



Vidya Bharati Shaikshanik Mandal, Amravati's

VIDYA BHARATI MAHAVIDYALAYA, AMRAVATI

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3.3.3 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during AY 2014-15

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Year of publication	ISBN/ISSN number of the pro
1	Dr. V.R Wankhade	A Text Book of Zoology Advanced Genetics and Animal Ecology Chapter II linkage Page No. 32-54	NA	NA	NA	National	2014-15	978-81-905776-102-5
2	Dr. A. D. Chauhan, Swati D. Girase	NA	Mahatma Gandincha Stri Vishyak Drushtikon: Ek Abhyyas	Significance of Mahatma Gandhi's Methodology in 21st Century	UGC Sponsored Two Days International Conference	International	2014-15	978-81-909640-7-4
3	M. M. Rathore, Vandana V. Parhate, P. R. Rajput	NA	NA	International conference on innovative trends in engineering science and management	International conference on innovative trends in engineering science and management	International	2014-15	
4	Dr. D. S. Wankhade	NA	Mahavidyalatil Sharirik shikshakancha Vyawasahik Samadhanache Adhyan	Physical Education as a Profession	Physical Education as a Profession	National	2014-15	978-93-82795-14-8
5	Dr. V. R. Shekhawat	Libraries From Palm Leaf to Palm Tips	Application And Techniques of Data Mining in Library Science: A Review	Libraries From Palm Leaf to Palm Tips	National Conference	National	2014-15	ISBN : 978-81-923727-0-9

6	Dr. N. G. Belsare	Mechanics, Wave - Oscillators and Properties of Matter	NA	NA	NA	National	2014-15	978-81-905776-250-8
7	Dr. N. G. Belsare	Electrostatics, Magnetostatics, Maxwell's Equations, Solid State Electronic Devices, Special Theory of Relativity, Atmosphere and Geophysics	NA	NA	NA	National	2014-15	978-81-905776-250-5
8	R. J. Lote & Dr. A. D. Chauhan	Samajshastra Parichay	NA	NA	NA	National	2014-15	978-93-82136-86-6
9	R. J. Lote & Dr. A. D. Chauhan	Bhartatil Samajik Sanrachana Aani Samajik Samasya	NA	NA	NA	National	2014-15	978-93-82136-87-3
10	M. M. Rathore, Vandana V. Parhate, P. R. Rajput	NA	Asantulit Jeevanshiliche Dishparinamavr Yogik vikalp	National conference on modern trends in Physical Education	NA	National	2014-15	Isbn 978-91-929160-7-1
11	PS Bodkhe, R.V. Jot, S.S. Binani, S.S Vashnic	NA	An investigation of new phase diagram of Ag ₂ SO ₄ -CuSO ₄	XI International Science conference, Singapur	NA	International	2014-15	ISSN: 1307-6892
12	PS Bodkhe, R.V. Jot, S.S. Binani	NA	Non- Destructive Evaluation of 2-Mercapto Substituted pyrimidine derivatives in different concentration and different percentages in Dioxane-Water mixture	XI International Science conference, Singapur	NA	International	2014-15	ISSN: 1307-6892

13	Dr. S. B. Kadu	NA	Reforms in Retailing in India, Page No. 194-196	Conference on “Effect of FDI on Retail Sector in India”	Conference on “Effect of FDI on Retail Sector in India”	National	2014-15	ISSN 2319-4979
14	Dr.P.W.Kale,Dr. S. B. Kadu,S.K.Rodde	NA	E-Commerce in India, Page No. 20-22	Conference on “Challenges and Opportunities in E-Commerce in India”	Conference on “Challenges and Opportunities in E-Commerce in India”	National	2014-15	ISBN 978-81-925599-1-9
15	Dr.S.K.Rodde	NA	Foreign Direct Investment in Indian Retail Sector	Conference on “Effect of FDI on Retail Sector in India”	Conference on “Effect of FDI on Retail Sector in India”	National	2014-15	ISSN 2319-4979
16	Dr.P.W.Kale,Dr. S. B. Kadu,S.K.Rodde	NA	E-Commerce in India	Conference on “Challenges and Opportunities in E-Commerce in India”	Conference on “Challenges and Opportunities in E-Commerce in India”	National	2014-15	ISBN 978-81-925599-1-9
17	Dr. S. R. Nair	NA	Learning English through Literature	Vidyabharati International interdisciplinary Research Journal Proceedings	Present Literary Scenario and Teaching English Language	National	2014-15	ISBN- 978-93-84021-52-8
18	Dr. R. M. Patil	NA	Teaching Literature through Audio-Visual Aids: Making Literature Classroom a Theatre	Vidyabharati International interdisciplinary Research Journal Proceedings	Present Literary Scenario and Teaching English Language	National	2014-15	ISBN- 978-93-84021-52-8
19	Prof. V.P.Shekokar	NA	Technology and English Language Teaching	Vidyabharati International interdisciplinary Research Journal Proceedings	Present Literary Scenario and Teaching English Language	National	2014-15	ISBN- 978-93-84021-52-8

20	DT Mahajan, VH Masand, SA Quazi	Safety in Chemical Laboratories, BookRix Publications, California	NA	NA	NA		2014-15	ISBN: 978-3-7368-8766-4
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A TEXT BOOK OF ZOOLOGY

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Advanced Genetics And Animal Ecology

B.Sc. Part- II Semester - IV

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अमावी करोडो गोरगरीब रडत असतात, भूकी मरत असतात, थंडीने गारडत असतात. सर्वांनी आपल्यास जरूर तेवढाच संग्रह केला तर कोणालाच वाण पडणार नाही, व सर्वांनाच संतोष लागेल. आज तरी दोघांच्याही मागे भीक लागलेली आहे. कोटयाधीश असतो तो अब्जाधीश होऊ पाहतो, आणि तेवढ्यावरहि त्याला संतोष होत नाही. कंगाल असतो तो कोटयाधीश होण्याची इच्छा करतो. कंगाल इसमाला पोटापुरते मिळाले तर तेवढ्याने त्याला संतोष झाला असेही दिसत नाही.11

शरीरश्रम :- शरीरश्रम म्हणजे अंग मेहनत. "शरीर श्रम प्रत्येक माणसाला आवश्यक आहे." भगवद्गीतेच्या तिसऱ्या अध्यायात म्हटले आहे. यज्ञ केल्याखेरीज जो खातो. तो चोरीचे अन्न खातो. अशा तऱ्हेचा भयंकर शाप यज्ञ करणाऱ्याला दिलेला आहे. या ठिकाणी यज्ञ याचा अर्थ शरीरश्रम किंवा रोटी-श्रम हाच योग्य दिसतो. माया मते तर हाच एक अर्थ शक्य आहे. ते कसेही असो हाच आपल्या या व्रताचा उगम होय. बुद्धिवादानेही आपण या सिध्दांताशी येऊन पोहचतो. मेहनत करीत नाही त्याला खाण्याचा हक्कच काय? बायबल सांगते, 'तू आपली भाकर स्वतःच्या अंगातून घाम काढून कमव व खा.' कोटयाधीशसुद्धा जर आपल्या पलंगावर लोळतच राहिला, आणि तोंडात कोणी आणून घालील तेव्हाच खात गेला, तर त्याला फार काळ खाता यायचे नाही, त्याला अन्नाची गोडीही वाटणार नाही म्हणून तो व्यायाम वगैरे करून भूक लागशी करतो; आणि खाण्यासाठी तर त्याला स्वतःचेच हात तोंड हलवावे लागते. जर अशा तऱ्हेने या नाही तर त्या रूपाने शारीरिक व्यायाम राव व रंक सर्वांनाच करावा लागतो, तर मग रोटी उत्पन्न करण्याचाच व्यायाम सर्वांनी का करू नये, असा प्रश्न सहजीच उद्भवतो. शेतकऱ्याला नाही कोणी हवा खायला की, व्यायाम करायला सांगत आणि दुनियेतील नव्वद टक्क्यांहून अधिक लोकांचा निर्वाह शेतीवरच चालला आहे. त्याचे अनुकरण बाकीच्या दहा टक्क्यांनी केले तर जगात किती सुख, किती शांती व किती आरोग्य फैलावले बरे! ज्याला अहिंसेचे पालन करावयाचे आहे, सत्याची आराधना करावयाची आहे, ब्रम्हचर्याला आपण जन्मस्वभाव बनवावयाचे आहे, त्याला तर शरीर श्रम हे रामबाणप्रमाणे होते.12

अस्पृश्यता निर्मुलनाचा अर्थ :- अस्पृश्यता निर्मुलनाचा एकच अर्थ होऊ शकतो तो म्हणजे आपण हिंदूनी अस्पृश्यतेच्या पापातून मुक्त झाले पाहिजे. चार वर्ण कोणाच्या स्पर्शाला विटाळ किंवा पाप मानीत नाहीत पण जो माणूस दुसऱ्याच्या शरीराचा स्पर्श होण्यास हरकत घेतो किंवा एखाद्या विशिष्ट जातीत जन्माला आला म्हणूनच कोणाला अस्पृश्य मानतो. तो निसर्गाच्या नियमाचे उलंघन करतो. करुणेचा तत्वाला आणि खऱ्या शास्त्राच्या अर्थाला बाधा आणतो. अस्पृश्यतेच दोष आमच्यामध्ये आहे असे आपल्याला वाटतच नाही. कोणाला असेही वाटेल की हिंदू समाजाचा अलंकार म्हणून अस्पृश्यता काळजी पूर्वक जतन केली आहे. हा दोष नाहीसा करणे समाज हितचिंतका अवघड वाटत असतांना व्यवहार कुशल माणसांनी या सुधारणेच्या मार्गात आणखी अडचण उत्पन्न करून तिच्या प्रगतीला पायबंद घालू नये. 24

जाती निर्मुलन करण्याची ज्यांना इच्छा आहे ते अस्पृश्यता निर्मुलनाला मदतच करीत असतात आणि ते योग्यच आहे. पण सहमोजन व सह विवाह या सुधारणा अस्पृश्यता निवारण करण्याच्या प्रयत्नापासून निराळ्या आहेत. हे जर त्यांनी समजून घेतले तर त्यांना आपल्या सुधारणांचे महत्त्व कळून येईल.

संदर्भग्रंथ

- 1) म. गांधीचे संकलित वाङ्मय खंड 23 प्रकाशक महात्मा गांधी वाङ्मय प्रकाशन समिती मुंबई आक्टो 1974 पृष्ठ 27
- 2) तत्रैव पृष्ठ क्र 225
- 3) म. गांधीचे संकलित वाङ्मय खंड 16 प्रकाशक संचालक, प्रसिध्द विभाग महाराष्ट्र राज्य मुंबई 26 जाने 1968 पृष्ठ क्र 539, 540
- 4) म. गांधीचे संकलित वाङ्मय खंड 17 प्रकाशक, म. गांधी वाङ्मय प्रकाशन समिती महाराष्ट्र शासन मुंबई -1 पृष्ठ 20
- 5) म. गांधीचे संकलित वाङ्मय खंड 14 प्रकाशक संचालक प्रसिध्दी विभाग महाराष्ट्र राज्य मुंबई मे 1968 पृष्ठ क्र. 428, 429

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आसेगांव पूर्णा, जि. अमरावती

आधुनिक भारतातील राजकीय नेत्यांचा विचार करीत असतांना सर्वात गुंतागुंतीचे व्यक्तीत्व महात्मा गांधी यांचे आहे. दुसरे म्हणजे त्यांच्या सगळ्या विचार पध्दतीत नानाविध प्रकारच्या गुंतागुंती सतत दिसत राहिल्या. भारतासारख्या अवाढव्य लोकसंख्येच्या आणि जाती, धर्म, प्रदेश, भाषा यामुळे अतिशय मिश्र झालेल्या देशाचे नेते होते. म्हणूनच गांधीजींच्या कडे पाहणे कसे हा प्रश्नच गुंतागुंतीचा होतो. केवळ त्यांनी वेळोवेळी केलेली भाषणे किंवा त्यांच्या सुट्या वाक्यांचा विचार करून त्यांच्याकडे पाहता येणार नाही. गांधीजी वेळोवेळी काय म्हणाले यासाठी त्यांची वाक्ये पाहतांना गांधीजींनी कशाचे नेतृत्व केले, त्यांचा देशावर कसा परिणाम झाला? हे पाहिल्याशिवाय गर्व्यतर नाही. त्यांनी उभारलेल्या चळवळीत त्याचे देशावर झालेले परिणाम यांच्याशी सुसंबादी असणाऱ्या वाक्यांनाच त्यांचे मुख्यमापन करताना महत्त्व आहे. गांधीजींना मिळालेल्या वारसांमधील चार घागे अतिशय स्पष्ट आहे. एकतर त्यांच्यामागे राजाराम मोहन रॉय, महर्षी दयानंद, स्वामी विवेकानंद, स्वामी रामतिर्थ अशी आधुनिक साधुसंतांची परंपरा आहे. राष्ट्रअभिमान आणि स्वातंत्र्याची प्रबल आकांक्षा हे या आधुनिक संत मंडळीचे वैशिष्ट्ये आहे.

संत परंपरे खेरीज उदारमतवादी राजकारणाचा एक दुसरा धागा आहे. न्यायमुर्ती रानडे आणि गोखले या गुरु शिष्याचा प्रभाव गांधीजीवर सर्वात जास्त आहे. या समाज सुधारकांनी सर्वच प्रकारचा रुढीचा व विषमतेचा विरोध केला पण प्रामुख्याने स्त्रीदास्य विमोचनावर त्यांनी आपले लक्ष केंद्रित केले होते. यामध्ये स्त्रीयांना शिक्षण, प्रौढ वयात विवाह, विधवा विवाह, प्रेमविवाह, स्त्रीयांना समान हक्क या कल्पनांचा तर गांधीनाही पुरस्कार केलाच पण ते आंतरजातीय विवाहाचे समर्थक राहिले. ज्या आफ्रिकेतील भारतीयांच्या प्रश्नापासून गांधीजीच्या सार्वजनिक जीवनाचा आरंभ होतो. त्यांचे स्वरूप अन्याय व आक्रमण करणाऱ्या वरिष्ठत्वाच्या विरुद्ध उभे राहतात. क्रमाने इंग्रजांच्या विरुद्ध दडपलेल्या भारतीय जनतेच्या बाजूने, भारतातील सर्व गुलाम स्त्रीयांच्या बाजूने व त्यांना गुलाम करणाऱ्या पुरुषीधर्म परंपरेच्या विरुद्ध गांधी उभे राहतात.

अशा स्वातंत्र्याच्या आग्रहालास गांधीजीचा स्त्री विषयक दृष्टिकोण दिसतो. प्रेम करणाऱ्यांची शक्ती आणि आत्म विसर्जनाची शक्ती स्त्रीयांच्या मध्ये सर्वात जास्त असल्यामुळे स्त्री पुरुषांच्या गुलामगिरीतून मुक्त झालीच पाहिजे व पुरुषाने आनंदाने तिचे नेतृत्व स्विकारले पाहिजे असे त्यांना वाटते गांधीजीची नेहमी स्त्री सुधारणांचा पुरस्कार केला. त्यामध्ये स्त्री शिक्षण, प्रौढ-विवाह, प्रेम विवाह, पुनर्विवाह, आंतरजातीय विवाह यांना त्यांनी पाठिंबा तर दिलाच पण त्यांच्या प्रेरणेने शेंकडे आंतरजातीय विवाह घडून आले. ते म्हणत स्त्रीयांचे असो कि शुद्रांचे असो कोणाच्याही गुलामगिरीचे प्रत्यक्ष अप्रत्यक्ष समर्थन करणारा भाग स्मृती ग्रंथातून गाळून टाकावा. ऐतिहासिक अभ्यासासाठी सुध्दा हा भाग अस्तित्वात ठेवण्याची गरज नाही. असे त्यांचे स्पष्ट मत होते.

स्त्री समाजसुधारणेचा प्रश्न आल्याबरोबर आपल्या समोर महात्मा फुले यांनी पुण्यात मुलींची पहिली शाळा काढली. तसेच त्यांच्यानंतरच्या काळात धोंडो केशव कर्वे यांनी स्त्री शिक्षणाच्या पुरस्काराला आपले आयुष्य वाहून टाकले. अशी समाजसुधारणेची वेगवेगळी कामे निरनिराळ्या सुधारकांची कार्य आपल्या डोळ्यांसमोर येतात. पण गांधीजी आणि समाजसुधारणा असा प्रश्न उपस्थित करतांना विचार करतांना समाजसुधारणेच्या कामाला सर्वस्वी वाहून घेणे त्यांना शक्य नव्हते व ते त्यांनी केलेलेही नाही. त्यांचे प्रमुख कार्य राजकीय नेतृत्वाचे होते. गांधीजींचा समाजसुधारणेशी संबंध या देशातील राजकीय वातावरण निर्माण करतांना येतो. गांधीजींनी राजकारणात कोणत्या मनोवृत्ती प्रबल केल्या हे पाहून त्यांच्या समाजसुधारक कर्तृत्वाचा अंदाज बांधायला पाहिजे.

गांधीजींच्या सार्वजनिक जीवनाची सुरुवात आफ्रिकेतील भारतीयांच्या प्रश्नापासून होते. त्या आरंभाचे स्वरूप अन्याय व आक्रमण करणाऱ्या वरिष्ठत्वाच्या विरुद्ध, जेतेपणाच्या अहंकाराच्या विरुद्ध व अत्याचार निमूटपणे सहन करणाऱ्या दलित्यांच्या बाजूने व तसेच भारतातील सर्व गुलाम स्त्रियांच्या बाजूने व त्यांना गुलाम करणाऱ्या पुरुषीधर्म परंपरेच्या विरुद्ध होतांना दिसून येते.

प्रस्तुत संशोधनात गांधीजींच्या समाजसुधारणेच्या कर्तृत्वामध्ये स्त्री विषयक दृष्टिकोनाच्या कोणत्या मनोवृत्ती होत्या त्यांचा अभ्यास करणे हा उद्देश्य आहे.

गांधीजींनी स्त्रियांच्या सेवेचा विधायक कार्यक्रमात समावेश केला आहे. सेवेच्या कार्यामध्ये स्त्री ही पुरुषाची खरोखरीची मदतनिस झाली पाहिजे. ज्या रुढी व कायदे पुरुषांनी घडवले होते व जे घडण्यात स्त्रियांचा काही भाग नव्हता अशा रुढी व कायदांच्या खाली स्त्रियांना चिरडून टाकण्यात आले. अहिंसेच्या पायावर अधिष्ठीत झालेल्या जीवनाच्या योजनेत पुरुषाला स्वतःचे भवितव्य घडवण्याचा जितका अधिकार पोहचतो तितकाच स्त्रियालाही स्वतःचे भवितव्य घडवण्याचा अधिकार असणार, सामाजिक आचाराचे नियम स्त्री पुरुषांनी एकमेकांच्या सहकार्याने व सत्याने घडले पाहिजे. ते कधीही बाहेर लादता येणार नाहीत. स्त्रियांशी वागण्याच्या बाबतीत या सत्याचे संपूर्ण आकलन पुरुषांना झालेले नाही. स्त्रिया या आपल्या सहकारी आहेत. असे समजण्याच्या ऐवजी आपण स्त्रियांचे प्रभु आणि मालक आहेत असे मानीत आलो आहोत. बायका म्हणजे बाहुल्या किंवा उपभोग्य वस्तु आहेत असे न समजता त्या सेवेच्या समान क्षेत्रात सन्माननीय सहकारी आहेत असे समजून त्यांच्याशी तदनु रूप वर्तन ठेवावे आपल्या येथील कायदा व रुढी या दोन्ही दृष्टींनी स्त्रियांचा दर्जा सर्व बाबतीत अगदी खराब आहे. आणि त्यात आमूलाग्र परिवर्तन घडवून आणणे आवश्यक आहे.

अशा अनेक विचारातून गांधीजींच्या स्त्रीविषयक दृष्टिकोणाची मनोवृत्ती आपणास दिसून येतात.

स्त्रीवाद ही एक राजकीय जाणीव आहे. तो एक सम्यक परिवर्तनवादी दृष्टिकोन आहे. 1974.75 च्या सुमारास भारतीय स्त्रीयांच्या दर्जा विषयक अहवाल प्रसिध्द झाला आणि स्वतंत्र भारतातील स्त्रीयांची चळवळ नव्या पायावर उभी राहली आहे. या चळवळीतून आलेल्या अनेक नव्या विचारातून भिन्न स्त्रिवादी विचार प्रवाह विकसीत होत आहेत. महाराष्ट्रातील कोंकण, विदर्भ, मराठवाडा इत्यादी भागातून स्त्री प्रश्नासंदर्भात विचार आणि कृतीचे मंथन चालू आहे. प्रस्तुत शोध निबंधात दृष्टिकोन समोर ठेवून गांधीचे स्त्री स्वातंत्र व मुक्ती बदलचे विचारावर दृष्टिक्षेप टाकण्याचा प्रयत्न करण्यात आला आहे.

गांधीजी आणि स्त्री सुधारणा

गांधीजीची स्त्री जगातील सर्वात महत्वाची कामगिरी ती म्हणजे हजारो स्त्रीयांना राजकारणाच्या सार्वजनिक क्षेत्रात आपले इतकेच नव्हे तर राजकीय प्रचार, सभा संमेलने, व्याख्याने, सत्याग्रह, तुरुंग भरती अशा सर्व ठिकाणी त्यांनी नवजागृत स्त्रीची शक्ती वापरून दाखवली. तसेच पक्षामध्ये आमदार, खासदार आणि मंत्री या विभागात स्त्रीयांच्यासाठी राखीव जागा ठेवल्या यांचा परिणाम म्हणून सार्वजनिक क्षेत्रात स्त्रीयांचा वापर मोठ्या प्रमाणात सुरू झाला पुरुषांना स्त्रीयांशी आदराने वागण्याची सवय लागली आणि स्त्रीयांमधील आत्मविश्वास मोठ्या प्रमाणात वाढीस लागला. पुरुषा इतकेच मानसिक सामर्थ्य असलेली स्त्री त्यांची सहकारी आहे. पुरुषांच्या कार्यांच्या बारीक सारिक गोष्टीत सहभागी होण्याचा हक्क तीला आहे. आत्मबलिदान करण्याचे धैर्य दाखविण्याच्या बाबतीत स्त्री पुरुषांपेक्षा निसंशय श्रेष्ठ आहे. स्त्री अबला म्हणणे हा विपर्यय आहे. पुरुषांचा स्त्रीवरील हा अन्याय आहे. सामर्थ्याचा अर्थ शारीरिक सामर्थ्य असा असेल तर स्त्री पुरुषापेक्षा कितीतरी श्रेष्ठ आहे. तिला अधिक अंतर्ज्ञान नसते का? ती अधिक स्वार्थ त्यागी नसते का? ती अधिक सामर्थ्यशाली नसते का? ती अधिक धैर्यवान नसते का? तीच्या वाचून मानव जात जिवंत राहू शकत नाही. अहिंसा हा आपल्या जीवनाचा धर्म असेल तर आपले भवितव्य स्त्रीच्या हाती आहे, असे गांधीजींचे मत होते. गांधीजींनी स्त्रीयांच्या हक्काच्या बाबतीत कधीही तडजोड केली नाही.

त्यांच्यामते कायद्यान्वये पुरुषांना जे निर्बंध लागू नाहीत असे कोणतेही निर्बंध तिच्यावर असू नयेत. पती देव असेल तर पत्नी ही देवता आहे ती गुलाम नाही. तर समान हक्क असलेली मैत्रीन व सहचरी आहे. दोघेही एकमेकांचे गुरू आहेत. मुलीचा वाटा मुलाइतकाच असला पाहिजे. पतीची मिळकत ही पती-पत्नीची संयुक्त मालमत्ता आहे. कारण स्वयंपाक करणारी म्हणून का होईन पण तिच्या मदतीने तो पैसा कमाई करतो. पती-पत्नीवर अन्याय करीत असेल तर तिला वेगळे राहण्याचा अधिकार आहे. थोडक्यात निसर्गाने केलेल्या व डोळ्यांना दिसणाऱ्या वेदापेक्षा अन्य कोणताही भेभाव स्त्री पुरुषांमध्ये करायला मी तयार नाही. हुंड्याची प्रथा निष्ठुर आहे यात शंकाच नाही. ही प्रथा नष्ट केली पाहिजे. लग्न म्हणजे पैसासाठी आई वडिलांनी जुळवलेली मुलामुलीची जोडी असता कामा नये. हा हुंड्याचा रोग नाहीसा करावयाचा असेल तर मुले-मुली व त्यांचे पालक यांना जातीने बंधन तोडावे लागते.

गांधीजी आंतरधर्मीय विवाहाचे मात्र समर्थक नव्हते. आंतरधर्मीय विवाहाचा ते ठामपणे विरोधी उभे राहिले नाहीत. जागोजागी त्यांनी आंतरधर्मीय विवाहाच्या विषयी नापसंतीव्यक्त केली आहे. याचे कारण असे आहे की, एकतर असल्याप्रकारचे विवाह कायद्यात मान्य नाही. त्यामुळे अडचणी निर्माण होतात आणि मग पती पत्नी पैकी कोणालातरी धर्मत्याग करावा लागतो. गांधीना धर्मत्यागाची कल्पना आवडत नव्हती. कारण त्यांच्यासाठी धर्म ही स्विकारण्याची अगर त्यागण्याची वस्तू नव्हती. तो आत्म्यातुन निर्माण होणारा भाव होतो. जर पती पत्नीचे धर्मांतर न होता भिन्न धर्मीय कुटुंबे अस्तित्वात येत असतील आणि धर्म ही मानसाची खाजगी बाब आहे. तशी ती वैयक्तिक ही बाब आहे. हे समजूतदारपणे मान्य करण्याइतका समाज सूसकृत होत असेल तर मग अशा भिन्न धर्मीय जोडप्याला त्यांचा विरोध नव्हता. अशा जोडप्यांना गांधीजींनी आशिर्वाद ही दिला आहे. भिन्न धर्मीय विवाहाचे धर्मांतरात रूपांतर होवू नये असे त्यांचे म्हणणे होते. त्यामुळे गांधी अशा विवाहाला नापसंती दाखवितात. पण धर्मपरिवर्तन होणार नाही याची खात्री पटल्यावर पाठीबा देतात.

गांधीजींनी स्त्री स्वातंत्र्याच्या दृष्टिने बुरखा पध्दतीला विरोध केला. ते म्हणत की, स्त्रीला पडद्यात ठेवण्याची चाल रानटी पणाची आहे. ते सवत बंदीचे पुरस्कर्ते होते. मुस्लीम समाजातही एक पत्नीत्वाचा कायदा लागू करावा असा त्यांचा मुद्दा होता. मुस्लिम समाजातील घटस्फोटाचा कायदा स्त्रीला वाऱ्यावर सोडून देतो. तो ही बदलला पाहिजे. हिंदू समाजात घटस्फोट धर्म मान्य नाही. हे बदललेली पाहिजे असे त्यांना वाटते. स्त्रीला वडिलांच्या संपत्तीत हक्क मिळावा याचेही ते समर्थक होते. आपण पुरुषापेक्षा कनिष्ठ आहोत असे स्त्रीयांनी समजण्याचे काही कारण नाही. म्हणून सर्व प्रकारच्या अनिष्ट निर्बंधावर स्त्रीयांनी सविनय बंड पुकारले पाहिजे व कोणतेही निर्बंध लाभदायक ठरण्यासाठी ते स्वेच्छेने स्विकारण्यात आले पाहिजे.

मला स्त्रीचा जन्म आला तर पुरुषांच्या हातचे खेळने बनण्यासाठी स्त्रीचा जन्म आहे या पुरुष जातीय विरुद्ध मी बंड पुकारेन. स्त्रीच्या अंतर्करणात शिरण्यासाठी मी मनाने स्त्री झालो आहे. स्त्री ही मुर्तीमत अहिंसा आहे. अहिंसा म्हणजे क्लेश सोसण्याची अमर्याद क्षमता आहे. प्रसुती वेदनापेक्षा अधिक क्लेश दायक दुसरे काय आहे ? परंतु मुलाला जन्म देण्याच्या आनंदात ती सगळे क्लेश विसरून जाते. अशाच प्रकारे तिचे संपूर्ण मानव जातीवर प्रेम करावे. पुरुषांच्या बरोबरीने त्याची आई निर्मीती व मुक पुढारी म्हणून ती आपल्या अभिमानास्पद स्थान प्राप्त करील.

आज ही भारतातील स्त्रीयांची गुलामगिरी पुर्णपणे नष्ट झालेली नाही. पण तिला जे प्रचंड खिंडार पडलेले आहे. त्याच्या श्रेयाची वाटणी करताना राजाराम मोहनराय व फुले यांना जसा वाटा द्यावा लागेल तसा स्त्रीमुक्तीच्या आंदोलनात गांधीजींना फारमोठा वाटा द्यावा लागेल.

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महात्मा गांधींच्या सत्याग्रहाची लोकशाहीतील भूमिका The Role of Mahatma Gandhi's Satyagraha in Democracy

प्रा.डॉ. रमाकांत तिडके

सहायक प्राध्यापक व विभागप्रमुख

राज्यशास्त्र विभाग,

प्रतिष्ठान महाविद्यालय, पैठण

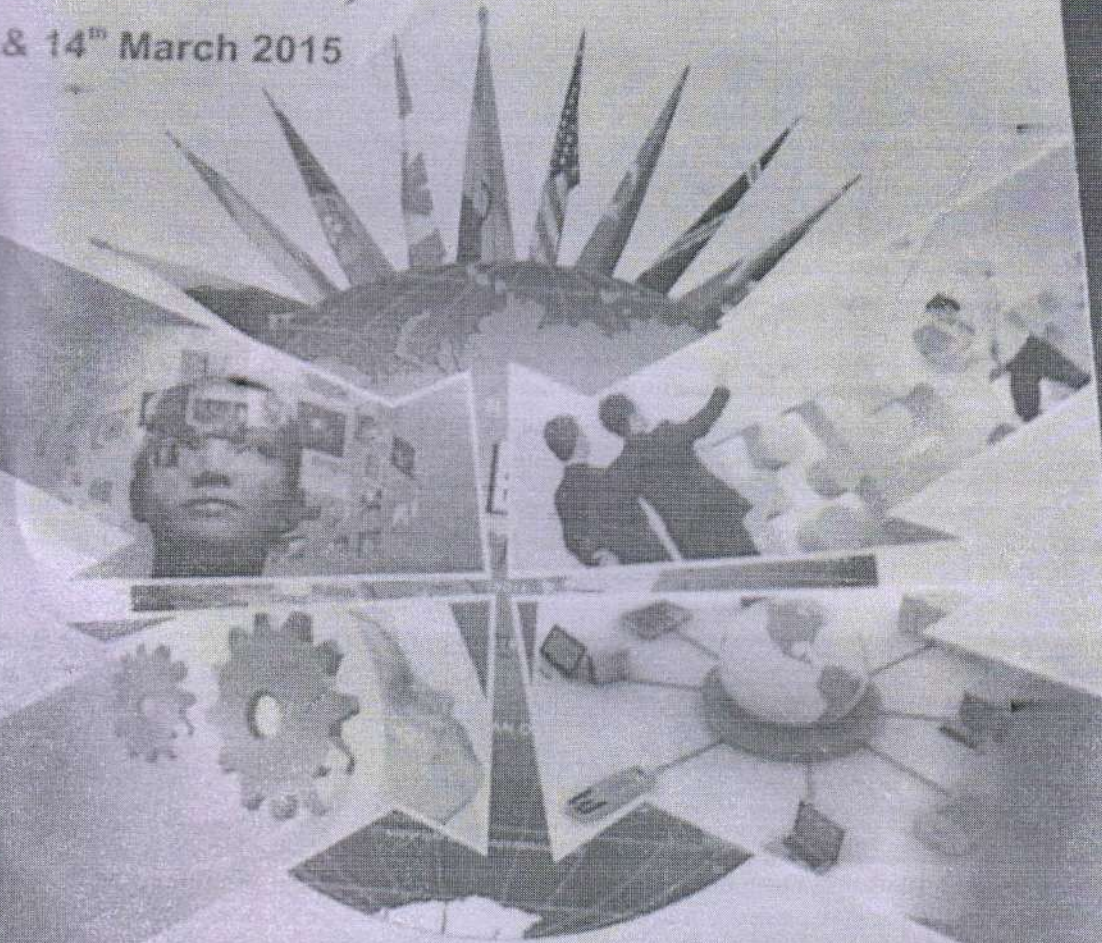
जि. औरंगाबाद

प्रस्तावना Introduction :

म. गांधीजींनी राष्ट्रीय स्वातंत्र्याच्या आंदोलनात सत्य आणि अहिंसा यांना व्यावहारिक रूप देण्यासाठी 'सत्याग्रह' कार्यपध्दती एक साधन म्हणून स्विकारली होती. या कार्यपध्दतीचे नाव आणि मुलभुत सिध्दांतांचा विकास दक्षिण आफ्रिका येथेच झालेला दिसतो. तेथील गोरे सरकार भारतीयांसाठी अन्यायी कायदा पास करत असताना तेथे वास्तव्यास असलेल्या भारतीयांनी गांधीजींच्या नेतृत्वाखाली या अन्यायाचा अहिंसात्मक प्रतिकार करण्याचा निश्चय

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Effect of Dielectric Constants of Dioxane-Water Mixtures on Proton-ligand Dissociation Constants (pK) and Formation Constants of Fe(III) Complexes with 1, 3-Diphenyl Thiazines pH-metrically at 0.1M ionic Strength

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Abstract: The association between Fe(III) and nitro-phenyl thiazines (1, 3-diphenyl thiazine (L₁), 2, 4-diphenyl thiazine (L₂), 2, 6-diphenyl thiazine (L₃), 1, 3-phenyl thiazine (L₄) and 1, 3-diphenyl thiazine (L₅), have been investigated by pH-metric technique at 0.1M ionic strength and by different percentage of dioxane-water mixture with CaCl₂·6H₂O. 2, 4-diphenyl thiazine data obtained in the present study the effect of dielectric constants on proton-ligand stability constants. It is noted that Fe(III) forms 1:1 and 1:2 complexes with substituted thiazines. It could be also seen that pK and log k values are found to be increased with increasing the percentage of dioxane-water mixture.

Keywords: Substituted thiazines (L₁-L₅), metal ion and dioxane.

INTRODUCTION

It is well known that the anionic dyes and good chelating agents are in presence of dioxane, ether, nitro, phenyl and chloro groups. A great number of workers have studied metal-ligand stability constants of transition metal ions with substituted thiazines and their derivatives have been studied by many workers. Proton-ligand and metal-ligand stability constants of Lanthanide Metal ions with substituted thiazines and Pyridines have been studied (Bansal, K.K., Narwade 1985). They have investigated the stability constants of Lanthanide metal ions with some substituted sulphonic acids spectrophotometrically. (Saprawale and Narwade 1997) have studied the influence of dielectric constants of metal-ion-water mixtures on formation constants of Fe(III)-Glycol-Glyoxyl-Glycine-oxalic complexes. In a view of analytical applications and antibiotic drugs it is worthwhile to know the physico-chemical properties of such the complexes and effect of dielectric constants of solvents on stability constants. Therefore, the present work is undertaken to make a systematic study of Fe(III) complexes with substituted thiazines. For such study are used as probes in biochemistry of metal ion (Brachman, E.R. and Darnall, D.W. 1970) showed that malonic acid could substitute the calcium ion to produce active enzymatic system. Use of unnatural chelating agents in biological system is reported by Narwade (1984). The role of binary complexes in storage and transport for physiological activity of substances has been studied (Banerjee A.K. and Rao K.K. 1986). The biological properties of transition metal ion complexes have been reported by Sharma R.C., Tripathi S.P. and Sharma R.S. (1983).

1. MATERIALS AND METHODS:

1.1. Experimental

Standard solution of 0.2M NaOH, 1M KNO₃ and 0.1M KNO₃ were prepared by using A.R. grade reagents. The aqueous solution of 0.01M of Fe(III) was prepared in double distilled water and its concentration was checked by standard solution of EDTA(0.01M). The solutions of 1, 3 all above substituted thiazine is prepared in 70% dioxane-water mixture as a solvent.

Calvin-Bjerrum Titration Process:

Titration are carried out in an inert atmosphere of nitrogen gas, in order to keep away CO₂ and removal of dissolved oxygen (Vogel A.L. 1956).

Three sets of titrations are performed as follows:

- 1) Free acid titration nitric acid (1 x 10⁻³ M).
- 2) Free acid nitric acid (1 x 10⁻³ M) + ligand (20 x 10⁻³ M).
- 3) Free acid, nitric acid (1 x 10⁻³ M) + ligand (20 x 10⁻³ M) + Metal ion Fe(III)₀ (1 x 10⁻³ M).

Above three sets were titrated against standard solution of 0.2M NaOH and 0.1M ionic strength was maintained constant by adding an appropriate amount of 1M KNO₃ solution. Titrations were carried out by bubbling nitrogen gas for removal of dissolved oxygen gas-pH values were corrected by the use of (Van-Valen and Hass equation (1953)).

Metal-ligand Stability Constants (log k₁ and log k₂):

The deviation of (acid + ligand metal ion) curves from (acid + ligand) curves was found around pH 2.75 and increased continued for all the systems. This indicated the commencement of complex formation between ligand and metal ion before hydrolysis. The values (n) metal-ligand formation numbers were evaluated by the use of Irving-Rossetti's expression*. The values of log k₁ for 1:1 complex and log k₂ for 1:2 complex were evaluated and presented in Table 1.

The values of stability constant increased with increasing the percentage of dioxane-water mixture Table 2. There is no an appreciable change in log k₁ and log k₂ values this may be due to fact of the effect of dioxane-bulk solvent that indicates the formation of simultaneously complexes. The deviation between ligand curve and metal ion curve indicated the commencement of complex formation moreover the change in colour during titration also indicated the formation of complex between metal ion and ligand.

The Plots of pK/log k vs. 1/D-Dielectric Constant) D

The plots between pK/log k and 1/D showed linear relationship. Water is recognized by all workers in solution field as being a unique structure having three dimensional like frame work. The dielectric constant of a medium is not solely responsible for the extent of dissociation. There is at least an additional factor for the chemical role of solvent in most cases.

3. RESULTS AND DISCUSSION

1) Calculation of Proton-ligand stability constant (pK). Existence proton-ligand equilibria corresponds to dissociation of proton from OH group of ligand. HL ⇌ H⁺ + L⁻. The deviation between

Effect of Dielectric Constants of Dioxane-Water Mixtures on Proton-ligand Dissociation Constants (pK) and Formation Constants (K_f) of Cu(II) Complexes with 1, 3-Diphenyl Thiazines pH-metrically at 0.1M Ionic Strength

average curve and ligand titration curve showed to start the loss value of -CH₂ group of ligand. The average number of proton dissociated with ligand (n_a) were determined from deviation employing using Irving-Szmus's expression¹¹. Formation curves were obtained by plotting n_a vs pH in different percentage of dioxane-water mixture and pK values were obtained at n_a = 0.5. The pK values were found to be increased with increasing the percentage of dioxane-water mixture. This may be due to the effect of bulky substituents. Banoor¹² has observed same phenomena for substituted pyridines in different percentage of dioxane-water mixtures.

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TABLE 1: Metal ligand stability constant between Cu(II) and substituted thiazines at 0.1M ionic strength.

SX	System	Log k ₁	Log k ₂
1	(1,3-diphenyl thiazine) L1	5.16	4.86
2	(2-Chlorodiphenyl thiazine) L2	5.06	4.66
3	(2-Chloro 1, 3 thiazine) L3	5.27	4.96
4	(3, 5-phenyl thiazine) L4	4.96	4.76
5	(1, 3 diphenyl thiazine) L5	5.01	4.68

TABLE 2: The values of pK and log k in different percentage of dioxane-water mixture of Fe(III) - 1, 3 diphenyl complex.

% Dioxane	Dielectric Constant B	1/D	Mole Fraction	pK	log k ₁	log k ₂
00	34.25	0.02911	0.1735	5.737	4.66	4.56
10	30.11	0.03323	0.2042	6.51	4.71	4.61
20	27.86	0.03590	0.2396	7.16	4.84	4.64
30	25.88	0.04588	0.2686	7.76	4.96	4.75
40	23.21	0.05653	0.3299	8.01	5.16	4.86
50	21.2	0.06945	0.3885	8.51	5.31	4.91

A Study of Organizational Health

Abstract: Over the last 30 years organizational settings, demographics, increased competition, improved productivity when and where work gets done, and the capability of structuring and researching organizational organization and health is a concern that a production and knowledge developed has been seen that the future requires interpersonal. And so does organization committed goals of an individual capabilities and efficiency in the long run in the institution and utilizing the organization's emerging concept of organizational health with the dimensions of organizational health with

Keywords: Organization, Organizational Health, Skills

1. INTRODUCTION

The great part of organizational settings organizations, but also major changes have taken place, global competition, and productivity have all been seen. The organizational settings, performance, such as retaining a highly skilled professionals are global and therefore they can

While work in today's competitive and increasingly global and economic environment, for a number of years, organizations are expected to be more efficient. This is not only in terms of cost and quality, but also in terms of the ability to attract and retain the best talent and perform effectively.

The concept of organizational health is a relatively new concept that refers to the overall well-being of an organization, including its financial, operational, and human resources.

About the Editors



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Mr. Puspraj Mishra was born in 1977 and is serving Patel Group of Institutions, Indore as Group Coordinator/ Group Registrar/ OSD. He had completed M.B.A. in Human Resource Management. Mr. Mishra is having more than 17 years of experience of academics & administration. He has been acknowledged as a distinguished professional. He has published number of research papers in Journals of National & International repute and conference Proceedings.



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PHYSICAL EDUCATION

As a Profession

Dr. A. B. Tare
Prof. U. V. Bramhe



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महाविद्यालयातील शारीरिक शिक्षकांच्या व्यवसायिक समाधानाचे अध्ययन

- डॉ. डि. एम. वानखे

शारीरिक शिक्षण संचालक, विद्याभरती महाविद्यालय, अमरावती

प्रस्तावना

शारीरिक शिक्षण ही राष्ट्राची गरज आहे. आज कोठल्याही राष्ट्राची प्रगती उगलल्या असलेल्या शिक्षण संस्थेवरच अवलंबून असते. या दृष्टीने जर शारीरिक शिक्षण हे शैक्षणिक प्रगतीचे मापदंड व अविभाज्य घटक असेल तर शारीरिक शिक्षणाचा सखोल अभ्यास करावा लागेल हे शिक्षण तंत्रावर, पद्धतीवर कार्यरत असलेल्या शारीरिक शिक्षकांवर अवलंबून असते. करून घ्यावी लागते. त्यामुळे ते फावल्या वेळेचा उपयोग करून भविष्यात चांगले खेळाडू बनून नाव उज्वल करू शकतील.

भारताचे भवितव्य वर्गातून घडत आहे. माध्यमिक शाळेतील विद्यार्थ्यांचे शिक्षण पूर्ण असते. चांगले शिक्षण योग्य अध्ययन अनुभवाद्वारे दिल्या जाऊ शकते, असा शिक्षणासाठी फक्त पदवीधर शिक्षक असून चालत नाही तर शिक्षकाने या व्यवसायात मन ओतून व्यवसायाकडे बघण्याची योग्य दृष्टी ठेवली पाहिजे.

व्यवसायिक समाधान

स्मिथ, केन्डल आणि हुलिनच्या मते, व्यावसायिक समाधान म्हणजे व्यवसायाबद्दल असलेली ओढ किंवा परिणामकारक प्रतिसाद होय.

शिक्षकी व्यवसाय करणारा शिक्षक निर्माता आहे, शिल्पकार आहे, मुलांचा उत्तमोत्तम संस्कार करून, त्यांच्या मनात सद्‌विचार, सद्‌भावना, सद्‌प्रेरणा यांचे रोपण करून त्यांचे व्यक्तिमत्त्व घडविण्याचे, नवीन पिढी निर्माण करण्याचे मौलिक असे त्यांचे कार्य आहे. संस्कृति संक्रमण व संस्कृति संवर्धनाची जबाबदारी पूर्णपणे शिक्षकांची वृत्ती आहे की स्वधर्म निष्ठा शिक्षकांच्या अंतःकरणात जागृत झाली तर त्याला व्यावसायिक समाधान लाभेल. आपले पूर्वग्रह बाजूला ठेवून प्रत्यक्ष किंवा ज्ञान घटक यथातज्ञ स्वरूपात विद्यार्थ्यांसमोर ठेवणे हे शिक्षकांचे कर्तव्य आहे. हे प्रामाणिकपणे त्यांनी बजावणे यालाच शुद्ध वैज्ञानिक दृष्टीकोन अंगी बाणायचा म्हणजे मानवीय वृत्तीला पारखे म्हणायचे असे नव्हे. उलट शिक्षक हा मानवीय गुणांनी युक्त सुसंस्कृत, चारित्र्यसंपन्न असायला हवा. त्याशिवाय तो उत्कृष्ट व प्रभावी शिक्षक होवूच शकणार नाही. व्यावसायिक कार्यक्षमता व सांस्कृतिक वृत्ती या दोघांचाही समन्वय शिक्षकांच्या

व्यक्तिमत्त्वात न्हायला हवा. त्याला व्यवसाय समाधान लाभण्यास हे आवश्यक आहे. आज शिक्षक व विद्यार्थी यांचा संबंध केवळ ५-६ तासांपुरते व तोंडी परिक्षेला नेमलेला अभ्यासक्रम पूर्ण करण्याकरीताच येतो. त्यामुळे विद्यार्थ्यांच्या व्यक्तिमत्त्वाच्या इतर अंगांच्या विकासाकडे शिक्षकाला लक्ष देणे शक्य होत नाही. आजच्या आपल्या शाळा शहरी वातावरणात बसल्या आहेत. सर्वत्र गर्दीने वेढलेल्या आहेत. त्यामुळे शाळेमध्ये शांत वातावरण अभावानेच आढळते. शिवाय आज शाळा व समाज, जीवन शाळा व राजकारण यांचा इतक्या मोठ्या प्रमाणात संबंध येऊ लागला की शाळेतून केल्या जाणाऱ्या संस्कारापेक्षा सामाजिक व राजकीय वातावरणाचे संस्कार हे अधिक प्रभावी ठरत आहेत. अविकसित व अपरिपक्व अवस्थेत विविध सामाजिक व राजकीय विचार प्रवाहांच्या विकृतीच्याही आहारी जात आहेत.

आधुनिक काळातील विनोबांनी शिक्षकांपुढे वेदकालीन शिक्षकांचा आदर्श असावा असे मत व्यक्त केले आहे. त्याचप्रमाणे विद्यार्थ्यांनी आपले मन इंद्रिय व बुद्धी यावर ताबा मिळवून स्थितप्रज्ञ बनण्याचा प्रयत्न करावा असे आपल्या शिक्षणविषयक विचारांमधून सुचित केले आहे. अधिकारापेक्षा कर्तव्यावर अधिक भर दिल्यास शिक्षकाला व्यवसाय संतोष लाभण्यात ९० टक्के मदत मिळेल. आज अशीच परिस्थिती निर्माण झाली आहे. अन्य कोणतीही नोकरी ज्याला मिळत नाही, कोणत्याही व्यवसायात यश मिळण्याची शक्यता नाही तोच नाईलाजाने शिक्षक होतो. अनेक लोक शिक्षण व्यवसायाचा अन्य व्यवसायात पदार्पण करण्यापूर्वीची पायरी म्हणून उपयोग करतात. साहजिकच अशा लोकांच्या मनात शिक्षण व्यवसायाबद्दल प्रेम नसते. कार्यावर निष्ठा नसते. केवळ उपजिविकेचे साधन म्हणून या व्यवसायाचा स्विकार केला असल्यामुळे ध्येयवाद, ज्ञानलालसा, विद्यार्थ्यांबद्दल प्रेम, त्यांच्या विकासाची तळमळ, आदर्श वर्तन इत्यादी शिक्षकामध्ये आवश्यक असलेल्या गुणांचाही या व्यक्तीमध्ये अभाव आढळतो.

शिक्षकांचा व्यवसाय

शिक्षकांचा व्यवसाय आर्थिकदृष्ट्या फायदेशीर नसतो. समाजातही त्यांना विशेष मान नसतो. यशस्वी शिक्षक न्हायचे असेल तर विषमाचे ज्ञान, विद्यार्थ्यांविषयी जिन्हाळा असावा लागतो. खऱ्या शिक्षकाला आपल्या कामात अत्यंत आनंद व समाधान वाटते. एखाद्या फुलांप्रमाणे अथवा चंद्राच्या कलांप्रमाणे उमलत जाणाऱ्या बालक-बालिकांना उमटविण्याच काम त्यांना करावे लागते. संस्कारक्षम वयात बौद्धिक ज्ञानाबरोबरच त्यांच्या शरीराच्या, मनाच्या घडणीत मदत करावयाची असते. शिक्षकाला चैतन्यमुक्त व विकासशील बालकांवर चांगले संस्कार करावयाचे असतात.

शारीरिक शिक्षणाचा व्यवसाय

अशा ह्या शिक्षणाच्या व्यवसायाशीच शारीरिक शिक्षणाचा व्यवसायीक विगडित आहे. शिक्षकांच्या व्यवसायापासून शारीरिक शिक्षणाचा व्यवसाय मुळीच भिन्न नाही. इतर शिक्षणाप्रमाणे याही शिक्षणाला शैक्षणिक लायकी असते. व्यवसायीक शिक्षक घ्यावे लागते. उन्हाळ्यात व सुटीच्या दिवशीही कामे करावी लागतात. इतके करूनही आर्थिक प्राप्ती ही कमीच असते. इतर शिक्षकांना शिकवण्या वगैरे अन्य मागाने काही मिळकत करता येते. ती या शिक्षकाला करता येत नाही. कवायतीचा व खेळाचा शिक्षक म्हणून याला शिक्षकाच्या रंगेत जागा नसते. शिक्षकांच्या खोलीत त्यांचा स्थान नसते. महाविद्यालयात तर अशा पी.टी.आय ला स्थान नसते. मुलांनाही ते जको असतात. इतर शिक्षक यांना सहकारी मानण्यास तयार नसतात. त्यांना व्यवसायालाच अभ्यासक्रमतेवर विषय मानले जाते. त्यामुळे त्यांना महत्त्व नाही. परीक्षेच्या विषयांचा व त्यांच्या शिक्षकांना जो काही मान असतो तो त्यांच्या वाट्यास येत नाही. पडेल ती कामे त्यांना करावी लागतात. इतर शिक्षकांप्रमाणे त्यांच्या कामात जास्त वेळ व त्रास होतो. सर्वसाधारणपणे असा समज आहे की, व्यायामाच्या तासास चार-तीन हात कवायत, संचलन व काही खेळ खेळावयास सांगितले की संपले. या कामाला शिक्षण कशाला हवे? बुद्धीची तर जरूरीच नसते. परीक्षेचा मौसम सुरू झाला की आराम. त्यांच्या कामासंबंधी कोणाला आस्था नाही की जिव्हाळा नाही. अशा स्थितीत त्यांच्या कामाचा उठाव होणे फार कठीण आहे.

शारीरिक शिक्षकाचे काम

एक गोष्ट मात्र लक्षात ठेवली पाहिजे की या शिक्षकाचे काम अतिशय जिकिरीच आहे. वर्गात विषय शिकविताना मुले आपल्या जागेवर स्तब्ध बसून राहतात. लिहिण्याचे साहित्य, पुस्तके, फळा, नकाशे, चित्रे आदिंच्या सहाय्याने शिकविण्याची सोय असते. यामुळे व्यवस्थितपणा व शिस्त ठेवणे वर्गशिक्षकाला कठीण जात नाही. उलट शारीरिक शिक्षणाच्या तासाला मुले आली की त्यांची वृत्ती सैरावैरा फिरण्याकडे एकमेकांना धक्काबुक्की करण्याकडे जास्त असते. अशा वेळी त्यांना काबूत ठेवून नियोजित गोष्टी शिकविणे ही सोपी गोष्ट नाही. हुकूम देवून, रांगा करून कवायती करून घेतल्या तरी पुष्कळ निरनिराळ्या प्रकारच्या सोयी, शर्यती, खेळाची कौशल्ये यांना अनुरूप व्यायाम प्रकार व पूर्वतयारीचे खेळ वगैरे आल्हाददायक, आव्हानकारक गोष्टी शिकवण्याच्या म्हणजे शिक्षकाला आपल्या बुद्धीचा उपयोग करावा लागतो. शारीरिक चाचण्या घेणे, सामने व स्पर्धा भरविणे, आंतरराष्ट्रीय स्पर्धाकरीता तयार करणे, मुलांच्या वन संचाराचे, शिबिर निवासाचे कार्यक्रम आखणे, इतर गोष्टी यशस्वी रितीने करणे ह्याला व्यवसायीक

शिक्षण योजना, बुद्धी, चिकाटी, समजूतदारपणा वगैरे अनेक गोष्टी लागतात. मानसशास्त्राचे ज्ञान व व्यवहारी दृष्टी लागते. शारीरिक शिक्षणाशिवाय एखादा दुसरा वर्ग शिकविण्याची पात्रता त्याच्या ठायी असावी लागते.

पद्धतशीर रितीने शारीरिक शिक्षणाची योजना आखून ती विद्यार्थ्यांच्या सहकारी शिक्षकांच्या व मुख्याध्यापकांच्या सहकार्याने पार पाडणे ही त्या शिक्षकांची जबाबदारी असते. विद्यार्थ्यांच्या अंगी शिस्त, व्यवस्थितपणा, शील, शक्ती, सहकार्याची भावना निर्माण करणे वगैरे कार्य त्याला करावे लागतात. म्हणून या शिक्षकांचा दर्जा व पगार इतर शिक्षकांपेक्षा कोणत्याही दृष्टीने कमी असता कामा नये. असा आग्रह धरण्यात गैर नाही. उलट तो काकणभर उच्च असला पाहिजे.

निष्कर्ष

वरील संशोधन कार्य केल्यानंतर खालीलप्रमाणे निष्कर्ष काढण्यात आले.

१. महाविद्यालयातील शारीरिक शिक्षक हे मैदाने, विद्यार्थ्यांचा प्रतिसाद, प्राचार्यांचे समाधान, स्पर्धेचे आयोजन, प्रशिक्षणाला जाण्याची सोय, सर्व प्रकारचे खेळ साहित्याची उपलब्धता इत्यादी बाबतीत शाळेतील शारीरिक शिक्षकांपेक्षा जास्त समाधानी आहेत.
२. शाळेतील शारीरिक शिक्षक हे रजा, विषयांचे तास, प्राचार्यांची वागणूक इत्यादी बाबतीत असमाधानी आहेत.
३. मुलांच्या तक्रारी, पालकांचे सहकार्य, शारीरिक शिक्षणाचे महत्त्व, ग्रंथालय, प्राचार्यांचा दृष्टीकोन इत्यादी बाबतीत शाळा व महाविद्यालयातील शारीरिक शिक्षकांचे विचार जवळपास सारखेच आहेत. एकंदरीत वरील निष्कर्षांकडे पाहता असे आढळून येते की महाविद्यालयातील शारीरिक शिक्षकांपेक्षा आपल्या विषयाबद्दल जास्त समाधानी आहेत.

सूचना

१. संबंधित शारीरिक शिक्षकांना आपल्या व्यवसायाशी संबंधित आधुनिक माहितीचे वाचन केले पाहिजे. विद्यापीठाने घालून दिलेल्या सर्व नियमांच्या चाकोरीतून कार्यक्रमाचे नियोजन केले पाहिजे. ह्या गोष्टीचे पालन केले तर आपण आपल्या व्यवसायाशी एकनिष्ठ आहोत असे समजावे.
२. प्रत्येक विद्यार्थ्याला खेळ व क्रिडा स्पर्धांमध्ये सहभाग देणे अनिवार्य करण्यात यावे.
३. प्रत्येक महाविद्यालयाला ग्राऊंड असणे आवश्यक आहे. प्रत्येक गेमसाठी वेगळा शारीरिक शिक्षक असावा.

४. वैद्यकीय तपासणी अॅडमिशनच्या वेळीच घ्यावी.
५. जिल्हा स्तरावर २-२ कोचेस स्त्री-पुरुष पाहिजेत.
६. शारीरिक शिक्षण हे सर्वांसाठी आवश्यक करावे.
७. विद्यार्थ्यांच्या संख्येनुसार शारीरिक शिक्षकांची संख्या असणे आवश्यक आहे.
८. खेळाकरिता बजेट वाढविण्यात यावे.
९. मैदानाची योग्य निगा राखण्यात यावी.
१०. भरपूर नवीन साहित्य उपलब्ध करून यावे.
११. समाजामध्ये शारीरिक शिक्षणाकडे पाहण्याचा दृष्टिकोन चांगला राहण्यासाठी शारीरिक शिक्षकाने आपली कृती आणि योग्य व उच्च दर्जाचे प्रदर्शन करावे.



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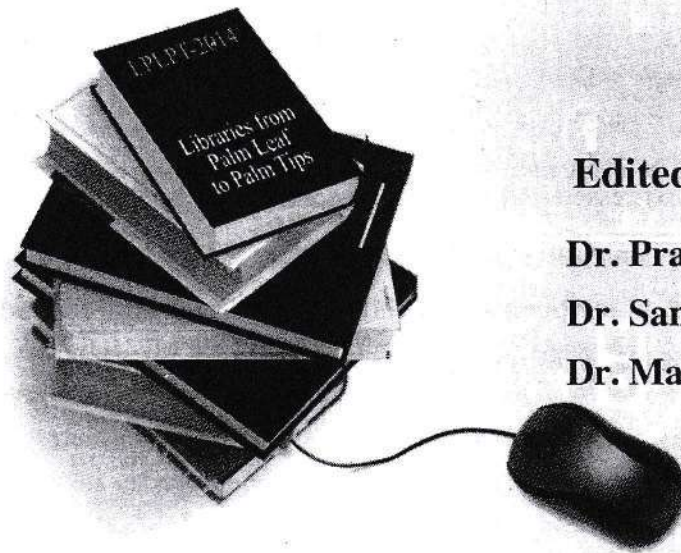


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Application And Techniques of Data Mining in Library Science: A Review

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Abstract—

Library and information services in schools, colleges, universities, corporations and communities obtain information about their users, circulation history, resources in the collection, and search patterns. Understanding the benefits of data is essential from business point of view. Data can be used for classifying and predicting the students' behaviour, performance, dropouts as well as teachers' performance. Knowledge Discovery or Data Mining is the partially automated process of extracting patterns, usually from large data sets. The paper tries give an overview on data sources and possible applications and techniques of data mining in the library.

Keywords : Data Mining, Data Mining Techniques, Data Mining Application

Introduction:

Data mining is an essential tool, which is used to predict and classify the data collected from the customers. Today, many industries use data mining to make decisions and to prepare marketing strategies towards target segmented customers for the achievement of its objectives. But many universities neglected practicing data mining techniques. Application of data mining in education sector is an emerging trend in the global competitive business. Understanding the data mining terms, tasks, techniques and application are foundation of developing data mining in education sector. Therefore, there is a need to study the role of data mining in education sector.

We live in the Age of Information. The importance of collecting data that reflect in business or scientific activities to achieve competitive advantage is widely recognized now. Powerful systems for collecting data and managing it in large databases are in place in all large and mid-range institutions and organizations.

Data Mining: Data mining can be defines as "An information extraction activity whose goal is to discover hidden facts contained in databases. Using a combination of machine learning, statistical analysis, modeling techniques and database technology, data mining finds patterns and subtle relationships in data and infers rules that allow the prediction of future results. Typical applications include market segmentation, customer profiling, fraud detection, evaluation of retail promotions, and credit risk analysis."

Stages of the Data-Mining Process:

1. Data gathering, e.g., data warehousing, Web crawling.
2. Data cleansing: eliminate errors and/or bogus data,
3. Feature extraction: obtaining only the interesting attributes of the data, e.g., "data acquired" is probably not useful for clustering celestial objects, as in Skycat.
4. Pattern extraction and discovery. This is the stage that is often thought of as "data mining," and is where we shall concentrate our effort.
5. Visualization of the data. Application of Data Mining
6. Evaluation of results; not every discovered fact is useful, or even true! Judgments is necessary before following your software's conclusions.

How does data mining work?

While large-scale information technology has been evolving separate transaction and analytical systems, data mining provides the link between the two. Data mining software analyzes relationships and patterns in stored transaction data based on open-ended user queries. Several types of analytical software are available: statistical, machine learning, and neural networks. Generally, any of four types of relationships are sought:

Classes: Stored data is used to locate data in predetermined groups. For example, a restaurant chain could mine customer purchase data to determine when customers visit and what they typically order. This information could be used to increase traffic by having daily specials.

Clusters: Data items are grouped according to logical relationships or consumer preferences. For example, data can be mined to identify market segments or consumer affinities.

Associations: Data can be mined to identify associations. The beer-diaper example is an example of associative mining.

Sequential patterns: Data is mined to anticipate behavior patterns and trends. For example, an outdoor equipment retailer could predict the likelihood of a backpack being purchased based on a consumer's purchase of sleeping bags and hiking shoes.

Data Mining Techniques:

In this section, the most common data mining techniques are discussed to understand the theory without going into details. According to Chen et al. (2005) data mining brings various techniques together to discover pattern and to construct models from database. Ngai et al. (2009) indicates seven types of data mining model: Association, Classification, Clustering, Forecasting, Regression, Sequence Discovery and Visualizations. Huang et al. (2012) concludes that data mining technique is used to gain useful information or interesting knowledge. Perceived usefulness and perceived ease of use are the factors that affect an individual intention to use data

Mining tools. Figure 1 shows the techniques of data mining.

1. Neural Networks 2. Decisions Tree 3. Regression Analysis 4. Cluster Analysis

Purpose of This Study:

The study provide an approximate estimation of the existing computerized records of library books and to evaluate how books are used that is somehow related to the ways of students used the library. Focusing on this point, the current study attempts to understand effective use of library books among students and clarify maximum use of library books. Books are highly borrowed from the library. The analysis had been carried out by using a library books dataset and using the Data Mining's decision tree algorithm implemented in Weka. Student expectations and demands of the library are reflected in their library usage, and if these are related to certain educational outcomes, the results of this study may be useful to promote certain types of library use that are more efficient in attaining desired outcomes. Also, if it is possible to predict the level of outcomes affected by the identified types of library books use, this process can be examined further to develop into a method of outcomes assessment.

Role of Library:

The library is regarded as the 'nerve centre of knowledge', the centre of intellectual life and the

heart and Soul of the academic institution. This means that discoveries are actually made in the library and subsequently tested in the laboratory. It occupies an important place in the modern education system and maintains the expensive educational resources of the academic institutions. It is the responsibility of the staff of university libraries to provide right information at the right time to right user to save the time of the user. The libraries are primarily responsible for the selection and collection of material appropriate for libraries, preservation and organization of the collection and dissemination of the material or the information, which it contains. Libraries as centre of learning are playing an important role in sustaining and satisfying the information requirements of parent institutions. For the efficient, effective and scientific development of information resources and services, the libraries need to be designed and developed systematically based on the inputs from studies on existing resources and services, and the studies on users of university libraries.

Applications DATA MINING in Library and Information Service:

Most people think of libraries as the little brick building in the heart of their community or the big brick building in the center of a campus. These notions greatly oversimplify the world of libraries, however. Most large commercial organizations have dedicated in-house library operations, as do schools, nongovernmental organizations, as well as local, state, and central governments. With the increasing use of the Internet and the World Wide Web, digital libraries have proliferate, and these serve a huge variety of different user audiences, e.g., people interested in health and medicine, science and technology, industry and world news, law, and business. With this expanded view of libraries, two key insights arise. First, libraries are nearly always embedded within larger institutions. Corporate libraries serve their corporations, academic libraries serve their universities, and public libraries serve the general public. Second, libraries play a important role within their institutions as repositories and providers of information resources. In the provider role, libraries represent in microcosm the intellectual, learning, and knowledge management activities of the people who comprise the institution.

This fact provides the basis for the strategic importance of library data mining: By ascertaining what users need to know and how well those needs are served, bibliomining can reveal insights that have meaning in the context of the library's host institution. Using bibliomining, libraries can ascertain what their constituencies want to learn, whether they find the information they seek, and whether that

information satisfies their learning and knowledge needs. In corporate libraries, which serve the knowledge needs of commercial organizations, such insights can help to develop and maintain a competitive, cutting edge workforce. In special libraries, which support the research needs of government and non-governmental organizations, these insights can influence the success of policies and programs that are informed by research. In academic organizations, accurate insights into faculty and student knowledge needs can enhance the viability of the whole institution. To understand libraries can help to achieve these insights, and thus help to enhance the effectiveness of their host organizations or communities, it is important to understand the workflow and associated dataflows that occur within a prototypical library.

Overview of Library Workflow:

Workflow in a traditional "bricks and mortar" library creates a number of data sources appropriate for bibliomining. Before a library obtains new information resources (e.g., books, databases, reference tools, electronic access, etc.), a librarian assesses the needs of the existing collection in light of available and upcoming publications. Next, acquisitions personnel obtain the information resources specified from this needs assessment. Once the library obtains requested new resources, cataloging personnel either create or purchase a catalog record for the new resource. The circulation department then makes the resource available to end-users. Depending upon the size of the library and the scope of its operations, these activities fall within the purview of one, a dozen, or possibly hundreds of different employees organized into specialized departments. After an information resource appears in the library's collection, users locate it using catalog search systems and bibliographic databases. Although little uniformity exists with regard to the specifics of the user interfaces for these systems, most catalogs and bibliographic databases support a standard Web browser client as the user interface. Increasingly, catalogs and databases are cross-linked, and each user's search record and traversal of links appears in log files. When users find resources that they wish to borrow, the circulation department records their selection in a database that tracks the location of each resource owned by the library. As this overview suggests, all functional processes of the library – collection assessment, acquisition, cataloging, end user searching, and circulation – generate large reserves of available data that document information resource acquisition and use. Library information systems frequently use large

relational databases to store user information, resource information, circulation information, and possibly bibliographic search logs.

Bibliomining to Improve Library Services:

The users of library services are one of the most important constituencies in most library organizations. Most libraries exist to serve the information needs of users, and therefore, understanding those needs is crucial to a library's success. Examining individual users' behaviors may aid in understanding that individual, but it tells librarians very little about the larger audience of users. Examining the behaviors of a large group of users for regular patterns can allow the library to have a better idea of the information needs of their user base, and therefore better customize the library services to meet those needs. For many decades libraries have provided readers' advisory services with the help of librarians who know the collection well enough to help a user choose a work similar to other works. Market analysis can provide the same function by examining circulation histories to locate related works. In addition, this information could be provided to the OPAC to allow users to see similar works to one they have selected based upon circulation histories. While it is technically possible to build a profile for users based upon their own circulation history (Amazon.com for example), it may be legally and ethically questionable to do this without a user's permission. Nonetheless, by obtaining and using anonymous data from a large number of users, one can obtain similar results.

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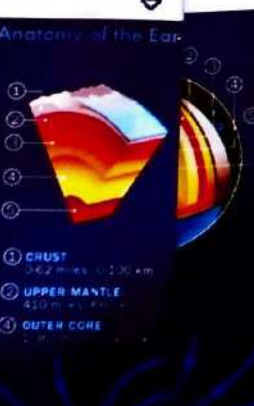
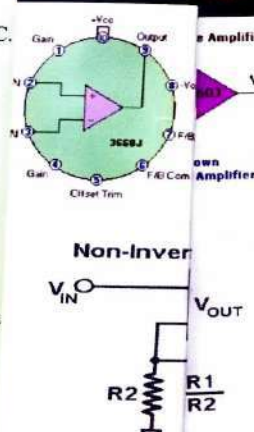
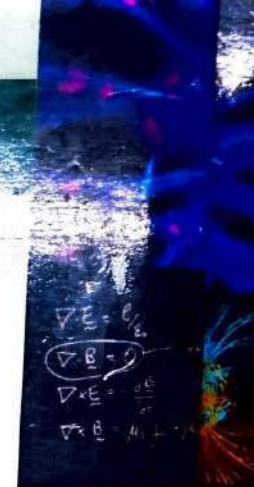
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(Genesis of Social Problems)

८. समाजोद्भवित सामाजिक समस्या
९. संरचनात्मक समस्या

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(Familial Problems)

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११. वृद्ध लोकांचे प्रश्न

युनिट - ५ : समकालीन आव्हाने
(Contemporary Issues)

१२. समकालीन आव्हाने - विकासात्मक समस्या
१३. विघटनात्मक समस्या
१४. भारतीय समाजातील विविधतेच्या संदर्भात राष्ट्रीय एकात्मतेची समस्या

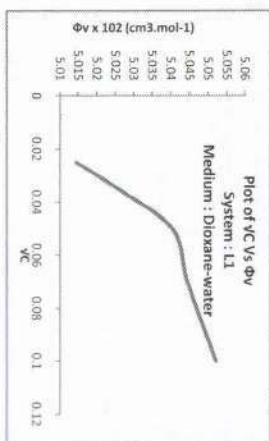
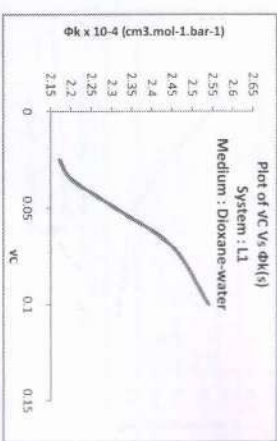
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Fig. 5-VC Vs apparent molal volume (L₁)Fig. 6-VC Vs apparent molal compressibility (L₁)

The values of Φ_v and Φ_k have been used to discuss the interaction of unlike molecule of solvents in presence of solute. From Figs. 1-4 values of apparent molal volumes (Φ_v) and apparent molal compressibility (Φ_k) are increased with increase in % dioxane-water mixture of ligand L₁ & L₂ irregularly. Tables III and IV showed adiabatic compressibility (β) increased with increase in percentages of dioxane-water mixtures. The intermolecular free length (L_f) is found to be in similar behavior, increase in free length results decrease ultrasonic velocity on the basis of sound propagation in the liquid. These results showed that there is weak solute-solvent interaction.

It could be even concluded from Figs. 5 and 6 that, the apparent molal volume (Φ_v) and apparent molal compressibility (Φ_k) are increased with increase in concentrations of ligand L₁ and ligand L₂. This may be due to the presence of two chlorine group nearer to the hydroxyl group in ligand L₁ and one chlorine group in ligand L₂. From Tables I and II, the values of adiabatic compressibility shows that, it decreases with decrease in concentrations of ligand L₁ and vice versa for ligand L₂. The intermolecular free length also observed similar behaviour. This indicates there is weak solute-solvent interaction. The relative association (R_a) and acoustic impedance (Z) are decreases linearly with increase in percentages of dioxane-water mixtures and concentration of

ligand L₁ and L₂. This results showed solute-solvent interaction may occur in the system.

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An Investigation of New Phase Diagram of

Ag₂SO₄ - CaSO₄

Ravi V. Jout, Pravin S. Bodke, Shradha S. Binanti, S. S. Wasnik

Abstract—A phase diagram of the Ag₂SO₄ - CaSO₄ (Silver sulphate - Calcium Sulphate) binaries system using conductivity, XRD (X-Ray Diffraction Technique) and DTA (Differential Thermal Analysis) data is constructed. The eutectic reaction (liquid \rightarrow Ag₂SO₄ + CaSO₄) is observed at 10 mole% CaSO₄ and 64.5°C. Room temperature solid solubility limit up to 5.27 mole % of Ca²⁺ in Ag₂SO₄ is set using X-ray powder diffraction and scanning electron microscopy results. All compositions beyond this limit are two-phase mixtures below and above the transition temperature (≈ 416°C). The bulk conductivity, obtained following complex impedance spectroscopy, is found decreasing with increase in CaSO₄ content. Amongst other binary compositions, the 80Ag₂SO₄-20CaSO₄ gave improved similarity/packing density.

Keywords—Ag₂SO₄-CaSO₄ (Silver sulphate-Calcium Sulphate) binaries system, XRD (X-Ray Diffraction Technique) and DTA(Differential Thermal Analysis).

1. INTRODUCTION

THE sulphate based solid electrolytes have found potential application in electrochemical devices [1], [2]. Particularly, Li₂SO₄, Na₂SO₄ and Ag₂SO₄ based systems are potential materials from SO₂ galvanic gas sensor viewpoint [2]. The first two materials have been studied extensively as compared to the latter one.

Amongst all the sulphates silver sulphate, a non-alkali metal is an exception that exhibits high Ag⁺ conductivity. The high ionic conductivity, in spite of large size of Ag⁺ (1.26Å), has been suggested to be due to its high quadrupolar polarizability. The Ag₂SO₄ based solid electrolytes offer additional advantages from SO₂ sensor application viewpoint [3]-[5]. Moreover, in these materials a major problem of cationic inter-diffusion between electrolyte and Ag-Ag₂SO₄ solid reference electrode does not remain valid for creating concentration gradients and so better long-term sensor operation stability [6]-[8].

Silver sulphate is a polymorphous compound. It undergoes a phase transition from the high temperature high conducting hexagonal α -phase (space group *P63/mmc*) to the low

temperature moderately conducting orthorhombic β -phase (space group *Fddd*) at 418°C [9]. The latter phase is isomorphous with the low temperature form of Na₂SO₄ [10]. The electrical conductivity of pure Ag₂SO₄ has been investigated in 1967 by Kryst [11]. In 1990 Liu et al. have measured the ionic conductivity of Me₂SO₄ (Me = Li, Na and K) and MSO₄ (M = Sr, Ca and Ba) doped Ag₂SO₄ and subsequently, tested for their utility in the SO₂ gas sensor [12]. Electrical conductivity studies of mono-, di- and tri-valent cation doped Ag₂SO₄ have indicated that besides the valance of guest-cation its size and electronic configuration also play important role in conductivity [13].

The multiphase sulphate based systems have been preferred in SO₂ gas sensor application due to their stable performance as compared to mono-phase. Moreover, the performance of sensor depends considerably on the magnitude of cationic conductivity, the phase and form along with the chemical and thermodynamical stability of solid electrolyte. Most of this information can easily be obtained from the binary-phase diagram and so they are important.

In 1907, Necken has proposed the equilibrium phase diagrams of Ag₂SO₄ with mono-valent alkali sulphates (Me₂SO₄ where Me = Na and K) using the results obtained towards thermal analysis [14]. In a systematic study, Takahashi et al. have initially determined the conductivity and later constructed the binary phase diagrams with silver halides (Ag₂X-Ag₂SO₄ where X= Cl and Br) with the help of transport number, differential thermal analysis and x-ray powder diffraction techniques [15]. A detailed investigation on Li₂SO₄-Ag₂SO₄ binary phase diagram has been carried out by Oye [16]. Following an extensive work on Ag₂SO₄-Me₂SO₄ (Me = Na and K) Secco et al., in recent past, have proposed Ag₂SO₄-Rb₂SO₄ binary phase diagram [17], [18]. According to these phase diagram Ag₂SO₄ forms solid solution in entire compositional range of binary system. Whereas, in Li₂SO₄-Ag₂SO₄ system very limited two-phase region is available.

It is evident from the literature that so far a systematic investigation on the Ag₂SO₄-MSO₄ (M = Sr, Ca, Ba) binary systems, which may be potential from SO₂ gas sensor viewpoint, is lacking. All these factors have prompted us to investigate Ag₂SO₄-CaSO₄ binary system, using electrical conductivity, differential scanning calorimetry, differential thermal analysis and x-ray powder diffraction techniques, constructing phase diagram to understand the phase and form of solid electrolyte belonging to this system in the vicinity of sensor operating temperature.

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II. EXPERIMENTAL

The initial ingredients Ag_2SO_4 and anhydrous CaSO_4 with purity greater than 99.9% were procured from E Merck. The above chemicals in $(100-x)\text{-Ag}_2\text{SO}_4$ (x) CaSO_4 (where $x = 0, 1, 2, 5, 2.7, 7.57, 10, 20, \dots, 100$) mole percent were mixed in an agate mortar under acetone for 2 hours. Well ground compositions were then transferred to translucent quartz ampoules and heated to the temperature 20°C above their respective melting point. The melt was allowed to cool, at the rate of $1.50^\circ\text{C}/\text{min}$, to room temperature. On the other hand, the compositions with more than 60-mole % of CaSO_4 were prepared by fusing the well ground mixture at 800°C in silica ampoules so as to avoid thermal decomposition of silver sulphate. The ingots obtained by breaking the ampoules were finally pulverized to get fine powder. The entire procedure was carried out in a dark room so as to avoid photodecomposition of silver sulphate.

All samples were characterized using X-ray powder diffraction (XRD) (Phillips PW 1700 diffractometer attached with PW 1710 controlling unit) using $\text{CuK}\alpha$ radiation at room temperature. Whereas, XRD patterns were recorded at 300 and 450°C for a few selected samples viz. 20, 40 and 60 mole % CaSO_4 added to Ag_2SO_4 . In order to set the room temperature solid solubility limit, diffraction patterns were recorded for 5.27 mol% CaSO_4 added to Ag_2SO_4 samples prepared by two different techniques viz. (i) initial ingredients Ag_2SO_4 and CaSO_4 in appropriate mole ratio were thoroughly mixed mechanically under acetone for 2 hours and (ii) melting the same thoroughly mixed composition followed by slow cooling the melt to room temperature. The information towards the solid-solid phase transition temperature, the melting point and the heat of transition were obtained by differential scanning calorimetry (DSC) and differential thermal analysis using Mettler TA 4000 DSC 25 and Mettler TA DTA, respectively (under inert atmosphere) at a cooling rate of $10^\circ\text{C}/\text{min}$. The microstructures were examined with the help of scanning electron microscope (SEM) (Cambridge 250 mark - III stereoscan electron microscope).

The bulk conductivity of all samples, at various temperatures, was obtained following complex impedance spectroscopy as described elsewhere [19], [20].

III. RESULTS AND DISCUSSION

A. X-Ray Powder Diffraction (XRD)

A comparison of experimental d (\AA) and relative intensity I/I_0 of pure, $94.73\text{Ag}_2\text{SO}_4$ - 5.27CaSO_4 , $93\text{Ag}_2\text{SO}_4$ - 7CaSO_4 and $90\text{Ag}_2\text{SO}_4$ - 10CaSO_4 with those of the JCPDS joint committee for powder diffraction standards) data of Ag_2SO_4 and CaSO_4 is given in Table 1. It is seen that experimental characteristic d lines of mechanically mixed samples match closely with those of the JCPDS data for Ag_2SO_4 and CaSO_4 . On the other hand, all the experimental d values of $94.73\text{Ag}_2\text{SO}_4$ - 5.27CaSO_4 sample prepared by melting are found to be in close agreement with those of JCPDS data for Ag_2SO_4 . No lines corresponding to CaSO_4 are seen in this composition. Similar results were found in the cases of CaSO_4 lower than 5.27

mole% added to Ag_2SO_4 . A close look at the Table 1 reveals appearance of a few weak characteristic lines corresponding to CaSO_4 in case of $93\text{Ag}_2\text{SO}_4$ - 7CaSO_4 . Furthermore, the number of characteristic lines due to CaSO_4 and their relative intensity are found to be increasing with increase in its concentration in Ag_2SO_4 .

In the X-ray powder diffraction results of two-phase mixture, the relative intensity (I/I_0) values of each phase depend, more or less, on their concentration [21]. The absence of characteristic lines corresponding to CaSO_4 for $x = 5, 2.7$ indicates the formation of a solid solution. Beyond this, all compositions are two-phase (β - Ag_2SO_4 + β - CaSO_4) mixtures. The absence of any unidentified peaks rules out the possibility of formation of an intermediate phase in the entire binary system.

Notably, the high temperature XRD results revealed biphasic mixtures of β - Ag_2SO_4 + β - CaSO_4 and α - Ag_2SO_4 + β - CaSO_4 in the range from room temperature to 416°C and from 416 to 600°C , respectively. The lattice cell volume of Ag_2SO_4 within solid solubility limit, obtained from X-ray diffraction data is projected in Table II. As seen the cell volume decreases with increase in CaSO_4 concentration indicating lattice contraction (Ca^{2+} is smaller than Ag^+). These results endorse the formation of solid solution.

B. Scanning Electron Microscope (SEM)

The microstructure of $10, 20$ and 30 mol% CaSO_4 added to Ag_2SO_4 clearly indicate the formation of two-phase mixture and in $80\text{Ag}_2\text{SO}_4$ - 20CaSO_4 , it shows denser packing in comparison to other compositions.

C. Thermal Analysis (DSC/DTA)

A typical DTA thermogram of $80\text{Ag}_2\text{SO}_4$ - 20CaSO_4 is depicted in Fig. 1. The solid-solid phase transition temperature and the melting point are obtained from the onset of endothermic peak. It is worth mentioning here that the values of T_c obtained following DSC and DTA analyses for all samples were found in agreement within the accuracy of $\pm 2^\circ\text{C}$. Moreover, they were reproducible. A close look at the inset of Fig. 1 reveals a continuous decrease in the heat corresponding to solid-solid phase transition with an increase in CaSO_4 concentration in Ag_2SO_4 . This is due to the decrease in net content of latter in the samples indicating formation of two-phase mixtures.

A phase diagram of Ag_2SO_4 - CaSO_4 binary system, constructed using above XRD and DTA/DSC data is shown in Fig. 2. The solid circles represent the thermal discontinuity obtained from DTA/DSC. Thermodynamic features present in this binary system are summarized as follows. (a) The solid-solid phase transformation (α - Ag_2SO_4 \rightarrow β - Ag_2SO_4) and melting point for Ag_2SO_4 are at 416 and 638°C , respectively. (b) The solid-solid phase transformation and melting point for CaSO_4 are at 1190 and 1450°C , respectively. (c) Eutectic reaction (liquid \rightarrow α - Ag_2SO_4 + CaSO_4) at 10 mol% CaSO_4 and 645°C (d) approximately 5 mole% CaSO_4 is soluble in β - Ag_2SO_4 . (e) two phase mixture of (β - Ag_2SO_4 + β - CaSO_4) exists between room temperature and 416°C . (f) two phase mixture

of α - Ag_2SO_4 + β - CaSO_4 exists between 416 and 655°C for all compositions. (g) melt and solid β - CaSO_4 coexists beyond $3\text{mol}\%$ CaSO_4 and above 655°C . Due to experimental limitation it was not possible to investigate thermal behaviour of samples above 1000°C . The dotted line is, however, an extrapolated liquidus curve.

A close look at this phase diagram reveals that T_c slightly decreases with an addition of CaSO_4 up to 7.5 mole% and thereafter it remains fairly constant. The initiatory decrease in T_c with an increase of CaSO_4 concentration is due to the formation of solid solution (Table I). Irvine and West have explained the decrease in T_c by assuming that the substitution of divalent calcium results in the creation of extrinsic vacancies that causes lattice distortion/disorder [22]. According to them, the order-disorder phase transition in solid solution occurs more readily with rising temperature, and T_c displaces to a lower temperature.

D. Temperature Dependent Conductivity

The plots of $\log(\sigma T)$ versus $10^3/T$ for (x) Ag_2SO_4 ($1-x$) CaSO_4 system for $x = 0, 10, 5 = 10, 60$ and $x = 70, 100$ mole% are displayed in Figs. 4, 5 (a) and 5 (b), respectively. As seen, in both orthorhombic (stable below 416°C) and hexagonal (stable above 416°C) modifications of Ag_2SO_4 , conductivity obey the Arrhenius law.

Observed change in conductivity at 416°C , for all samples, accounts for orthorhombic (β) to hexagonal (α) phase transition in Ag_2SO_4 . Notably, this temperature coincides with

TABLE I

Mechanical Mixture	COMPARISON OF EXPERIMENTAL X-RAY DIFFRACTION LINES WITH JCPDS FOR 5.27 AND 10 MOLE % CaSO_4 ADDED TO Ag_2SO_4					
	5.27 mole% CaSO_4	5.27 mole% CaSO_4	10 mole% CaSO_4	10 mole% CaSO_4	Phase (JCS)	JCPDS
d (\AA)	d (\AA)	d (\AA)	d (\AA)	d (\AA)	d (\AA)	d (\AA)
I/I_0	I/I_0	I/I_0	I/I_0	I/I_0	I/I_0	I/I_0
4.72	4.72	10	4.73	10	4.61	9
4.00	3.99	23	4.01	20	3.66	21
3.51	3.51	13	3.51	13	3.40	19
3.18	3.18	76	3.18	85	3.15	82
2.87	2.87	100	2.88	100	2.92	100
2.65	2.65	68	2.65	64	2.54	78
2.53	2.53	12	2.53	13	2.53	14
2.42	2.42	12	2.43	21	2.42	25
2.27	2.27	26	2.27	8	2.26	30
2.20	2.20	6	2.20	4	2.19	31
2.18	2.18	23	2.18	12	2.18	30
1.98	1.98	6	1.98	6	1.97	8
1.95	1.95	8	1.95	8	1.94	8
1.93	1.93	7	1.93	7	1.93	9
1.92	1.92	34	1.92	23	1.92	20
1.88	1.87	5	1.88	3	1.88	4
1.74	1.74	3	1.74	3	1.74	5
1.71	1.71	13	1.71	12	1.75	13
JCPDS card No. 27-1403 (Ag_2SO_4)	JCPDS card No. 04-0726 (CaSO_4)					

TABLE II

Cell constants	COMPARISON OF EXPERIMENTAL LATTICE CELL CONSTANTS WITH JCPDS		
	JCPDS (Ag_2SO_4) ^a	CaSO_4 (JCS) ^b	Ag_2SO_4 (JCS) ^c
a (\AA)	10.2699	$x = 0$	$x = 0.0527$
b (\AA)	12.7069		
c (\AA)	759.25		
JCPDS card number 27-1403 (Ag_2SO_4)			

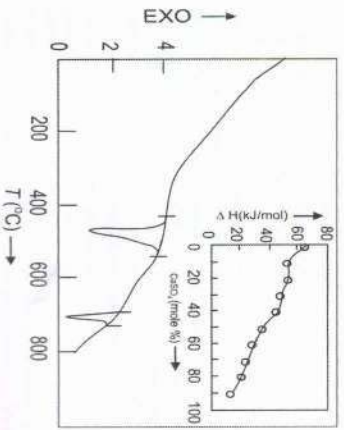


Fig. 1 DTA thermogram of 80 Ag_2SO_4 -20 CaSO_4 and inset variation of phase transition enthalpy with the addition of CaSO_4 in Ag_2SO_4

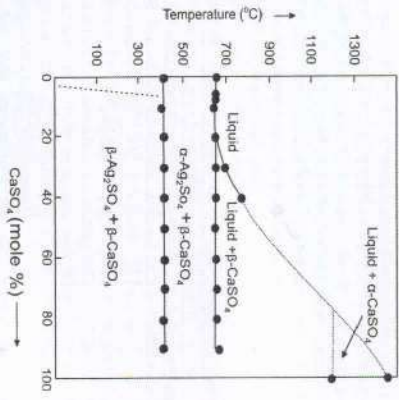


Fig. 2 The phase diagram for Ag_2SO_4 - CaSO_4 binary system. The solid circles represent thermal discontinuity as determined from differential thermal analysis. The indicated bi-phase regions are confirmed by x-ray diffraction. The broken line near Ag_2SO_4 end indicates the uncertainty of the solid solution range in this phase. The dotted line is expected liquidus curve.

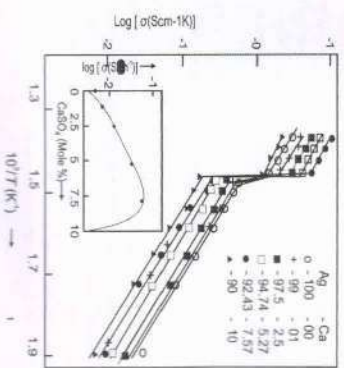


Fig. 3 $\log(\sigma T)$ versus $1000/T$ for (a) Ag_2SO_4 , (b) CaSO_4 , where $x = 0 - 10$. Inset indicates the variation of conductivity with CaSO_4 concentration.

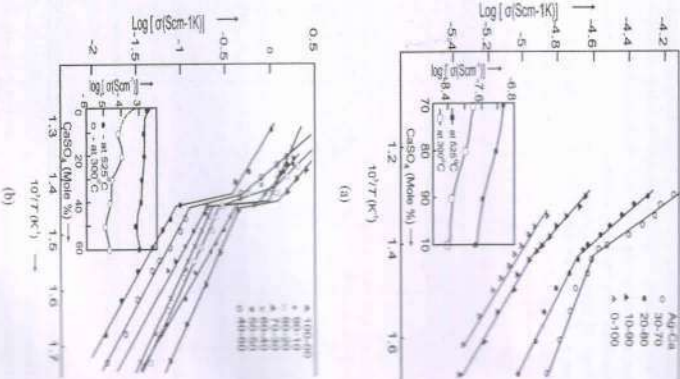


Fig. 4 (a) $\log(\sigma T)$ versus $1000/T$ for (1-x) Ag_2SO_4 -x CaSO_4 binary system with (a) $x = 10, 60$ and (b) $x = 70 - 100$. Inset indicates variation of conductivity with CaSO_4 concentration.

IV. CONCLUSION

The CaSO_4 is sparingly soluble in both the hexagonal and the orthorhombic phases of Ag_2SO_4 and form bi-phase mixtures in entire binary system. The eutectic reaction (liquid $\rightarrow \alpha\text{-Ag}_2\text{SO}_4 + \text{CaSO}_4$) is observed at 10 mole% CaSO_4 and 645°C. The value of conductivity although decreased but 20 mole % CaSO_4 added to Ag_2SO_4 is useful for Sox gas sensor application due to (i) its bi-phase nature at operating temperature, (ii) low activation enthalpy for ion migration, (iii) improved sinterability and (iv) good mechanical strength.

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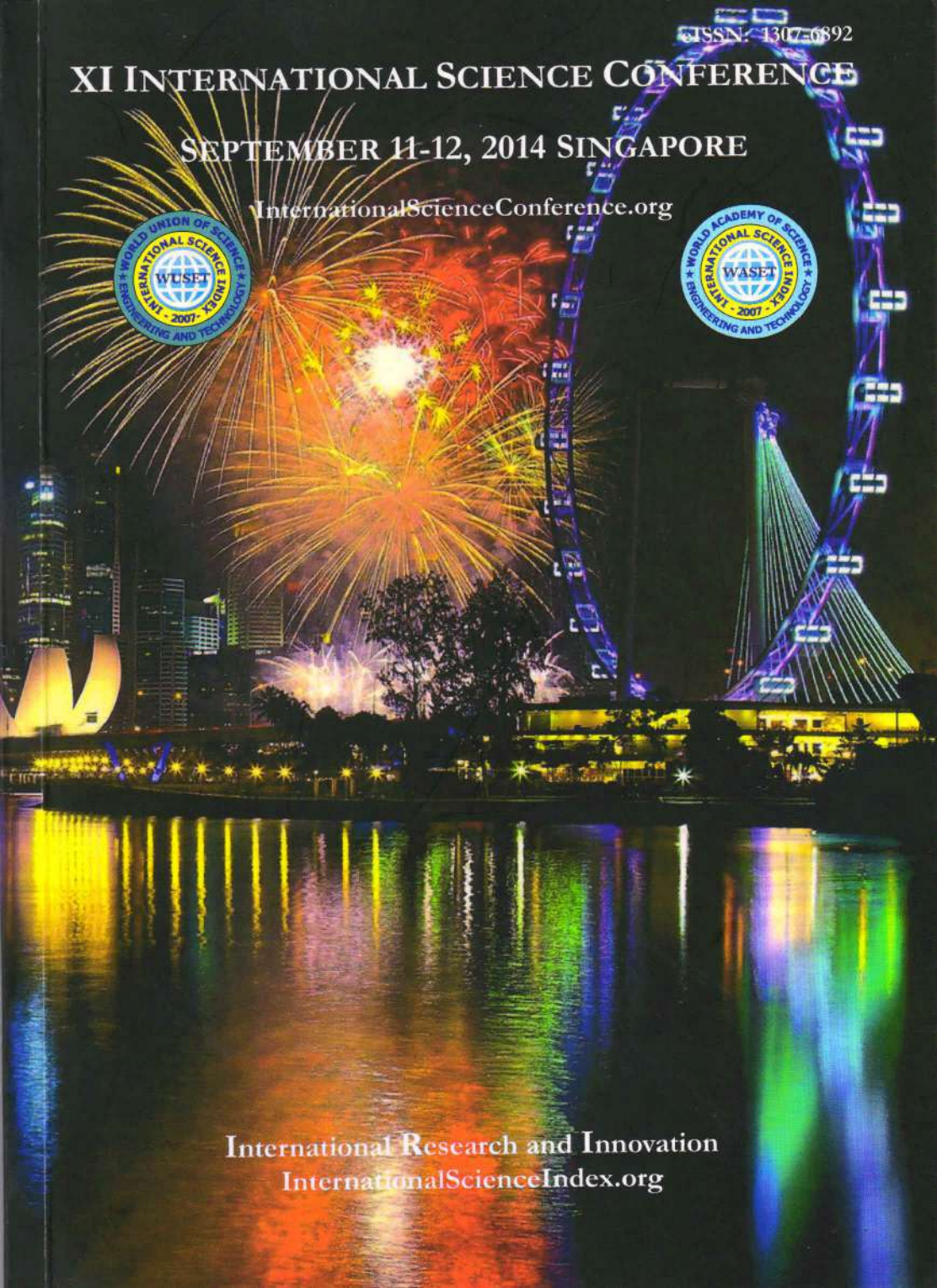
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LIST OF SYMBOLS

LCV	lower calorific value of fuel, J/kg	q_{fuel}	fuel/air ratio at lean high sp, g fuel/kg
LCV_0	lower calorific value relative to JP4	$q_{fuel/air}$	fuel/air ratio at lean blow out, g fuel/kg
l_0	mean beam length of radiation path, m	$P_{1/2}$	primary zone volume, m^3
\dot{m}	mass flow rate, kg/s	$P_{1/2}$	reaction of fuel combustor
n	reaction order	m	mass flow rate, kg/s
P	pressure, kPa	n	reaction order
AP	pressure differential, Pa	k_{eff}	value of k_{eff} relative to fuel JP4
q	fuel/air ratio	ρ	density of air, kg/m^3
F_c	fraction of total combustor air employed in combustion	ρ_a	density of air, kg/m^3
D_0	hydraulic mean diameter of atomizer air duct	q	fuel/air ratio
D_1	line diameter or height, m	k_{eff}	effective value of evaporation constant, m^2/s
D_0	mean drop size of fuel spray, m	η_{ev}	combustion efficiency based on fuel evaporation
D_p	atomizer diameter, m	η_{ch}	combustion efficiency based on chemical kinetics
D_p	mean drop size relative to that for JP4	η_c	combustion efficiency
μ	dynamic viscosity	η_{ch}	combustion efficiency based on existing rates
μ	viscosity	AP	pressure differential, Pa
F	function of	ΔT	temperature rise, K
V_c	total combust		
a	Sieck-Boltzmann constant ($5.67 \times 10^{-8} \text{ } 10 \text{ W/m}^2 \text{ K}^4$)		
SMD	Sauter mean diameter of fuel spray, m		
B	mass transfer number		
A	Area, m^2		

Non-Destructive Evaluation of 2-Mercapto Substituted Pyrimidine Derivatives in Different Concentration and Different Percentages in Dioxane-Water Mixture

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Abstract—Science and technology of ultrasonic is widely used in recent years for industrial and medicinal application. The acoustical properties of 2-mercapto substituted pyrimidines viz. 2 - Mercapto-4-(2',4'-dithiopyl)-6-(2'-hydroxyl)-4-methyl-5-(chlorophenyl)pyrimidine and 2-Mercapto-4-(4-chlorophenyl)-6-(2'-hydroxyl)-4-methyl-5-(chlorophenyl)pyrimidine have been investigated from the ultrasonic velocity and density measurements at different concentration and different % in dioxane-water mixture at 305K. The adiabatic compressibility (β_a), acoustic impedance (Z), intermolecular free length (l_f), apparent molar volume (ϕ_v) and relative association (R_A) values have been calculated from the experimental data of velocity and density measurement at concentration range of 0.01-0.000625 mol/lit and 70%, 75% and 80% dioxane water mixture. These above parameters are used to discuss the structural and molecular interactions.

Keywords—Acoustical parameters, Density, Dioxane-water mixture, Ultrasonic velocity.

1. INTRODUCTION

ULTRASONIC wave's means sound waves hearing above range of normal ear. The study of intermolecular interaction plays an important role in the development of molecular sciences. The nature and relative strength of the molecular interaction between the components of the liquid mixtures have been studied by the ultrasonic method. A large number of studies have been made on the molecular interaction in liquid mixtures by various physical methods like ultra-violet, infrared, nuclear magnetic resonance, dielectric constant, Raman effect and ultrasonic method [1]-[4]. For interpreting solute-solvent, ion-solvent interaction in aqueous and non-aqueous medium was helpful from Ultrasonic velocity measurements in recent year [5], [6]. Ultrasonic waves used to detect a wide variety of anomalous condition such as pregnancy, tumors and a study various phenomena such as heart valve action. This ultrasonic wave is more sensitive than X-rays. Due to this ultrasonic technique used in the treatment of certain cancer as well as arthritis and related diseases [7]. The studies of the determination of densities,

viscosities, refractive indices of organic liquid mixture are reported by many workers [8]. The studies of acoustical properties and viscosity coefficients of substituted heterocyclic drugs under suitable condition [9]. Substituted pyrimidines and their derivatives have received much attention towards their application in agro chemical industries and medicinal values. The chloro substituted pyrimidines act as an antimicrobial drugs [10] and in view of applications in various fields. The work follow systematic studies of chloro substituted pyrimidines in different concentration and different percentage in dioxane-water and measure the ultrasonic velocities and densities, from that values, evaluated the acoustical properties.

II. MATERIALS AND METHODS

All chemicals were used of analytical grade was purified by Vogel's standard method. The distilled dioxane was used for preparation of different concentration and different percentages of chloro substituted pyrimidine solution. Acetone was used for washing purpose. The acoustical properties require the measurement of ultrasonic velocity and densities. The densities of pure solvent and their solution were measured by using densitometer. The ultrasonic velocities were measured by using. In the present work, different properties such as adiabatic compressibility (β_a), apparent molar volume (ϕ_v), intermolecular free length (l_f), apparent molar compressibility (ϕ_β), acoustic impedance (Z), relative association (R_A) have been evaluated from following equations.

The adiabatic compressibility (β) was calculated from Newton-Laplace.

$$\beta = 1/U_1 \times d, \text{ [for solution]} \quad (1)$$

$$\beta = 1/U_0 \times d, \text{ [for solvent]} \quad (1a)$$

where d , d_0 and U_0 , U_1 are the densities of pure solvent, solution and ultrasonic velocities of pure solvent and solutions, respectively.

The apparent molar compressibility (ϕ_β) has been calculated by using the relation.

$$\phi_\beta = 1000 (\beta_s \times d_s - \beta \times d) / m \times d \times d_s + \beta \times M / d_s \quad (2)$$

The apparent molar volume (ϕ_v) has been evaluated by using the relation.

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$$\Phi_p = M / d + (d-d_0) / m \times d \times d_0 \quad (3)$$

$$R_A = [d_0 d_1] [U_0 / U_1]^3 \quad (5)$$

where, M is the molecular weight of solute and 'm' is the mobility of the solute.

The inter molecular free length (L_i) is calculated by using the standard expression

$$(L_i) = K \times \sqrt{R} \quad (4)$$

where K is temperature dependent constant known as Jacobson's constant.

The relative association (R_A) was calculated by the following equation

The acoustic impedance (Z) is obtained by the following relation

$$Z = d_0 \times U_1 \quad (6)$$

III. RESULT AND DISCUSSION

The experimental values of density and ultrasonic velocity at different concentration of ligand (L₁ & L₂) and different percentage in dioxane-water mixtures at 305K are given in Tables I and II. From the experimental

TABLE I

VALUES OF DENSITY AND ULTRASONIC VELOCITY AT DIFFERENT CONCENTRATION OF LIGAND L₁ AND L₂ AT 305 K

Concentration (mol/L)	ρ	L ₁	L ₂	U ₁	U ₂
0.01	1.0284	1.0175	1.0284	1428.6	1461.0
0.005	1.0163	1.0163	1.0163	1436.4	1472.0
0.0025	1.0028	1.0028	1.0028	1439.3	1474.0
0.00125	1.0014	1.0014	1.0014	1442.7	1481.1
0.000625	0.99625	0.99625	0.99625	1451.9	1492.3

TABLE II

VALUES OF DENSITY AND ULTRASONIC VELOCITY AT DIFFERENT PERCENTAGES IN DIOXANE-WATER MIXTURE AT 305 K

% of Dioxane	Density (g/cm ³)	U ₁	U ₂	U ₃	U ₄	U ₅
70%	1.0389	1.0262	1.0489	1.0610	1.0731	1.0852
75%	1.0251	1.0168	1.0316	1.0463	1.0610	1.0757
80%	1.0214	1.0057	1.0184	1.0316	1.0463	1.0610

where, L₁ = 2 - Mercapto - 4 - (2', 4' - dichloro phenyl) - 6 - (2' - hydroxy) - 4' - methyl - 5' - chlorophenyl) pyrimidine and L₂ = 2 - Mercapto - 4 - (4' - chloro phenyl) - 6 - (2' - hydroxy) - 4' - methyl - 5' - chlorophenyl) pyrimidine values and VI respectively.

TABLE III

ACOUSTIC PROPERTIES OF LIGAND (L₁) OF DIFFERENT CONCENTRATION IN DIOXANE-WATER MIXTURE AT 305 K

Different conc. (mol/L)	R _A × 10 ³	Φ _p × 10 ³ (bar ⁻¹)	Φ _p × 10 ³ (cm ³ .mol ⁻¹ .bar ⁻¹)	L _i × 10 ³ (Å)	R _A	Z × 10 ³ (g.cm ⁻² .s ⁻¹)
0.01	4.5446	5.0521	2.5395	4.4345	1.0197	1.0163
0.005	4.3518	5.0445	2.4503	4.3135	1.0075	1.0028
0.0025	4.2814	5.0403	2.3085	4.3098	1.0052	1.0014
0.00125	4.1714	5.0257	2.2013	4.2051	1.0048	1.0014
0.000625	4.0233	5.0145	2.1723	4.1218	1.0036	1.0014

TABLE IV

ACOUSTIC PROPERTIES OF LIGAND (L₂) OF DIFFERENT CONCENTRATION IN DIOXANE-WATER MIXTURE AT 305 K

Different conc. (mol/L)	R _A × 10 ³	Φ _p × 10 ³ (bar ⁻¹)	Φ _p × 10 ³ (cm ³ .mol ⁻¹ .bar ⁻¹)	L _i × 10 ³ (Å)	R _A	Z × 10 ³ (g.cm ⁻² .s ⁻¹)
0.01	4.5295	3.9474	1.7286	4.3756	1.0337	1.0163
0.005	4.3822	3.9893	1.8045	4.3957	1.0192	1.0028
0.0025	4.2654	4.1581	1.9248	4.4042	0.9227	1.0014
0.00125	4.1878	4.2896	1.9403	4.4492	0.8968	1.0014
0.000625	4.8584	4.3525	2.1046	4.5311	0.8238	1.0014

TABLE V

ACOUSTIC PROPERTIES OF LIGAND (L₁) OF DIFFERENT PERCENTAGES IN DIOXANE-WATER MIXTURE AT 305 K

% of Dioxane	R _A × 10 ³ (bar ⁻¹)	Φ _p × 10 ³ (cm ³ .mol ⁻¹ .bar ⁻¹)	Φ _p × 10 ³ (cm ³ .mol ⁻¹ .bar ⁻¹)	L _i × 10 ³ (Å)	R _A	Z × 10 ³ (g.cm ⁻² .s ⁻¹)
70%	4.518	5.0421	2.3622	4.3486	1.0175	1.0163
80%	4.696	5.0634	2.3976	4.3637	1.0164	1.0163
90%	4.787	5.0785	2.4226	4.4012	1.0043	1.0028

TABLE VI

ACOUSTIC PROPERTIES OF LIGAND (L₂) OF DIFFERENT PERCENTAGES IN DIOXANE-WATER MIXTURE AT 305 K

% of Dioxane	R _A × 10 ³ (bar ⁻¹)	Φ _p × 10 ³ (cm ³ .mol ⁻¹ .bar ⁻¹)	Φ _p × 10 ³ (cm ³ .mol ⁻¹ .bar ⁻¹)	L _i × 10 ³ (Å)	R _A	Z × 10 ³ (g.cm ⁻² .s ⁻¹)
70%	4.6195	3.8724	1.8986	4.1756	1.0137	1.0028
80%	4.7175	3.9204	1.9219	4.2112	1.0537	1.0014
90%	4.9765	4.1051	1.9854	4.3114	1.0747	1.0014

The various acoustical properties like adiabatic compressibility (β_{ad}), apparent molar volume (Φ_v), intermolecular free length (L_i), apparent molar compressibility (Φ_k), acoustic impedance (Z), relative association (R_A) which are calculated using above equation and which are represented in Tables III-IV.

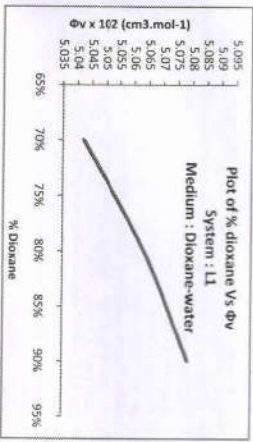


Fig. 1 % dioxane Vs apparent molar volume (L₁)

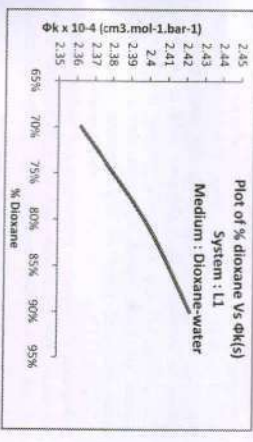


Fig. 2 % dioxane Vs apparent molar compressibility (L₁)

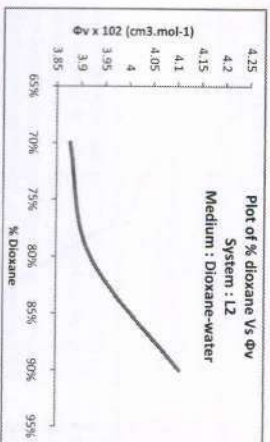


Fig. 3 % dioxane Vs apparent molar volume (L₂)

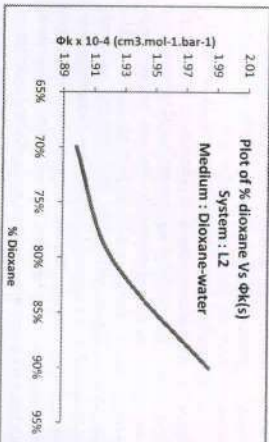
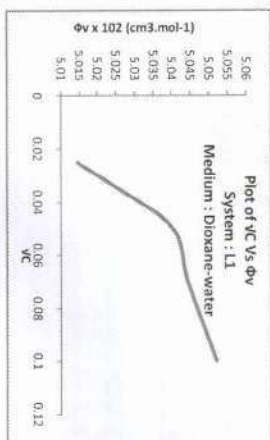
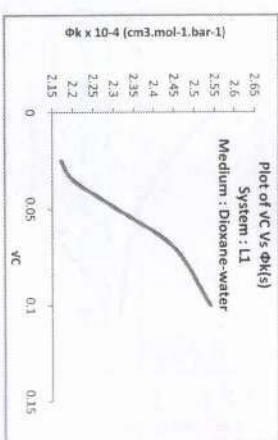


Fig. 4 % dioxane Vs apparent molar compressibility (L₂)

Fig. 5 ϕV Vs ϕV apparent molar volume (L_1)Fig. 6 $\phi_c V$ Vs $\phi_c V$ apparent molar compressibility (L_1)

The values of ϕ_a and ϕ_b have been used to discuss the interaction of unlike molecule of solvents in presence of solute. From Figs. 1-4 values of apparent molar volumes (ϕ_a) and apparent molar compressibility (ϕ_b) are increased with increase in % dioxane-water mixture of ligand L_1 & L_2 irregularly. Tables III and IV showed adiabatic compressibility (β) increased with increase in percentages of dioxane-water mixtures. The intermolecular free length (L_f) is found to be in similar behavior, increase in sound propagation decrease ultrasonic velocity on the basis of sound propagation in the liquid. These results showed that there is weak solute-solvent interaction.

It could be even concluded from Figs. 5 and 6 that the apparent molar volume (ϕ_a) and apparent molar compressibility (ϕ_b) are increased with increase in concentrations of ligand L_1 and ligand L_2 . This may be due to the presence of two chlorine group near to the hydroxyl group in ligand- L_1 and one chlorine group in ligand- L_2 . From Tables I and II, the values of adiabatic compressibility shows that, it decreases with decrease in concentrations of ligand L_1 and vice versa for ligand L_2 . The intermolecular free length also observed similar behaviour. This indicates there is weak solute-solvent interaction. The relative association (R_A) and acoustic impedance (Z) are decreases linearly with increase in percentages of dioxane-water mixtures and concentration of

ligand- L_1 and L_2 . This results showed solute-solvent interaction may occur in the system.

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An Investigation of New Phase Diagram of

$Ag_2SO_4 - CaSO_4$

Ravi V. Jait, Pravin S. Bodeke, Shradha S. Birmati, S. S. Wasnik

Abstract—A phase diagram of the $Ag_2SO_4 - CaSO_4$ (Silver sulphate - Calcium Sulphate) binary system using conductivity, XRD (X-Ray Diffraction Technique) and DTA (Differential Thermal Analysis) data is constructed. The eutectic reaction (liquid $\rightarrow s-Ag_2SO_4 + CaSO_4$) is observed at 10 mole% $CaSO_4$ and 645°C. Room temperature solid solubility limit up to 5.27 mole % of Ca^{2+} in Ag_2SO_4 is set using X-ray powder diffraction and scanning electron microscopy results. All compositions beyond this limit are two-phase mixtures below and above the transition temperature ($\approx 416^\circ C$). The bulk conductivity, obtained following complex impedance spectroscopy, is found decreasing with increase in $CaSO_4$ content. Against other binary compositions, the $80Ag_2SO_4-20CaSO_4$ gave improved sinterability/packing density.

Keywords— $Ag_2SO_4-CaSO_4$ (Silver sulphate-Calcium Sulphate) binary system, XRD (X-Ray Diffraction Technique) and DTA (Differential Thermal Analysis).

1. INTRODUCTION

THE sulphate based solid electrolytes have found potential application in electrochemical devices [1], [2]. Particularly, Li_2SO_4 , Na_2SO_4 and Ag_2SO_4 based systems are potential materials from SO_x galvanic gas sensor viewpoint [2]. The first two materials have been studied extensively as compared to the latter one.

Amongst all the sulphates silver sulphate, a non-alkali metal is an exception that exhibits high Ag^+ conductivity. The high ionic conductivity, in spite of large size of Ag^+ (1.26Å), has been suggested to be due to its high quadrupolar polarizability. The Ag_2SO_4 based solid electrolytes offer additional advantages from SO_x sensor application viewpoint [3][5]. Moreover, in these materials a major problem of cationic inter-diffusion between electrolyte and $Ag-Ag_2SO_4$ solid reference electrode does not remain valid for creating concentration gradients and so better long-term sensor operation stability [6]-[8].

Silver sulphate is a poly-thermops compound. It undergoes a phase transition from the high temperature high conducting hexagonal α -phase (space group $P63/mmc$) to the low

temperature moderately conducting orthorhombic β -phase (space group $Fdd2$) at 418°C [9]. The latter phase is isomorphous with the low temperature form of Na_2SO_4 [10]. The electrical conductivity of pure Ag_2SO_4 has been investigated in 1967 by Krivt [11]. In 1990 Liu et al have measured the ionic conductivity of Me_2SO_4 ($Me = Li, Na, and K$) and MSO_4 ($M = Sr, Ca$ and Ba) doped Ag_2SO_4 and subsequently tested for their utility in the SO_2 gas sensor [12]. Electrical conductivity studies of mono-, di- and tri-valent cation doped Ag_2SO_4 have indicated that besides the valance of guest cation its size and electronic configuration also play important role in conductivity [13].

The multiphase sulphate based systems have been preferred in SO_2 gas sensor application due to their stable performance as compared to mono-phase. Moreover, the performance of sensor depends considerably on the magnitude of cationic conductivity, the phase and form along with the chemical and thermodynamic stability of solid electrolyte. Most of this information can easily be obtained from the binary phase diagram and so they are important.

In 1907, Necken has proposed the equilibrium phase diagrams of Ag_2SO_4 with mono-valent alkali sulphates (Me_2SO_4 where $Me = Na$ and K) using the results obtained towards thermal analysis [14]. In a systematic study, Takahashi et al have initially determined the conductivity and later constructed the binary phase diagrams with silver halides ($AgX-Ag_2SO_4$, where $X = Cl$ and Br) with the help of transport number, differential thermal analysis and x-ray powder diffraction techniques [15]. A detailed investigation on $Li_2SO_4 - Ag_2SO_4$ binary phase diagram has been carried out by Oye [16]. Following an extensive work on $Ag_2SO_4 - Me_2SO_4$ ($Me = Na$ and K) Secco et al., in recent past, have proposed $Ag_2SO_4 - Rb_2SO_4$ binary phase diagram [17], [18]. According to these phase diagram Ag_2SO_4 forms solid solution in entire compositional range of binary system. Whereas, in $Li_2SO_4 - Ag_2SO_4$ system very limited two-phase region is available.

It is evident from the literature that so far a systematic investigation on the $Ag_2SO_4 - MSO_4$ ($M = Sr, Ca, Ba$) binary systems, which may be potential from SO_x gas sensor viewpoint, is lacking. All these factors have prompted us to investigate $Ag_2SO_4 - CaSO_4$ binary system, using electrical conductivity, differential scanning calorimetry, differential thermal analysis and x-ray powder diffraction techniques, constructing phase diagram to understand the phase and form of solid electrolyte belonging to this system in the vicinity of sensor operating temperature.

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दिरंगाई टाळण्यासाठी कामाच्या प्रक्रियेचे सुलभीकरण केले आहे. भारत म्हणजे परकीय गुंतवणुकदारांसाठी मोठा आणि महत्वाचा देश वाटला पाहिजे, यासाठी त्यांनी 'या..... आणि भारत घडवा' अशी घोषणा केली आहे. 'एफडीआय' ही संज्ञा त्यांनी 'फर्स्ट डेव्हलप इंडिया' अशी वापरली आहे. "चांगल्या प्रशासनाचे तीन महत्वाचे स्तंभ आहेत- एक म्हणजे सुशासन, दुसरे म्हणजे परवाना राज्य बंद करणे आणि नियम-अटींमध्ये शिथिलता आणणे. तिसरा स्तंभ म्हणजे उद्योग व्यवसायांसाठी पायाभूत सुविधा उपलब्ध करून देणे. औद्योगिक सोपान तयार करणे, सुरक्षा, बांधकाम आणि रेल्वे या क्षेत्रात परकीय गुंतवणूक होणे गरजेचे आहे. "उत्पादन तसेच पायाभूत क्षेत्राबरोबरच सरकारने आणखी काही क्षेत्रांमध्ये परकीय गुंतवणुकीला प्राधान्य देण्याचा निर्णय घेतला आहे. यामध्ये हवाई वाहतूक, जैवतंत्रज्ञान, रसायने, बांधकाम, खनीज व्यवसाय, तेल आणि वायू, औषधे, नूतनीकरण होऊ शकणारे ऊर्जा उद्योग यामध्ये परकीय थेट गुंतवणुक केली जाऊ शकणार आहे.

विमा, किरकोळ व्यापार आणि माहिती तंत्रज्ञान क्षेत्राप्रमाणेच बांधकाम क्षेत्रातही 100 टक्के परदेशी गुंतवणुकीला परवानगी

देण्यासाठी भारत सरकारने 2005 साली कायद्यात दुरुस्ती केली या उदारीकरणाच्या कृतीमुळे देशातील निवासी आणि व्यावसायिक बांधकाम क्षेत्रातील मागणीनुसार पुरवठा करण्यासाठी परदेशी गुंतवणुकीचा मार्ग मोकळा झाला. यामुळे भारतातील बांधकाम उद्योग क्षेत्रात अनेक वित्तीय संस्था तसेच खाजगी निधींचे समभाग अशी गुंतवणूक होण्यास प्रोत्साहन मिळाले तरीही आधिच्या जाचक कायदांचा पगडा येथील अधिकारी व जनसामान्यांवर असल्याने आणि कायदेशीर धोरणांबाबत सुसध्दा नसल्याने विदेशी कंपन्या भारतात येण्यासाठी व भारतीय कंपन्या कायद्याच्या जाचकतेमुळे विदेशात जाण्या अनुत्साही होत्या. हा कायदा होईपर्यंत भारतात गृहनिर्माण आणि इतर बांधकाम क्षेत्रात केवळ अनिवासी भारतीय आणि भारतीय वंशाचे नागरिकच गुंतवणुक करू शकत होते याव्यतिरिक्त इतर परदेशी गुंतवणुकदारांना केवळ एकात्मिक वसाहतीच्या बांधकामात तसेच स्वतःच्या मालकीची उपकंपनी किंवा भारतातील कंपनी सोबत भागीदारीत करार करून स्थापन केलेल्या कंपनी मार्फतच गुंतवणुक करण्याची परवानगी होती.

REFORMS IN RETAILING IN INDIA

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Overview

Retailing in India is one of the pillars of its economy and accounts for 14 to 15% of its GDP.^{[1][2]} The Indian retail market is estimated to be US\$450 billion and one of the top five retail markets in the world by economic value. India is one of the fastest growing retail markets in the world, with 1.2 billion people.^{[3][4]} India's retailing industry is essentially owner manned small shops. In 2010, larger format convenience stores and supermarkets accounted for about 4% of the industry, and these were present only in large urban centers. India's retail and logistics industry employs about 40 million Indians (3.3% of Indian population). Until 2011, Indian central government denied foreign direct investment (FDI) in multi-brand retail, forbidding foreign groups from any ownership in supermarkets, convenience stores or any retail outlets. Even single-brand retail was limited to 51% ownership and a bureaucratic process. In November 2011, India's central government announced retail reforms for both multi-brand stores and single-brand stores. These market reforms paved the way for retail innovation and competition with

multi-brand retailers such as Wal-Mart, Carrefour and Tesco, as well single brand majors such as IKEA, Nike, and Apple.^[5] The announcement sparked intense activism, both in opposition and in support of the reforms. In December 2011, under pressure from the opposition, Indian government placed the retail reforms on hold till it reaches a consensus.^[6] In January 2012, India approved reforms for single-brand stores welcoming anyone in the world to innovate in Indian retail market with 100% ownership, but imposed the requirement that the single brand retailer source 30% of its goods from India. Indian government continues the hold on retail reforms for multi-brand stores.^[7] IKEA announced in January that it is putting on hold its plan to open stores in India because of the 30% requirement.^[8] Fitch believes that the 30% requirement is likely to significantly delay if not prevent most single brand majors from Europe, USA and Japan from opening stores and creating associated jobs in India.

SWOT Analysis of Retail Sector:

Strengths:

- Major contribution to GDP: the retail sector in India is hovering around 33-35% of GDP as compared to around 20% in USA.
- High Growth Rate: the retail sector in India enjoys an extremely high growth rate of approximately 46%.
- High Potential: since the organised portion of retail sector is only 2-3%, thereby creating lot of potential for future players.
- High Employment Generator: the retail sector employs 7% of work force in India, which is right now limited to unorganised sector only. Once the reforms get implemented this percentages likely to increase substantially.

Weaknesses (limitation):

- Lack of Competitors: AT Kearney's study on global retailing trends found that India is least competitive as well as least saturated markets of the world.
- Highly Unorganised: The unorganised portion of retail sector is only 97% as compared to US, which is only 20%.
- Low Productivity: Mckinsey study claims retail productivity in India is very low as compared to its international peers.
- Shortage of Talented Professionals: the retail trade business in India is not considered as reputed profession and is mostly carried out by the family members (self-employment and captive business). Such people are not academically and professionally qualified.
- No 'Industry' status, hence creating financial issues for retailers: the retail sector in India does not enjoy industry status in India, thereby making difficult for retailers to raise funds.

Opportunities (benefits):

- There will be more organization in the sector: Organized retail will need more workers. According to findings of KPMG, in China, the employment in both retail and wholesale trade increased from 4% in 1992 to about 7% in 2001, post reforms and innovative competition in retail sector in that country.
- Healthy Competition will be boosted and there will be a check on the prices (inflation): Retail giants such as Walmart, Carrefour, Tesco, Target and other global retail companies already have operations in other countries forever 30 years. Until now, they have not at all become monopolies rather

they have managed to keep a check on the food inflation through their healthy competitive practices.

- Create transparency in the system: the intermediaries operating as per Mandy norms do not have transparency in their pricing. According to some of the reports, an average Indian farmer realizes only one-third of the price, which the final consumer pays.
 - Intermediaries and mandi system will be evicted, hence directly benefiting the farmers and producers: the prices of commodities will automatically be checked. For example, according to Business Standard, Walmart has introduced —Direct Farm Project at Haider Nagar in Punjab, where 110 farmers have been connected with Bharti Walmart for sourcing fresh vegetables directly.
 - Quality Control and Control over Leakage and Wastage: due to organisation of the sector, 40% of the production does not reach the ultimate consumer. According to the news in Times of India, 42% of the children below the age group of 5 are malnourished and Ex- Prime Minister Dr.Manmohan Singh has termed it as —national shame. Food often gets rot in farm, in transit and in state-run warehouses. Cost conscious and highly competitive retailers will try to avoid these wastages and losses and it will be their Endeavour to make quality products available at lowest prices, hence making food available to weakest and poorest segment of Indian society.
 - Heavy flow of capital will help in building up the infrastructure for the growing population: India is already operating in budgetary deficit. Neither the government of India nor domestic investors are capable of satisfying the growing needs (school, hospitals, transport etc.) of the ever growing Indian population. Hence foreign capital inflow will enable us to create a heavy capital base.
 - There will be sustainable development and many other economic issues will be focused upon: many Indian small shop owners employ workers, who are not under any contract and also under aged workers giving rise to child-labor. It also boosts corruption and black money.
- #### 4. Threats:
- Current Independent Stores will be compelled to close: This will lead to massive job loss as most of the operations in big stores like Wal-Mart are highly automated requiring fewer work forces.

- Big players can knock-out competition: they can afford to lower prices in initial stages, become monopoly and then raise prices later.
 - India does not need foreign retailers: as they can satisfy the whole domestic demand.
 - Remember East India Company it entered India as trader and then took over politically.
 - The government hasn't able to build consensus.
- In view of the above analysis, if we try to balance opportunities and prospects attached to the given economic reforms, it will definitely cause good to

Indian economy and consequently to public at large, once implemented. Thus the period for which we delay these reforms will be loss for government only, since majority of the public is in favour of reforms. All the above mentioned drawbacks are mostly politically created. With the implementation of this policy all stakeholders will benefit whether it is consumer through quality products at low price, farmers through more transparency in trading or Indian corporate with 49% profit share remaining with Indian companies only.

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FDI IN INSURANCE A BETTER FUTURE! FOR INDIAN ECONOMICS

G. S. Telang

Shri Shivaji Arts, Commerce & Science College, Motala Dist Buldhana

Highly saturated markets of US and Europe pose a great risk to growth for insurance companies in these regions. Growth of insurance sector is further constrained by the economic turbulence in these countries. In order grow in these regions companies are facing challenge to innovate and improve operational efficiency. Alternatively, insurance companies from these regions have to look for newer markets beyond their traditional geographies. Brazil, India and China offer an identifiable opportunity with low penetration rates and relatively high economic growth rates. Though the opportunity is large in emerging economies, prospective entrants face multiple challenges in terms of complexity of markets, need for extensive distribution channel, competition from existing players, lack of trained personnel, regulatory changes et al. With a huge population of 1.3 billion and low insurance penetration,

India is a relatively large market for these insurance companies. Even a subdued 5-6 per cent GDP growth in India is preferable to almost negligible growth in most of the western economies. Though foreign insurance players have been present in India for almost more than a decade and despite the double-digit growth, the sector is yet to witness the expected vibrancy and infusion of innovative products. One of the key factors is limited inflow of investment by foreign players due to cap on foreign direct investment (FDI) of 26 per cent. To make their investments in India relevant and worthwhile most of the foreign players are looking forward to increase their share in their respective Indian ventures. Recent proposal by government of India to hike FDI ceiling from 26 per cent to 49 per cent is the most logical and expected step. Life premium has grown at CAGR of over 23 per cent during last decade and,



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E-commerce in India

Dr.P.W.Kale, Dr.S.B.Kadu, S.K.Rodde
Vidyabharati Mahavidyalaya, Amravati

Electronic commerce is trading in products or services using computer networks. Electronic commerce draws on technologies such as mobile commerce, electronic fund transfer, supply chain management, internet marketing, online transaction processing, electronic data interchange, inventory management system and automated data collection systems. Modern e-commerce typically uses the World Wide Web for at least one part of the transaction's life cycle, although it may also use other technologies such as e-mail. E-commerce businesses usually employ some or all of the following practices:

- Provide Etail or virtual storefront on websites with online catalogs, sometimes gathered into a "virtual mall"
- Buy or sell on online marketplaces
- Gather and use demographic data through web contacts and social media.
- Use electronic data interchange, the business-to-business exchange of data.
- Reach prospective and established customers by e-mail or fax (for example, with newsletters).
- Use business to business buying and selling.
- Provide secure business transactions.

It may be now that online shopping has become popular but the concept of e-Commerce was introduced long back in the 20th century. The year 1991 noted a new chapter in the history of the online world where e-commerce became a hot choice amongst the commercial use of the internet. At that time nobody would have even thought that the buying and selling online or say the online trading will become a trend in the world and India will also share a good proportion of this success.

With the advent of the Internet in 1995, India witnessed the setting up of B2B portals, matrimonial sites, job search directories and online stores through Rediff.com and Indiatimes.com. However, these smaller initiatives did not thrive due to several factors, such as low Internet penetration, slow Internet speed, and small user base for online shopping, inadequate logistics infrastructure, low consumer acceptance of e-commerce and the lack of a tangible revenue model. More than a thousand e-commerce businesses collapsed due to the IT downturn in 2000.

By the year 2002, India first came into interaction with the online E-Commerce via the IRCTC. The government of India experimented this online strategy to make it convenient for its public to book the train tickets. Hence, the government came forward with the IRCTC Online Passenger Reservation System, which for the first time encountered the online ticket booking from anywhere at any time. This was a boon to the common man as now they don't have to wait for long in line, no issues for wastage of time during unavailability of the trains, no burden on the ticket bookers and many more. The advancements in the technology as the years passed on have been also seen in the IRCTC Online system as now one can book tickets (tatkal, normal, etc.) on one go, easy payments, can check the status of the ticket and availability of the train as well. This is a big achievement in the history of India in the field of online E-Commerce. In 2005, low-cost carriers entered the aviation sector and drove the online travel industry, leading to the e-ticketing sites. The Indian Railways also implemented e-ticket booking and accepted digital payments through credit cards. Eventually, consumers got accustomed to e-tickets and the scepticism regarding online usage of credit cards reduced considerably. The change in consumer lifestyle, the rise in disposable income of the middle class and the need for convenience acted as catalysts and thus began the era of e-tailing. This period saw a sharper focus on revenue generation.

The New Age e-commerce

Post 2007, a number of start-ups stepped into the Indian e-commerce market to make it big. These included companies such as Flipkart, Infibeam, Myntra and Snapdeal. These portals gained customers

The steady growth in the number of web shoppers also is helping to boost e-commerce sales. Many consumers will prefer the web to bricks-and-mortar retailers in large part because of online deals, about 52 per cent of shoppers said they made purchases online rather than in stores because online retailers offered better deals. Among popular shopping categories, apparel sales capture the biggest share of Indian e-commerce retail, along with computer and consumer electronics. The two categories are likely to continue fueling the market in the future as well. In 2015, computer and consumer electronics and apparel and accessories are together estimated to account for 42 per cent of total retail e-commerce sales, as against 39 per cent now.

Travel and tourism are also fast growing segments with as much as 75 per cent of the total industry having migrated to online commerce. Among other things, a major portion of services such as air, train, bus, movie ticket bookings, hotel reservation and tour packages have moved to the internet. The above mentioned report added that between 2017 and 2020, the e-commerce industry could spend around 2-6 per cent of the revenue on warehousing and sortation centers, which would translate to \$450-900 million. The industry is expected to spend an additional \$500-1,000 million in the same period on logistics functions, leading to a cumulative spend of \$950-1,900 million till 2017-2020. On the employment front, the report estimated the e-commerce industry to employ an additional 100,000 people in warehousing and logistics, over the around 25,000 persons working in the segment currently. The Indian e-commerce industry is likely to clock a compounded annual growth rate (CAGR) of 35 per cent and cross the \$100-billion mark in value over the next five years, a study conducted by Associated Chambers of Commerce and Industry of India (Assocham) along with PricewaterhouseCoopers (PwC) has said. According to the study, the Indian e-commerce industry is valued at \$17 billion now and is estimated to reach \$20 billion by 2015.

Continuing on the strong growth momentum of 2014, the e-commerce industry is estimated to see a 67 per cent increase in the average annual spending on online purchases per individual in 2015, to Rs 10,000 from Rs 6,000 in 2014. Additionally, with improvement in infrastructure such as logistics, broadband and internet-ready devices, there is likely to be a significant increase in the number of consumers making purchases online, the study said. It estimates around 65 million consumers in India to buy online in 2015, as against around 40 million in 2014.

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FOREIGN DIRECT INVESTMENT IN INDIAN RETAIL SECTOR

S. K. Rodde

Vidyabharati Mahavidyalaya Amravati.

Introduction

According to the *Financial Times*, "Standard definitions of control use the internationally agreed 10 percent threshold of voting shares, but this is a grey area as often a smaller block of shares will give control in widely held companies. Moreover, control of technology, management, even crucial inputs can confer de facto control." The origin of the investment does not impact the definition as an FDI, i.e., the investment may be made either "inorganically" by buying a company in the target country or "organically" by expanding operations of an existing business in that country. In other words Foreign Direct Investment means "cross border investment made by a resident in one economy in an enterprise in another economy, with the objective of establishing a lasting interest in the investee economy. FDI is also described as "investment into the business of a country by a company in another country". Mostly the investment is into production by either buying a company in the target country or by expanding operations of an existing business in that country". Such investments can take place for many reasons, including to take advantage of cheaper wages, special investment privileges (e.g. tax exemptions) offered by the country.

FDI Prefer for Development of country

- Domestic capital is inadequate for purpose of economic growth;
- Foreign capital is usually essential, at least as a temporary measure, during the period when the capital market is in the process of development;

- Foreign capital usually brings it with other scarce productive factors like technical knowhow, business expertise and knowledge

Some Benefits of FDI

- Improves forex position of the country;
- Employment generation and increase in production;
- Help in capital formation by bringing fresh capital;
- Helps in transfer of new technologies, management skills, intellectual property
- Increases competition within the local market and this brings higher efficiencies
- Helps in increasing exports;
- Increases tax revenues

Process of FDI in Retail

There is no such procedure for short listing the companies. International companies who are willing to invest in either single or multi-brand retail can put in their applications with the Department of Industrial Policy and Promotion.

Here the applications are reviewed in an effort to determine their suitability as per the stated guidelines. Subsequently, the Foreign Investment Promotion Board, Ministry of Finance will consider the applications before providing the final approval.

Advantages of FDI in retail

India's retail industry is one of the biggest around the world when it comes to the privately owned ones. The industry has seen some major restructuring thanks to the FDI structure becoming more liberal than before. The benefits of FDI in retail, as per experts, carry greater weightage than the cost related implications. With FDI in retail, operations in distribution and production cycles are expected to become better. Owing to factors such as economic operations, the cost of production facilities will come down as well. This will mean a greater choice of products at lesser and justifiable prices for the customers.

As a result of FDI, companies will be able to bring in technology and skills from other countries and this will help in infrastructural development of India. This will also help in creating more value for money for the buyers.

After FDI in retail, it is possible to set up a properly organised chain of retail stores as the capital to do is readily available. The investment can be regarded as a long term one as the physical capital put into a domestic company is not liquidated easily. This is its main difference from equity capital.

ICRIER had also predicted that if FDI in retail was introduced in India during 2011-12, the Indian economy could have grown by 13 per cent, the unorganised sector could have seen a 10 per cent growth and the organised sector could have increased by 45 per cent.

Disadvantages of FDI in retail

Experts say that while analysing the positives and drawbacks of FDI in retail, both the government and the opposition did not refer to the Parliament Committee report where its effects had been studied in great detail. The committee had taken into cognizance many witnesses, NGOs, individuals, and trade associations to come up with the said report.

The Committee visited various corners of India and also went through reports and gathered knowledge about the experience of similar decisions in other countries. It also enquired from several government departments regarding the matter.

www.wikipedia.org, the free encyclopedia
[www.RBI website](http://www.RBI.gov.in), Newspaper reports, GoI data
<http://www.makeinindia.com/policy/foreign-direct-investment/>

The Committee had surmised in its report that the number of people getting jobs will be lesser than the amount of people losing the same as a substantial amount of marginal and small farmers will be wiped out. Some other problems expected out of this were aggressive pricing and prevalence of monopoly.

Recent Developments on FDI

(all sectors including retail):-

2012 - October: In the second round of economic reforms, the government cleared amendments to raise the FDI cap

(a) in the insurance sector from 26% to 49%;

(b) in the pension sector it approved a 26 percent FDI; Now, Indian Parliament will have to give its approval for the final shape,"

2012 - September : The government approved the

(a) Allowed 51% foreign investment in multi-brand retail,

(b) Relaxed FDI norms for civil aviation and broadcasting sectors. - FDI cap in Broadcasting was raised to 74% from 49%;

(c) Allowed foreign investment in power exchanges
2011 - December :

The Indian Government removed the 51 percent cap on FDI into single-brand retail outlets and thus opened the market fully to foreign investors by permitting 100 percent foreign investments in this area.

Conclusion

India is the 3rd largest economy of the world in terms of purchasing power parity and thus looks attractive to the world for FDI. Even Government of India, has been trying hard to do away with the FDI caps for majority of the sectors, but there are still critical areas like retailing and insurance where there is lot of opposition from local Indians / Indian companies.

Indian market has high complexities in terms of a wide geographic spread and distinct consumer preferences varying by each region necessitating a need for localization even within the geographic zones. While India presents a large market opportunity given the number and increasing purchasing power of consumers and increase in standard of living.

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E-commerce in India

Dr.P.W.Kale, Dr.S.B.Kadu, S.K.Rodde
Vidyabharati Mahavidyalaya, Amravati

Electronic commerce is trading in products or services using computer networks. Electronic commerce draws on technologies such as mobile commerce, electronic fund transfer, supply chain management, internet marketing, online transaction processing, electronic data interchange, inventory management system and automated data collection systems. Modern e-commerce typically uses the World Wide Web for as least one part of the transaction's life cycle, although it may also use other technologies such as e-mail. E-commerce businesses usually employ some or all of the following practices:

- Provide Etail or virtual storefront on websites with online catalogs, sometimes gathered into a "virtual mall"
- Buy or sell on online marketplaces
- Gather and use demographic data through web contacts and social media.
- Use electronic data interchange, the business-to-business exchange of data.
- Reach prospective and established customers by e-mail or fax (for example, with newsletters).
- Use business to business buying and selling.
- Provide secure business transactions.

It may be now that online shopping has become popular but the concept of e-Commerce was introduced long back in the 20th century. The year 1991 noted a new chapter in the history of the online world where e-commerce became a hot choice amongst the commercial use of the internet. At that time nobody would have even thought that the buying and selling online or say the online trading will become a trend in the world and India will also share a good proportion of this success.

With the advent of the Internet in 1995, India witnessed the setting up of B2B portals, matrimonial sites, job search directories and online stores through Rediff.com and Indiatimes.com. However, these smaller initiatives did not thrive due to several factors, such as low Internet penetration, slow Internet speed, and small user base for online shopping, inadequate logistics infrastructure, low consumer acceptance of e-commerce and the lack of a tangible revenue model. More than a thousand e-commerce businesses collapsed due to the IT downturn in 2000.

By the year 2002, India first came into interaction with the online E-Commerce via the IRCTC. The government of India experimented this online strategy to make it convenient for its public to book the train tickets. Hence, the government came forward with the IRCTC Online Passenger Reservation System, which for the first time encountered the online ticket booking from anywhere at any time. This was a boon to the common man as now they don't have to wait for long in line, no issues for wastage of time during unavailability of the trains, no burden on the ticket bookers and many more. The advancements in the technology as the years passed on have been also seen in the IRCTC Online system as now one can book tickets (tatkal, normal, etc.) on one go, easy payments, can check the status of the ticket and availability of the train as well. This is a big achievement in the history of India in the field of online E-Commerce. In 2005, low-cost carriers entered the aviation sector and drove the online travel industry, leading to the e-ticketing sites. The Indian Railways also implemented e-ticket booking and accepted digital payments through credit cards. Eventually, consumers got accustomed to e-tickets and the scepticism regarding online usage of credit cards reduced considerably. The change in consumer lifestyle, the rise in disposable income of the middle class and the need for convenience acted as catalysts and thus began the era of e-tailing. This period saw a sharper focus on revenue generation.

The New Age e-commerce

Post 2007, a number of start-ups stepped into the Indian e-commerce market to make it big. These included companies such as Flipkart, Infibeam, Myntra and Snapdeal. These portals gained customers

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practices. This will only occur by providing adequate training and development of teachers. Due to globalization English has got the status of global language, world language and international language.

English is the powerful market language and transaction of modernization. The changing scenario of English is impacted on English curriculum and teaching methodologies to cater the need of present era.

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LEARNING ENGLISH THROUGH LITERATURE

S.R.Nair

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Abstract

Language can be learnt through Literature. The teacher should be well versed in Literature and should help students to read and to study the classics. Literature helps not only to enrich language but to develop style in language and increase knowledge of culture. Too much of classroom teaching should be eschewed. Instead learner-centric activities like performance of plays, recitation of poems, reading and reviewing books should be encouraged. A wide range of books should be prescribed for study with choice. Lectures should be supplemented with screening of films and aids like audio CDs, visuals and ebooks.

A language like the mother-tongue is learnt through listening and hearing and then communicating through simple words and later through simple and complex sentences. The reading and writing processes of language skills are cultivated gradually; sometimes in the modern context, sometimes not at all. Grammar, usage and other intricacies become skills which are acquired at a much later date, in school. One can become proficient in a language without actively learning it, without studying its inherent grammar and without ever knowing the script of the language. English is nobody's mother-tongue in Vidarbha; it is regarded with great trepidation and its study postponed till such a time when other languages have already left an indelible mark in the thought processes of the individual learner. Even while it has now become a language studied in the primary classes, it has not shed its terrifying aspect, in the minds of the primary school teachers who are hardly conversant in the language. While the teaching of English leaves much to be

desired, it is the learning that has deteriorated to the utmost. Therefore, the teacher should first educate himself/herself in the language through a thorough study of the classics before trying to teach the student. One fact that has been evidenced through the course of around fifty years is the way in which the command over the English language gradually has gone straight downhill from generation to generation. There was a time in India, when every graduate could understand, speak, read and write English. Later, only postgraduates and lecturers could speak and understand English. This has now touched such a nadir that even English teachers in colleges cannot converse in English, leave alone the writing and the teaching! The reason for this shocking decline is lack of reading literature. When candidates come for interviews for the posts of English teachers, they are usually asked what they have read. To this, they reply that they have not been able to read because they do not have the time for it. If graduates and postgraduates picked a few classics of literature and

read them diligently, there would not be any need to write an article on how to teach English through literature. The fault lies on the fact that teachers are ill-equipped to teach as they have never gone beyond the prescribed texts; even there, they have only studied selected texts for the examinations.

Returning to the mother-tongue, it may be remembered that it is not actively taught so much as it is learnt. Therefore for cultivating any language skills, the teacher should improve his/her own grasp of the language and show the learner the way to imbibe the skills instead of indulging in drab classroom lectures that is guaranteed to reach the student nowhere, fast. Such teaching that is perpetrated in the halls of higher education is undertaken with the sole aim of completing the portion and maybe to ensure a good pass percentage, but they are definitely not in the least beneficial for the learner. Students endowed with some foresight know the importance of English to further their career prospects. They 'prepare' for the future by enrolling in crash courses in the language, outside the college since they are not employable without good English communication skills. These students aim to achieve fluent skills in spoken English but ignore the reading and writing aspects until they reach these hurdles in competitive examinations. Very late, they realize that there is absolutely no short-cut to the acquisition of such skills which need long-term reading and studying of the language. The only solution to this problem is to read the best examples of a language, namely its literature.

The study of any language is not complete without the study of the literature of that language. However English literature as it is taught around us, in the regional language still fails abysmally, to fulfil the purpose of improving the student's knowledge of English. While the student understands Shakespeare's plays, in the mother-tongue, his/her tongue will remain clamped silent while trying to express his/her views regarding the same, in English. Hence instead of teaching them, the teacher should encourage the students to read the plays aloud and to understand them through constant use of the dictionary (English to English) and through a study of learned critical essays of standard publications. This will surely go a long way to improve the learner's communicative skills and help him/her to develop both vocabulary and style. Sections of plays could be dramatized in class and poems learnt by rote and recited. In all these activities, the students' participation should be stressed upon and not the

teacher who should only act as the facilitator, taking class along, suggesting corrections and modifications where needed. By playing an active role in class students will learn the importance of shouldering responsibility and duty of learning, unlike what happens in colleges today, where students sometimes come to the college, sit or stroll in the campus; saunter into the classroom, fewer are armed with texts and it is a rare occasion when a small group of students really enjoy the class and learn something useful for them.

In the very first days of the college, the student should be initiated into the ABCs of using the college library resources. The library hour should be introduced in colleges as it used to be in schools. Active reading and reviewing and communicating to the others what one has become acquainted with, will doubtless widen his/her own horizon and of others as well. Immensely benefit their language-learning skills. The teacher, the worry of completing the portions could be eliminated by introducing a syllabus consisting not one text with poems, essays and articles divided neatly into different sections and apportioned to different years or semesters, but a wide selection of novels, plays and poems with options the student may select and study. A reading list of classics for the year may be selected, studied and reviews submitted in and in the written form so that each student could be assessed for language skills and also for written communication. The practice of wasting precious time in teaching the nebulous rules of grammar could be removed, as reading literature will help the student naturally towards a better comprehension of grammar, vocabulary and style; thereby towards correct English. It is an obvious fact that grammar has only made students to be wary of venturing into the complexities of any language.

Regarding the nature of the literature prescribed for study, a careful scrutiny should be carried out with an eye to contemporary but good English and towards cultivating style in the spoken and written forms of the language and also to relevant subject matter. One remembers R. L. Stevenson who kept two books with him all the time - one to read and one to write. Stevenson developed a style of writing that is simple but effective, pleasing and beautiful. Anyone who receives little guidance and encouragement on the part of the teacher, and a good reading of the all-time classics of literature can develop really good speaking and writing skills. It is not within the scope of this article

prepare a comprehensive list of what must be read and what may be omitted. A survey of literary classics from the internet and a list of books can easily give a good idea of books that are prescribed.

While selecting the works of literature, the needs of students and the purpose of learning must be kept in mind. The subject matter of the literature should be relevant to the present age. For many an awareness and sustenance of the environment has become of great interest. Hence books which incorporate this aspect may be used to serve the dual purpose of learning the subject and of gaining significant knowledge. Writers like Gerald Durrell, James Herriot, poets from Whitman and Davies have written in a way that has helped to develop a fine sensitivity to our surroundings, to nature and the position of man in his environment. Literature is what has survived the test of time through its quality. True literature has universality and remains its relevance for all time and across cultures. For example Hemmingway's "The Old Man and the Sea" could be about any old man even a farmer of a village. Literature especially poetry helps to develop an appreciation and sensitivity evoking feelings. It enriches language with its figures of speech and encourages the learner to appreciate the language not only through the subject matter but through sound, rhythm, quality and depth of thoughts and feelings. The student also becomes acquainted with stress, pitch, intonation, etc. through listening to poems recited and repeating the poems. The internet offers a wide range of audio poems recited in different ways. These may easily be used as an aid to lectures.

In the selection of texts, it should also be remembered that certain subjects may be offensive to the cultures of the learners; the inclusion of these should therefore be avoided. Certain heavy texts like those of Thomas Hardy and some others which have their place while learning literature for its own sake may not serve the purpose here. Furthermore, there must be a gradual increase in the levels of difficulty in text comprehension so that the learner graduates from simple texts to more demanding and difficult works. From abridged versions the learner could progress to the actual texts; from superficial readings to in-depth explorations. Even a few literary texts can help in gaining a good grounding

in the language and take the student towards confidence by increasing his/her vocabulary and inculcating style in both the spoken and written forms of the language.

Teaching literature should mean not mere classroom lectures or line by line explanations, topped with dictated notes. Literature should be enjoyed together by the teacher and the students as if on a journey to discover knowledge. In this age of advanced technology, the teacher should go beyond the hard copy of the text which is never fully comprehended with words. For example, while teaching poems, we come across daffodils, violets and buttercups. These words are I am sure, familiar to the teachers of English. How many of us have followed it up by checking the internet or an encyclopaedia to really find out how these flowers look like? Instead, as they say, a picture is worth a thousand words, if we supplemented our lectures with pictures, screening of films of classics like the plays of Shakespeare and the novels of Dickens, the student would grasp both the theme and listen to the dialogues. This would help students to understand and speak English and pronounce words correctly. It would increase their awareness of different cultures and they would learn tolerance from this understanding and awareness of differences. Similarly audio books, CDs, and e-books may easily be used to enrich the learning experience. Projects like the creation of power-point presentations and posters, the performance of plays, the recitation of poems, story-telling and poetry competitions and the writing of plays can become interesting activities with the aim of self-study.

Language teaching today has become over-simplified into merely imparting grammar skills which by themselves remain without any coherence, as only pieces of the jigsaw puzzle of the language. The learner may master the rules but does not know how or where to apply them and ends up misusing words as is seen in newspapers nowadays. Even the front pages are riddled with mistakes which should not be committed by students in the primary classes. I would like to rest the case by reiterating language or literature should not be 'taught'. Teachers should instil a love of reading literature in the students. This will naturally help the student's grasp of English; but it will also broaden his/her vision, understanding, knowledge, wisdom and emotional intelligence. In short it will lead to the all-round development of the student.

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in the winter... now, with the sahibs forcing everyone to grow poppy, no one had thatch to spare... poppy had been luxury then, grown in small clusters between the fields that bore the main winter crop.”(SOP: P.42) The inhuman cycle of debt made the farmers of the opium belt impossible to come out of the poverty. The grain crops and vegetables were not grown. There was only a sea of poppies in all the fields. To feed their families they took more debt and thus they became more confirmed in their state. Opium broke the very structure of the society.

Apart from the British, the wealthy landlords too exploited and gave inhuman treatment to needy and poor. They could not get rid from the clutches of people of their own region. Ghosh highlights this depicting the incidents Kalua faces at times. The three thakurs promises Kalua to give an ox-cart only if he could win a fight and give a few demonstrations of his strength. In

several wrestling matches Kalua defeated the local *pehlwans* and strongmen with ease. The young landlords earned a good profit and Kalua was soon in possession of his reward. But once having gained his ox-cart, Kalua was no more interested to fight. Kalua protested for this at first, but the landlords flattered and finally threatened to confiscate his cart and oxen. They compelled him to play one more game in which he is defeated and came home in disgrace. The thakurs revealed that a powerful giant of a man like Kalua could be humiliated and destroyed, in a way that far exceeded his body's capacity for pain.

Thus, Ghosh explores the vivacious influences of imperialistic structure in his historical magnum opus and sympathizes for exploited people with his humanitarian voice. Skillfully presenting history, he “offers a vision of living across the problematic space of postcoloniality in contemporary life.”(Paul: P.96)

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Teaching Literature through audio-visual aids: Making Literature Classroom a Theatre.

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Key words: Audio-visual aids, Classroom a Theatre, Dimension, Strategies.

Teaching any kind of literature cannot be done effectively simply by putting forward intellectual analysis by delivering lectures. It becomes more difficult doing so, in Indian classrooms where students come from different language backgrounds. When it comes to the teaching of English Literature, the problem requires an altogether a different dimension. The students in majority of the cases don't have literary understanding of the language. In some cases the problem goes deeper where the literature students (at UG level) don't understand English at all! However using such cases as an exception, the focus of this paper will be to discuss the strategies to be used in

English Literature Classes having less understanding of the literary aspect of the language. The paper is an attempt to put forward the writer's first hand experiences of using audio -visual aids in Literature Classroom.

Teaching Literature: Transporting an experience!

Any piece of good literature is a mix of experience, imagination and artistic expression. The primary aim of any good artist is to make the reader experience what s/he has felt. The teacher's job, if taken seriously, is a difficult one and that of a critic! S/he has to appreciate the literary piece first for herself

and than it has to be presented before the students so to make them experience it on their own. Now there are two difficulties: First the teacher should be able to decode the language of the author for himself and secondly s/he would have to devise relatively simpler vocabulary to present the author's case before her/his students. Many times the second part becomes absolutely unmanageable, as in the case of teaching Shakespeare's Hamlet to the UG students. The repartee that Prince Hamlet engages with Polonius has certain Elizabethan references which otherwise cannot be understood. Or the opening scene where the three witches make predictions in Macbeth is difficult to describe with all its visual impact simply in words. Or when Othello before murdering Desdemona, puts out the lamp, by uttering the soliloquy "Put out the Light and then put out the light!" the storm on his face can hardly be transported to the students unless the professor is Sir Lawrence Olivier himself! In short the complexity of emotions, thoughts and experiences in the great works cannot be simplified for the students simply by using words.

A vividly complex experience, however elaborate it may be, can easily be transported through moving images helped by sound. Hamlet's play on the word "fishmonger" becomes crystal clear when students look at the hawkish face of Polonius. Similarly the withered faces of crooked looking old women are so convincingly the wicked witches that the students unknowingly flinch while looking at them on the screen. Sir Lawrence Olivier's face is so full of emotions that when he puts out the candle the students weep with Othello for Desdemona. It doesn't matter if the students don't follow Lawrence's stiff British accent saying:

"If I quench thee, thou flaming minister,
I can again thy former light restore,
Should I repent me: but once put out thy light,
Thou cunning's pattern of excelling nature,
I know not where is that Promethean heat
That can thy light relume." (Act V Scene II, lines 7-11.)

They know that here Desdemona's life has been compared to the flame of the candle. And the one can be restored after putting it out but the other cannot be. The teacher in absence of the media would have to stoop to the vulgar level of simplified prose. In the process of simplification Shakespeare's Desdemona would have come down to the level of an actress in some Bollywood melodrama. The similar argument can be given for the novels and stories written during a

particular period and society. To understand Hardy's world or to know Austen's characters or Dickens's plots one need to know the geography, society and culture of the concerned authors. By watching movies based on the novels of Hardy, Dickens or Austen, the students get to know first handedly the characters and their world in live vivid images and sound. Nothing much is left to their imagination. And that makes the teacher's job fairly easy and manageable. Now he gets the level playing field like his English or American counterparts. As the students now with the visual aid have grasped drama, the further analysis can be done simply by reading the texts. So once the students are transported to the complex literary world without any hurdles of decoding the language of signs and sounds, they are ready to interpret the texts on their own.

Other Visual aids: Giving wings to the fancy and imagination

While dealing with extremely romantic and imaginatively rich literature, variety of visual aids on small scale can be of great help. Many a times simply a snapshot, a drawing, a piece of music or simply recording of some sound stimulates the imagination of the otherwise still and stagnant minds. At times such visual aids save the teacher both time, (painful) labour and often some embarrassing excuse. The other day I was reading in the Final year literature class:

"It was my thirtieth year to heaven
Woke to my hearing from harbour and neighbour
wood

And the mussel pooled and the heron
Priested shore" (Poem in October)

I was at loss. How to make the students visualize the seashore in Wales with the birds like duck (but not ducks) standing in water--all white--waiting patiently for prey. Without wasting much time I simply downloaded Google images on my mobile handset. The students not only saw how herons look but they could also visualize why Dylan Thomas must have compressed them into a metaphor by saying "heron Priested shore." Similarly in the First year literature class reading "Arms and the Man" and making students understand the anti-romanticism of G.B.Shaw is a very demanding task. Especially with such copious details of stage directions, costume, setting and characterization by Shaw, it becomes virtually impossible for the teacher unless he himself is an accomplished stage director, to give the students sense of a play just by reading the text. So on the very first day while describing the stage directions, costumes, and

various scenes, I asked one of the students having good skill at drawing to draw as many scenes as possible on large drawing sheets. The girl very much eager to participate in the class activity drew three different sketches covering all the different scenes and characters with name tags. Every day the relevant drawing would be placed on board making everybody's job easy, entertaining and instructive. So a simple pencil sketch helped the students visualize the action on alien terrain and it gave them the feeling of being in the midst of the drama itself. So they didn't have to worry where must have Sergius tried to hold Louka in his arms or where was Rama standing when she found her photograph in her father's coat. In addition to having helped the students imagine the stage directions the sketches also helped them in distinguishing the characters as well.

Apart from pictures, drawings and videos even pieces of sound and music also help the teacher enrich the experience of teaching literature. While reading a ghost-story by Satyajit Ray (Anathbabu's Terror) I played in between some creaking horror sounds suitable to the opening and closing sounds of the old doors and windows.

"The door to the West room was closed. Anath Babu pushed it gently with his forefinger. A nameless fear gave me goose-pimples. The doors flung open..."(page 32 Bequest of Wings)

These sounds multiplied the effects of the words read by the teacher in the classroom transporting the students into the old 'Halder Mansion'. Similarly while reading Ode to Autumn explaining the beauty of the sounds like—

"a wailful choir the small gnats mourn", "full-grown lambs loud bleat" "Hedge-crickets sing;" "and now with treble soft The redbreast whistles" "And gathering swallows twitter in the skies." (Ode to Autumn) is just impossible for our students. So I downloaded a few sounds from the internet and played while reading the poem. The students were busy distinguishing bleating from cricket sound and twittering from the whistles. In this way a little sensory help can make the students appreciate literature in more meaningful involved way. Before I conclude the paper a word of caution deserves a brief mention. A literature teacher, while turning his class into a theatre must not forget his basic objective. A literature teacher has to pass on the skill to appreciate and understand literature. To this end only the entertainment value of any piece of literature has to be exploited. Otherwise there would be no difference between a multiplex and a classroom. All the audio-visual aids have to be used only as support-material just to increase the value of lecture in the class. The teacher should not push her/himself to the background every now and then and to the longer period of time. The teacher has to be there all the time instructing them, encouraging them and channelizing their energies to the positive end. There cannot be any SOPs (Standard Operating Procedures) telling teacher how to make use of audio-visual aids in the literature class. However a seasoned teacher knows what to do and what not to. S/he has to let herself guide by good judgment and conscience!

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he was invited to Chair a session at an International conference at Indonesia and Malaysia. He has brought radical changes in UG syllabi for language and literature and introduced viva-voce at University level so as to assess the listening-speaking-and reading skills of language learning.

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CULTURAL IDENTITY IN THE INDIAN ENGLISH LITERATURE

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Abstract

India is the country where many types of people of class, caste, creed, language, religion live together harmoniously. In past, India witnessed many foreign invasions. Through the various invasions many people from different parts of the world got settled in India. They not only got settled down but also brought along with them their culture. The forte of Indian culture is that it has a great amount of flexibility and adoptability. It accepted foreign culture without much hue and cry which in the process of time became an integral part of Indian culture.

In the postcolonial and postmodern Indian English literature many writers have successfully depicted the theme of Indianness which encompasses different cultural ethos and emotions associated with ancient myths and mythology, legends and lexis in their work. These have given special identity to the literature produced by Indians in the world.

In the era of globalization India as a nation has emerged as ace runner in almost every field. Be it technology, literature or any other field, world has witnessed the growing power of India with innovative mind. In the past Indian philosophers and sages had exhibited their prowess with innovative ideas and influenced the whole world with their breakthrough knowledge. From Ayurveda to Mathematics to Astrology and Literature many written scriptures from that era are still a matter of wonder to the new generation which is quite relevant in today's time. Many scholars draw inspiration from those scriptures for their quest of knowledge. Taking forward this legacy of excellence of the older generation new India has emerged as new super power with their novel ideas, ceaseless efforts and innovative techniques.

In the recent time many Indian writers have been successful to bag much coveted prizes like Booker/ Nobel and many more. These talented writers have been engaged in exploring orthodox/ traditional/ modern and scientific viewpoints from Indian cultural point of view. Indian writing in English in general and Novels in English in particular has scored much respectable position in the arena of literary world.

Prof. R.S. Pathak's remark in this regard should be looked as path breaking view about English writing, "Ever since the publication of Bamkim Chandra

Chatterjee's novel 'Rajmohan's Wife' in 1864, Indian novel in English has grown by leaps and bounds in respect of bulk, variety and maturity. In the first half of the 20th century, the arrival of Mulk Raj Anand, R.K. Narayan and Raja Rao in Indian English Literature provided everlasting life to authenticity of the portrayal of characters, systematic plot construction and projection of a variety of themes in novels."

The initial journey of English literature in India is quite interesting. Among the many writers the most famous are trio Mulk Raj Anand, R K Narayan and Raja Rao. These three achieved many scores and were successful to depict Indianness in their writing giving true reflection of contemporary plight of Indian society.

Mulk Raj Anand in his novels struggled to expose the social problems of orthodox and conventional Indian society. He tried his best to highlight the problems and pathetic condition of under-privileged, downtrodden underdogs and untouchables living in Indian society.

Unlike Anand, R.K. Narayan had different perspective. He too was concerned with prevalent Indian society but explored its psychological realism. His characters are common ordinary typical Indian people. Characters in the novels like 'Swami and Friends, The English Teacher, The Dark Room, Mr. Sampath, The Financial Expert, The Guide, The Vendor of Sweets, The Painter of Signs, Waiting for the Mahatma, The World of



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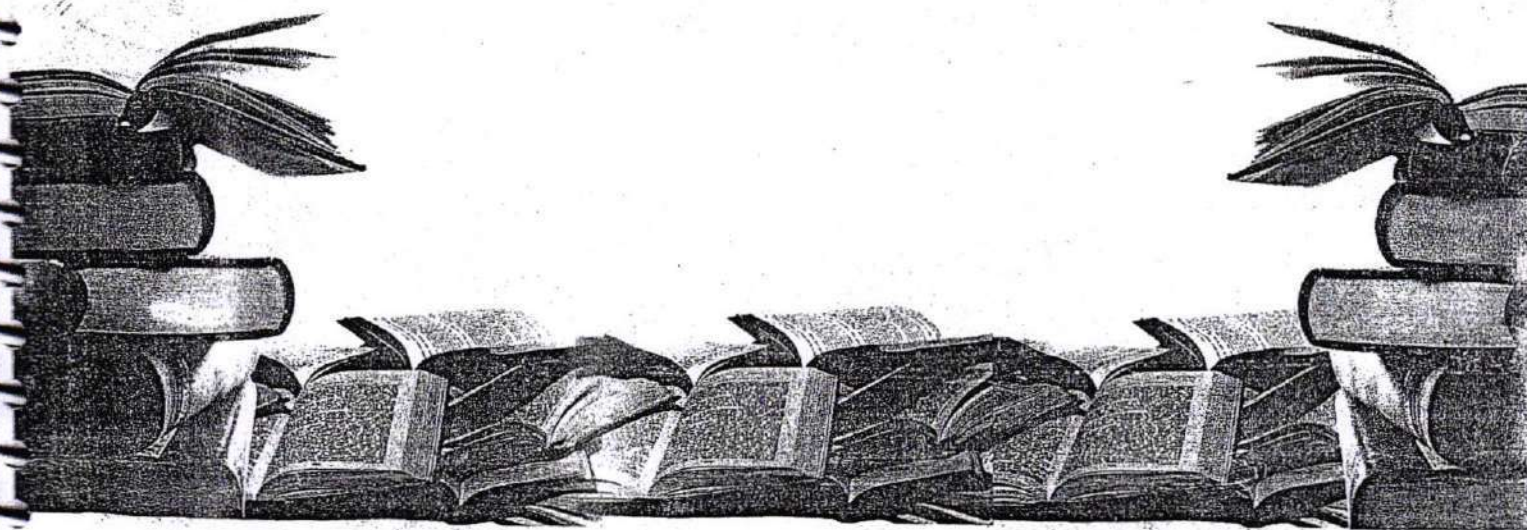
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Keywords: Language, Education, Knowledge.

English teachers imparting education in rural area are under tremendous burden of socio-economic periphery of students and their parents. It is found in many cases that the parents themselves are less educated and therefore are not much more aware of the importance of education. The tendency leads to instilling in students lethargic attitude. It results in indifference to studies in and outside the school and college campuses. The students forming such notion neglect studies of the English language as they are preoccupied with the fear that it is a language of elites. Such a negative notion hamper the playful atmosphere in the class of English teachers and a lot of efforts have to be done by the teachers to forge the students mind with positive inclination and leaning towards English language learning.

For many years Indian classrooms followed the Grammar Translation Method in English Language Teaching (ELT). It resulted in giving too much emphasis on grammar learning and it is generally found in non-English medium classes even at undergraduate level that with some exceptions more and more students give importance to English grammar learning. The general trend expects that the students should acquaint with a language in the sequence of Listening, Speaking, Reading and Writing (LSRW). The scope of teacher is hampered and his/her many hours go waste in identifying and creating the self-confidence of students. Fundamentally and language is learnt in its cultural adherence. For it, curricula designers and experts need

to pay attention to it. The students learning English in the countryside are non-English medium students and require wholesome appreciation in the class. Keeping in the view their aspirations, curriculum needs to be designed. Teaching the poem "The Waste Land" in Indian cultural context may create ambiguity in the mind of the non-English medium students. It would require on part of the teacher to create suitable atmosphere by adding and supplementing teaching with proper audio visual aids. And again to our astonishment, our classrooms in the rural places even lack primary teaching aids.

In the fast changing world, there are to be followed many exemplary shifts from language to literature and literature to language. It is no time to get used to traditional methods and techniques of ELT. However it is essential for ELT teachers of follow contemporary literary theories and practices in vogue. It is certainly a challenge to them when teaching the countryside students. Hence it is quite difficult to prepare students for "listening to speaking", "listening to reading" and s/he can overcome hurdles by her/his constant pursuit in the arena of knowledge. Categorically students from the urban and rural locality may find some difference in their behavioral attitude and learning prospects as they differ in social milieu and financial status despite it no division of teachers can be made on the basis of locality wherein they teach as true teachers are foster father and mother of their students.

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TECHNOLOGY AND ENGLISH LANGUAGE TEACHING

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Abstract

In this paper, an attempt is made to review the new trends in this area of language teaching recent years and some suggestions are made with practical experience. Use of ICT is also a step forward for English Language Teaching and it has to be implemented without fail. ICT comprises communication devices such as radio, television, interactive

boards, and android mobiles ,blogs, social media, projectors, computer, laptop, tablet, internet, audio equipments, scanner, printers, E-mail and many more are supporting for teaching and learning process in schools ,colleges and universities

Keywords:- Computer, content, technology,

Introduction

English is used in India in official, professional, personal and academic circle. India is a developing country trying to open its feathers in the sky of developed countries. Use of Internet and other electronic devices have opened gates of accepting English as language of changing scenario. As the world is shrinking day by day and culture barriers are breaking, I think there is a great need of not only learning English but accepting new and emerging trends of English language learning and teaching. English in International scenario English is used widely not only in India, but at over the world. It works as a connecting language across the barriers. The use of English as global language and first language of world makes it really impossible to discuss anything about it. Use of Internet and related electronic gadgets, devices can only possible with the well versed knowledge of English. All developed countries use English as main medium of instruction and all scientific and technical knowledge is based on it.

English Teaching in the past.

English Language Teaching is a continuous process which needs many changes and we are observing changes from time to time. There was a time when English started in Britain and now many changes occurred in British English also. Teaching English has changed significantly over the centuries. As a compulsory subject, it was very challenging to the English language teacher to teach the foreign students. The teacher taught English as a knowledge subject and not as a skill subject. They use "Grammar Method" and this method ignores the development of communication skill. There are other methods such as bilingual method, direct method, audio-lingual method and communicative language teaching etc. but no method was perfect method. Teachers have ever been in search of superior method of teaching English. The teachers now started leaving behind Traditional way of teaching and learning English. Use of Internet and other electronic devices and media has changed the teaching and learning of English. Of the many changes and trends taken place in ELT.

Innovations

In this continuous learning era, teachers are expected to engage in seeking professional development and learning whenever there is possibility. The need of the hour is to equip the students with proficiency in the English language and this is possible only with the proper use of ICT tools in teaching English. These innovative tools are making rapid changes in the educational environment and English language teaching.

ICT tools for Teaching English.

Internet

The teachers have been using internet in the language classroom for more than ten year. There are several possible reasons for using the Internet in Language teaching. It can increase student motivation. It is also believed that learning computer skill is essential to students' future success. It is a source of information in the form of articles, resource material for teacher, lesson plans, audio video files and many more. Internet has been becoming an extraordinary source of information in the practice of English Language teaching. Hence, it can be stated among the various advantages, the first and the main advantage or benefit of using the Internet for teachers is the fact that it provides a large amount of teaching resources. It is through the Internet that teachers could easily get various materials for their teaching. Some primary sources of materials are sites such as OneStopEnglish at <http://www.onesstopenglish.com/> which features plenty of materials and lesson plans for regular use and the BBC/ British Council collaboration also has plenty of resources on its Teaching English site at <http://www.teachingenglish.org.uk/>. The use of internet in the practice of English language teaching is unavoidable

Youtube

The teachers are using videos for language teaching has been one of the most effective ways to achieve success in the classroom. The ELT teacher has been using the videos for teaching English language skills since many years now. The organizations like BBC have even been creating video content for teaching purposes. In the past time there were many hurdles in accessing the authentic video content. But YouTube for last six seven years has been making the difference to it by sharing website. The

real advantage of YouTube is that it offers authentic examples of everyday English used by everyday people. At the same time use of YouTube videos enables teachers to attach the students to the real life nature of these video. The benefits of using YouTube for ELT are teachers get free video content on different topics. The teacher can use the videos as a tool for improving learner's Listening, Speaking, Reading and Writing skills.

Blogs

A blog is a discussion or informational site published on the World Wide Web. As the blogs is a great way to share information and generate discussion. Now educators started using such type of social media to teach students. Teachers can use a platform such as Blogspot and Wordpress to start the blog. Teacher could update his/her blog any time and on any topic. He/she could also post photos as well as audio-video on a different topic. He /she should encourage the students to visit blog frequently. Teachers should read regularly the most important blogs of a English language teacher's and educator's blogs.

Podcast

A podcast is a digital medium consisting of an episodic series of audio, digital radio, PDF, or ePub files subscribed to and downloaded through web syndication or streamed online to a computer or mobile device. Using podcasts in the classroom is very easy. The teacher can download many free ELT podcasts on the Internet to use in classrooms. There are lot of podcasts available to be downloading in the form of MP3, audio, video to be used in classes.

Sum up

The technology is developing day by day. In this information age we should be able to amalgam with this technology to use properly in educational field. The recent trends in ELT are the use of Information Communication Technology has been affected a lot. There are many more tools such as, android phones, tablets and social media i.e. facebook, twitter etc. would be used as an advanced tools for teaching and learning English language.

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ADVANTAGES OF USING ICT IN TEACHING ENGLISH

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The modern world is driven by technology. From the innovations and discoveries that are taking place, a lot is spreading to the field of teaching also. A great amount of research has also been undertaken to know about the usefulness and effect of these latest developments on teaching and learning. Every now and then a lot of new developments replace the old and

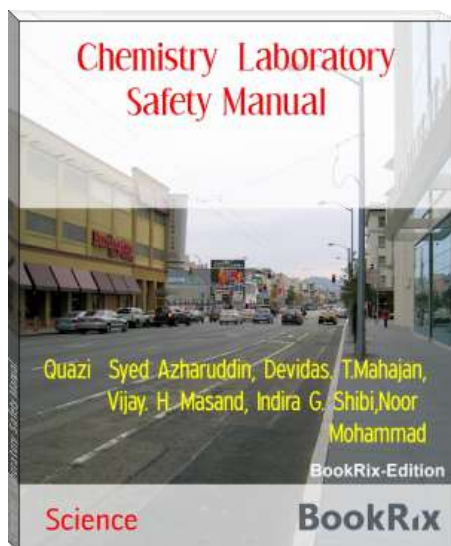
outmoded ones and leave its imprint on the people concerned.

There are many new developments and technological innovations that play a crucial role in modernizing the trends prevalent in the field of teaching. And any teacher who is clever and blessed with a fertile imagination can make proper use of these gadgets developed by technology to improve his teaching. This

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