

Research Paper

School Climate and Temperament as Predictors of Cognitive Development of Preschool Children

Gobind^{1*}, Manju²

ABSTRACT

The purpose of this study is to investigate the influence of school climate and temperament on the cognitive development of preschool children. School climate plays an important role in children's life. School climate refers to the quality of school life. It is directly related to better mental health, better academic performance and less bullying. Teachers may be strongly involved in the growth of their students by helping them gain understanding through creative thoughts, ideas and spending time learning with them. A positive school climate helps children feel socially, emotionally and physically safe in schools. Temperament is referred as distinct patterns in behavior, mainly an aspect which is concerned with emotions very deeply. As we are dealing with preschool children understanding their temperament is a very complex task, as they yet have not become a completely developed individuals. The present study was carried out to examine the relationship between school climate, temperament and cognitive development of 50 boys and 50 girls in the age range of 4 to 6 years from Haryana, India. The result shows that school climate and temperament are positively and significantly correlated with cognitive development and result of stepwise regression revealed that social climate (sub dimension of school climate) and effortful control (sub dimension of temperament) turned out as potent predictors of cognitive development. Both contribute 29.3% in cognitive development of preschool children.

Keywords: School Climate, Temperament, children, development

School climate

School climate is defined as the attitudes and feelings that are evoked by the school environment. However, a description of the school environment is difficult to provide, numerous researchers agree that it is a multi-dimensional concept that includes three different aspects such as academic, physical, and social.

A significant amount of research indicates that academic motivation and performance are influenced by student perception of the school environment. Research increasingly shows that the view of the school environment often impacts the emotional and behavioral issues of adolescents. Acting-out activities such as lying, violence, and fraud are problematic

¹Research Scholar, Department of Applied Psychology, Guru Jambheshwar University of Science & Technology, Hisar, Haryana, India

²Professor, Department of Applied Psychology, Guru Jambheshwar University of Science & Technology, Hisar, Haryana, India

*Corresponding Author

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behaviors. Emotional disorders are more difficult to define due to their internal existence than behavioral problems, which appear to be measurable.

Michael Rutter (1985) Conducted a research to see the facilities the schools are providing and their impact on academic achievement. The main findings of this study showed that a multiplicity of school qualities are very important. Firstly, children's educational performance leads to be enhanced in schools through a clear focus on educational goals. Secondly, some qualities were design to promote competent learning through good quality classroom management, understandable and unambiguous responses to pupils on their academic performance, least disciplinary disruption, and effectual classroom teaching techniques. Thirdly, there are school performances that might be thought to function in terms of aiding high self-esteem, like encouragement and praise, good quality pupil's conditions, good behavior of a teacher; and good concern for the school buildings. Fourthly, some qualities provide to set norms in school, like a sufficient intellectual sense of balance in the work of the intake and expectations of a teacher to the pupils. At last, some actions might be framed in requisites of their effect in nurturing pupils' pledge to academic goals.

A safe environment in school actively encourages healthy development and student achievement (Devine & Cohen, 2007). Numerous researches have shown that students do not feel emotionally and physically secure, primarily as a result of breakdowns in the psychological and contextual variables affect the environment of a school. Students are more likely to experience abuse, peer victims, punitive disciplinary behavior in schools lacking positive norms, relationships, and frameworks often followed by elevated levels of decreased academic achievement and absenteeism. (Astor, Guerra, & Van Acker, 2010).

Temperament

If you're a parent or have spent time with kids, you probably already know a little bit about temperament. Kids' temperaments are visible from birth. Although personality combines temperament and experiences to develop lifelong qualities, it is frequently thought to be an early indication of personality.

Temperament focuses on the individual differences between individuals relying on genetics. Temperament is “a relatively enduring biological makeup, influenced over time by heredity, maturation, and experience” (Rothbart et al. 2001). According to the Encyclopedia of Human Emotions (1999), “temperament refers to one’s disposition towards experiencing and expressing emotions, as well as one’s general level of activity and attentional control of emotions and actions”. Temperament is generally considered to refer to the child’s behavioral style and is viewed as a constitutionally based and relatively stable attribute. Lindgren (1962) defined the “temperament as general emotional, responsiveness of individual”. Hillgard and Atkinson (1952) defined the “temperament as the aspect of personality revealed in the tendency to experience mood changes in characteristic ways”.

When Personality develops, Temperament is the initial stage that connects the underlying neural networks to individual differences in behavior. (Rothbart 2007) “Temperament and personality” have traditionally been examined as different sets of individual variations with temperament consisting of more tightly defined consistencies occurring earlier in life and personality consisting of a wider variety o consistencies arising later in life Therefore, Temperament and personality traits can be comprehensive types of fundamental behavioral systems that exist through organisms. These characteristics represent individual differences

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in biological systems chosen by evolution and influenced by the life experiences of individuals. (Nettle, 2006).

In the early years of life, emotional and cognitive growth were studied and it was found that because of its attentional and regulatory activities, the construct of temperament was used to unify cognition and emotions. The findings reveal the connections between infant temperament and early childhood working memory output were mediated by temperament in early childhood. Wolfe, C. D., & Bell, M. A. (2007)

According to Rothbart and colleagues, temperament may be divided into four factors called Effortful Control (EC), Surgency (S), Negative Affectivity (NA), and Affiliativeness (AF). Effortful Control (EC) comprises attention, inhibitory control, and activation control. Surgency (S) loads positively on sensation-seeking or high-intensity pleasure, shyness, and fear. Negative Affect (NA) stands for frustration, depressive mood, and aggression. Affiliativeness (AF) explains the positive emotionality or affiliation, pleasure sensitivity, and perceptual sensitivity.

Cognitive Development

Cognitive development is a unique process and is specific to each child. Early cognitive development is associated with the development of memory, language, planning, and problem solving. The term cognitive development refers to the complex process of growth and change in intellectual or mental abilities such as thinking, reasoning and understanding. According to Dodge, Colker and Heroman (2002), "Cognitive development refers to the mind and how it work". Cognitive abilities are the function of the brain and develop with age. As the brain matures more and more abilities develop, not only in number but also in quality. The infant initially can only take in the information but gradually he develops the ability to process this information and use it for his benefit.

Rutter, 1981 examined industrialized nations and developing nations and found that the experience of education (school) is connected with higher cognitive development. Therefore, in many countries where education (schooling) is accessible cognitive skills are greater.

Moller, J. S. (1983) investigated the relationship between temperament and development in preschool children. The results show that a significant correlation was found between cognitive verbal and motor development and temperament.

Objective

- To study the relationship between school climate and cognitive development.
- To study the relationship between temperament and cognitive development.
- To find out the predictors of cognitive development of preschool children's.

Hypothesis

- There would be positive relationship between school climate and cognitive development.
- There would be positive relationship between temperament and cognitive development.
- School climate and temperament would emerge as significant predictors of cognitive development.

METHODOLOGY

Sample

The proposed study was conducted on a sample of 100 children of 4 to 6 years. Out of 100, 50 were boys and 50 were girls.

Tools

After selecting the sample to meet the study's objectives, the following tests were administered with the selected sample.

1. School climate scale developed by Beth E. Schueler, et al., was used which measures parental perception. The scale consists of two sub-dimensions these are social climate and academic climate. The test applies to parents of preschool children.
2. To measure respondents' temperament, a children's behavior questionnaire test was used. It was developed and standardized by Beth E. Schueler & Mary K. Rothbart. The scale consists of three subtests these are surgency, negative affect, and effortful control. The test applies to parents of 3 to 6-year-old children.
3. To measure respondents' cognitive development, Pandey's Cognitive Development Test was used. It was developed and standardized by Dr. Hema Pandey. The scale consists of six subtests these are Conceptual skills, Information, Comprehension, Visual perception, Memory, and Object vocabulary. The test applies to the age group of 3+ years old children.

RESULTS

The present study aimed to examine the relationship between school climate, temperament and cognitive development and to find out the predictors of cognitive development among children.

After the data collection, the findings were interpreted using the relevant statistical methods (Pearson Correlation and Regression Analysis).

Correlational analysis

The table 1 shows the correlation between school climate and cognitive development. Social climate, the sub-dimension of school climate, is positively and significantly correlated with these sub-dimensions of cognitive development that is Conceptual skills (CS) ($r=.393$, $p<0.01$), Comprehension (CO) ($r=.229$, $p<0.05$), visual perception (VP) ($r=.530$, $p<0.01$), Memory (ME) ($r=.461$, $p<0.01$), Object vocabulary (OV) ($r=.250$, $p<0.05$) as well as the total score of cognitive development ($r=.502$, $p<0.01$). It means that social climate the sub-dimension of school climate is correlated positively with all sub-dimension of cognitive development as well as with composite score of cognitive development. It indicates that good social climate in school leads to better cognitive development in children.

Table 1: Inter-Correlation matrix between variables of school climate and cognitive development

Variables	SC	AC	CS	IF	CO	VP	ME	OV	total CD
SC	1	.382**	.393**	0.145	.229*	.530**	.415**	.250*	.502**
AC		1	.201*	0.102	0.196	.295**	0.13	.270**	.309**
CS			1	.361**	.585**	.505**	.462**	.435**	.757**
IF				1	.433**	.256*	.442**	.426**	.536**
CO					1	.362**	.456**	.548**	.703**
VP						1	.513**	.475**	.727**
ME							1	.405**	.731**
OV								1	.675**
total CD									1

$P<.05^*$, $p<.01^{**}$

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Academic climate the sub-dimension of school climate, is positively and significantly correlated with these sub-dimensions of cognitive development that is Conceptual skills (CS) ($r=.201$, $p<0.05$), visual perception (VP) ($r=.295$, $p<0.01$), Object vocabulary (OV) ($r=.270$, $p<0.01$) as well as the total score of cognitive development ($r=.309$, $p<0.01$). The rest of the dimensions of cognitive development are not significantly correlated with the sub-dimension of academic climate.

The table 2 shows the correlation between temperament and cognitive development. Surgency, the sub-dimension of temperament, is positively and significantly correlated with these sub-dimensions of cognitive development that is Conceptual skills (CS) ($r=.246$, $p<0.05$), Information (IF) ($r=.204$, $p<0.05$), Comprehension (CO) ($r=.237$, $p<0.05$), Memory ($r=.269$, $p<0.01$), as well as the total score of cognitive development ($r=.296$, $p<0.01$). The rest of the dimensions of cognitive development are not significantly correlated with the sub-dimension of surgency. It means that surgency sub dimension of temperament was found statistical positively significant correlated with information (IF) sub-dimension of cognitive development and total cognitive development. It indicates that surgency (loads positively on sensation-seeking or high-intensity pleasure) lead to better cognitive development in children.

Sarinana, A. A. (2016) investigated the preschoolers' cognitive development in relation to preschool education and learning environment. The results show that educational activities that preschool children receive as it positively related to their cognitive development.

Table 2: Inter-Correlation matrix between variables of temperament and cognitive development

Variables	Surgency	Negative Affect	Effortful Control	CS	IF	CO	VP	ME	OV	total CD
Surgency	1	-0.004	.214*	.246*	.204*	.237*	0.168	.269**	0.176	.296**
Negative Affect		1	0.099	-0.047	0.018	-0.023	-0.052	0.05	-0.043	0.009
Effortful Control			1	.242*	0.171	.270**	.258**	0.155	.286**	.302**
CS				1	.361**	.585**	.505**	.462**	.435**	.757**
IF					1	.433**	.256*	.442**	.426**	.536**
CO						1	.362**	.456**	.548**	.703**
VP							1	.513**	.475**	.727**
ME								1	.405**	.731**
OV									1	.675**
total CD										1

$P<.05$ *, $p<.01$ **

There are positive correlation among the negative Affect sub dimension of temperament and information (IF) ($r=.018$) memory (ME) ($r=.05$), sub-dimension of cognitive development and total score of cognitive development ($r=.009$) but the correlation coefficient are not statistically significant. Conceptual skills (CS) ($r=-.053$), Comprehension, (CO) ($r=-.032$), visual perception (VP) ($r=-.026$), Object vocabulary (OV) ($r=-.020$) sub-dimension of cognitive development are negatively correlated with negative affect the sub-dimension of temperament but again the correlation is not statistically significant.

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Effortful control, the sub-dimension of temperament, is positively and significantly correlated with these sub-dimensions of cognitive development that is Conceptual skills (CS) ($r=.242$, $p<0.01$), Comprehension (CO) ($r=.270$, $p<0.01$), visual perception (VP) ($r=.258$, $p<0.01$), Object vocabulary (OV) ($r=.286$, $p<0.01$) as well as the total score of cognitive development ($r=.302$, $p<0.01$). The rest of the dimensions of cognitive development are not significantly correlated with the sub-dimension of Effortful control.

Moller, J. S. (1983) investigated the relationship between temperament and development in preschool children. The results show that a significant correlation was found between cognitive verbal motor development and temperament.

Regression analysis

The last objective of the research was to determine the predictors of cognitive development. To fulfill that purpose, stepwise regression analysis was used for interpretation of the results. The regression analysis showed that social climate, the sub-dimension of school climate, emerged as a first predictor of cognitive development ($F= 33.036$, $p<0.01$) among children. The multiple R-value is (.502), and the R^2 value is (.252). It revealed that the social climate describes the 25.2% of variance in the cognitive development of children. According to the findings, the value of the regression coefficient is ($\beta=.459$, $p<0.01$). It revealed that social climate in schools contributes positively to the cognitive development of children.

Table 3: Regression analysis (stepwise) dependent variable: Cognitive development

Variables	R	R square	R square (Change)	β	F	Sig.
Social Climate	.502	.252	.252	.459	33.036	.000
Effortful Control	.542	.293	.041	.207	20.123	.000

The second predictor was effortful control, the sub-dimension of temperament ($F= 20.123$, $p<0.01$). The multiple R-value is (.542), and the R^2 value is (.293). It revealed that the effortful control describes the 4.1% of variance in the cognitive development of children. According to the findings, the value of the regression coefficient is ($\beta=.207$, $p<0.01$). It revealed that effortful control contributes positively to the cognitive development of children. Both the variables jointly 29.3% contribute in cognitive development.

CONCLUSION

The current study shows that the school climate and temperament play an important role in the overall development of child. In conclusion, both school climate and temperament significantly influence a child's overall development, impacting emotional, social, academic, and personal growth. A positive school climate, coupled with an understanding of individual temperamental traits, creates an environment conducive to holistic development and lifelong learning.

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Conflict of Interest

The author(s) declared no conflict of interest.

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