

Adolescents' Drawings about School and School Subjects: Perspectives of Youth from India Compared with Youth from Seven other Countries

Deborah A. Stiles, Alisha L. McElrath, Jane E. Lucas, Janaki Rajan, Garima Goel Gupta
School of Education, Webster University, U.S.A. Jamia Millia Islamia University, New Delhi

Most studies of student-teacher relations and student achievement in reading and mathematics focus on test results and the opinions of school leaders, educationalists, and other experts. This study sought to understand the perspectives of 471 young adolescents as revealed in their drawings and written comments. The drawings of 50 young adolescents from India were compared with matched samples from the U.S.A, Mexico, South Africa, Ghana, Switzerland, Iceland, and Singapore. When compared to the young adolescents from seven countries, the young adolescents in India expressed more negative views of school and school subjects and depicted their classroom experiences as more unfriendly, irrelevant, and unpleasant. Similar findings were reported in the 2009 Programme for International Student Assessment surveys. School psychology and educational psychology are the branches of applied psychology that can address the negative views of young adolescent students and help with school improvement in India.

Keywords: Adolescent's Drawing, Student achievement, classroom drawing, Reading draing, Drawing of Mathematics

After 15-year-old students from Tamil Nadu and Himachal Pradesh performed poorly on the PISA international tests, The Times of India included an opinion piece titled, "The PISA Shocker." In the article published October 9, 2012, Dev Lahiri explained, "India's poor performance in the Programme for International Student Assessment (PISA) tests (India ranked 71 out of 73 nations) sparked a raging controversy about the adequacy of our education system." According to the article, the reason for such poor performance had to do with the teaching of factual information and syllabus-focused content rather than 21st century skills to India's youth. Dev Lahiri described 21st century skills as "first and foremost, the ability to ask questions... Educationalists the world over are realising that those who will successfully negotiate the world of work in the new scenario will be independent thinkers and learners. The ability to research, reference, analyse and draw your own conclusions is the fulcrum of the new pedagogy" according to The Times of India article.

A scientific study of school stress in the International Journal of Behavioral Development suggests that India's teaching style of covering

the curricular material and teaching for tests may be left over from the days of colonial rule when schooling became removed from children's actual learning needs, and focused instead on preparing for examinations. The researchers observed, "Under British influence, education in India became textbook-oriented both for the teachers and students, demanding that students memorise class material for reproduction in examinations" (Verma, Sharma, & Larson, 2002, p. 500). Because the examinations drive India's education system, too often students learn how to regurgitate facts rather than engage in critical thinking and problem solving (Verma et al., 2002).

In trying to make sense of the disappointing PISA results, the Indian government consulted school leaders, educationalists, and other experts. Very few studies in India, however, have attempted to examine the young students' perspectives and student-teacher relations. The 2002 study by Verma and others investigated how 100 eighth-grade students in India spent their time in school-related activities. Verma and others (2002, p. 504) found that "schoolwork elicited below-average emotional

and motivational states in these adolescents. They reported significantly less positive affect states while doing schoolwork—they felt less happy, friendly, and cheerful than during other activities. They also reported below-average activation states—they felt less strong, relaxed, and excited than during other parts of their lives... Schoolwork was associated not just with less positive emotional states, but with much higher rates of negative states.”

More about students' perspectives was gained from the PISA (2009) study, which included student questionnaires in which the youth expressed their attitudes towards school. On some items, the students from Tamil Nadu, India had more negative views than those of students from other PISA countries. For instance, the PISA student questionnaire asked, “How much do you disagree or agree with each of the following statements about teachers at your school?” One statement was, “I get along well with most teachers.” In Tamil Nadu, 8.4% of students strongly disagreed that they get along well with their teachers; this percentage was higher than the international average of 3.7% strongly disagreeing. The PISA questionnaire also asked, “To what extent do you agree or disagree with the following statements?” One statement was, “School has done little to prepare me for adult life when I leave school.” In Tamil Nadu, 29.4% of students strongly agreed that school had done little preparing them for life; this percentage was considerably higher than the international average of 5.5% of students who strongly agreed with the statement.

Other studies have found that children from India drop out of school because they are discouraged by an inferior quality of education (Mukherjee & Das, 2008). According to Mukherjee & Das (2008, p. 306), “In fact, many schools serving the poor are of such abysmal quality, or chances of improved upward mobility for graduates are so slim, that the expected return is not equal to the sacrifice made”. The study of Indian student dropout rates by Mukherjee and Das revealed that, “among the school dropouts, roughly 25 percent were not in school because they were not interested. Among those employed in the child labour

market, particularly for urban boys, a large portion (=10%) was working not because they have to, but to acquire skills or spend time” (2008, p. 306).

Similar to the PISA test, the present study also involves international comparisons, but on a much, much smaller scale. The present study attempts to understand the experiences of 50 students from India and to compare their subjective experiences with matched samples of 50 – 58 students from seven other countries. To understand the perspectives of young adolescents, drawings and written comments were collected from 471 youth from the U.S.A., Mexico, South Africa, Ghana, Switzerland, Iceland, Singapore, and India. Students were asked to illustrate their views of school classrooms and school subjects. The drawing activities are engaging and fun; most adolescents enjoy the freedom and opportunities for self-expression they experience when creating their own drawings (Stiles and Gibbons, 2001).

Method

Participants:

The participants from India included of 50 young adolescents who all completed three instruments: 1. Classroom drawings and comments, 2. Mathematics drawings and comments, and 3. Reading drawings and comments. Samples were matched to be as similar as possible from each country in terms of number of participants, age, gender distribution, and socioeconomic status.

Participants for classroom drawings. For classroom drawings, the average age of participants from India was 12.72 years (SD = .67). The classroom drawings of the 50 young adolescent students from India were compared with the classroom drawings of 300 young adolescent students from the U.S.A., Mexico, South Africa, Switzerland, Iceland, and Singapore (mean age = 13.5, SD = .67).

Participants for mathematics drawings. The mathematics questionnaires of 50 young adolescents from India (mean age = 12.72, SD = .67) were compared with the questionnaires of

364 young adolescent students from the U.S.A., Mexico, South Africa, Ghana, Switzerland, Iceland, and Singapore (mean age = 13.40, SD = 1.02).

Participants for reading drawings. The reading questionnaires of 50 young adolescents from India (mean age = 12.72, SD = .67) were compared with those of adolescents from the U.S.A., Mexico, South Africa, Ghana, Switzerland, Iceland, and Singapore (mean age = 13.39, SD = 1.02)

Materials:

The materials included three instruments: classroom drawings and comments, mathematics drawings and comments, and reading drawings and comments. The illustrations of classrooms captured the general thoughts of the students while at school and students also wrote comments about class activities. The renderings and written comments about mathematics focused on the students' perceptions of mathematics. The drawings and comments about reading illustrated the students' self-perception of reading.

In India, the instructions were written in English. The instructions for the drawings of classrooms were: "Draw a picture of a school classroom with people in it. Make everybody doing something. Please write comments to explain your drawing." The instructions for mathematics were simple: "Draw a picture of math and write about math. You can draw your feelings about math and your experiences with math." The instructions for reading were almost identical to the mathematics instructions: "Draw a picture of reading and write about reading. You can draw your feelings about reading and your experiences with reading." In the U.S.A., Mexico, South Africa, Ghana, Singapore, and India, students answered questionnaires in English. In Mexico, students answered questionnaires in Spanish; in Switzerland they answered in French; and in Iceland, they answered in Icelandic.

Procedure:

All student participation was voluntary and anonymous. The data were collected by the

first author and teachers in school classrooms from the U.S.A., Mexico, South Africa, Ghana, Switzerland, Iceland, Singapore, and by a research assistant in India (the fifth author). On the questionnaires, participants indicated their ages, genders, and nationalities, but not their names. The scores of five categories of analyzing classroom drawings and eight categories of analyzing math and reading drawings are reported here. Kappan inter-rater reliability ranged from .52 to .92.

Results and Discussion

Classroom Drawings

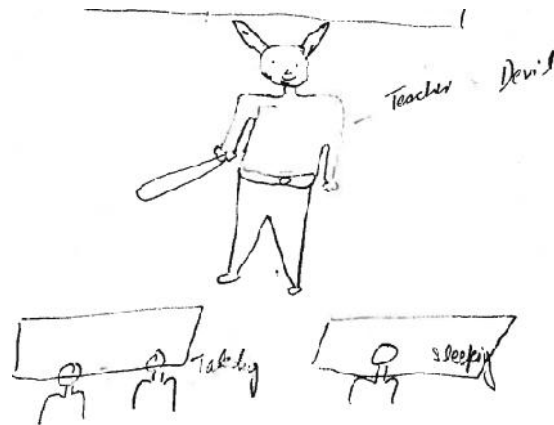


Figure 1. Drawing of a school classroom by a 13-year-old boy from India.

In the drawing above, the teacher is depicted as the devil; thus, Figure 1 provides an example of poor student-teacher relations. Negative relationships were also found in the PISA (2009) study comparing the student questionnaires from Tamil Nadu with the international averages. Negative relationships were also found in the PISA educator questionnaires, where 10.91% in Himachal Pradesh and 15.34% in Tamil Nadu (compared with the international average of only 3.75%) thought that student learning was hindered "a lot" by poor student-teacher relations.

Figure 2 shows the classroom drawing of 14-year-old girl from India. In the drawing, one "sincere" child is reading and three students are standing with their backs to the teacher and talking. The "naughty" children are throwing paper balls. Most of the students are ignoring

Table 1. Classroom Drawings: Criteria for Scoring, Percentage of Occurrence, Differences Between India and the Other Six Countries, and Inter Rater Reliability of Selected Criteria

	% India n = 50	% 6 other countries n = 300	Inter Rater Reliability Kappan
Does the drawing have a positive tone or any positive aspects? (Experiment 1)	38	61**	.75
In the drawing is a teacher shown smiling?	20.0	20.0	.81
Does the drawing have a negative tone or any negative aspects?	50.0	56.3	.72
Are there any examples of students hitting, fighting, or throwing things? (Experiment 2)	28.0	11.0***	.76
Is learning depicted as challenging, useful, or worthwhile? (Experiment 3)	20.0	36.0*	.83
Is the school classroom shown as boring or tedious?	36.0	40.0	.52
Fooling around, goofing off, not paying attention (Experiment 4)	44.0	61.0	.78

*p<.05, **p<.01, ***p<.001

the teacher, and the teacher is getting angry. As indicated by their facial expressions and activities, many of the youth in this classroom have negative “emotional and motivational states.”

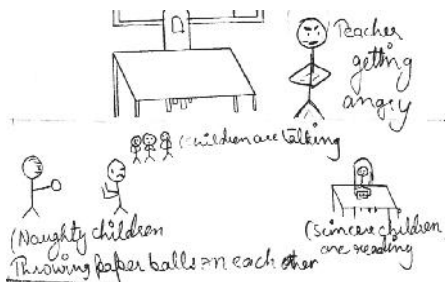


Figure 2. Shows the classroom drawing of 14-year-old girl from India.

Table 1 compares the drawings and comments of young adolescents from India with those of youth from six other countries. Of the seven categories reported in Table 1, four showed statistical significance. References to experiments refer to Figure 5. According to Chi square tests, young adolescents from India depicted and described less positive

classroom environments than did the young adolescents from the USA, Mexico, South Africa, Switzerland, Iceland, and Singapore ($X^2(1, N = 350) = 9.29; p = .002$). Using the “new statistics”, differences between proportions are $Diff = 19/50 - 183/300, [-.36, -.08]$. See Figure 6 for displays of differences between two proportions and confidence intervals.

When compared with youth from six other countries, Indian youth also drew more pictures of hitting, fighting, and throwing things ($X^2(1, N = 350) = 10.65; p = .001$). Differences between proportions are $Diff = 14/50 - 33/300, [.06, .31]$. The aggression depicted in the drawings of in school classrooms in India shows a stressful environment that places children “at risk.” According to Ramalingam and Nath (2012, p. 27), “approximately 48 million children across [India] may be at risk and need help for a variety of cognitive, social-emotional or behavioral problems.”

When compared to students from six other countries, the Indian students also drew fewer pictures of classroom learning as worthwhile or challenging ($X^2(1, N = 350) = 5.46; p = .019$). Differences between proportions are $Diff =$

9/50 – 104/300, [-.27, -.03]. These findings are similar to the results of the PISA (2009) student questionnaire when the responses of youth from Tamil Nadu were compared with the international averages about school preparing them for life.

It is interesting that when compared with students from six other countries, the fifty students from India drew more pictures of hitting and fighting and fewer pictures of “fooling around”, playing, and other light-hearted activities. The Chi square for “fooling around” is ($X^2(1, N = 350) = 5.10; p = .024$). Differences between proportions are $\text{Diff} = 22/50 - 183/300, [-.31, -.02]$.

Drawings of Mathematics

Figure 3 shows an Indian 13-year-old boy's drawing of a mathematics monster. This math monster is frightening, loathsome, and repugnant.

Table 2 shows that the young adolescents from India are more likely than youth from seven other countries to draw negative, frightening, loathsome, and repugnant pictures of math. The math monster provides a vivid illustration of the “significantly less positive affect states” described by Verma and others (2002).

In Figure 4, a 12-year-old boy from India has attempted to show the connection between fraction and decimal notation. Only 18.8% of the 50 participants from India drew math as abstract and having a complexity beyond basic



Figure 3. An Indian 13-year-old boy's drawing of a mathematics monster.

arithmetic. In contrast, more than 50% of the youth from the seven other countries drew math as abstract. ($X^2(1, N = 380) = 17.41; p = .000$). Differences between proportions are $\text{Diff} = 9/48 - 169/332, [-.42, -.18]$.

This study raises the question, Why do fewer youth from India depict math as abstract compared to youth from seven other countries? Perhaps, the depiction of simple arithmetic is a reflection of the slightly younger age of the participants from India (an average age of 12.72 years compared with 13.40). Or, this could be a reflection of a teaching style that emphasizes regurgitating facts, rather than focus on critical thinking.

Table 2. Criteria for Scoring Math Drawings, Percentage of Occurrence, Differences Between India and Other Countries, and Inter Rater Reliability of Adolescents' Drawings of Math

	% Math India n = 50	% Math 7 other countries n = 341	Inter Rater Reliability Kappan
Does the drawing of math have a positive tone or any positive aspects?	42.6	39.6	.82
Is math shown as abstract? (Experiment 5)	18.8	50.9***	.71
Is math shown or described as frightening, loathsome, or repugnant? (Experiment 6)	40.0	14.5***	.91
Is math shown or described as relevant, useful, or worthwhile? (Experiment 7)	12%	30.3%**	.80

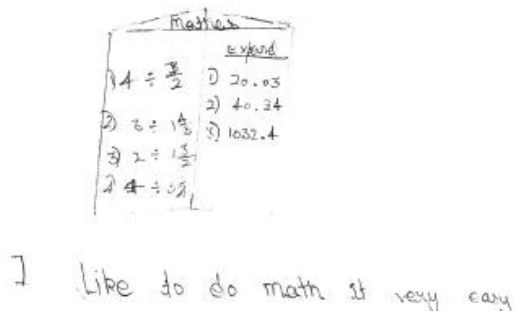


Figure 4.

Figure 4 is not a typical math drawing from India where 40% of the youth drew math monsters or similar drawings showing math as frightening, loathsome, or repugnant as shown in Figure 3. ($X^2(1, N = 387) = 19.26; p = .000$). Differences between proportions are Diff = 20/50 – 49/337, [.26, .40].

In addition, young adolescents from India are also less likely to show or describe math as relevant, useful, or worthwhile, when they are compared with young adolescents from other countries. ($X^2(1, N = 387) = 7.22; p = .007$). Differences between proportions are Diff = 6/50 – 102/337, [-.26, -.06].

The Trends in International Math and Science Study (TIMSS) of international comparisons in math and science, found that there is a strong relationship between an adolescent's math performance and his/her attitudes towards math; within each country, positive attitudes towards math are associated with higher math achievement (TIMSS, 2003). The TIMSS 2003 study of eighth graders found that "students' motivation to learn mathematics can be affected by whether they find the subject enjoyable, place value on the subject, and think it is important for success in school and for future career aspirations" (Mullis, et al., 2003, p. 156). Although students from India did not participate in TIMSS, it is likely that achievement and

attitudes might also be connected in India.

Reading Drawings

Figure 5 shows a drawing by a 12-year old girl from India. She doesn't merely dislike reading; she hates reading.



Figure 5.

Table 3 shows that the young adolescents from India are more likely to draw negative, frightening, loathsome, and repugnant pictures of reading than young adolescents from other countries. ($X^2(1, N = 407) = 28.97; p = .000$). Differences between proportions are Diff = 13/50 – 17/357, [.10, .35].

When compared with young adolescents from seven other countries, the participants from India are also less likely to depict reading as abstract ($X^2(1, N = 367) = 17.55; p = .000$). Differences between proportions are Diff = 5/50 – 129/317, [-.39, -.18]. The youth from India rarely drew pictures showing imagination or "big ideas." The young adolescents from India also were less likely than the adolescents from other countries to draw reading as relevant, useful, or worthwhile. ($X^2(1, N = 407) = 9.79; p = .002$). Differences between proportions are Diff = 6/50 – 121/357, [-.30, -.09]. These were significant

Table 3. Criteria for Scoring, Percentage of Occurrence, Differences Between India and Other Countries, and Inter Rater Reliability of Adolescents' Positive Drawings of Reading

	% India n = 50	% 7 other countries n = 357	Inter Rater Reliability Kappan
Does the drawing of reading have a positive tone or any positive aspects?	52.2	56.8	.82
Does the drawing of reading depict reading as abstract? (Experiment 8)	10	40.7***	.92
Is reading shown or described as frightening, loathsome, or repugnant? (Experiment 9)	26.0	4.8***	.91
Is reading shown or described as relevant, useful, or worthwhile? (Experiment 10)	12.0	33.9***	.80

* = $p < .05$, ** = $p < .01$, *** = $p < .001$

findings from the drawings of fifty youth from India. The results from the Indian students' drawings must be interpreted with caution; and yet it seems plausible that many of these fifty young adolescents are not experiencing school as a meaningful, high quality, worthwhile opportunity for learning and for preparing for their futures.

Overall differences in proportion and discussion of confidence intervals

In an article titled, "Inference by eye: Confidence intervals and how to read pictures of data", Cumming and Finch (2005) explain that pictorial representations of data make the results of a study clear. Figure 6 shows the confidence intervals for the differences in independent proportions related to the major findings of the present study of young adolescents' drawings of school and school subjects. The numbers on the vertical axis correspond with the ten statistically significant differences found when the drawings of youth from India were compared with those of youth from six or seven other countries. These are labeled experiments one through ten. The major findings of this study relate to drawings of school classrooms, mathematics, and reading. Overall, the young adolescents from India have drawn school learning environments that are

significantly less positive than those shown in drawings from youth in other countries.

In the school classroom drawings, a greater proportion of youth from India (when compared with youth from other countries) depicted hitting and fighting (experiment 2) and relatively smaller proportions of youth depicted positive (experiment 1) and worthwhile (experiment 3) learning environments and carefree atmospheres (experiment 4).

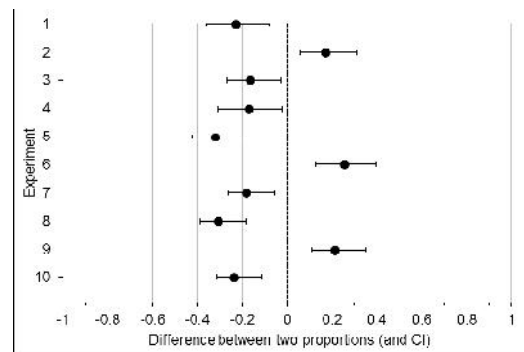


Figure 6. Confidence intervals for the differences in independent proportions

When compared and contrasted with the youth from other countries, the young adolescents from India drew more school classrooms that were unfriendly. And yet, a fundamental duty of Indian teachers is to present the curriculum in a manner that is child-friendly and child-centered (Aradhya & Kashyap (2006). In agreement with the National Policy

of Education, 1986, Right to Education, Indian educational reformer Janaki Rajan (2007, p. 11) recommends child-centered classrooms that are “friendly, radiating peace, with space for solitude as well as friendships.”

In the mathematics drawings, a greater proportion of youth from India (when compared with youth from other countries) drew mathematics as loathsome (experiment 6), A relatively smaller proportion depicted math as abstract (experiment 5) or worthwhile (experiment 7). Because there is a strong relationship between an adolescent's attitudes towards math and his/her math achievement, schools in India could improve mathematics attitudes by making math more enjoyable and demonstrating the usefulness and value of math.

In the reading drawings, a greater proportion of youth from India (when compared with youth from other countries) depicted reading as loathsome (experiment 9). A relatively smaller proportion depicted reading as abstract (experiment 8) or worthwhile (experiment 10). A positive attitude and engagement with reading are important for success in school and life. Reading with understanding is a fundamental skill that is necessary for progress in all school subjects. Schools in India need to provide reading interventions.

Conclusion

This study shows that, when compared to matched samples of young adolescents from seven countries, the young adolescents in India expressed that they have a more negative view of school and school subjects. The Indian Express reported on September 3, 2012, that the government of India thought the PISA tests were culturally unfair to India; “The ministry (of education) has concluded that there was a socio-cultural disconnect between the questions and Indian students.” Although the PISA tests may be unfair to India, this study of 471 youth does suggest that the classroom environment could be improved in India. This study finds that when compared with youth from other countries, the sample of young adolescents students from India is not experiencing learning in the classroom as

engaging, interesting, and worthwhile. This study also suggests that, in general, relationships between students and teachers from India are not positive and poor relationships may be hindering the learning.

School psychology and educational psychology are the branches of applied psychology that can help with school improvement in India. School psychologists are qualified to conduct assessments in learning, consult with teachers and staff, provide counseling, and promote child-friendly classrooms. An article in the Journal of the Indian Academy of Applied Psychology about the vision for the future of school psychology in India describes the important role of creating positive experiences for children in schools. We agree with the authors that schools in India need more prevention programs, “interventions, services and support for students” (Ramalingam & Nath, 2012, p. 23). And, we agree “every effort towards advancing school psychology must be supported by policy makers, planners, educators, political leaders and communities across India” (Ramalingam & Nath, 2012, p. 32).

References

- Aradhya, N. & Kashyap, A. (2006). *The 'Fundamentals' of the Fundamental Right to Education in India*. UNESCO Centre for Child and the Law, National Law School of India University, Bangalore. www.ncpcr.gov.in/.../fundamental_right_to_education_dr_niranjan_arad...unesdoc.unesco.org/images/0015/001510/151010e.pdf
- Cumming, G. Finch, S. (2005). Inference by eye: Confidence intervals and how to read pictures of data. *American Psychologist*, 60, 170-180.
- Lahiri, D. (2012). The PISA shocker. The Times of India. Retrieved from http://articles.timesofindia.indiatimes.com/2012-10-09/edit-page/34324055_1_progressive-schools-india-environment
- Mukherjee, D., & Das, S. (2008). Role of parental education in schooling and child labour decision: Urban India in the last decade. *Social Indicators Research*, 89 (2), 305-322.
- Mullis, I.V.S., Martin, M.O., Gonzalez, E.J., & Chrostowski, S.J. (2003). TIMSS 2003 International Mathematics Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades

- Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- Programme for International Student Assessment (PISA) (2009) Database PISA (2009) <http://pisa2009.acer.edu.au/>
- Rajan, J. (2007). *On the Education of Children in India - Revolutionary Democracy ...www.revolutionarydemocracy.org/rdv14n1/education.htm*
- Ramalingam, P. & Nath, Y. (2012). School psychology in India: A vision for the future. *Journal of The Indian Academy of Applied Psychology*, 38 (1), 22-33.
- Stiles, D.A. & Gibbons, J.L. (2001). Manual for Evaluating Individual and Social Values Expressed in International Adolescents' Drawings of the Ideal Woman and Man. Jamaica, NY: *World Cultures*, 11, 181-221.
- Trends in International Mathematics and Science Study (TIMSS) (2003) (NCES 2005-006). Washington, D.C.: U.S. Department of Education, National Center for Education Statistics.
- Verma, S., Sharma, D., & Larson, R. W. (2002). School stress in India: Effects on time and daily emotions. *International Journal of Behavioral Development*, 26 (6), 500-508.

Received: February 2, 2014

Revised: October 7, 2014

Accepted: December 2, 2014

Deborah A. Stiles, PhD, Professor and Coordinator of the M.A. in Applied Educational Psychology and the Ed.S. in Applied Educational Psychology: School Psychology Director of the Intercultural Research Center, School of Education, Webster University, 470 East Lockwood, St. Louis, MO 63119 U.S.A, stilesda@webster.edu,

Alisha L. McElrath, Webster University, 470 East Lockwood, St. Louis, MO 63119 U.S.A,

Jane E. Lucas, Webster University, 470 East Lockwood, St. Louis, MO 63119 U.S.A,

Janaki Rajan, Jamia Millia Islamia University, New Delhi

Garima Goel Gupta, Jamia Millia Islamia University , New Delhi

IAAP News Bulletin

(Quarterly)

Published by the

Indian Academy of Applied Psychology, Chennai

Members and Professionals are requested to send

information of personal achievement, organisational and professional activities in your region to the Editor, IAAP News Bulletin

Editor: Dr. S. Renukadevi

Professor of Education and Head, Dept. of Education,

National Institute of Technical Teachers' Training and Research,

Taramani, Chennai - 600 113.

Phone : 044 - 22541054, Email: bmrenuka@gmail.com