



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research
Vol. 6, Issue, 3, pp.3190-3195, March, 2015

**International Journal
of Recent Scientific
Research**

RESEARCH ARTICLE

A STUDY ON THE INFLUENCE OF THE PEDAGOGIC ANALYSIS OF LESSONS IN THE B.ED. COURSE OF WEST BENGAL ON THE ATTITUDE OF SECONDARY SCHOOL TEACHERS TOWARDS INCLUSIVE EDUCATION

Piku Chowdhury

Satyapriya Roy College of Education Chowdhury

ARTICLE INFO

Article History:

Received 5th, February, 2015
Received in revised form 12th,
February, 2015
Accepted 6th, March, 2015
Published online 28th,
March, 2015

Key words:

inclusive education, teacher
education, attitude, pedagogical
analysis, practice

ABSTRACT

Inclusive education has increasingly become a focus of debate in discussions about the development of educational policy and practice around the world (Farrell and Ainscow, 2002; Lindsay, 2007). Scholars like Pijl et al., (1997) have described inclusive education as a 'global agenda'. Inclusive education, therefore, is now seen as central to human rights and equal opportunities and a priority policy objective of liberal democracies including India where Right to Education is constitutional zed. The teachers exposed to the traditional B.Ed. curriculum and the practicum in West Bengal reveals a colossal knowledge gap. They are often apprehensive about such inclusive classes and of the RTE Act 2009 and reportedly lack confidence in handling children with special needs. The B.Ed. course in the prevalent form in West Bengal offers only a theoretical paper on special and inclusive education, which is believed to be sufficient to train teachers for effective inclusive practices in real life inclusive classes. Pedagogical analysis of lessons is taught to trainee teachers in most universities like University of Calcutta, West Bengal State University, GourBanga University, and while in some others like North Bengal University this is not done by the trainee teachers. This is supposedly a master plan or blueprint of the whole lesson that enables the teachers to plan the transaction of the entire lesson in a thoughtful manner. How far this practice incorporates strategies of addressing diversity in class in form of challenged students is not clear at all. With major changes advocated by NCTE for quality teacher education in the nation, West Bengal too would undergo curricular reforms, but to what extent and in what form the pedagogical analysis of lessons for teaching diverse and differently abled learners would be addressed for developing teachers for inclusive settings remains a grey area till date. This paper remains a humble attempt at exploring the influence of the prevalent practice of pedagogical analysis in most B.Ed. Courses on the teachers of West Bengal in developing a favorable attitude to inclusive education. The study has been conducted on 400 secondary school teachers, both trained and untrained, of West Bengal. The findings of the study reveal significant factors like personal experience with children with special needs as crucial that must be taken cognizance of for developing teachers with a favorable attitude towards education of the children with special needs in regular classrooms. The study points out the importance of such factors that may develop teachers through a revised form of the Pedagogical analysis of lessons that allows trainees an exposure to children with special needs and frame strategies for addressing diversity in the class.

Copyright © 2015 Piku Chowdhury., This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

With the major changes proposed for quality enhancement in teacher education, the B.Ed. course is about to undergo major curricular changes in West Bengal, but how far the prime concern of developing teachers for inclusive settings will be taken into cognizance and in what form remains a largely gray area that needs to be explored. Increase in duration with scant regard for revision in the prevalent nature of practicum and evaluation in West Bengal is unlikely to ensure quality in preparation of teachers fit for addressing diversity in modern society. The present system followed in West Bengal has prepared teachers for years now with inclusive Education" as a theoretical part of the curriculum, but how far it has succeeded

in developing confident teachers with a favourable attitude towards the children with special needs inducted into their regular classrooms under RTE, remains a gray area till date. Inclusive education has increasingly become a focus of debate in discussions about the development of educational policy and practice around the world (Farrell and Ainscow, 2002; Lindsay, 2007). Scholars like Pijl et al., (1997) have described inclusive education as a 'global agenda'. Inclusive education, therefore, is now seen as central to human rights and equal opportunities and a priority policy objective of liberal democracies including India where Right to Education is constitutional zed. The Right to Education Act 2009 has granted the issue a central significance and inclusion has emerged as 'an appropriate philosophy and a relevant framework for restructuring

*Corresponding author: **Piku Chowdhury**
Satyapriya Roy College of Education Chowdhury

education' (Thomas *et al.*, 1998, p.4), with attempts at transforming the mainstream to enhance its capacity for responding to diverse learners (Ainscow, 1999). However, what emerges as a crisis largely unaddressed till date is the development or preparation of teachers' attitude in creating a truly inclusive class in a mainstream school. The Ministry of Human Resource Development, Govt. of India, too voices the emerging concern with the current status of teacher education and the urgent need for "the changes in the teacher education curriculum from the perspective of inclusion of children with special needs (CWSN)".

The nature and adequacy of the training imparted remain problematic and must come under the scanner for effective inclusion in the educational institutes of India, specifically West Bengal. The teachers exposed to the traditional B.Ed. curriculum and the practicum in West Bengal reveals a colossal knowledge gap. They are often apprehensive about such inclusive classes and of the RTE Act 2009 and reportedly lack confidence in handling children with special needs.

The B.Ed. course in the prevalent form in West Bengal offers only a theoretical paper on special and inclusive education, which is believed to be sufficient to train teachers for effective inclusive practices in real life inclusive classes. Pedagogical analysis of lessons is taught to trainee teachers in most universities like University of Calcutta, West Bengal State University, Gour Banga University, and while in some others like North Bengal University this is not done by the trainee teachers. This is supposedly a master plan or blueprint of the whole lesson that enables the teachers to plan the transaction of the entire lesson in a thoughtful manner. How far this practice incorporates strategies of addressing diversity in class in form of challenged students is not clear at all.

Objectives of the Study

The objectives of the study are as follows

1. To find out whether there is any significant difference in attitude towards inclusive education between teachers with B.Ed. with experience of doing pedagogical analysis of lesson plans and those without B.Ed. and thus without any experience of doing pedagogical analysis of lessons.
2. To find out whether there is any significant difference in attitude towards inclusive education between trained urban and rural teachers who have practiced pedagogical analysis of lessons under supervision.
3. To find out whether there is any significant difference in attitude towards inclusive education between trained male and female teachers who have practiced pedagogical analysis of lesson under supervision.
4. To find out whether the supervision done during the practice of pedagogical analysis included advice on practical modalities of teaching children with special needs.
5. To find out whether there is any relation between a teacher's personal experience with challenged children and his/her favourable attitude towards inclusive education, irrespective his/her B.Ed. degree.

Hypotheses

- H₀₁*: There is no significant difference between teachers with experience of practicing pedagogical analysis of lessons under supervision and those without B. Ed and hence without experience of practicing pedagogical analysis of lessons under supervision.
- H₀₂*: There is no significant difference in attitude towards inclusive education between trained urban and rural teachers who have practised pedagogical analysis of lessons during their B.Ed.
- H₀₃*: There is no significant difference in attitude towards inclusive education between male and female teachers who had experience of practicing pedagogical analysis of lessons.
- H₀₄*: There is no relation between a teacher's personal experience with challenged children and his/her favourable attitude towards inclusive education, irrespective his/her B.Ed. degree.

METHOD

RESEARCH METHODOLOGY

Sample

400 secondary school teachers, consisting of both trained and untrained teachers were selected randomly from secondary schools from Kolkata, North 24 Parganas, South 24 Parganas, Hoogly and Howrah districts in the southeastern part of West Bengal, Purulia and Bankura in the Western part of the state, and Malda, Siliguri and Jaipauri in the northern part of the state. It was not possible to cover each and every district of the state and so representative districts from east, south, west and northern parts were selected for the study.

Tool and Technique

A standardized tool TASTIE –SA [Teacher Attitude Scale towards Inclusive Education] developed by Sood & Anand of Harprasad Institute of Behavioral Studies was adopted for the survey. Certain modifications of the scale were made on the basis of need of the present study after in-depth analysis of previous research studies and critical discussions with experts. The tool thus modified had 48 questions with two options 'yes' and 'no'. Values of 2 and 1 were ascribed to the options 'yes' and 'no' respectively. The five broad areas of the attitude scale so developed are:

1. Psychological/Behavioral Aspects of Inclusive Education: This comprised of statements reflecting predispositions of teachers with respect to influence of inclusive education on the pupils. These are mainly related to the perceived effect of various inclusive education strategies on students' cognitive and affective characteristics.
2. Social and Parents-Related Aspects of Inclusive Education: This area includes the statements concerning teachers' attitude towards influence of inclusive education on development of social values among school children. It also covers statements related to teachers' perception of

social and parental support for promoting inclusive education in general educational institutions.

3. Personal Experience and Exposure related Aspects of Inclusive Education: This area includes statements concerning the teachers' personal experience and exposure to challenged children.
4. Curricular and Co-curricular Aspects of Inclusive Education: This area has statements related to teachers' perception about teaching methodologies adopted to impart education in inclusive settings, and various curricular and co-curricular activities organized in schools by them to promote inclusive education.
5. Administrative Aspects of Inclusive Education: This area has statements that reflect the teachers' disposition towards various governmental provisions, infrastructural facilities, provision for teacher development/training as well as commitment of administrative machinery for promoting inclusive education in schools.

The modified self-administering and self-reporting questionnaire with these aspects was a two point scale. The questions were translated into Bengali for the benefit of the teachers and a few questions were added. The tool was tested for reliability and validity. The preliminary draft of the attitude scale was administered on a sample of 250 secondary school teachers of Kolkata and suburbs in West Bengal. The selection of these teachers was made from 35 secondary and higher secondary schools by employing multistage stratified proportionate sampling technique.

Reliability

The reliability of the scale was established by – (a) Test-retest Method and (b) Internal Consistency of the scale. The sample of 250 secondary school teachers, consisting of both male and female school teachers was tested twice with a gap of two months between testing and retesting. The product moment correlation 'r', that is the reliability index, was 0.82. Thus the scale was found to be reliable. The internal consistency of the scale was judged by computing the coefficients of correlation between total score on the scale and score on each of the five areas of the scale. The values so deducted established the reliability of the scale.

Validity

The validity of the scale was ascertained on the basis of content validity, cross validity, Item validity and intrinsic validity. The aspects of inclusive education used in the modified scale has been substantially supported by literature available in the area of inclusive education and the views and suggestions sought from various experts at the time of preparing preliminary draft of the scale. Thus the scale can be said to possess adequate content validity.

Each sample of the sample teachers selected for carrying out the item analysis was different entirely from one another in order to avoid the chance of errors of carry over effect and thus it may be said that cross validity of the scale has been ensured. Item validity was established since only those items with t-value of 1.75 or above was retained in the final form of the

scale. The intrinsic validity for the scale was ascertained by ensuring internal consistency of the scale through product moment correlation method. The test retest reliability coefficient of 0.82 established the intrinsic validity of the scale.

Procedure of Data Collection

The tool was applied in person and also sent by mail to teachers in some cases. Sufficient time was given to the teachers before collecting their feedback so that the responses were well thought over and not perfunctory. Questions were explained in cases where it was needed by the respondents.

Analysis of data

Table 1 shows analysis of data obtained to show whether there is any influence of B.Ed degree [and hence with exposure to supervised practice teaching] on a teacher's attitude towards inclusive education.

Table 1

	Teachers with B.Ed. degree	Teachers without B.Ed. degree	Total
Teachers with favourable attitude	32	20	52
Teachers with unfavorable attitude	259	89	348
Total	291	109	400

2 Test was applied to test null hypothesis at 5% level of significance.

2 value, computed based on the above data after applying Yate's correction for continuity

$$= \frac{[\{ |32 \times 89 - 20 \times 259| - 400/2 \}^2 \times 400]}{(32+20) \times (259+89) \times (32+259) \times (20+89)}$$

$$= 3.790 \text{ (rounded to 3 decimal places)}$$

Tabulated value of 2 with Degrees of Freedom 1, at -level 0.05 = 3.841

Inference

Since the computed 2 value is less than the tabulated value at 5% level, the null hypothesis is accepted and we have no reason to believe that B.Ed. degree with planned supervised pedagogical analysis praxis has any influence on a teacher's attitude towards inclusive education.

Thus hypothesis H_{01} is accepted.

Table 2

	Urban teachers with experience of Pedagogical Analysis under supervision	Rural teachers with experience of Pedagogical Analysis under supervision	Total
Teachers with favourable attitude	66	29	95
Teachers with unfavorable attitude	79	117	196
Total	145	146	291

Table 2 shows analysis of data obtained to show whether there is any significant difference between trained urban and rural teachers [having undergone supervised pedagogical analysis] in their attitude towards inclusive education.

χ^2 Test was applied to test null hypothesis that 5% level of significance.

$$\chi^2 \text{ value, computed based on the above data after applying Yate's correction for continuity} \\ = \frac{[\{ |66 \times 117 - 29 \times 79| - 291/2 \}^2 \times 291]}{(66+29) \times (79+117) \times (66+79) \times (29+117)} \\ = 0.003(\text{rounded to 3 decimal places})$$

Tabulated value of χ^2 with Degrees of Freedom 1, at α -level 0.05 = 3.841

Inference

Since the computed χ^2 value is less than the tabulated value at 5% level, the null hypothesis is accepted and we have no reason to believe that area has any influence on a teacher's attitude towards inclusive education.

Hypothesis H_{02} is thus accepted.

Table 3 shows classification of data obtained from the survey questionnaire to show whether there is any significant difference between male and female teachers in their attitude towards inclusive education.

Table 3

	Male teachers with experience of Pedagogical Analysis under supervision	Female teachers with experience of Pedagogical Analysis under supervision	Total
Teachers with favourable attitude	28	24	52
Teachers with unfavorable attitude	151	88	239
Total	179	112	291

χ^2 Test was applied to test null hypothesis that 5% level of significance.

$$\chi^2 \text{ value, computed based on the above data after applying Yate's correction for continuity} \\ = \frac{[\{ |28 \times 88 - 24 \times 151| - 291/2 \}^2 \times 291]}{(28+24) \times (151+88) \times (28+151) \times (24+88)} \\ = 0.029(\text{rounded to 3 decimal places})$$

Tabulated value of χ^2 with Degrees of Freedom 1, at α -level 0.05 = 3.841

Inference

Since the computed χ^2 value is less than the tabulated value at 5% level, the null hypothesis is accepted and we have no reason to believe that gender has any influence on a teacher's attitude towards inclusive education.

Hypothesis H_{03} is thus accepted.

Table 6 shows how individual experience with children with special needs influences a teacher's perception, understanding of and attitude towards inclusive education irrespective of his or her formal teacher education degree in West Bengal. Only those teachers with a favourable attitude to inclusive education were taken for the analysis to find out the impact of personal experience behind this positive attitude and to see how far the formal teacher education program in form of the prevalent

B.Ed. course in West Bengal has any influence in developing a favourable attitude towards inclusive education.

An Analysis of Variance (ANOVA) was conducted to examine whether personal experience with differently abled children, and having B.Ed degree, has any influence on a teacher's favourable attitude towards inclusive education. 52 teachers, whose survey response have been 'favourable', were categorized as follows:-

	Teachers with personal experience	Teachers without personal experience	Total
Teachers with B.Ed.	25	7	32
Teachers without B.Ed.	18	2	20
Total	43	9	52

ANOVA calculations are as follows:-

Sum of squares of raw values = 1002

Correction Factor = $(52)^2 / (2 \times 2) = 676$

Total SS (Sum of Square) = $1002 - 676 = 326$

SS due to Degree = $[(32)^2 + (20)^2] / 2 - 676 = 36$

SS due to Personal Experience = $[(43)^2 + (9)^2] / 2 - 676 = 289$

SSE (Sum of Squares due to Error) = $326 - 36 - 289 = 1$

F values are computed as follows

Factors	Degrees of Freedom	Sum of Square	Mean Square	Observed F
B.Ed. Degree	1	36	36	36.00
Personal Experience	1	289	289	289.00
Error	1	1	1	

Tabulated value of F with Degrees of Freedom 1,1 at α -level 0.05 = 161.4

Thus we observe that:

F value for the factor 'B.Ed. Degree' < tabulated F value.

F value for the factor 'Personal Experience' > tabulated F value.

Hence the Analysis of Variance indicates that personal experience with differently abled children has a positive influence on a teacher's favourable attitude towards inclusive education. But no such conclusion can be drawn for B.Ed degree.

Findings

It was found that there is no significant difference between trained and untrained teachers in their attitude to inclusion of children with special needs in regular classes. It was also found that there is no significant difference between teachers who had not practiced Pedagogical Analysis of lessons in their B.Ed course and those who had done so in their attitude to inclusion of children with special needs in regular classes.

DISCUSSION

Pedagogical Analysis of lessons aims at providing an overall vision of transaction of a lesson for effective teaching learning in the class and supposedly should equip a teacher with reflective practices of devising strategies of addressing diversity in the classroom for inclusive education. It is however found that in West Bengal pedagogical analysis of lessons has no effect on the teachers' attitude to inclusion of children with

special needs while first-hand experience with such children emerges to be crucial. It is thus important for the Government to revisit the curricular practices of teacher education and remodel the pedagogical analysis in a way conducive to inclusive settings.

References

1. Ainscow, M. (1999). *Understanding the Development of Inclusive Schools*. London: Falmer Press.
2. Avramidis, E., & Kalyva, E. (2007). The influence of teaching experience and professional development on Greek teachers' attitudes towards inclusion. *European Journal of Special Needs Education*, vol.22, issue.4, pp.367-389.
3. Bhatnagar, N., & Das, A. K. (2012). Attitudes of Secondary School Teachers towards Inclusive Education in New Delhi, India. *Journal of Research in Special Educational Needs*, pp.15-28.
4. Boer, A., Pijl, S. J., & Minnaert, A. (2011). Regular primary schoolteachers' attitudes towards inclusive education: a review of the literature. *International Journal of Inclusive Education*, vol.15, issue.3, pp.331-353.
5. Carrington, S. (1999). Inclusion needs a different school culture. *International Journal of Inclusive Education*, Vol.3, Issue.3. Pp.257-268.
6. Clough, P., & Garner, P. (2003). Special educational needs and inclusive education: Origins and current issues. In D. Barton, & S. Bartlett (Eds.), *Education studies: Essential issues*. London: Sage.
7. Das, A. K. (2001). Perceived Training Needs of Regular and Secondary School Teachers to Implement Inclusive Education Programs in Delhi, India. Unpublished doctoral dissertation, The University of Melbourne.
8. Das, Ajay, Gichuru, Margaret & Singh, Ajay (2013). Implementing inclusive education in Delhi, India: regular school teachers' preferences for professional development delivery modes. *Professional Development in Education*. Taylor & Francis, 17 Jan 2013, pp.18-26.
9. Deppeler, J.M., Sharma, U., Forlin, C. & Yang, G. (2013). Reforming teacher education for inclusion in developing countries in the Asia Pacific region, *Asian Journal of Inclusive Education* [E], vol. 1, issue 1, Inclusion Initiatives for Special-needs Bangladesh (IISB), Dhaka Bangladesh, pp. 3-16.
10. Drudy, S., & Kinsella, W. (2009). Developing an inclusive system in a rapidly changing European society. *International Journal of Inclusive Education*, 13(6), pp.647-663.
11. Farrell, P., and Ainscow, M. (2002). *Making Special Education Inclusive: From Research To Practice*. London: David Fulton Publishers.
12. Farrell, P., Dyson, A., Polat, F., Hutcheson, G., & Gallannaugh, F. (2007). SEN inclusion and pupil achievement in English schools. *Journal of Research in Special Educational Needs*, vol.7, issue.3, pp.172-178.
13. Forlin, C., Keen, M., & Barrett, E. (2008). The Concerns Of Mainstream Teachers: Coping with inclusivity in an Australian context. *International Journal of Disability, Development and Education*, vol.55, issue.3, pp.251-264.
14. Gibb, K., Tunbridge, D., Chua, A., & Frederickson, N. (2007). *Pathways to inclusion: Moving from special school to mainstream*. *Educational Psychology in Practice*, vol.23, issue.2, pp.109-127.
15. Gill, J. (2008). Social Inclusion for South Australian schooling? Trying to reconcile the promise and the practice. *Journal of Education Policy*, vol.23, issue.5, pp.453-467.
16. Horne, P. E., & V. Timmons (2009). Making it work: Teachers' perspectives on inclusion. *International Journal of Inclusive Education*, vol.13, issue.3, pp.273-286.
17. Idol, L. (2006). *Toward inclusion of special education students in general education*. *Remedial & Special Education*, vol.27, issue.2, pp.77-94.
18. influencing classroom practice. *Journal of Early Childhood Teacher Education*, 26(1), 23-36.
19. Jangira, N. K., Singh, A., & Yadav, S. K. (1995). Teacher policy, training needs and perceived status of teachers. *Indian Educational Review*, vol.30, issue.1, pp.113-122.
20. Jena, Dr. Prakash Chandra (April 2013). Inclusive Education the Way of the Future: Challenges to Implement In India. *International Journal of Creative Research thought*, Vol.1, Issue 4. pp. pp.116-135.
21. Jha, M. M. (2002). *Barriers to access and success: Is inclusive education an answer?* Paper presented at the Commonwealth of Learning (2002) Pan-Commonwealth forum on open learning: Open learning: transforming education for development, 29 July - 2 August 2002, 16p, Durban, South Africa.
22. Leatherman, J. M. & Niemeier, J. A. (2005). Teachers' attitudes toward inclusion: Factors
23. Lewis, Ann & Norwich, Brahm, (2005). *Special Teaching for Special Children?* NY: Open University Press.
24. Lindsay, G. (2007). Educational psychology and the effectiveness on inclusive education/mainstreaming. *British Journal of Educational psychology*, vol.77, pp.1-24.
25. Mangope, Boitumelo & Bawa, Ahmed (2011). Student Teachers' Attitudes and Concerns about Inclusive Education In Ghana And Botswana. *International Journal of Whole Schooling*, vol.7, issue.1. Pp.28-42.
26. McGee, P. (2004). Reflections on Irish special education over four decades. *REACH, Journal of Special Needs Education in Ireland*, vol.17, issue.2, pp.67-79.
27. Ministry of Human Resource Development (2 May 2012). *Voices of Teachers and Teacher Educators*, Volume I, Issue 2. Government of India, New Delhi. p.39
28. Moran, A., & Abbott, L. (2006). *The Development of Inclusive Schools in Northern Ireland: A Model of Best Practice*. Ulster: University Of Ulster.
29. Myredden, V., & Narayan, J. (2000). Preparation of special education teachers: Present status and future trends. *Asia Pacific Disability Rehabilitation Journal*, 10(1), 1-8.
30. OECD (1994). *The integration of disabled children into mainstream education: Ambitions, theories and practices*. Paris: Organisation for Economic Co-operation and Development.
31. Pijl, S. J., Meijer, C., and Hegarty, S. (Eds.). (1997). *Inclusive Education: A Global Agenda*. London: Routledge.

32. Scruggs, T. E., & Mastropieri, M. A. (1996). Teacher perceptions of mainstreaming/inclusion, 1958-1995: A research synthesis. *Exceptional Children*, vol.63, issue.1, pp.59-74.
33. Sharma, U., Ahmmed, M. & Deppeler, J.M., (2009). Inclusive educational reform and experiences of the teachers in the U.K. and Bangladesh, *MASAUM Journal Of Social Sciences and Applications (MJSSA) [P]*, vol 1, issue 1, *MASAUM Network for High-Quality Publications*, <http://www.masaumnet.com/mjssa.html>, pp. 1-14.
34. Shevlin, M., Kenny, M., & Loxley, A. (2008). A time of transition: Exploring special educational provision in the republic of Ireland. *Journal of Research in Special Educational Needs*, vol.8, issue.3, pp.141-152.
35. Slee, R. (2001). Inclusion in practice: Does practice make perfect? *Educational Review*, vol.53, issue.2. Pp.113-123.
36. Subban, P. & Sharma, U.(2005). Understanding educator attitudes toward the implementation of inclusive education, *Disability Studies Quarterly: The First Journal in the field of Disability Studies*, vol. 25, issue 2, Centre on Disability Studies, USA, and pp. 1-19.
37. Tangen, R. (2005). *Promoting inclusive education in secondary school in Norway: A national programme for teacher development. European Journal of Special Needs Education*, vol. 20, issue.1, pp.57-70.
38. Thomas, G., Walker, D., and Webb, J. (1998). *The Making of the Inclusive School*. London: Routledge.

How to cite this article:

Piku Chowdhury., A Study on the Influence of The Pedagogic Analysis of Lessons in The B.ed. Course of west Bengal on the Attitude of Secondary School Teachers Towards inclusive Education. *International Journal of Recent Scientific Research* Vol. 6, Issue, 3, pp.3190-3195, March, 2015
