teacher daily 78.3 percent do not actively respond in class.

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	20.158			
Final	19.381	.777	3	.855

Link function: Logit.

Table 8 Chi-Square result is .777

Table 9 - Distribution of respondents according to attend the school.

	Level 1	Level 2	Level 3	Level 4	f	%
Regular	6	7	6	7	26	43.3
Irregular	7	8	8	8	31	51.7
Often absent	2	0	1	0	3	5.0
Any other	0	0	0	0	0	0
Total	15	15	15	15	60	100.0

Table 9 Shows result of: Distribution of respondents according to attend the school 51.7 percent attend the school irregularly.

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	21.689			
Final	20.801	.888	3	.828

Table 9 Chi-Square result is .888.

6. DISCUSION

Now-a-day every person even every child know about the world “noise”. According to research about “Impact of power looms noise on cognitive development of children on school going children” under age 10 years. 100 percent children know about noise. Children are affected by noise in school and in also class. 100 percent respondents know about type of noise in class. 83.3 percent respondents answering yes that major source of noise in class is power looms noise.

Noise effects on the cognitive and learning development of children. 53.3 percent respondents answering that they do not give complete attention on the lesson teach by teacher. 50.0 percent respondents answering that they do not understand the lesson of teacher in class. 63.3 Percent respondents answering that after few seconds they give answer to the question of teacher. Often 78.3 percent respondents answering that they narrate the lesson to teacher. Some times 81.7 percent respondents punish in the class room some times. 51.7 percent respondents attend the school irregularly.

There are 50.0 percent respondents who feel angry in class room. 51.7 percent respondents quarrel with friends and they do not share the things with friends. 56.7 percent respondents answering that they do not feel satisfy at school. Only 36.7 percent respondents answering that they think school discipline is a useful tool to acquire academic knowledge. Secondary which is collected from the examination grades of school also show that noise effects on the cognitive development of children, they have low grade C and D and below 50% marks.

Through questionnaire schedule 50.0 percent respondents answering those problems are creating by noise in school. 75.0 percent respondents answering that the type of problem they have due to high level of noise is headache. 60.0 percent respondents feel difficulty in doing class work at school.

In school 76.7 percent respondents answering that they are disturb by power looms noise. 86.7 percent respondents answering that they feel fatigue after doing class work in the class room. 76.7 percent respondents answering that they remain worry to go back home hurry in school time. 100 percent respondents answering that they feel tired and exhausted after work at school. 80.0 percent respondents answering that they feel tired and exhausted after work at school.

The environment at the home 63.3 percent respondents answering that the environment is normal. 31.7 percent respondents answering that type of noise present in home is children’s noise 71.7 percent respondents answering that their house is not specially insulated against noises from outside. 46.0 percent respondents answering that they feel difficulty in doing homework at home. 88.3 percent respondents the distance between home to power looms is more than 40 meter. 31.7 percent respondents their sleep disturbed by noise sometimes.

All the respondents 100 percent hear the clear voice of teacher respondents. 60.0 percent respondents answering, that there is a 1-2m distance between students and teacher is during the lecture in class room. 40 percent respondents there is 10-20 meter distance between powers looms and school. 76.7 percent respondents answering that they come to school happily. 100 percent respondents spend 5 hours at school. The environment in the school is 100 percent noisy. 100 percent respondents, the environment outside the school is noisy. 100 percent respondents, the type of noise outside the school is power looms.

Timing of sleeping and waking is different of every respondents. 46.7 percent respondents go to sleep on working days 10 O’ clock -11 O clocks. 100 percent respondents usually wake up on working days before 8 O’ clock. 46.7 percent respondents usually go to sleep on weekends 10 o’clock-11 o’clock. 45.0 percent respondents usually wake up on weekends 9 o’clock-10 o’clock.

The main timing of power looms noise 95.0 percent respondents answering that every time in school. 63.3 percent respondents give suggestions to control the noise that replace the power looms from the locality.

7. CONCLUSION

Voices are life but it becomes poison for life, when it increases to its limits. Today noise is a global problem and every country is trying to reduce noise. The basic research is to collect the data of the children's growth effected by the power looms. Result presents that power looms noise effects the cognitive development of school going children. According to the requirement of research only one type of noise "power looms noise" selected and also one type of development "cognitive development" is selected. Otherwise there are many types of noise which children suffer daily. Noise badly effects the whole development of children. Pakistan is developing country; it does not have sufficient resources which can be used for the development of people and for the reduction of noise. As now-a-days Pakistan facing the serious problem of load shedding and the demand of generator is increasing among the people. Generator creates large voice, so it is source of noise. Children affect by the noise of generator daily and their development delay. The children of today are the future of tomorrow. It is very necessary to save the children from noise, so that they could become responsible citizens in a healthy society. For a healthy society, it is necessary to control the noise in society and create healthy environment for children's better growth and development because a healthy mind develops in a healthy environment.

8. SUGGESTIONS AND RECOMMENDATIONS

The noise is an environmental factor which affects the development of the children. For the good cognitive growth and development of children, it is necessary to follow the following suggestions.

1. Class room should be sound proof where they located very near to power looms.
2. Doors and windows should have curtains.
3. The roofs should have ceiling.
4. Such material should be used in class rooms which absorb noise as a wall panels, educational material like furniture, paintings, charts etc.
5. There should be trees in school because trees absorb noise and create healthy environment.
6. Students should give awareness about the impact of noise on their development, so that they could made efforts to reduce noise in School.
7. Power looms should be outside the residential areas, especially near the schools.
8. While opening the new school, the impact of noise on mental development should be kept in view by owner.
9. School should be made by proper planning, to follow the city map, so that schools should not make near the power looms and noisy areas.
10. Government should make policies to establish new schools away from the power looms.
11. Government should not allow to pen new schools near power loom and make a solid policy.

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