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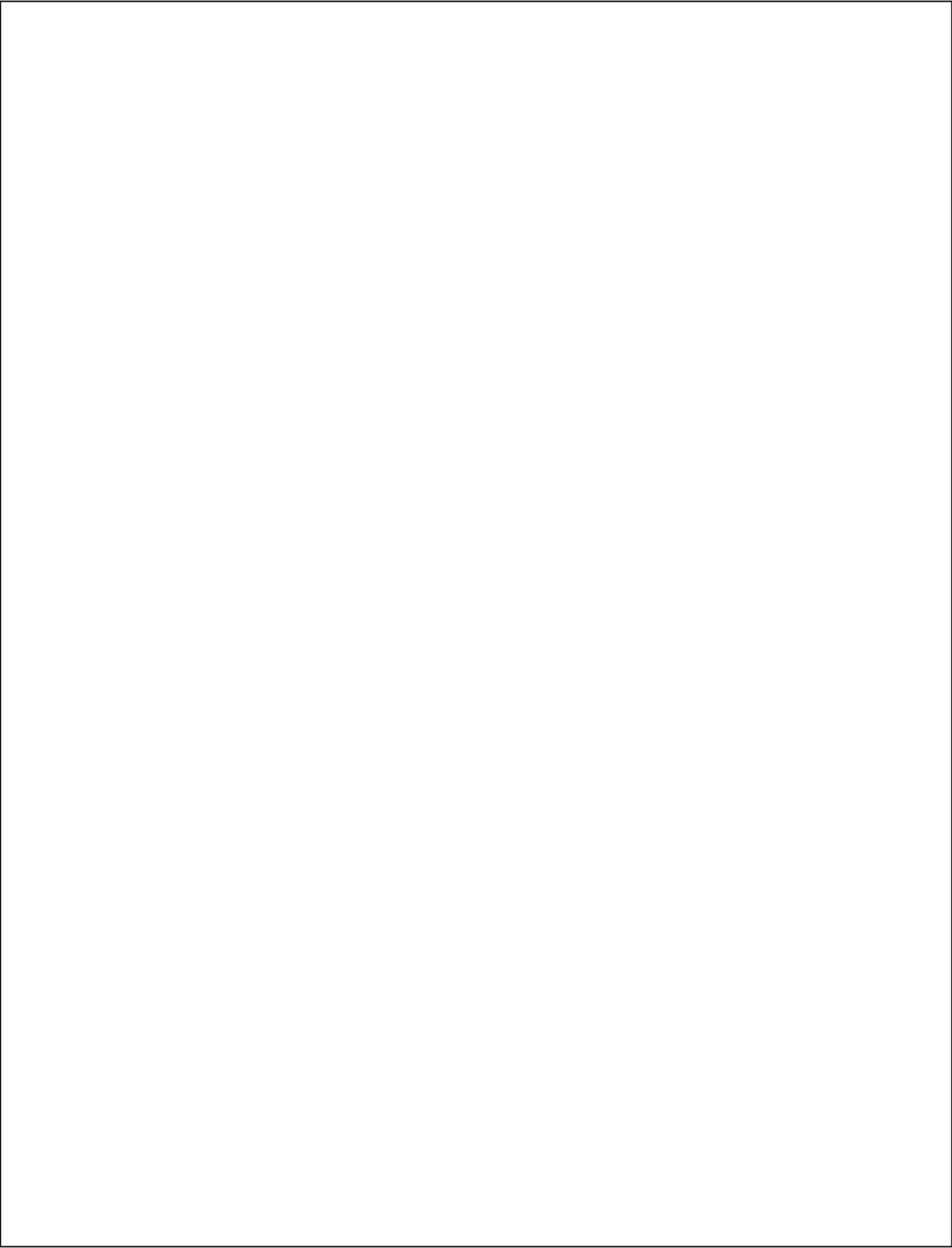
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From the Chief Editor

We draw immense pleasure in presenting June 2012 issue of our research journal - Pragmaan: Journal of Mass Communication. It continues to gain appreciation and accolades as it provides a platform that stimulates and guides the intellectual quest of Mass Communication scholars. Our Journal has attained three major landmarks viz.,

- Award of ISSN No. 0974-5521 for our publication from NISCAIR, New Delhi.
- Listing with prestigious Ulrich's International Periodicals Directory, USA.
- Empanelment of external referees comprising eminent scholars

We would like to extend a very warm welcome to the readership of Pragmaan: Journal of Mass Communication. It aims at dissemination of high quality research in Mass Communication that should help to address the challenges of the 21st century. The Journal strives to seek ways to harness the power of Communication to meet the real world challenges, and to provide substance for making informed judgments on important matters. The articles published in this issue of Pragmaan: Journal of Mass Communication focus on Impact of community Radio, Advertisement, Print Media, Traditional Media, Internet, Sex in TV Commercials, Science Communication, Media Education and 3D technology in Visual Media.

We would like to express our gratitude to our valued contributors for their scholarly contributions to the Journal. Appreciation is due to the Editorial Advisory Board, the Panel of Referees, the Management of the Institute and Dean (Academics) for their constant guidance and support. Thanks are also due to Prof.(Dr.) Dhiraj Shukla who diligently prepared the manuscript for the press and faculties of Mass Communication including Prof. Mohd. Shariq who provided the necessary editorial support that resulted in enhanced reader friendliness of various articles. We are extremely thankful to all of them. We are also thankful to those who facilitated quality printing of this Journal.

We continue our endeavour to harness intellectual capital of our scholars and practitioners of Mass Communication who bring to our readers their value additions. We do our best to oversee a review and decision-making process in which we invite appropriate individuals to review each paper and encourage them to provide timely, thoughtful, constructive, and diplomatic critiques. We work towards integrating reviewers' feedback along with our own insights into the final decision and craft fair and balanced action that acknowledges the strengths of the manuscript, address areas for improvement, and clearly convey the editorial decision.

We wish to encourage more contributions from the scientific community and industry practitioners to ensure a continued success of the journal. We have tried our best to put together all the articles, coherently. Suggestions from our valued readers for adding further value to our Journal are however, solicited.

Dr. Pawan K Aggarwal

Director

IMS Dehradun

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An Analytical Program Contents Study of Community Radios Functioning in National Capital Territory of Delhi (India)

Dr. Devesh Kishore*
Rajesh Agrawal**

ABSTRACT

India is one of the few developing countries where community radio is playing a significant role in bringing the awareness about innovative practices among the society.

The proposed study was designed to find out the types of programs broadcast by community radio stations and programs preferred by audience for broadcast. The paper is based on analytical study of contents of programs based on the issues – health awareness, education awareness, economic development, social development, cultural development, community issues and entertainment which were broadcast by community radio stations operating in National Capital Territory of Delhi (India). The respondents for the study are the regular listeners of selected community radio stations.

“Community radio is a social process or event in which members of the community associate together to design programs and produce and air them, thus taking on the primary role of actors in their own destiny, whether this be for something as common as mending fences in the neighbourhood, or a community-wide campaign on how to use clean water and keep it clean, or agitation for the election of new leaders..... Community radio is most relevant to a group of people, who live and act as a community, and this could be several families, several neighbourhoods, or ever several villages or communities, but the important thing is that they interact.”

(Carlos A. Arnaldo)

Introduction

Community radio is a form of public-service broadcasting. But, it has an approach that is different from conventional broadcasting. Its specific focus is to make its audience the main protagonists, by their involvement in all aspects of its management, programme production and by providing them with programming that will help them in the development and social advancement of their community. Community radio provides a diversity of programs in a variety of formats and styles. For example, roundtable discussions, reportage, interviews, talks, phone-in programs, live broadcasts of meetings in the community etc. Audiences preferences are taken into account in deciding what formats are most suitable.

Content covers a wide range of topics in accordance with the expressed desires and needs of the audience. Content is mainly determined by the lifestyles and livelihood of the community and by the problems they faces. In rural or backward areas, themes such as health, farming, fishing, environment credit, marketing of produce, small-scale enterprises etc. usually feature prominently, but always set in the context of community's actual situation.

UNESCO sees community radio as a medium that gives voice to voiceless, that serves as the mouthpiece of the marginalized and is that the heart of communication and democratic processes within societies.

With community radio, citizens have the means to make their views known on decisions that concern them. The notions of transparency and good governance take on

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new dimensions and democracy is reinforced. Community radio catalyses the development efforts of rural folk and the underprivileged segments of urban societies, given its exceptional ability to share timely and relevant information of development issues, opportunities, experiences, life skills, and public interests.

In India community radio came as Campus Radio in 1970-71 at first Agricultural University of India located at Pant Nagar (Uttarakhand) for rural population of Tarai region and finally in the year 1998 with the initiative of Deccan Development Society (DDS), an NGO working with poor, rural, Dalit women in the Zaheerabad Area of Medak district in Andhra Pradesh, setup a community radio station with assistance from UNESCO. After that a number of NGOs started their community radio programs aired by local or regional All India Radio Stations in various parts of India.

The important decision has been made by the Supreme Court of India i.e. 'airwaves are public property'. The Government of India made guidelines to issue license to operate the community radio station at well established educational Institutions and NGOs. Nowadays, numbers of community radio stations are working all over India and number is increasing day by day.

Objectives

The objectives of this research paper are:

- (1) To find out the types of programs broadcast by community radio stations.
- (2) To know the types of programs preferred by the audience for broadcast.
- (3) To identify program formats liked by the listeners.

Research Methodology

For the present study, we have selected following four community radio stations that are working in National Capital Territory of Delhi (India) for more than 3 years. That are –

1. Jamia Radio (Jamia Millia Islamia University Campus)
2. DU Radio (Delhi University Campus)
3. IIMC Radio (Indian Institute of Mass Communication Campus)
4. JIMS Radio ((Jagannath Institute of Management Studies, Rohini Campus)

The survey was carried out in the villages and slum areas of broadcasting coverage areas of four selected community radio stations.

For the purpose of study convenience sampling method is used. The sample size was limited to 120 listeners in total from the four selected radio stations who are regular listener of a particular community radio station's programs.

A schedule was developed for taking responses from the selected respondent listeners and critically analyzed various programs collected from four selected community radio stations.

Calculation of scores

4 selected community radio stations x 30 respondents from each community radio station = 120 respondents in total.

Therefore, total 120 respondents were selected for the study.

The value allotted to 'Yes' response is 3, 'Some extent' response is 2 and 'Negative' response is 1.

Therefore, Yes = $3 \times 120 = 360$
Some Extent (SE) = $2 \times 120 = 240$ and
Negative (Neg) = $1 \times 120 = 120$

Hence, scale values are 1 to 360.

On the basis of scores received the interpretation will be as follows:

1 – 120 = Not preferred;
121 – 241 = Less preferred;
241 – 360 = Preferred

Findings

Part A

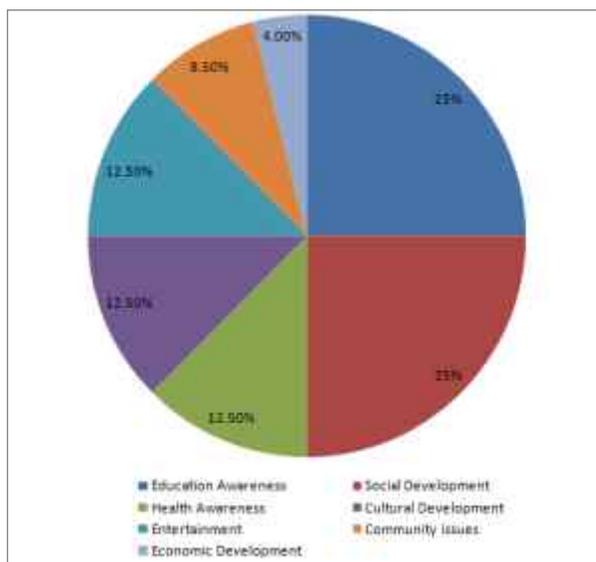
Table 1 shows the types of programs broadcast by the four selected community radio stations on different topics viz. Health Awareness, Education Awareness, Economic Development, Social Development, Cultural Development, Community Issues and Entertainment. The table also shows the percentage of topics of the total broadcast of each community radio station and the total percentage of each topic broadcast by all selected community radio stations.

Table 1 : Types of programs broadcast by four selected community radio stations

	Jamia Radio	Percentage & No. of program	DU Radio	Percentage & No. of program	IIMC Radio	Percentage & No. of program	JIMS - Rohini	Percentage & No. of program	Total Percentage & No. of program
Health Awareness	Yeh Janna Zaroori hai Prog on HIV/AIDS Hamse Poochiye	12.5% (3)	Hello Doctor Lok Jhankar Don't worry be happy	14% (3)	Swasthya Charcha	12.5% (1)	Health Tips	8.5% (1)	12.5% (8)
Education Awareness	Discussion on Education	25% (6)	University Campus	37% (8)	Know your States	25% (2)	Shiksha Jagat se Janiye apne ass pass	8.5% (1)	26% (17)
	Jamia Naama – University campus		Khoj – vigyan prog		Campus discussion				
	Science Talk		Mission Admission						
	Literary discussion		Mission Examination						
	Builders of modern India (Discussion)		Jab jaago tab Savera						
	Kitabon ki duniya		Tai						
			Deep jale jeevan mein						
			Indradhanush ke rang						
Economic Develop.	Career guidance	4% (1)	Rojgaar update	5% (1)	Choti bachat badi baat	12.5% (1)	Naya savera – Nayee rahein – career based	8.5% (1)	6% (4)
Social Develop.	Fikr-o-Nazar	25% (6)	Ubharte Kalakar	24% (5)	Young talent	25% (2)	Thought of the day	24.5% (3)	25% (16)
	Jamia ke ubharte sitare (Youth enrichment prog)		Success Mantra – Safal Vyaktiyon se batchit		Discussion on stress on youth		Pratibhayein kaisi-kaisi – talent from community		
	Batein Kanoon ki Awareness on Law		Jaanane ka haq (soochana ka adhikar)				Bargad ki Chaon (prog on old age people)		
	Discussion on social issues		Taakat upbhokta ki						
	Honahaar – (for children)		Antara – Mahilaon ke liye						
	Ed Dunia Ek Awaaz								
Cultural Develop.	Lok Geet - Pubjabi/ Haryanvi/ Bhojpuri	12.5% (3)	Sahitya Patrika	10% (2)	Interview / discussion Arbindo Ashram	12.5% (1)	Sahitya Sagar (Stories/book review Discussion)	17% (2)	12.5% (8)
	Mushaira/Kavi Sammelan		Khelon ki duniya				Youth Booth (Campus life/ trend/ Fashion)		
	Sports review								
Community Issues	Tips of information For community	8.5% (2)	Janein apne ass pass	5% (1)	Mohalla Sabha	12.5% (1)	Community ki awaaz	8.5% (1)	7% (5)
	Community Participation								
Entertainment	Devotional Music	12.5% (3)	Bollywood ki batein	5% (1)		0% (0)	Lok Tarana (Folk music)	24.5% (3)	11% (7)
	Light music						Haste – Haste Jokes/comic/story		
	Old songs – zamia tarana						Radio Muni		
	Total Prog. & Percentage	100% (24)		100% (21)		100% (8)		100% (12)	100% (65)

Table 2 : Jamia Radio Programs Broadcast on Various Topics is given below in order of Ranking

Rank	Jamia Radio	Percentage
I	Education Awareness	25%
	Social Development	25%
II	Health Awareness	12.5%
	Cultural Development	12.5%
	Entertainment	12.5%
III	Community issues	08.5%
IV	Economic Development	04%

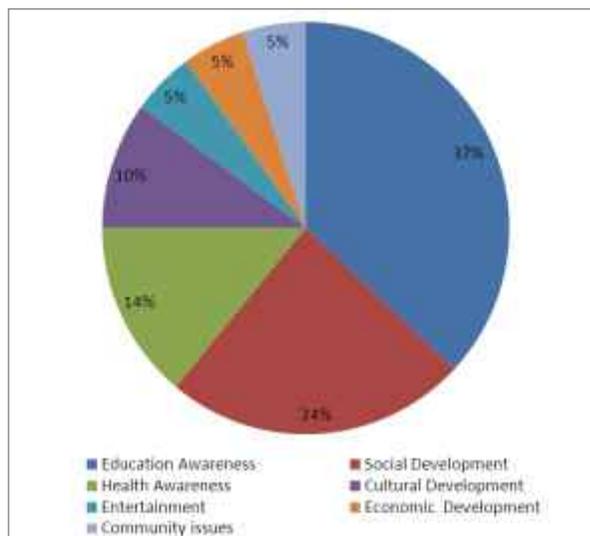


It is seen from Table 2 that in the total programs broadcast by Jamia Radio more coverage has been given to Education Awareness and Social Development programs followed by the coverage of Health awareness, Cultural Development & Entertainment programs. Community issues and Economic development programs stood next to them respectively.

Table 3 : DU Radio Programs Broadcast on various topics is given below in order of Ranking

It is seen from Table 3 that during total programs broadcast by DU Radio it was found that more coverage

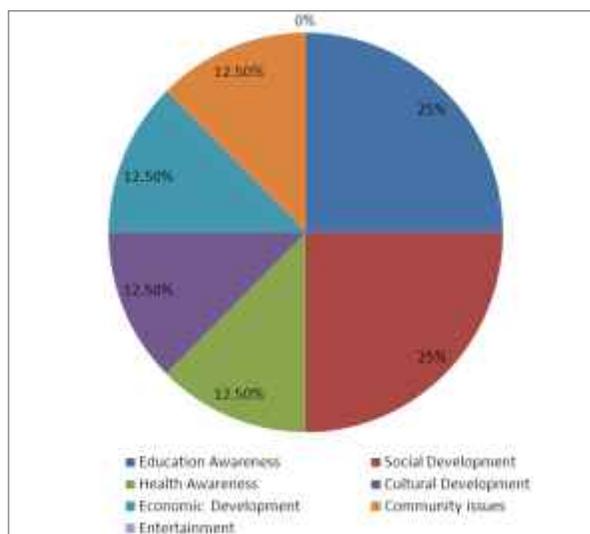
Rank	DU Radio	Percentage
I	Education Awareness	37%
II	Social Development	24%
III	Health Awareness	14%
IV	Cultural Development	10%
V	Entertainment	05%
	Economic Development	05%
	Community issues	05%



has been given to Education Awareness programs followed by Social Development, Health awareness, Cultural Development programs. Entertainment, Economic development & Community issues programs stood next to them respectively.

Table 4 : IIMC Radio Programs Broadcast on various topics is given below in order of ranking

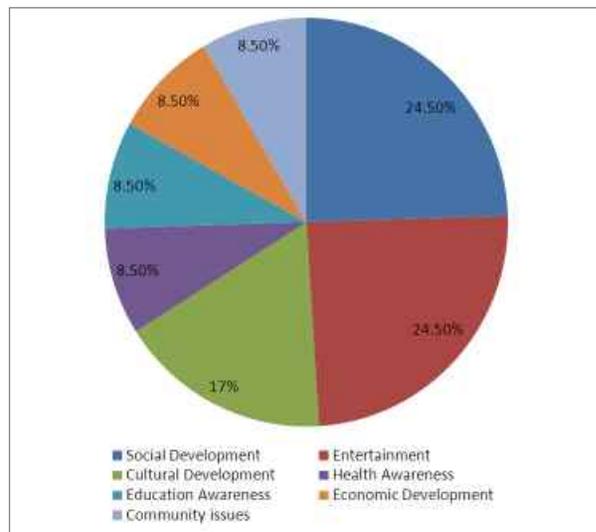
Rank	IIMC Radio	Percentage
I	Education Awareness	25%
	Social Development	25%
II	Health Awareness	12.5%
	Cultural Development	12.5%
	Economic Development	12.5%
	Community issues	12.5%
III	Entertainment	0%



It is seen from Table 4 that during total programs broadcast by IIMC Radio more coverage has been given to Education Awareness and Social Development programs followed by Health awareness, Cultural Development, Economic development, Community issues and Entertainment programs respectively.

Table 5 : JIMS Radio Programs Broadcast on various topics is given below in order of ranking

Rank	JIMC Radio	Percentage
I	Social Development	24.5%
	Entertainment	24.5%
II	Cultural Development	17%
III	Health Awareness	8.5%
	Education Awareness	8.5%
	Economic Development	8.5%
	Community issues	8.5%



It is seen from Table 5 that during total programs broadcast by JIMS Radio more coverage has been given to Social development and Entertainment programs. Cultural Development programs, Health awareness, Education awareness, Economic development & Community issues programs stood next to them respectively.

Tables 1 to 5 of all the four selected community radio stations clearly show that the types of programs broadcast are – Health Awareness, Education Awareness, Economic Development, Social Development, Cultural Development, Community Issue and Entertainment. The coverage of each type of programs given by four selected community radio stations is varied from each other.

Part B : Programs Preference of Respondents of four selected community radio stations

Table 6 : Programs broadcast on Health Awareness

	Total CRS * Respondents			Total Res.	On Scale** Score Value 1 - 360	Response*** on score value
	Yes	SE	Neg			
General Health Care	79	41	--	120	319	Preferred
Day to Day Common Diseases	74	46	--	120	314	Preferred
Chronic Diseases	18	94	8	120	250	Preferred
Infectious Diseases	75	45	--	120	315	Preferred
Other Health Problems	77	43	--	120	317	Preferred
Total Average Points					303	Preferred

It can be seen from Table 6 that ‘General Health Care’ score is 319, ‘Day to day Common Diseases’ score is 314, ‘Chronic Diseases’ score is 250, ‘Infectious diseases’ score is 315, ‘Other health problems’ score is 317 which all falls in the category of Preferred i.e. 241-360.

Total average points are 303 which also falls in the category of Preferred i.e. 241 – 360.

It shows that the listener’s overall response on Health Awareness program is - Preferred.

Table 7 : Programs Broadcast on Education Awareness Total CRS *

	Total CRS * Respondents			Total Res.	On Scale** Score Value 1 - 360	Response*** on score value
	Yes	SE	Neg			
Awareness about schooling	52	58	10	120	282	Preferred
Information regarding local schools and colleges	59	49	12	120	287	Preferred
Information regarding different courses run by them	49	58	13	120	276	Preferred
Information regarding admission procedure	49	58	13	120	276	Preferred
Information regarding problems students are facing	23	54	43	120	220	Preferred
Campus activities	32	69	19	120	253	Preferred
Other educational programs	26	42	52	120	214	Less Preferred
Total Average Points					258	Preferred

It can be seen from Table 7 that ‘Awareness about schooling’ score is 282, ‘Information regarding local schools and colleges’ score is 287, ‘Information regarding different courses run by them’ score is 276, ‘Information regarding admission procedure’ score is 276, ‘Information regarding problems students are facing’ score is 220, ‘Campus activities’ score is 253 which all falls in the category of Preferred i.e. 241-360. And the

'Other educational programs' score is 214 which falls in the category of Less Preferred i.e. 121-240.

Total average points are 258 which falls in the category of Preferred i.e. 241 – 360.

It shows that the listener's overall response on Education Awareness program is - Preferred.

Table 8: Programs Broadcast on Economic Development

	Total CRS * Respondents			Total Res.	On Scale** Score Value 1 - 360	Response*** on score value
	Yes	SE	Neg			
Employment information programs	38	70	12	120	266	Preferred
Career guidance programs	41	68	11	120	270	Preferred
New ways to increase income	49	66	5	120	284	Preferred
Tips of Small savings schemes etc.	43	68	9	120	274	Preferred
Information about various government schemes	34	75	11	120	263	Preferred
Other economic development programs	34	79	7	120	267	Preferred
Total Average Points					271	Preferred

It can be seen from Table 8 that 'Employment information programs' score is 266. Career guidance programs' score is 270, 'New ways to increase income' score is 284, 'Tips of Small savings schemes etc.' score is 274, 'Information about various govt. schemes' score is 263, 'Other economic development programs' score is 267 which all falls in the category of Preferred i.e. 241-360.

Total average points are 271 which also falls in the category of Preferred i.e. 241 – 360.

It shows that the listener's overall response on Economic Development program is - Preferred.

Table 9: Programs Broadcast on Social Development

It can be seen from Table 9 that 'Women programs' score is 247, 'Children programs' score is 265, 'Youth programs' score is 285, 'Consumer rights' score is 270, 'Right to information' score is 265, 'Success stories/ Inspirational stories/ Personality interaction program' score is 303, 'Government schemes for social development' score is 271, Talent hunt programs' score is 299, 'Other social issues' score is 255, which all falls in the category of Preferred i.e. 241-360. And the programs on 'Sr. Citizen program' score is 181, 'Awareness on Law' score is 228, 'Social discrimination between casts/ religion/gender' score is 197, 'which all falls in the category of Less Preferred i.e. 121- 240.

	Total CRS * Respondents			Total Res.	On Scale** Score Value 1 - 360	Response*** on score value
	Yes	SE	Neg			
Women programs	34	59	27	120	247	Preferred
Children programs	37	71	12	120	265	Preferred
Youth programs	51	63	6	120	285	Preferred
Sr. Citizen program	12	57	31	120	181	Less Preferred
Awareness on Law	17	74	29	120	228	Less Preferred
Consumer rights	40	70	10	120	270	Preferred
Right to information	34	77	9	120	265	Preferred
Social discrimination between casts/ religion/gender	14	49	57	120	197	Less Preferred
Success stories/ Inspirational stories/Personality interaction prog.	63	57	--	120	303	Preferred
Govt. schemes for social deve.	37	77	6	120	271	Preferred
Talent hunt programs	59	61	--	120	299	Preferred
Other social issues	26	83	11	120	255	Preferred
Total Average Points					256	Preferred

Total average points are 256 which falls in the category of Preferred i.e. 241 – 360.

It shows that the listener's overall response on Social Development program is - Preferred.

Table 10: Programs Broadcast on Cultural Development

	Total CRS * Respondents			Total Res.	On Scale** Score Value 1 - 360	Response*** on score value
	Yes	SE	Neg			
Folk songs – in locally used languages	34	64	22	120	252	Preferred
Traditional songs of various occasions	22	65	33	120	229	Preferred
Cultural literature (katha-sahitya) based program	14	48	58	120	196	Less Preferred
Local cultural activities information	65	50	5	120	300	Preferred
Local trends and fashion	50	61	9	120	281	Preferred
Local sports/games	22	68	30	120	232	Less Preferred
Other local cultural based programs	34	73	13	120	261	Preferred
Total Average Points					250	Preferred

It can be seen from Table 10 that 'Folk songs – in locally used languages' score is 252, 'Traditional songs of various occasions' score is 229, 'Local cultural activities information' score is 300, 'Local trends and fashion' score is 281, 'Other local cultural based programs' score is 261, which all falls in the category of Preferred i.e. 241-360. And 'Cultural literature (katha-sahitya) based program' score is 196, 'Local sports/games' score is 232, which all falls in the category of Less Preferred i.e. 121-240.

Total average points are 250 which falls in the category of Preferred i.e. 241 – 360.

It shows that the listener’s overall response on Cultural Development program is - Preferred.

Table 11 : Programs Broadcast on Community Issues

	Total CRS * Respondents			Total Res.	On Scale** Score Value 1 - 360	Response*** on score value
	Yes	SE	Neg			
Community activities & Information	42	66	12	120	270	Preferred
Community development programs	32	69	19	120	253	Preferred
Community’s issues/problems and remedies	53	61	6	120	287	Preferred
Community participation programs	62	55	3	120	299	Preferred
Know about community	21	67	32	120	229	Less Preferred
Other community related programs	47	68	5	120	282	Preferred
Total Average Points					270	Preferred

It can be seen from Table 11 that ‘Community activities & Information’ score is 270, ‘Community development programs’ score is 253, ‘Community’s issues/problems and remedies’ score is 287, ‘Community participation programs’ score is 299, ‘Other community related programs’ score is 282 which all falls in the category of Preferred i.e. 241-360. And the ‘Know about community’ score is 229 which falls in the category of Less Preferred i.e. 121- 240.

Total average points are 270 which falls in the category of Preferred i.e. 241 – 360.

It shows that the listener’s overall response on Community issues program is - Preferred.

Table 12 : Programs Broadcast on Entertainment

	Total CRS * Respondents			Total Res.	On Scale** Score Value 1 - 360	Response*** on score value
	Yes	SE	Neg			
Film songs and music	118	2	--	120	356	Preferred
Bollywood gossips, chats and activities	106	11	3	120	343	Preferred
Jokes, riddles & poems	76	34	10	120	306	Preferred
Comic stories	46	62	12	120	274	Preferred
Devotional songs and music	86	30	4	120	322	Preferred
Classical songs and music	32	54	34	120	238	Less Preferred
Light songs and music	81	34	5	120	316	Preferred
Other entertainment programs	58	60	2	120	296	Preferred
Total Average Points					306	Preferred

It can be seen from Table 12 that ‘Film songs and music’ score is 356, ‘Bollywood gossips, chats and activities’ score is 343, ‘Jokes, riddles & poems’ score is 306, ‘Comic stories’ score is 274, ‘Devotional songs and music’ score is 322, ‘Light songs and music’ score is 316, ‘Other entertainment programs’ score is 296, which all falls in the category of Preferred i.e. 241-360. And ‘Classical songs and music’ score is 238 which falls in the category of Less Preferred i.e. 121- 240.

Total average points are 306 which falls in the category of Preferred i.e. 241 – 360.

It shows that the listener’s overall response on Entertainment program is - Preferred.

Table 13 : Gap in preferences of programs between the Broadcaster and Listeners From Part A (Table 1) and Part B (Tables 6 - 12)

All selected community radio stations’ preference of programs for broadcast on various topics is given below in order of ranking:

Programs	Part A	
	Broadcast by CRS	Rank
Education Awareness	26%	I
Social Development	25%	II
Health Awareness	12.5%	III
Cultural Development	12.5%	III
Entertainment	11%	IV
Community Issues	7%	V
Economic Development	6%	VI

Preference of respondents (listeners) for programs broadcast on various topics is given below in order of ranking:

Programs	Part B	
	On scale 1 - 360	Rank
Entertainment	306	I
Health Awareness	303	II
Economic Development	271	III
Community Issues	270	IV
Education Awareness	258	V
Social Development	256	VI
Cultural Development	250	VII

From Table 13 it can be seen that various community radio stations gave importance to various topics in a different way, while the respondents gave their preference for various topics in some other way.

The community radio stations' first preference was 'Education Awareness' programs, while listeners' first preference was for 'Entertainment' programs.

The community radio stations' second preference was 'Social Development' programs, while listeners' second preference was for 'Health Awareness' programs.

The community radio stations' third preference was 'Health Awareness' programs and 'Cultural Development' programs, while listeners gave third preference to 'Economic Development' programs and seventh preference to 'Cultural Development' programs.

The community radio stations' fourth preference was 'Entertainment' programs, while listeners' fourth preference was for 'Community Issues' programs.

The community radio stations' fifth preference was 'Community Issues' programs, while listeners' fifth preference was for 'Education Awareness' programs.

The community radio stations' sixth preference was 'Economic Development', while listeners' sixth preference was for 'Social Development' programs'.

This is a clear conflicting situation between the community radio broadcasters and listeners. Perhaps this could be a reason of less listening of community radio station's programs, because listeners' preference on various topics is different than the broadcasters.

Part C

Table 14 : The types of program formats for Broadcast preferred by the Listeners

	Total CRS * Respondents			Res.	Total Scale** Score Value	On Response*** on score value	Rank
	Yes	SE	Neg				
Phone-in	62	55	3	120	299	Preferred	I
Compere/Radio Jockey chat	58	57	5	120	293	Preferred	II
Interview/discussion	51	61	8	120	283	Preferred	III
Live programs	38	76	6	120	272	Preferred	IV
Quiz programs	37	75	8	120	269	Preferred	V
Talks	32	77	11	120	261	Preferred	VI
Plays/Dramas	24	84	12	120	252	Preferred	VII
Features	17	73	30	120	227	Less Preferred	VIII
Other formats	14	58	48	120	206	Less Preferred	IX

* Abbreviation SE = Some Extent; Neg = Negative
 ** On scale Score value = Yes x 3 + SE x 2 + Neg x 1

*** Response on score value :
 1-120 = Not Preferred
 21-240 = Less Preferred
 241-360 = Preferred

In the response to listeners' preference regarding the formats of programs, from Table 14 it can be seen that the listeners' gave first preference to Phone-in, second preference to Compere/Radio Jockey (RJ) Chat, third preference to Interviews/Discussions, fourth preference to Live programs, fifth preference to Quiz programs, sixth preference to Talks, seventh preference to Plays/Dramas, eighth preference to Feature and the last preference to 'Other formats' of programs.

Conclusion

From the research it can be concluded that the types of programs broadcast by all the four selected community radio stations are – Health Awareness, Education Awareness, Economic Development, Social Development, Cultural Development, Community Issue and Entertainment. The coverage of each type of programs given by four selected community radio stations is varied from each other.

It is found that on the score value the listeners priority to listen the program is in the sequence of Entertainment (306), Health Awareness (303), Economic Development (271), Community Issues (270), Education Awareness (258), Social Development (256) and Cultural Development (250) respectively. But, in the ranking of programs broadcast by all the four selected community radio station, the priority is Education awareness (26%), Social Development (25%), Health Awareness (12.5%), Cultural Development (12.5%), Entertainment (11%), Community issues (7%) and Economic Development (6%) programs respectively.

Listeners' preference to listen the programs is different from the broadcasters. For example listeners wants to listens Entertainment program on first preference but the broadcasters gave first preference to Education Awareness programs, likewise listener wants to listen Health Awareness programs on second preference but the broadcasters gave second preference to Social Development programs. Listener gave third preference to Economic Development while broadcasters gave third preference to Health Awareness and Cultural Development. Accordingly, listeners gave fourth preference to Community Issues while broadcasters' fourth preference was Entertainment. Listener's fifth preference was Education Awareness while broadcasters' fifth preference was Community Issues. Listener's sixth

preference was Social Development while broadcasters' sixth preference was Economic Development. Cultural Development was the seventh preference of listeners while broadcasters gave third preference to Cultural Development. Hence, there is a wide gap in preferences of programs between the broadcaster and listeners.

The type of program formats preferred by the listeners are in the sequence of Phone-ins, Comper/Radio Jockey chats, Interviews/discussions, live programs, quiz programs, talks, plays/drams, features and other formats of programs respectively.

Suggestions

The study shows that there is a conflicting situation between the community radio broadcasters and listeners. Perhaps this could be a reason of less listening of community radio station's programs, because listeners' preference on various topics is different than the broadcasters.

For an example listeners have given first preference to Entertainment programs, while broadcasters have given first preference to Education Awareness and fourth place to Entertainment. Thus, there is a gap in the preference of programs between listeners and broadcasters. Therefore, it is suggested that the community radio stations may adopt their preferences in the program broadcast according to the preferences given by the listeners. It will popularise community radio programs and may increase community participation in the programs and listenership.

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Radio Listening Behaviour of Rural Women in Himachal Pradesh

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ABSTRACT

Radio, the theatre of the mind, provides instantaneous communication to the masses. It is the fastest, cheapest and most accessible potential media to create awareness, entertain, educate and inform large number of people. The radio listening behaviour of rural women indicates that very less rural women (22.67%) were listening radio broadcasts daily, 7.77 per cent were listening sometime and majority of rural women (69.56 %) did not listen to any radio programme. Among these rural women, majority(67.15%) were listening entertainment programmes regularly followed by news (39.41%) and agricultural programmes (35.77%). Majority of the respondents (62.77%) were listening to radio up to an hour. This clearly reveals that women were more interested in entertainment programmes in their leisure time. The lack of adequate time (75.11%), affecting studies of children (29.33%), tiredness due to work load (27.78%), lack of adequate awareness about the media programmes (21.11%), gender biasness (20.00%), technical problems (4.67%) and low economic status (2.22%) were the major problems encountered by rural women to access the radio broadcast. The assessment of their listening behaviour and identification of the constraints in utilization of the radio would help the policy makers to amend the components and strategies for radio programming.

Keywords: Awareness, constraints, listening behaviour, strategies.

Introduction

Communication is an essential input in development process of the society in any country. Radio, the theatre of the mind, provides instantaneous communication to the masses that are geographically, culturally, intellectually, and emotionally separated from one another. Radio being the fastest, cheapest and most accessible medium of communication has served as the companion of common man worldwide so far. It is one of the most potential media to create awareness, entertain, educate and inform large number of people at lesser cost and time. Radio is an entertainer par excellence. In a diverse and geographically large country like India radio plays an important role due to its affordability and accessibility. All India Radio was conceived with the mandate to provide information, education and wholesome entertainment, keeping in view the motto, "BahujanHitaya; BahujanSukhaya". The radio

broadcasting, over the years, has expanded not only in terms of radio stations and transmitters which has made the reach easier, but also in terms of introduction of programmes to suit the changing socio-economic requirements of a developing nation. An important feature of these programmes is that they focus on the specific problems of the rural women and provide relevant information as well as possible solutions for them.

The first FM transmission was started from AIR Chennai in 1977 which was an important landmark in the history of Broadcasting in India. The introduction of frequency modulation (FM) in India has not only resuscitated the once dying airwaves, but the country may well be on the road to revival of radio's golden age. The radio profession is poised for a further leap toward reform with the advent of 'community radio', a development that may help the public realize the true potential of radio. Community radio

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is a type of radio service that caters to the interest of a certain area, broadcasting material that is popular to a local audience but is overlooked by more powerful broadcast groups. It is a radio for the people, by the people and of the people. The impact of community radio is most evident in the areas having practically no other access to information. Hence, in the new millennium, radio has got a new lease of life. Despite the advent of the media like the Net and TV, it has been able to create good market niches of its own in the media jungle. Due to television's limited reach both in terms of distance and content, radio continues to remain the preferred means for news and entertainment for millions of Indian citizens, especially those staying in rural areas. Broadcasting has great potentialities in a vast country like India. Interesting talks by eminent statesmen, scientists, philosophers, leaders and writers are given on almost all the topics. Broadcasting widens our outlook, intellect is sharpened and general knowledge is increased. Rural areas are linked up with the civilized parts of the worlds. The AIR is also connected to internet; it gives online information, through the Net, to its listeners. Further, the 'AIR News on Phone' service was started in 1998. The 'Radio on Demand' service has been operationalized since 2000.

Communication in rural areas is an essential and vital process in realising the set national goals. India cannot become a mighty superpower until half of its population comprising women is well informed. Still today, whether it is health, education, mortality rate or any other development parameter, women of India are on very weak footing. From the cradle to grave, females are under the clutches of numerous evils acts as discriminations, oppressions, violence, within the family, at the work places and in the society. There is a wide gender disparity in the literacy rate in India. Women constitute 48.46 per cent of the total population, bulk of which reside in rural areas and as many as 80 per cent of which is engaged in agricultural activities. In Himachal Pradesh, out of a total population of 6,856,509 the female population is 3382617 with a sex ratio of 974 female per thousand males. In Kangra district, the population of males and female is 748,559 and 758,664 respectively with a sex ratio of 1013 females per thousand males. Kangra district is the most populous district of Himachal Pradesh with rural population over 94 per cent (Census of India-2011). Nowadays, radio is giving a lot of importance for empowering the women by broadcasting good programmes. The purpose of this study is to study radio listening behaviour of rural women and their information needs in depth, for the future programmes planning. In this light, the objectives of the paper are:

1. To determine the extent of radio listening among the rural women.

2. To ascertain the problems faced by rural women to access the radio programmes.

Material and Methods

The research investigation was conducted in the Kangra district of Himachal Pradesh. Data were collected with the help of an interview schedule from a sample of 450 rural women, selected through structured random sampling technique from fifteen villages of three development blocks. Percentage analysis was worked out for finding out the listening behaviour of rural women.

Results and Discussion

Radio is one of the most powerful medium of mass communication which quickly disseminates the information irrespective of distance and literacy level. It is especially important as a medium of information and education in a vast country like ours where coverage by the press is not extensive.

Extent of radio listening

Radio listening behaviour totally depends upon the extent of regularity of listening, interest, and time available to respondents. The pattern of radio listening among rural women has been analysed and reported in this study.

1. Regularity of listening

Regularity of listening is the frequency with which the rural women listened to the radio broadcasts. The respondents were classified in terms of regularity of listening, summarized in table 1.

Table 1 : Distribution of respondents according to their regularity of listening

N=450			
Sr. No	Days	No of respondents	Percentage
1	Daily	102	22.67
2	Sometime	35	7.77
3	Never	313	69.56

The data given in the table 1 showed that only 22.67 per cent of respondents were listening radio daily, 7.77 per cent of respondents belonged to sometime category and majority (69.56 %) had never listened to any radio programme. It can be concluded that very less number of respondents (22.67%) were listening radio daily. A similar trend in regularity of listening was also observed by Talukdar (1976), Ngimwa et al (1997), Waris et al (2003).

2. Radio listening behaviour of the respondents on the basis of interesting programmes of radio

Radio broadcasts the variety of programmes. Interesting programmes depends upon the individual's interest. In the present study only three programmes were preferred the most by the respondents i.e. news, entertainment and agriculture.

Table 2 : Distribution of respondents on the basis of interesting programmes of radio

N = 137				
Sr. No	Type of programme	Regular	Sometime	Never
1.	News	54 (39.41)	32 (23.36)	51 (37.23)
2.	Entertainment	92 (67.15)	39 (28.47)	6 (4.38)
3.	Agriculture	49 (35.77)	31 (22.63)	57 (41.60)

The classification of radio listening behaviour of the respondents is given in table 2. It revealed that majority of the respondents (67.15%) were listening entertainment programmes regularly followed by news (39.41%) and agricultural programmes (35.77%). The percentage of respondents who had never listened agriculture programme was 41.60. This clearly reveals that women were more interested for entertainment programmes in their leisure time. Similar findings were ascertained by Verma (1971), Mishra (2003) and Singh et al (2003). They reported that after a hard day's work, rural women prefer entertainment first and news and agriculture information next.

3. Duration of radio listening

For ascertaining the extent of listening, duration of time spent daily on it was taken into consideration for the present study.

Table 3 : Distribution of respondents according to duration of radio listening

N=137			
Sr.No.	Duration in Hrs	No. of respondents	Percentage
1	Up to one	86	62.77
2	1-2	38	27.74
3	More than 2	13	9.49

Table 3 revealed that majority of the respondents (62.77%) were listening to radio up to one hour, followed by between 1-2 hrs (27.74%) and more than 2 hrs (9.49%). So, it can be concluded that most of the respondents (62.77%) listened to radio programme for about one hour. Mishra (2003) supported the present findings of the study.

Problems faced by rural women to access the radio broadcasts

Any action and resistance to it are the two sides of the same coin. Any potential as well as effective human performance may experience certain hurdles and problems which need to be taken care of for desirable output. The constraints in accessibility of the mass media were conceived as the hindrances which got in to the course of transfer of message. The constraints experienced by rural women to access the radio broadcasts are listed out in the table 4. An overview of the table revealed that the lack of adequate time (75.11%), affecting studies of children (29.33%), tiredness due to work load (27.78%) were the major problems encountered by rural women in listening. Lack of adequate awareness about the media Programmes (21.11%), gender biasness (20.00%), technical problems (4.67%) and low economic status (2.22%) were the other problems faced by the rural women to access the radio broadcast.

Table 4 : Problems faced by rural women to access the radio broadcasts

S. No.	Problem	Frequency	Percentage	Rank
1	Lack of adequate time	338	75.11	1
2	Affecting studies of children	132	29.33	2
3	Lack of adequate awareness about the media programmes	95	21.11	4
4	Tiredness due to work load	125	27.78	3
5	Gender biasness	90	20.00	5
6	Low economic status	10	2.22	7
7	Technical problems	21	4.67	6

In overall, lack of adequate time was reported to be the major problem encountered by majority of the rural women to access the radio broadcasts. These findings are in agreement with the findings of Ngimwa et al (1997), Krishnamurthy and Nataraju (1999), Sharma (1999) and Meenambigati and Ravichandran (2004).

Conclusions

The findings of this study indicate that a very small number of rural women (22.67%) were listening radio broadcasts daily, 7.77 per cent were listening some times and majority of rural women (69.56 %) did not listen to any radio programme. It is also revealed that majority of the respondents (67.15%) were listening entertainment programmes regularly followed by news (39.41%) and agricultural programmes (35.77%). This clearly reveals that women were more interested in entertainment

programmes in their leisure time and majority of the respondents (62.77%) were listening to radio up to one hour. The lack of adequate time (75.11%), affecting studies of children (29.33%), tiredness due to work load (27.78%) were the major problems encountered by rural women in listening. Lack of adequate awareness about the media programmes (21.11%), gender bias ness (20.00%), technical problems (4.67%) and low economic status (2.22%) were the other problems faced by the rural women to access the radio broadcasts. In view of above findings, the following strategies are recommended:

1. Rural development programmes should be promoted tremendously. An interest to listen to radio programmes needs to be cultivated among the rural women. The quality of these broadcasts should be improved in order to allure the rural women towards regular and attentive listening.
2. Government should provide more resources and finance more radios for rural communication. Governmental agencies, NGOs, local community leaders, and women's organizations working for the rural development should come ahead with programmes which instruct them at imparting education to rural women, giving them better health care, providing them with means of livelihood and opportunities to participate in the decision making process at home and in the society.
3. The programmes should be produced for the rural women specially and the timings of rural women broadcasts should be fixed such as to suit rural women.
4. Information need of women and identification of the constraints in utilization of the radio broadcasts needs to be studied in depth for the programme planning.
5. Strategies should be developed to promote job creation and economic growth of rural women.
6. The creation and broadcasting of programmes which disseminate a positive image of women, change the mind set of rural people, create awareness among rural women and remove the gender based discrimination should be encouraged.
7. Problems of rural women like lack of adequate time, tiredness due to work load, affecting studies of children can be solved by promoting equal sharing of family responsibilities by men and women.
8. Rural women should have the membership of various social organizations in the village. More rural women should be involved in management, planning and decision making.
9. Attempts should be made to make available larger number of media to rural women and their extent of

mass media exposure should be increased to speed up the change in the various aspects of life of the rural women.

10. Interpersonal and integrated approach is needed to be applied in utilizing media for communication with rural women. Thus, an appropriate combination of communication media and various modern communication technologies like computers, video text, internet etc. should be used to increase the extent of accessibility and exposure of rural women to radio broadcasts.

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Internet a Boon for Researchers: A Study on Open Access Resources

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ABSTRACT

The number of internet users in India has crossed 10 Crores. Growth of telecommunication facility and internet bandwidth has accelerated the use of open access repositories. Internet is changing every part of our usual life from bank counter to railway ticket counter. It is also a boon for research scholar for collecting the secondary data required for research on a single click of a mouse. Increasing cost and information explosion are the two major forces, which have vital impact on the functions of modern libraries. In this scenario, open access journals are a boon to the practicing librarians particularly in a developing country like India. The objective of the present article is to provide an overview of open access resources available on the internet. The Paper demonstrates open access, different types of open access resources furnished on the internet, how open access resources are processed, various open access portals, open access initiatives, growth and contribution of open access Journals in India. The paper also includes information in major open access journals, repositories, open access course ware and open access software portals, which are helpful for researchers to easily collect study material related to their work, from Internet.

Keywords: Internet, open access, e-resources, e-journal, e-book, Software's.

Introduction

Information explosion gave rise to the problem of acquiring flooded reading material all over the world as libraries needed to have a big space, increased staff and consequently increased financial burden. This problem was at some level dealt with by the applications of IT in libraries, which gave birth to the creation of e-resources. The study of Wilkins (1995) shows that "Technology has improved the library environment but the policies are needed to solve several major governance issues, such as copyrights, intellectual property rights, equity of access, archives, information standards, privacy and funding". It is because, the problem of financial burden of e-resources' subscription was still a hard nut to crack. As Suber, Peter (2002) mentioned, "Journal subscription prices have risen nearly four times faster than inflation since 1986. Fortuitously, just as journal prices were becoming

unbearable, the internet emerged to offer an alternative. The internet has provided the concept of e-journal, which is well utilized by the large commercial publishers in the name of bundled subscriptions. Although these subscriptions have become popular as these are published and distributed electronically in bundles, yet the licensing terms of usage and access are really restrictive. Such as depicted in the words of Ramachandran (2004) 'even though the bundling includes a very large number of indifferent and low-impact journals, institutions around the world, including many in India, have entered into such agreements to gain access to a large number of journals. But the price rise in these bundling schemes seems to have outpaced inflation. Resultantly, academic and scientific community coined the concept of open access (OA) to the all kinds of literature in general and scientific & research literature in particular by removing price, permission and geographical barriers over the internet. Apart from the

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worldwide collaboration of different academic and research institutes of the developed countries, India is one among the forerunners of the developing countries for Open Access Contribution.

Open Access (OA)

The Open Access concept was improvised in a lively meeting at the Open Society Institute in 2001, which, in the February 2002, emerged as Budapest Open Access Initiative (BOAI) declaration. The other two notable declarations, which paved the way for the full fledged definition of open access, are Bethesda Statement in June 2003 and the Berlin declaration in October 2003. Many definitions emerged covering the theme of Budapest, in Bethesda and Berlin (BBB) declarations. Most of the OA definitions have the same key features i.e. open access exists with free, immediate and unrestricted availability of digital contents. Open access to scientific article means online access without charge to readers or libraries. Committing to open access means dispensing with the financial technical and legal barriers that are designed to limit access to scientific research articles to paying customers. Scholars realized in the 1990s that the use of the WWW would "accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge" (Willinsky, 2002). Open access is a worldwide effort to provide free and permanent online access to scientific and scholarly research literature, especially peer-reviewed journal articles and their preprints for anyone to use, download, copy and distribute. OA operates within the legal framework, and it requires several enabling technologies such as digital library software (D space, Greenstone, E-prints etc.), and metadata interoperability protocols such as Open Archive Initiative – Protocol for Metadata Harvesting (OAI-PMH).

Open Access Resources (OARs)

Hood (2007) throws light on OA definition that "Open access literature primarily encompasses journal articles" The other way of OA publishing of the research output is open access institutional repository. While a lot of other OARs are also available apart from journal articles and research output, which include the resources freely available such as e-books, digitized photos, maps, and other images, video & audio files, software, statistical and geospatial data ,website giving general & useful information, providing links, and other resources that are not scholarly writing. Suber (2002) stated that OA vehicles on which I won't focus here, such as personal web sites, e-

books, discussion forums, email lists, blogs, wikis, videos, audio files, RSS feeds, and P2P file-sharing networks. There will undoubtedly be many more in the future. It is not unexpected, as these all belong to the broader class of freely available electronic resources. Well defined by Ochs and Saylor (2004) "Open access resources are those materials on the World Wide Web that is made available by their creator for use without access restriction." Thus, the OARs are not confined to scholarly community only, even though its driving force and primary purpose is academic & research communication. Therefore, the e-resources available to anyone, anywhere over the World Wide Web (WWW) are considered to be the Open Access Resources (OARs). OARs can broadly be categorized as i) Open Access Journals (OAJ); ii) Open Access Institutional Repositories (OAIR); and iii) Open Access Software.

Open Access Process (OAP)

The process to generate OARs and enhance the sharing of scholarly OARs depends upon the modern technology, protocols for metadata harvesting and legal frameworks that removes the different Intellectual Property Right (IPR) issues .OA is free for user community only and not for the publishers/institutions because they have to pay for the maintenance and preservation of OARs. There are various processes to induct open access, while Willinsky (2003) identified nine flavors of open access. The flavors are: (1) e-print archive (authors self-archive pre-prints or post-prints), (2) unqualified (immediate and full open access publication of a journal), (3) dual mode (both print subscription and open access versions of a journal are offered), (4) delayed open access (open access is available after a certain period of time), (5) author fee (authors pay a fee to support open access), (6) partial open access (some articles from a journal are available via open access), (7) per-capita (open access is made available to countries based on per-capita income), (8) abstract (open access available to table of contents/abstracts, and (9) co-op (institutional members support open access journals). Whereas Harnard and et. al (2004) identified two main roads to OA 'gold' and 'green'. The gold road refers to OA journals, which are openly accessible immediately on publication. The green road refers to OA self-archiving. The green road is faster and cheaper, whereas the gold road is more costly, but better maintained and managed. Open Access Repository leads to green road of OA because it is faster and cheaper, still it removes the price barriers only and not permission barriers because the copyrights are with the institutions/funders etc. Authors can deposit their preprints & post print journal articles, thesis & dissertations, course material, data files etc. in OA repositories, and this process is known as OA archiving. Whereas OA journal leads to the gold road and authors

can deposit their articles only. Publishing in OA journals is called OA publishing.

Open Access Initiatives In India

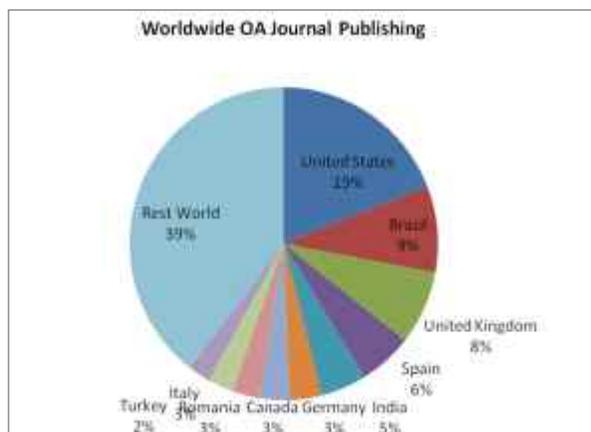
The growth of OA movement is particularly in response to the enormous costs of many scholarly journals. With traditional journal publication methods, it is not uncommon for an institution to have to pay for an article twice. First they pay scholars to produce the work and then the institution pays to purchase the work back from the journal publisher (Corrado, 2005). This problem was faced by the research and scholarly community in developing countries like India, and the increasing subscription prices forced to think for taking initiatives in OA. The majority of authors in the developing world are not well informed on how they could enhance the visibility of their publications (Ramachandran&Scaria, 2004). Promotion of open access in India has been largely due to the efforts of Leslie Chan, Barbara Kirsop, Subbiah Arunachalam and the late T.B. Rajasekhar (Fernandez, 2006). Rajshekar (2003) justified that India’s challenge is to reciprocate the information flow and improve access and thereby the impact of Indian research. To meet this challenge and to generate a national R&D resource base, an open access approach in accordance with the Budapest Open Access Initiative is being promoted. Consequently various Indian research & development organizations, universities, deemed universities, major research institutions in the field of science & technology (such as IITs, Indian Institute of Science, ISI, NISCAIR, Vigyan Prasar, institutes under the Dept. of Atomic Energy, CSIR, ICAR, ISRO and ICMR etc.) are now taking part in the open access movement by establishing institutional and digital repositories to provide worldwide access to their scholarly literature. Several Indian publishers have already adopted the open-access philosophy for the electronic versions of their journals. Unlike some open-access journals in other countries, in which authors pay to publish their papers, Indian open-access journals use government grants and subscriptions to their print version to cover publishing costs (Arunachalam, 2004).

Open Access Journals (OAJ)

The scholarly research community and institutions & organizations from all over the world have established milestones on the way to open access. OA journals are hosted on the web with the modern technology such as Open Journal System (OJS) developed by Public Knowledge Project. Scholarly Publishing and Academic Research Coalition (SPARC), Academic and Research Library (ARL), Pub Med &BioMed Central, JISC, Ro Me O Public Library of Science (PLoS) etc. helped speeding up

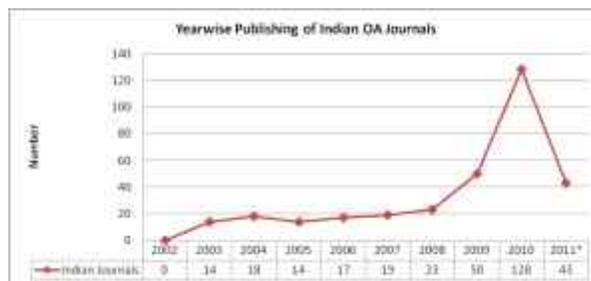
OA journal publishing in developed countries; whereas Med Know, NISCAIR, DESIDOC, IAS, INSA etc gave momentum to the same in India. Directory of Open Access Journals (DOAJ) provides links to 6803 OA journals including peer reviewed, and Open J-Gate is the largest electronic gateway to 9202 OA journals including 6199 peer reviewed journals. Open J – Gate is the contribution of Informatics India Ltd. Based in India. Worldwide, USA is the largest contributor to open access journals as the number of published OA journals is 1290 (19%) whereas total number of OA journals listed in Directory of Open Access Journals (DOAJ) is 6803. India has contributed in publishing 326 (5%)OA journals, which is second largest contributor among the developing countries after Brazil (607) and ranking 5th in the worldwide OA publishing .The statistics show that India has increased the productivity of open access journals (see Graphs 1, 2 and 3):

Graph 1



Open Access journals from India started adding in DOAJ from the year 2003. The highest number of OA journals have been published in the year 2010 (see Graph 2), still the year 2011 is expected to bring out a number of OA journals as just in 7 months 43 journals have been published.

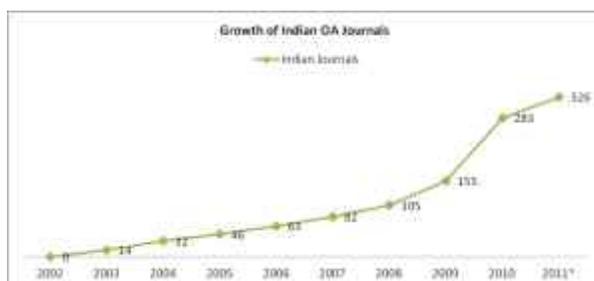
Graph 2



*Source: DOAJ (July 23, 2011)

Since inception of OA journals, India has been constantly donating to the academic & research community. In the year 2003, only 14 journals were published but at present total number of journals reached to 326 (see Graph 3). This growth is a harbinger of healthy open access approaches by the Indian contributors.

Graph 3



*Source: DOAJ (July 23, 2011)

Major Open Access Journal Portals

There are various portals providing access to free and online journals, some of the major portals are as below:

Open J – Gate: Open J – Gate is another major open access portal providing content level search to its 9203 journals through keyword, and allow browsing alphabetically. This is developed by Informatics India Ltd, Bangalore based firm (www.openj-gate.com).

Directory of Open Access Journals (DOAJ): DOAJ is a major portal providing a list of 6803 OA journals including peer reviewed journals. It offers to search contents of the journals, providing the subject based search category to allow expand subject tree as well as alphabetical list of the journals (www.doaj.org).

Digital Library Archive (DLA): DLA is developed by Virginia Tech University offering online access to the library's unique and rare archival resources. DLA hosts a growing number of faculty archives and VT publications, including Employee of the Week (<http://scholar.lib.vt.edu/>).

Public Library of Science (PLoS): Non-profit organization of scientists committed to making the world's scientific and medical literature freely accessible to scientists and to the public around the world. Promotion of free access online journals. Includes online e-prints and archives (<http://www.plos.org/>).

High wire: High wire offers free and online access to the journals articles especially in the field of Life Sciences. It

hosts 1535 journals, books, reference works and other scholarly publications (<http://highwire.stanford.edu/>).

ANSI Journals: List of journals, information for authors and subscribers, listings of latest articles, and full text to download (<http://www.ansijournals.com/>).

J-Stage: The Japan Science and Technology Agency (JST) developed the "Japan Science and Technology Information Aggregator, Electronic" (J-STAGE). The user organizations computerize bulletins of academic societies and research papers with ease and at low cost. Computerized documents can be accessed from anywhere in the world with this system.

JURN: Jurn is a major OA portal which lists the Arts and Humanities materials. This is a partial listing of the English-language journals indexed by the JURN search-engine, which is now searching over 4,000 e-journals in the arts & humanities. JURN uses article URLs, rather than the front-page URLs used in this directory.

Not the above list is the end of the open access journals, there are a lot of web portals available for general public to use such as Med Know, Scielo, MDPI etc hundreds of other portals provides open access to their journals.

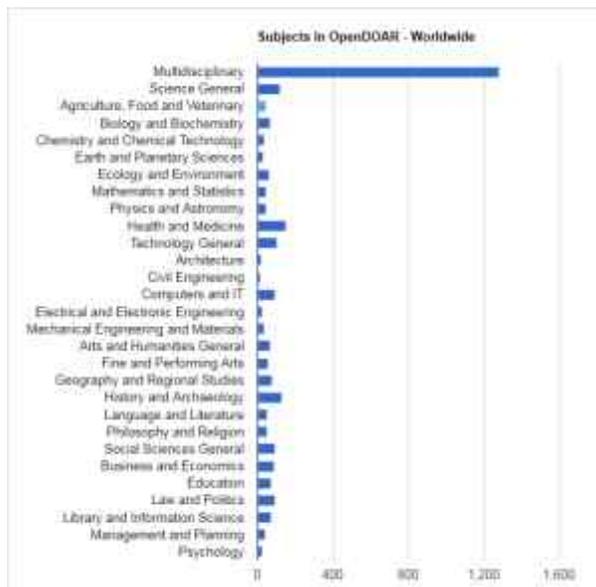
Open Access Repositories

Growth of telecommunication facility and internet bandwidth has accelerated the use of open access repositories. The situation has improved to a considerable extent. The number of Internet subscribers in 1998 were mere 14 Lakhs (Narayana et al., 2006), whereas the number of internet users in India has crossed 10 Crores. This led to the development of institutional & subject repositories and new strategy that allows universities to apply serious, systematic leverage to accelerate changes taking place in scholarship and scholarly communication. Narayana, Biradar & Goudar (2006) stated that "institutional repositories are "digital archives of intellectual products created by the faculty, staff and students of an institution or group of institutions accessible to end users both within and without the institution." In case, some subject specific material is to be uploaded/archived, author can deposit it in particular subject repository. Moskovkin (2008) elaborates that OA repositories (open access electronic archives supported by the standard of the "Open Archive" initiative) contain special directories for researchers (personal areas), where they can create, with the help of special instructions from information robots, collections of their research papers, i.e., it is not the administrator of the OA archive who archives the researcher's works, but the researcher him/herself.

According to Open Directory of Open Access Repositories (DOAR), highest number of repositories acquired multidisciplinary whereas the science & technology discipline is more than the social science & humanities.

Graph 4

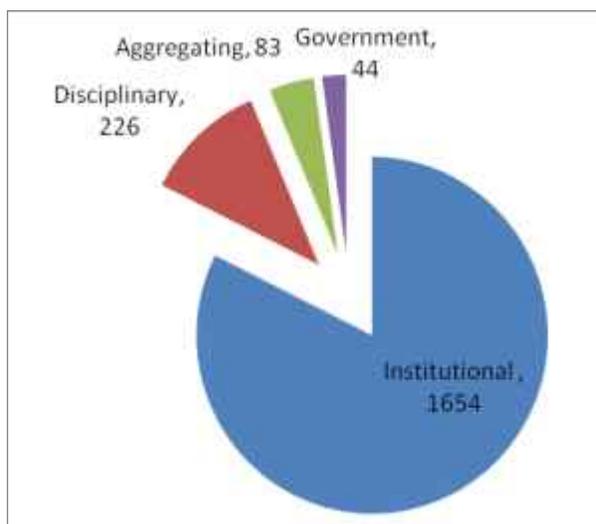
Subjectwise No. of Repositories



Open Directory of Open Access Journals (Open DOAR) provides listing of OA repositories all over the world, which has categorized repositories into four type's viz. Institutional, Disciplinary, Aggregating and Government. Highest number of repositories type is Institutional repositories i.e. 1654, which are maintained by the specific institution.

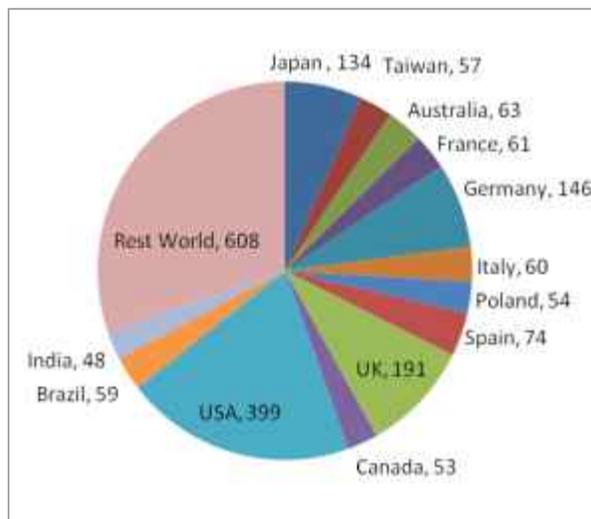
Graph 5

Types of Open Access Repositories



Graph 6

Country-wise No. of Repositories



Major Open Access Repositories Portals

There are 2007 open access repositories listed in the Open DOAR, which is granting access to the valuable resources of the scholarly community, the major OA repositories are mentioned here:

Networked Digital Library of Thesis and Dissertation: Networked Digital Library of Theses and Dissertations (NDLTD), an international organization dedicated to promoting the adoption, creation, use, dissemination, and preservation of electronic theses and dissertations (ETDs). Website includes resources for university administrators, librarians, faculty, students, and the general public (<http://www.ndltd.org/>).

Humanities Text Initiatives: The Humanities Text Initiative, a unit of the University of Michigan's Digital Library Production Service, has provided online access to full text resources since 1994. The Humanities Text Initiative (HTI) is an umbrella organization for the creation, delivery, and maintenance of electronic texts, as well as a mechanism for furthering the library community's capabilities in the area of online text (<http://www.hti.umich.edu/>).

Education Resources Information Sources (ERIC): ERIC - the Education Resources Information Centre - is an online digital library of education research and information. ERIC is sponsored by the Institute of Education Sciences (IES) of the U.S. Department of Education. ERIC provides ready access to education literature to support the use of educational research and

information to improve practice in learning, teaching, educational decision-making, and research (<http://www.eric.ed.gov/>).

CERN Document Server: Collection aiming to cover the published and pre-published literature in particle physics and its related technologies. The collection includes over 9,81,000 documents, many of which have full-text access (<http://cdsweb.cern.ch/>).

Pub Med Central: A subject based repository of life sciences journal literature as well as materials deposited by individual authors. This is an extensive and expansive resource for researchers in the bioscience, biotech and biomedical related disciplines. The citations database Pub Med links to full-text materials within PMC (<http://www.ncbi.nlm.nih.gov/pmc/>).

Arxiv.org e-Print Archives: This is one of the most extensive subject based repositories in the world in the field of physics, mathematics, astronomy, computer sciences and quantitative biology (<http://arxiv.org/>).

Archives of Popular American Music: The UCLA Music Library's Archive of Popular American Music is a research collection covering the history of popular music in the United States from 1790 to the present. The collection is one of the largest in the country, numbering almost 450,000 pieces of sheet music, anthologies, and arrangements for band and orchestra. The collection also includes 62,500 recordings on disc, tape, and cylinder (<http://digital.library.ucla.edu/apam/>).

Metadata on Internet Document: This site is an institutional repository with an interface is in German only. Currently the full-text search option for this site is not operational, and a more basic search interface is currently offered in its place (<http://rlbdok.opus.hbz-nrw.de/>).

Research Papers in Economics (RePEc): This site is a subject based repository providing access to the publication output relating to the relevant discipline. RePEc is a volunteer driven project and users can access author and institutional contacts in addition to the 400,000+ items, of which 300,000+ are fully downloadable as Open Access documents (<http://repec.org/>).

DSpace@Cambridge: A community centred university repository with a wealth of supporting information and documentation. Most of the items are CML files from the World Wide Molecular Matrix dataset of small molecules. Otherwise, it is especially rich in multimedia (images and video) objects, less well populated with full-text papers.

Some articles are restricted access and are not freely visible. Users may set up RSS feeds to be alerted to new content (<http://www.dspace.cam.ac.uk/>).

Addis Ababa University Libraries Electronic Thesis and Dissertations Database (AAU-ETD): This site provides access to the theses and dissertation output of the institution. The interface is in English. Users may set up RSS feeds to be alerted to new content (<http://etd.aau.edu.et/dspace/>).

The above list is based on the highest number of documents deposited in the repositories, and the list may further be enhanced as about two thousand repositories are enlisted in open DOAR.

Open Access e-Books

An e-book is the electronic version of a book covering its full contents (text, tables, diagrams, illustrations, etc.) that is usually set up in an e-database, which supports full-text searching within and across titles, advanced search and bookmark functions. Reitz (2007) defined electronic book as a "digital version of a traditional print book designed to be read on a personal computer or an e-book reader". Users can view full text of e-books in HTML or PDF format online.

EBL (Ebook Library): E-books on a variety of topics. Read online or download as pdf files to your computer. Subjects include: computer Science, electrical engineering, general, humanities, information science (<http://www.ebllib.com/>).

Google Book Search: Google book search is a major ebook search engine, which provide full text. The books are acquired through partner programme and library project, which provide the facility of search and browse online (<http://books.google.com/>).

Online Books Page – Upenn: The Online Books Page is a website that facilitates access to books that are freely readable over the Internet. Major parts of the site include: An index of thousands of online books freely readable on the Internet, pointers to significant directories and archives of online texts, special exhibits of particularly interesting classes of online book (<http://onlinebooks.library.upenn.edu/>).

Open Access Text Archive: This collection is open to the community for the contribution of any type of text, many licensed using Creative Commons licenses (<http://www.archive.org/details/texts>).

Open Library: This project began in November 2007 and has been importing catalog records from some of the biggest libraries in the world ever since. It has over 20 million edition records online, provides access to 1.7 million scanned versions of books, and link to external sources like World Cat and Amazon (<http://openlibrary.org>).

Open Access Course Ware

An Open Course Ware (OCW) is a free and open digital publication of high quality university-level educational materials. These materials are organized as courses, and often include course planning materials and evaluation tools as well as thematic content.

Open Course Ware are free and openly licensed, accessible to anyone, anytime via the internet. Major Open Access Course Ware detailed below:

Duke University Study materials: It provides students support in the academic course work by offering openly accessible digital courseware over the internet. <http://www.mclibrary.duke.edu/find/>

Global Health Education Consortium (GHEC): The Global Health Education Consortium initiated a web project with the objective of improving the quality and efficiency of global health education. It provides high quality modules on a wide variety of topics which students can review either on their own or in instructor-led courses. <http://globalhealthedu.org/resources/Pages/default.aspx>

Johns Hopkins Bloomberg School of Public Health
The Johns Hopkins Bloomberg School of Public Health's OPEN COURSE WARE (OCW) project provides access to content of the School's most popular courses. Topics of the courseware are adolescent health, aging, behaviour and health, biostatistics, chronic diseases, environment, general public health, genetics, global health, health policy, etc. <http://ocw.jhsph.edu/>

Massachusetts Institute of Technology (MIT): MIT Open Course Ware (OCW) is a web-based publication of virtually all MIT course content. OCW is open and available to the world and is a permanent MIT activity. MIT Open Course Ware is a free publication of MIT course materials that reflects almost all the undergraduate and graduate subjects taught at MIT. <http://ocw.mit.edu/courses/#HealthSciencesandTechnology>

Super course: Super course is a repository of lectures on global health and prevention designed to improve the teaching of prevention. Super course has a network of over

64,000 scientists in 174 countries who are sharing for free a library of 3,623 lectures in 26 languages. <http://www.pitt.edu/~super1/>

Tufts University: Tufts University and MIT jointly offers the world free access to certain course content online. Much of the course materials of the open course ware (OCW) are from the health sciences schools is housed in the Tufts University Sciences Knowledge base (TUSK). <http://ocw.tufts.edu/AboutOCW>

Open Yale Courses: Open Yale Courses provides free and open access to a selection of introductory courses taught by distinguished teachers and scholars at Yale University. The aim of the project is to expand access to educational materials for all who wish to learn. <http://www2.derby.ac.uk/response/links-mainmenu-23/64-oar/92-oycw>

U-NOW: U-Now is the University of Nottingham's formal open courseware initiative, and a member of OCW Open Course Ware Consortium. U-Now offers to share knowledge widely so as to increase learning across the academic community. <http://www2.derby.ac.uk/response/links-mainmenu-23/64-oar/94-u>

University of Michigan Open Courseware: In this site one can find University of Michigan educational resources such as course materials, videos, software tools, and student work, that all have open copyright licenses. That means these resources are freely available for use, remixing and redistribution. <http://www2.derby.ac.uk/response/links-mainmenu-23/64-oar/96-uom>

The Internet Archive: The Internet Archive offers permanent access for researchers, historians, scholars, people with disabilities, and the general public to historical collections that exist in digital format. The Internet Archive includes texts, audio, moving images, and software as well as archived web pages. <http://www2.derby.ac.uk/response/links-mainmenu-23/64-oar/64-ia>

Open Access Software Portals

Open access policies applied to the software are known as open access software, which means free availability of software. Whereas "Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software." More precisely, it means that the program's users have the four essential freedoms:

- 1) The freedom to run the program, for any purpose (freedom 1).
- 2) The freedom to study how the program works, and change it to make it do what you wish (freedom 2).
- 3) Access to the source code is a precondition for this.
- 4) The freedom to redistribute copies so you can help your neighbor (freedom 3).
- 5) The freedom to distribute copies of your modified versions to others (freedom 4). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

The above free availability of software is known with the synonym of Open Source Software. The list of some open source portals is given below:

Sourceforge.net: is a web-based source code repository. It acts as a centralized location for software developers to control and manage open source software development. The website runs a version of Source Forge Enterprise Edition, forked from the last open-source version available. Source forge repository hosts more than 300,000 projects and has more than 2 million registered users, although not all are active. The domain sourceforge.net attracted at least 33 million visitors by August 2009 according to a Compete.com survey (<http://sourceforge.net/>).

Free Software Directory: It is a project of the Free Software Foundation (FSF) and United Nations Education, Scientific and Cultural Organization (UNESCO). We catalog useful free software that runs under free operating systems — particularly the GNU operating system and its GNU/Linux variants. Licenses are verified for each and every program listed in this directory, before including software in the directory (<http://directory.fsf.org/>).

Open Source Software Directory: Open Source Software Directory enlist the best and most promising open source software available on the Internet. The focus is on end-user programs for home users, and small and medium businesses. In addition, it contains applications for software developers and system administrators (<http://www.opensourcesoftwaredirectory.com/>).

JISC Digital Media: (formerly known as TASI) is a JISC Advance service, which provides advice, guidance and training to the UK's Further and Higher Education community on creating digital media resources specifically

still images, moving images and sound resources; delivering digital media resources to users

Conclusion

Increasing cost and information explosion are the two major forces, which have vital impact on the functions of modern libraries. In this scenario, open access journals are a boon to the practicing librarians particularly in a developing country like India. The growth to open access journal publishing (326 journals i.e. 5% of the total OA journals) in India is really worth praising, still training and awareness is also very important for open access process as self archiving activities are hindered. Growing OA journals and repositories has been contributing to visibility of research done in India to the world. On the other hand if we give attention to the number of universities & higher learning institutes in India, the number of open access journals and repositories seems to be nothing. Further contribution to open access resources is the need of the hour, and it requires the support from the various funding agencies such as UNESCO, CSIR, UGC etc. Open access movement can get more momentum in case libraries and information centres provide awareness by listing Open Access Resources on their websites.

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<http://www.earlham.edu/~peters/fos/bethesda.htm>

www.zim.mpg.de/openaccess-berlin/berlin_declaration.pdf

<http://www.internetworldstats.com/top20.htm>

<http://www.gnu.org/philosophy/free-sw.html>

ABSTRACT

Everything changes with the passage of time as nature also allows us to move with the new trends. Old becomes history and present is life. Firstly there were traditional modes for communication and later on radio and newspaper which become the media for exchanging information. The glamour of electronic media took of the charm of the popular cultural media of entertainment from the mindset of people. Modernity turns the thinking of people and makes them so busy that they get rid of traditional media. TV creates a huge impression on youth as it is full of glamour. This paper explores reasons behind dumping of rich traditional entertainment media in our native land.

Introduction

The name of Haryana instantly conjures up the image of a State which astonishingly combines both-antiquity and plenty. The Vedic land of Haryana has been a cradle of Indian culture and civilization. Indian traditions regard this region as the matrix of creation of northern altar' where Brahma performed the pristine sacrifice and created the universe. This theory of creation has been confirmed to a large extent by archaeological investigations carried out by Guy E. Pilgrim in 1915, who has established that 15 million years ago, early man lived in the Haryana Shivaliks. The Vamana Purana states that King Kuru ploughed the field of Kurukshetra with a golden ploughshare drawn by the Nandi of Lord Shiva and reclaimed an area of seven Kosas.

The culture of Haryana was molded throughout various eras of history, all the while absorbing customs, traditions and ideas from both invaders and immigrants. Many cultural practices, languages, customs and monuments are examples of this co-mingling over centuries. The folk dances of Haryana are simple dances, and are performed to express joy. Folk dances are performed for every possible occasion, to celebrate the arrival of seasons, birth of a child, a wedding and festivals. The dances are extremely simple with minimum of steps or movement. The dances burst with verve and vitality.

Men and women perform some dances exclusively, while in some performances men and women dance together. On most occasions, the dancers sing themselves, while being accompanied by artists on the instruments. Each form of dance has a specific costume. Most costumes are flamboyant with extensive jewels.

Objectives of Research

- (i) To know about the popularity of the traditional culture among the people.
- (ii) To check, up to what extent the youth finds entertainment enrichment in traditional media.
- (iii) To know the present plight of traditional folk media.
- (iv) To get the opinion of the senior citizens & youth about the traditional folk media.
- (v) To explore the opportunities about traditional media as a medium of communication.
- (vi) To judge the public opinion about the folk form of Haryana.
- (vii) To compile various forms of traditional folk media prevalent in Haryana.
- (viii) To judge traditional culture as the medium of social awareness.
- (ix) To check the effect of electronic media over the traditional media.
- (x) To know the cultural resonance of Haryana.

Hypothesis

- (i) Traditional entertainment media is the identification of the Haryanvi culture.
- (ii) Traditional entertainment media is declining in the present scenario.
- (iii) Traditional folk media is getting weak due to the glamour of electronic media.
- (iv) Traditional entertainment media is directly connected to people of Haryana.
- (v) Traditional media is still surviving in few villages.
- (iv) Youth are neglecting traditional entertainment media.

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Research Methodology

First of all researchers analyzed the problems and objectives thoroughly. In this research the researcher took five districts of Haryana ,namely, Sonipat, Bhiwani, Ambala, Kaithal and Sirsa. Four villages representing the culture of each of the five districts were selected by keeping the geographical area of the districts. Keeping in view the objectives of research, a questionnaire was prepared which was filled by 500 people from the above mentioned districts. After collecting the data through questionnaire, it was interpreted and analyzed with the help of different statistical tools.

Interpretation and Analysis of Data

The rich and colorful traditional media of Haryana is known for its rhythm and colors all over India. It is evident from the data collected via questionnaire that people of Haryana are forgetting the traditional entertainment media of Haryana. People remember the name of film stars but they don't know the names of their culture artist. Traditional entertainment media is now losing its charm. From Table 1 and Fig 1, it would be noted that when the people were asked whether or not they advised their family and friends to connect themselves with traditional entertainment media , 67.6 % people replied in negative and only 16.4% accepted that they used to suggest their family and friends to connect themselves with traditional entertainment media

Table 1. Response to query if people advised their friends to connect with Traditional Entertainment Media

District	Yes	No	Some Times
Sirsa	14	71	15
Sonipat	19	70	11
Bhiwani	11	77	12
Ambala	20	55	25
Jind	18	65	17
Total (% age)	82(16.4)	338 (67.6)	80 (16)

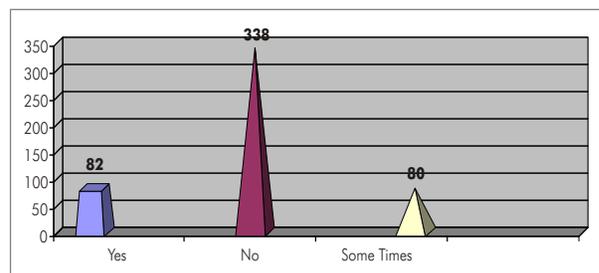


Fig.1 Depiction of Table 1

The answer of another question (Table 2 and Fig. 2) made it more evident that traditional entertainment media is curbing out of its roots. When people were asked that what is the present plight of Haryana's most sought after traditional media 'sang' then their replies were more shocking . Only 0.4% people said that the condition of 'sang' is very good and it's growing. On the other hand 59.2% people accepted the fact that 'sang' is disappearing from the land of Haryana, 32.8% people said it has already disappeared, and 7.2% people said that they can't say anything about it.

Table 2. Response to Query on What is the present plight of Haryana's Traditional Media 'sang'

District	Very good	Disappearing	Growing	Disappeared	Can't Say
Sirsa	0	63	0	30	7
Sonipat	0	48	0	52	0
Bhiwani	0	65	0	28	7
Ambala	2	59	2	26	11
Jind	0	61	0	28	11
Total (% age)	2(0.4)	296 (59.2)	2 (0.4)	164(32.8)	36(7.2)

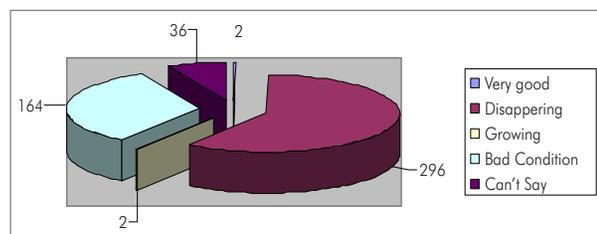


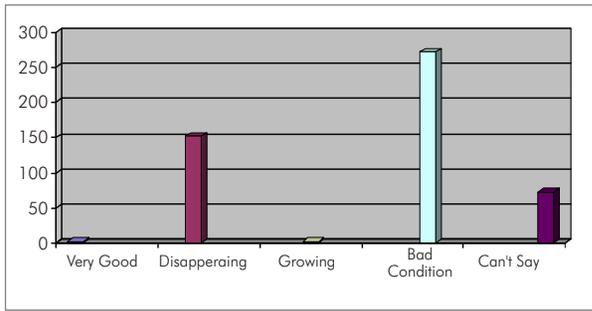
Fig. 2

On asking the current status of another famous traditional entertainment media of Haryana Ragini replies were almost same as for sang (Table 3 and Fig. 5). 54.4% people said that Ragini is passing through its worse phase. Merely 0.4% said no, its growing and its plight is very good. 30.4% people answered that ragini is disappearing like other traditional folk form of Haryana. 14.4% people said that they don't know much about it.

Table 3. Response to Query on What is the present plight of Haryana's Traditional Media 'Ragini'

District	Very good	Disappearing	Growing	Bad Condition	Can't Say
Sirsa	0	31	0	59	10
Sonipat	0	42	0	48	10
Bhiwani	0	28	0	60	12
Ambala	2	25	2	52	19
Jind	0	26	0	53	21
Total(% age)	2(0.4)	152(30.4)	2(0.4)	272(54.4)	72(14.4)

Fig.3



On asking that do you ever prefer to watch any traditional media act over electronic media, 70.4% people simply denied and only 13.8% people said yes while 15.8% people said they prefer it some times . (Table 4 and Fig.4).

Table 4. Response to Query if the people prefer to watch Traditional Media Act over Electronic Media

District	Yes	No	Some Times
Sirsa	5	80	15
Sonipat	14	62	24
Bhiwani	6	79	15
Ambala	23	64	13
Jind	21	67	12
Total (% age)	69(13.8)	352(70.4)	79 (15.8)

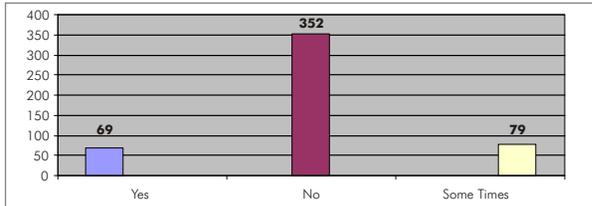


Fig.4

Findings

- (i) Traditional entertainment media is being forgotten by people of Haryana.
- (ii) Sang is disappearing from the land of Haryana.
- (iii) Ragini is also at its verge in Haryana.
- (iv) People prefer watching electronic media over traditional media.

Conclusions

The rich and colorful traditional media of Haryana is known for its rhythm and colors all over India. The 'sang' is so energetic and heart capturing that people used to watch it, even for five and six days. But this culture is curbing out now a days from its roots. After analyzing the data it is concluded that these traditional arts are disappearing from the land of traditional art. Need of the hour is to save these media in order to save the culture of Haryana.

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Sexual Content in Indian TV commercials

Meraj Ahmed Mubarki*

ABSTRACT

This study examined sexual content in Indian TV commercials. Results show that a quarter of Indian TV commercials contained sexual content. Women play more leading roles than men in TV commercials with sexual content. Sex in TV commercials is operationalized through body display, followed by sexual behaviour and sexual referents. English TV commercials have a higher sexual content compared to Hindi. Sexual content is not limited to beauty and appearance enhancing products, but was also found in product categories such as households, electronics, housekeeping, foodstuff, automotive and accessories, and services. This article provides several implications for policy makers, as TV commercials with sexual content are often shown throughout the day, exposing their content to a young audience.

Keywords: India- Television- Commercials-Sex-Content Analysis.

Introduction

In a small village in Kullu, in the Indian state of Himachal Pradesh, most of the family members either watch TV alone or not at all. Like an item of personal use, TV sets aren't to be shared. 'Now, if grandfather is enjoying some spiritual programme, neither his son nor grandson will enter the TV room. The same way when any of son or grandson is watching their programmes, remaining members would not disturb them. This initiative is much appreciated by many people of the valley' (Sharma, 2011). Villagers think it is against their morals to watch TV along with their family members on account of pornography being served even in family programmes. Village head Seema Devi pointed out that this initiative was taken in view of the immodest clips (advertisements) that were being shown on television.

But this concern is not limited to the families alone. In May 2011, the Indian government issued a statement asking TV channels not to broadcast lascivious and risqué TV commercials noting that the content of some deodorants TV commercials was brimming 'with messages aimed at tickling the libidinous male instincts and portrayal of women as lustily hankering after men under the influence of such deodorants' (Nelson, Dean, 2011). In 2008, a TV commercial for men's deodorant was taken off the air as it showed a 'chocolate man' being nibbled at various places by ravenous women (The Observer, 2008). In 2007, India's Ministry of Information & Broadcasting prohibited the transmission or re-transmission of television

advertisements of two brands of men's under garment 'Lux Cozy' and 'Amul Macho' on all broadcasting stations with immediate effect considering them as indecent, vulgar and suggestive and thus violative of Rule 7 of the Cable TV Network (Regulation) Act of 1995 (Chauhan, 2007).

In India whereas a bikini clad Karen Lunel, bathing under a waterfall for a bathing bar appeared as late as 1985, it was only in the mid 90s that the Indian public space witnessed a proliferation of 'representations of erotics' (Mankekar, 2004, p. 403). The 'sexualization' of the Indian Television took place in the context of 'feverish commodity consumption precipitated by the expansion of mass culture, the liberalization of the Indian economy and the introduction of global capital (Mankekar, 2004, p. 408). A rise in sex in advertising coincided with a rise in disposable income and rising standards of living, and greater perpetration of TV across urban and rural households. Sex began to be used to sell commodities not traditionally associated with sexual appeal such as mineral water, shoes, soft drinks, coffee etc.

Though the Indian state exercised control over television's content right through the medium's inauguration in 1959; this 'statist monopoly' built assiduously through strict bureaucratic control began to unravel from around the mid 90s as the Indian economy liberalized and the Indian skies opened to unregulated and uncensored transmission from abroad. Seeking to regulate the airwaves over which it was steadily losing control, and also amidst the clamour

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for protecting Indian culture from the alleged pernicious effects of creeping Western influence, the Indian parliament passed the Cable TV Network (Regulation) Act of 1995, on the ground that in the absence of proper regulation, 'lot of undesirable programmes and advertisements are becoming available to the viewers without any kind of censorship' (Ambez Media & Market Research, 1999). All this points to a growing awareness about sex in advertising on Indian television. According to some estimates the current proportion of population under 25 years in India is 51% (Development, 2007-08). This predominance of youth in the population is expected to last until 2050. A study of TV commercials becomes all the more important since a literate youth spends more time watching TV (98 minutes), than reading newspapers (32 minutes), magazines (44 minutes) surfing the net (77 minutes) or listening to the radio (61 minutes) (Mukul, 2010).

Yet it is precisely because of public outcry social policing and various government regulations which monitor advertising practices across countries including India that sexual appeal is no longer operationalized through nudity alone and has diversified to include more subtle means: sexual behaviour and sexual referents. It is through these means that sexual suggestiveness is often made functional in an advertisement. Some key findings of the RAND health research of 2005 shows that sex on television may influence sexual behaviour, and hasten the initiation of teen sexual activity (Rand Corporation, 2005). Premature sexualization can also lead to pressure 'to look in a certain way, encourage anorexic eating habits and may promote premature sexual activity' (Egan & Hawkes, 2008, p. 309).

Repeated words visuals and cues play an important role in the way viewers shape their perceptions and attitudes about the world and their responses will be influenced by what they see in the world as shown on television. Television provides people or viewers with 'slice of life of ordinary lives' that not only support norms for conduct but also beliefs for a wide range of real life situations. George Gerbner's cultivation theory posits that 'the more a person spends time consuming media the closer his or her views are going to be about the world as portrayed in the media (Zhang, Harwood, Williams, McEwen, Wadleigh, & Thimm, 2006). Albert Bandura also contends that 'a vast amount of social learning occurs either by design or by intent from models in one's immediate surrounding...and a vast amount of this information about human values, styles of thinking and behaviour pattern is gained from the extensive modeling in the symbolic environment of the mass media' (Bandura, 2002).

Defining Sex in Advertising

It is an objectionable content sex in advertising like, 'sexuality in the form of nudity, sexual imagery, innuendo, and double entendre...employed as an advertising tool for a wide variety of products' (Reichert, 2002, p. 243). Past research in the field has often equated sexually oriented appeals or sexual appeal in advertising with nudity and physical attractiveness (Reichert & Ramirez, 2000). But while nudity is easy to define, sexual appeal is not always functionalized through body display; and TV commercials can make 'sexual appeal' without resorting to nudity. Again, physical attractiveness may also not be the sole means through which sexual appeal is introduced. Contrarily, physical attractiveness may not connote 'sexy' at all, and attractive models can be shown in a completely 'de-sexualized' context.

Seeking to define the means through which sexual appeal is functionalized, Carolyn A Lin speaks of physical characteristics such as body type, cloth revealment, and sexually oriented conduct measured in terms of the presence/absence of physical innuendo, verbal innuendo, and physical contact, model's sex appeal, measured in terms of physical attractiveness, sexiness and status as a sex object (Lin, 1998). Fully clothed models may indulge in sexual behaviour characterized as flirting behaviour and courtship, through 'Unbuttoned clothing, rolling the pelvis, titling or cocking the head to expose the neck, and preening behaviours' (Reichert & Ramirez, 2000).

'Sexual referents' on the other hand are the most subtle means of inserting a sexual appeal in advertising without resorting either to nudity or sexual behaviour, and is defined in advertising literature as, 'having or possessing sexual stimuli that triggers or arouses ideas about sex in a person's mind' (Reichert & Ramirez, 2000). Sexual referents can be operationalized through a range of subtle aural and or visual means that can be considered 'sexually suggestive', ranging from a 'key being entered into a keyhole' to 'water spurting out from a hosepipe', to 'creaking sound coming out from behind closed doors' to 'a car heaving gently in wilderness'. In 2006, Kamasutra condom brand released a series of TV commercials that made use of sexual referents but not nudity or sexual behaviour. In one TV commercial, a young man in a waiting room is shown squirming in his seat as he sees a young woman unzip her satchel. In another, a bed ridden patient being examined by a doctor feels squirmy as he sees a young nurse putting her pen 'in and out' of its cap. In another campaign for a mango soft drink aptly labeled 'Aamsutra', the female model caresses, and fondles the mango suggestively, with extreme close up shots of the model's lips.



Figure 1. An extreme close up of the model's lips, acting as a sexual referent for a Soft drink.

Objectives of the Study

While we do know a lot about the potential effects of exposure to sexualized media content, we know little about the prevalence of this content within Indian media where apart from banning a few TV commercials now and then that seemingly cross the line into the undefined territory of indecency and 'sexual suggestivity' there is no formal mechanism either to define sexual content or to measure it on Indian television. The objective of this study was to discover the prevalence of sexual content in TV commercials, distribution of sexual content across lead actors, the preponderance of sexual appeal in Indian TV commercials, distribution of sexual content across products, and distribution of means through which sex is operationalized in TV commercials.

The current research based on the theoretical foundations enumerated earlier considers the merit of examining content [representation] itself rather than examining its effect significance. The major objective of the study was to find the presence of sexual content in TV commercial broadcast in India measured in terms of identifiable variables and used as indicators of the presence of sex in advertising. The Research Questions were:-

- RQ1.** What is the percentage of TV commercials carrying Sexual Content?
- RQ2.** What is the distribution of Sex Content across lead actor category?
- RQ3.** What is the percentage of Ads with Sexual Appeal as the dominant advertising appeal?
- RQ4.** What is the distribution of Sexual Content across product category?
- RQ5.** What is the distribution of nudity, sexual behaviour and sexual referents across lead/principle role category i.e., male, female, child or elderly?

Method

Empirical research using content analysis has been the preferred choice of research methodology on advertising with the process accounting for 38.2% of the research done in the stream (Wolin, 2003). Generalization about what is on the TV requires observable and objective evidence. When the depiction of certain tangible categories is under debate then the frequency and meaning of identifiable visual content becomes imperative. The current research, exploratory in orientations, sought queries through the formulation of Research Questions (RQs).

Sample

Content analysis has a well established tradition in media studies, since it 'provides a credible picture of denotative meanings within advertising and remains popular for monitoring advertising's representation of, for example women, minorities and the elderly'(Leiss, Kline, Jhalley, Botterill, & Leiss, 2005, p. 163). Five categories of TV channels based on specific genre were devised viz, General Interest channel, Movies channel, News channel, Music channel, and Cartoon channel. Two languages were selected: Hindi, spoken by 41.3% of India's population as per the 2001 census (Ministry of Home Affairs, GOI), and English, because advertisements in English tend to be from larger national/international firms with a pan-national appeal. Three channels were randomly selected from each category. Regional Indian languages were excluded, and can be used in future for cross-cultural analysis. A total of 15 channels were selected.

Table 1. List of Channels Selected - Language wise Split

Category	General	News	Movies	Music	Cartoon	Total
Hindi Channels	3	0	1	3	1	8
English Channels	0	3	2	0	2	7
Total	3	3	3	3	3	15

Channels were recorded between 10 am to 12 midnight, following Furnham and Voli's suggestion (Furnham & Voli, 1989, p. 176). A total of 888 TV commercials were recorded. TV advertisements depicting non human characters, stills with voice-overs, in which no human appeared were also excluded. All TV commercials in which humans played primary/principle roles were coded. Following the precedent set by Lin (Lin, 1998, p. 466), in cases where a group of models appeared together, displaying similar behaviour then all the models were coded as one single unit. After filtering all repetitions and animation ads, the corpus consisted of 365 ads.

Coding Reliability

Coding was carried out after training two independent coders: one male and one female. They were given a coding book that contained all the variables, their values and their definitions. Coders were trained on TV commercials, not part of the main sample. Instruction given to the coders included written description of all variables, visual examples of sexual behaviours and the researcher was present to discuss the definitions. Coders worked independently. Inter-coder reliability after the third training session was 0.97. This was followed by the actual coding of the TV commercials.

Disagreements between coders were resolved through discussion without the researcher's intervention. Banerjee et al (Banerjee, Capozoli, McSweeney, & Sinha, 1999) have recommended that Kappa value below .40 should be unacceptable, while that between .40 and .75 should be fair to good beyond chance. All the coding reliability decisions are well within the acceptable limits defined by Banerjee et al.

Table 2. Coding Reliability across Variables

Variables	Cohen's Kappa	
	Language of Ad	0.92
Product Category	0.96	
Principle Role	1.00	
Advertising Appeal	0.86	
Sex Content	1.00	
Body Display	1.00	
Sexual Behaviour	0.84	
Sexual Referents	0.65	

Coding Instruments and Variables

A coding hierarchy was developed. Advertisements were first coded on the basis of language in which they were broadcast: Hindi, and English. In case of advertisement in which both the languages were used attention was paid to the number of words spoken in each language and then coded. Model playing the principal role was selected on the basis of maximum number of visual exposure i.e., the number of shots a character appeared in. The principal role category in the TV advertisement was categorized into gender and then into child, elderly and the intermediate age group.

Lead actors of the age of 12 and below were coded as child lead actors; those of the age of 60 years and above were coded as Elderly. Following Swayne and Greco, elderly characters were judged on the basis of subjective criteria including their appearance of retirement, grey hairs, wrinkles, and the use of aids like wheel-chairs, hearing aids, and canes and shown as parents of middle aged people or in the company with grand children or the like (Swayne & Greco, 1987, p. 47). Lead actors in between the age group of children and elderly were coded as male or female based on their gender expression. Only lead characters thus selected were observed for nudity, sexual behaviour, and sexual referents.

Advertising appeals were measured in terms of behavioural variables. The extent to which an Advertisement used a type of appeal marked its dominant appeal. To measure the type of advertising appeal present in commercials, all TV commercials were divided into the five types of advertising appeals: argumentative, emotional, endorsement, sexual and humourous appeal (Tellis, 2004, p. 135). For an elaboration of the various types of Advertising appeal see Tellis, 2004.

Product Category

Following McArthur and Resko (McArthur & Resko, 1975) and Bresnahan, Liu and Nishida (Bresnahan, Inoue, Nishida, & Liu, 2001) products were divided into 11 mutually exclusive categories viz foodstuff, health & personal hygiene, beauty and appearance enhancing, electronic, financial, automotive & accessories, fashion, clothes, and jewelry, medicinal and pharmaceutical, housekeeping, services and others.

Sexual Content

Sexual content was measured in terms of the presence/absence of body display, sexual behaviour, and sexual referents, in combination or singularly. Body Display meant revealing clothes, women in short skirts, or in inner wear, cleavage revealing low cut blouses, men in underwear or shirtless (Reichert, 2002, p. 244). Suggestive clothing which revealed or exposed the upper body, such as an unbuttoned blouse or thigh revealing micro mini was also included in body display (Reichert, Lambaise, Morgan, Carstarpheu, & Zavoina, 1999, p. 11).

Explicit nudity being rare in Indian TV commercials, scenes in which characters were shown with bare shoulders and bathing, or wrapped in towels, topless or in various stages of undressing were considered as 'implied nudity' and coded.

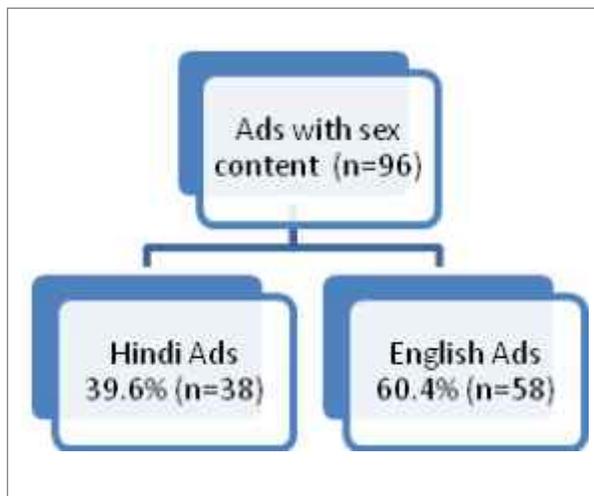
Following Reichert's description, sexual behaviour included moving and talking in a manner that communicated sexual interest or in a manner that was intended to evoke the viewers' sexual interest (Reichert, 2002, p. 245). Sexual contacts such as kissing, simulated foreplay, flirting behaviour such as pouting, winking, fleeting glances, biting lips, flying kisses, exposing neck, were also considered as sexual behaviour. Models or characters talking in a sensual languorous vocal tone were also taken as sexual behaviour. Sexual referents were defined as verbal elements or the mix of verbal and visual message elements that included sexual innuendos and or double meaning dialogues that carried sexual connotations (Reichert, 2002, p. 246).

Results

RQ1. What is the percentage of TV commercials carrying Sexual content?

About 26.3% (n=96) of the TV commercials contained sexual content, that is, one in every four commercials contained some form of sexual content. A language-wise split of the Ads showed that sexual content was higher in English TV commercials 60.4% (n=58) than Hindi TV commercials 39.6% (n=38).

Table 3. Percentage of Sexual Content - Language wise split



RQ2. What is the distribution of Sex Content across lead actor category?

Females play more lead roles 58.3% (n=56) in TV commercials with sexual content than men. No child or elderly was found playing lead role in ads with sex content.

Table 4. Sexual content in TV Commercials -Distribution Lead Category Wise

Sexual Content	Percentage
Female	58.3% (56)
Male	41.7% (40)
Child	-
Elderly	-
Total	100% (96)

RQ3. What is the percentage of Ads with Sexual Appeal as the dominant theme?

Sexual appeal as the dominant advertising appeal and theme accounted for 10.4% of all advertising appeals.

Table 5. Distribution of Advertising Appeal and Sex Content within Advertising Appeals

Advertising Appeal	% of total Ads (365)	% with Sex Content (96)
Emotional (124)	34.0	12.5 (12)
Argumentative (109)	29.9	21.9 (21)
Endorsement (51)	14.0	19.8 (19)
Humour (43)	11.8	06.3 (06)
Sexual (38)	10.4	39.6 (38)
Total (365)	100	100 (96)

Number in bracket represents frequencies

RQ4. What is the distribution of Sex Content across product category?

Health and hygiene products make the most of sexual appeal (28.1%; n=27), followed by the beauty and appearance enhancing products 22.9% (n=22). Sex content is distributed across all product categories being highest in health and hygiene products and the lowest in medicines and pharmaceutical products. No sexual content was found for financial product advertisements.

Table 6. Sexual Content distributed across Product Category

Product Category	%
Health & Hygiene (27)	28.1
Beauty/Appearance Enhancing (22)	22.9
Electronic Products (12)	12.5
Fashion, Clothes, Jewelry (10)	10.4
Housekeeping Products (09)	9.4
Foodstuff Products (04)	4.2
Services (05)	5.2
Automotive & Accessories Products (04)	4.2
Others (02)	2.1
Medicines & Pharmaceutical (01)	1.0
Financial Products	-
Total (96)	100.0

Numbers in bracket represents frequencies

RQ5. What is the distribution of nudity, sexual behaviour and sexual referents across lead/principle role category i.e., male, female, child or elderly?

Compared to male leads, female leads tend to show more flesh, exhibit more instances of sexual behaviour. Women also tend to play more lead roles in TV commercials that make sexual references but don't show 'sex'.

Table 7. Distribution of Body Display, Sexual Behaviour, Sexual Referents across Male/Female Leads

	Body Display	Sexual Behaviour	Sexual Referents
Male Lead	33.3% (26)	43.0% (28)	44.4% (16)
Female Lead	66.6% (52)	56.9% (37)	55.5% (20)
Total	100%* (78)	100%* (65)	100%* (36)

Sexual content not found in Ads with a child or an elderly in the lead.

* Rounded off to 100%

Discussion

The findings of the study suggest the ubiquity of sexual content, across language and advertising appeals. Sexual content varied only in degree across Hindi and English language TV commercials.

English TV commercials make greater use of sexual content than Hindi. This could be because English TV channels cater to upwardly mobile urban Indian households who may have more liberal attitude towards sexual content and its manifestations.

Women outnumber men significantly in commercials having sexual content, hinting at a stereotypical, sexual objectification of women, but men are not lacking behind either. Yet, while American advertising pushed the envelope with commercials that put very young male and female models in provocative postures notable Brook Shields for the Calvin Klein Jeans in the 80s, 'nothing comes between me and my Calvins' (Media Awareness Network, 2010); Indian commercials so far have refrained from such practices and children or elderly do not appear in sexually charged commercials. Sexual appeals accounted for 10.4% (n=38) or the least of all the advertising appeals on TV commercials. However quite surprisingly the number of Advertisements with sex content was significantly higher (n=96), which points out that sex content has 'spilled' into advertisements where the dominant advertising appeal is not sexual. Sex is present even in TV commercials that are making argumentative and or emotional appeals.

Sexual content is also spread out across product categories and isn't just restricted to the 'usual suspects' like Fashion & Accessories products or Beauty & appearance enhancing products. With the exception of the financial products all varieties of products advertised on Indian TV make use of sex.

While overt nudity is not possible because of possible public outrage and legal action from the Ministry of Information & Broadcasting, Indian TV commercials nevertheless often show implied nudity (women shown with bare shoulders, and or wrapped in towels tilt shot showing a towel dropped around a women's ankle, men in bathrooms with their torsos blurred out to imply nudity).

Again commercials with women in the lead role have higher body display, sexual behaviour and sexual referents than commercials with men in the lead. Body display remains the principle means through which sexual content in TV commercials is operationalized. Recent research effects studies show that sexual content is associated with sexual behaviour patterns (Manganello, Franzini, & Jordan, 2008), and since Indian TV commercials are repeated often throughout the day, it is safe to assume that the adult and sexual content reaches a young audience whose idea of sexuality and its attendant responsibility, may be wholly derived from the media. It is reasonable to expect that TV commercials in other Indian regional languages may reflect different amount of sexual content and manifestations. It is important to remember that in all likelihood the findings are restricted to the English and the Hindi TV commercials. However the study establishes the everydayness of sexual content. Representations in advertisements are contextual and the meaning produced by and through them cannot be separated from the discursive and the social structures of the society within which they operate. And since representations are instrumental in creating images and social realities, such TV commercials merely highlight the importance of critical media studies and media literacy in India. An empirical research is necessary to find out how these advertisements are being read by various social groups, particularly children, the most vulnerable section. The study may eventually be used for longitudinal study on sexual content in Indian Advertisements, and for further debate on sexual content in TV commercials.

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Comparative Analysis of Coverage of the Launch of Chandrayan in the two National English Dailies

Saad Ullah Khan*

ABSTRACT

Spreading the word about India's first lunar mission, Chandrayan-1, national newspapers definitely did their bit. Around mid-October 2008, there were large spaces devoted to the details of spacecraft, its launch vehicle PSLV-CII, and the scientists involved in this project.

This study tries to focus (quantitatively and qualitatively) on the coverage of launching of Chandrayan-1. Times of India and The Hindu are the newspapers selected for the study with the aim to assess the role of print media in creating awareness regarding an important scientific event. Sample includes 60 newspaper issues (30 each) dating from October 20- November 20, 2008. The comparative qualitative approach would involve use of photographs, quotes of reliable sources (scientists) and other effective media used by the two newspapers.

Key Words: Lunar mission, spacecraft, PSLV-CII, Chandrayan-1, scientists, qualitative approach

Introduction

Media has been identified as the backbone of a successful democracy. It makes the people aware of various social, political and economic happenings around the world. Like a mirror, it strives to show us the bare truth and the realities of life.

A democratic society depends on an informed populace participating in policy making, either directly or indirectly. In large and complex societies public participation in policy making (whether it's scientific policy or political policy) is already limited largely to occasional expressions of opinion and protests and the periodic selection of representatives. For this weak participation to be minimally effective the public has to know what is going on and the options that they should weigh, debate, and act upon.

The media functions as a platform to bring to fore the issues of the common man that are vital to achieve the twin objectives of economic growth and social justice. Through its emphasis on truth, media also exposes loopholes in the democratic system, which ultimately helps govt in filling them and making the system more accountable, responsive and citizen-friendly. A democracy without media is like a vehicle without wheels.

In developing countries like India, the media has to act as gatekeeper and watchdog as well as nation builder. Development in terms of science and technology in such

countries tends to be lop-sided; with a certain portion of the population reaping the fruits while the rest get to bear the costs. In India, the rural and remote areas have been the victims of this 'development-neglect'. The role of the media in bringing these areas back into focus cannot be undermined. Media can highlight the problems and the challenges faced by the people working at the grass-root level, spotlight their achievements and help to bridge the divide between the makers of development policy (including scientific, social and political) and the beneficiaries. It promotes good governance by facilitating people's collective action for attaining sustainable socio-economic outcomes for the common good of the society.

Tracking the progress which is taking place due to the increment of scientific and technological awareness in our country like bringing attention to the neglected but the most important areas of hygiene and health, ways to combat deadly disease and how to tackle deadly epidemics, science journalism has its unique impact on the society well-being. Besides, it has also played a vital role in educating the people regarding technological revolution in our country. The unique responsibilities of the media in developing nation in terms of science and development led to the emergence of the concept of 'science journalism'

Science Journalism

Science journalism is a branch of journalism that uses the art of reporting to convey information about science topics

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to a public forum. The communication of scientific knowledge through mass media requires a special relationship between the world of science and news media, which is still just beginning to form.

The first task of a science journalist is to render the very detailed, specific, and often jargon-laden information produced by scientists into a form that the average media consumer can understand and appreciate, while still communicating the information accurately. Science journalists often do not have advanced training in the particular scientific disciplines that they cover — they may have been scientists or medical doctors before becoming journalists — or have at least exhibited talent in writing about science subjects.

In recent years, the amount of scientific news has grown rapidly with science playing an increasingly central role in society, and interaction between the scientific community and news media has increased. The differences between the methodologies of these two "pillars" of modern society, particularly their distinct ways of developing their realities, have led to some difficulties. Journalism tends to have a stronger bias towards sensationalism and speculative theories than science, whereas science focuses more on fact and empirical measurement.

Science journalists regularly come under criticism for falsely reporting scientific stories. Very often, such as with climate change, this leaves the public with the impression that disagreement within the scientific community is much greater than it actually is⁽¹⁾ Science is based on experimental evidence, testing and not dogma, and disputation is a normal activity.⁽²⁾

Importance of the Study

India achieved unprecedented success in the space history when it launched its first Lunar probe to moon-Chandrayan 1. It was launched by the Indian Space Research Organisation in October 2008, and operated until August 2009. The mission included a lunar orbiter and an impactor. India launched the spacecraft by a modified version of the PSLV, PSLV C11⁽³⁾ on 22 October 2008 from Satish Dhawan Space Centre, Sriharikota, Nellore District, Andhra Pradesh, about 80 km north of Chennai, at 06:22 IST (00:52 UTC)⁽⁴⁾. The mission was a major boost to India's space program⁽⁵⁾, as India researched and developed its own technology in order to explore the Moon.⁽⁶⁾ The vehicle was successfully inserted into lunar orbit on 8 November 2008.⁽⁷⁾

On 14 November 2008, the Moon Impact Probe separated from the Chandrayaan orbiter at 20:06 and struck the south pole in a controlled manner, making India

the fourth country to place its flag on the Moon.⁽⁸⁾ The probe impacted near Shackleton Crater at 20:31 ejecting underground soil that could be analysed for the presence of lunar water ice.⁽⁹⁾

After suffering from several technical issues including failure of the star sensors and poor thermal shielding, Chandrayaan stopped sending radio signals at 1:30 AM IST on 29 August 2009 shortly after which, the ISRO officially declared the mission over. Chandrayaan operated for 312 days as opposed to the intended two years but the mission achieved 95 percent of its planned objectives.⁽¹⁰⁾⁽¹¹⁾ Among its many achievements was the discovery of the widespread presence of water molecules in lunar soil.⁽¹²⁾

Spreading the word about India's first mission to moon, Chandrayan-1, national newspaper definitely did their bit. Around mid-October 2008, there were large spaces devoted to the details of the spacecraft, its launch vehicles PSLV-C11 and the scientists involved in this project.

This study particularly tries to focus (quantitatively and qualitatively) on the coverage of launching of Chandrayan-1. The selected newspaper for the study are The Times of India and The Hindu. The main aim is to assess the role of print media in creating awareness or educating the masses regarding a particular scientific event.

Aims and Objectives of the Study

Broadly speaking, the present study is aimed at comparatively analyzing the coverage given to the event of the launch of Chandrayan-1, India's first mission to moon by two major English dailies—The Hindu and The Times of India. It adopts a quantitative as well as qualitative model of content analysis—a triangulated approach covering all aspects of news presentation.

More specifically, this study has the following aims and objectives:

- 1) To find out the total coverage, in terms of number of stories and space occupied, given by The Hindu and Times of India to Chandrayan-1 and to see which newspaper has given more coverage.
- 2) To find out the source of the news stories and see how much of the newspaper organizations' own staff is engaged in gathering news of Chandrayan-1, and how much does it depend on the agencies for its stories.
- 3) To study qualitatively and comparatively, the

presentation of news related to the launch of Chandrayan-1 by two dailies in terms of language, style, treatment and emphasis.

- 4) To observe and analyze the manner in which the ISRO and its space achievements have been depicted by the two newspapers.

Methodology

The method of content analysis, both quantitative as well as qualitative, was employed in this critical analysis of the coverage of Chandrayan-1 provided by The Hindu and The Times of India. The stories published on the op-ed page and as News Briefs are dropped from the course of the study. Also, news features are not taken into account.

Content Analysis

Content analysis is a standard methodology in the social sciences for studying the contents of communication. It's a scholarly methodology defined by Ole Holsti (1969) as "Any technique for making inferences by objectively and systematically identifying specified characteristics of messages."

According to Kimberley (2002), "Content analysis is a summarizing, quantitative analysis of messages that relies on a scientific method and is not limited as to types of variables that may be measured or the context in which the messages are created or presented."

It is a study done in a systematic, objective and quantitative manner for the purpose of measuring variables. Perfect objectivity is however, seldom achieved in content analysis.

Time Period and Sample of the Study

The time period selected for the study is one month—October 20, 2008 to November 20, 2008.—in which census method was used to analyze the reportage. Thus, a total of 60 newspapers—30 of The Hindu and 30 of The Times of India—were taken as the sample. The newspaper coverage of every single day was taken into account for the purpose of the study.

The two newspapers were selected for the study owing to their wide readership and credibility among the masses. The Times of India is the largest read daily of India, according to Indian Readership Survey 2008; while The Hindu stands at the third position in terms of readership in the year 2008

Quantitative Analysis

The quantitative analysis covered the following points:

- The number of stories
- The pages on which they have appeared
- Source of the stories
- Numbers of columns in the story
- Space occupied in terms of column cm (height of a single column multiplied by number of columns occupied by each story)
- Number of photographs accompanying each story

Qualitative Analysis

For the Qualitative analysis, the news stories were analyzed in a different manner. The headlines and lead paragraphs as well as the general body structure of the reports were carefully examined to evaluate the treatment of the story. What kind of language and sentence structure was being used? How were the stories being 'framed'? Whose perspective was being highlighted? Were the feats accomplished by ISRO and

Chandrayan were merely praised or they are discussed thoroughly? Was it the self effort of ISRO that were being highlighted or were the works of 'intermediaries' getting all the attention?

Thus, the study has sought to comprehensively evaluate the general status, attitude and emphasis of the two leading English dailies regarding the coverage of the launch of Chandrayan-1

Times of India

Introduction, Data Collection And Interpretation

The Times of India (TOI) is a popular English-language broadsheet daily newspaper in India. It has the widest circulation among all English-language daily newspapers in the world, across all formats (broadsheet, compact, Berliner and online). It is owned and managed by Bennett, Coleman & Co. Ltd. which is owned by the Sahu Jain family.

In 2008, the newspaper reported that (with a circulation of over 3.14 million) it was certified by the Audit Bureau of Circulations as the world's largest selling English-language daily newspaper, placing as the 8th largest selling newspaper in any language in

the world. According to the Indian Readership Survey (IRS) 2008, the Times of India is the most widely read English newspaper in India with a readership of 13.3 million. This

ranks the Times of India as the top English newspaper in India by readership. According to ComScore, TOI Online is the world's most-visited newspaper website with 159 million page views in May 2009, ahead of the New York Times, The Sun, Washington Post, Daily Mail and USA Today websites.

Data Collection

A total number of 107 news reports covering science and technology, were found upon the Quantitative Analysis of the newspaper in one month. The total space occupied by the reports of Chandrayan-1 was 1007.5 column cm. Out of 107 science stories, 25 stories are Chandrayan based stories.

Thematic Analysis

The thematic analysis comprises the analysis of science and technology reports and to roughly take into account the different genres of science and technology covered by them. Times of India gives more thrust to stories concerning physical sciences than the biological sciences. For the analysis of news stories related to Chandrayan, the

Total no. of science news	News covering Chandrayan	Space covered (column cm)	No. of photographs accompanying Chandrayaan stories
107	25	1007.5 column	cm20

following table will prove enormously helpful

Column-Wise Analysis

The largest number of Chandrayan stories were found to be three-column and two-column stories. There was only one eight-column story and one five-column story. There are only 3 one-column stories.

Source Wise Analysis

The analysis of the source of Chandrayan related news gave an interesting revelation. Most of the news stories has been contributed by Times News Network and the concerned newspaper correspondents. Though four of the stories are contributed by PTI, AP and other agency. Among the news reported by the correspondents, Srinivas Laxman of Times of India has the maximum share. Further in the analysis of source it was found that the news covered by TNN largely outnumbered the sum total of news covered by special correspondents and other news agencies.

The Visual Presentation

Times of India, which is a very popular newspaper in India having the largest readership fared very well when it came to the packaging and presentation of news stories. In the entire study period of one month, 20 photographs were published in connection to Chandrayan. That means, 80% of all the Chandrayan based reports were accompanied with photographs. All the photographs are almost colored with exception of one or two. Some of the pictures are animated and impressively illustrated. Most of the photograph were either two column and one column photographs. This obviously shows that Times of India places a high premium on the visual depiction of reality to attract the readers towards the stories and to enhance their reading experience

The placing of stories

Few stories (only five) found place on the first page while the remaining stories find their place on the inside pages. The headlines used were very catchy and they have the power to compel readers to read the story after first reading the headline. Mostly short, snappy headlines are used. A perfect example is the following headline published on 16 November 2008 on Page 16 of Times of India:

Kalam dreams kisses the moon.

Some news stories carries straight headlines which are self explanatory. Jargon laden language is largely avoided in the news stories. The language used is quite simple and cliches and technical words are avoided largely. It can be said that the language is used keeping in mind the general awareness of laymen regarding English. Instead of providing extra scientific datas and facts, stress is given on important points and of course, the Chandrayaan.

The Hindu

Introduction, Data Collection And Interpretation

The Hindu is a leading English-language Indian daily newspaper. With a circulation of 1.45 million, The Hindu is the second-largest circulated daily English newspaper in India after Times of India, and slightly ahead of The Economic Times. According to the Indian Readership Survey (IRS) 2008 The Hindu is the third most-widely read English newspaper in India (after Times of India and Hindustan Times) with a readership of 5.2 million. It has its largest base of circulation in South India, especially Tamil Nadu. Head-quartered at Chennai (formerly called Madras), The Hindu was published weekly when it was launched in 1878, and started publishing daily in 1889.

The Hindu became, in 1995, the first Indian newspaper to offer an online edition.

The Hindu is published from 13 locations – Bangalore, Chennai, Coimbatore, Delhi, Hyderabad, Kochi, Kolkata, Madurai, Mangalore, Thiruvananthapuram, Tiruchirapalli, Vijayawada and Visakhapatnam. Owned by Kasturi and Sons Ltd., the newspaper has its largest base of circulation in South India, especially Tamil Nadu. It is also the only newspaper that brings out supplements on all days of the week. The present editor of The Hindu, N.Ram, in the homepage of it's website, says:

"Contemporary yet classic, classic yet contemporary... ..that is what The Hindu has sought to be in the world of Indian and international newspapers"

Data Collection

A total number of 93 news reports covering science and technology, were found upon the Quantitative Analysis of the newspaper in one month. The total space occupied by the reports of Chandrayan-1 was 1693 column cm. Out of 93 science stories, 23 stories are Chandrayan based stories.

Thematic Analysis

The thematic analysis comprises the analysis of science and technology reports and to roughly take into account the different genres of science and technology covered by them. THE HINDU gives more thrust to stories concerning biological sciences (genetics + medicine + agriculture) then

Total no. of science news	News covering Chandrayan	Space covered (column cm)	No. of photographs accompanying Chandrayaan stories
93	23	1693 column cm	18

the physical sciences. For the analysis of news stories related to Chandrayan, the following table will prove enormously helpful

Column-Wise Analysis

The largest number of Chandrayan stories were found to be three-column, four-column and five-column

stories. There was only one eight-column story and two seven-column story. There are only 3 five-column stories. Remains are four, three, two and one column stories

Source Wise Analysis

The analysis of the source of Chandrayan related news gave an interesting revelation. Most of the news stories has been contributed by newspaper's special correspondents. Though very few of the stories are contributed by the other agencies. Among the news reported by the correspondents, T S Subramaniam of The Hindu has the maximum contribution. Further, in the analysis of source, it was found that the news covered by special correspondents largely outnumbered the sum total of news covered by other news agencies.

The Visual Presentation

The Hindu, which is a very popular newspaper in India having the third largest readership fared very well when it came to the packaging and presentation of news stories. In the entire study period of one month, 18 photographs were published in connection to Chandrayan. That means, 75% of all the Chandrayan based reports were accompanied with photographs. Most of the photographs are colored while a large chunk of pictures are also black and white. Few pictures are animated and impressively illustrated. Most of the photographs were either three column and two column photographs.

The placing of stories

Very few stories found place on the first page while the remaining stories find their place on the inside pages. The headlines used were straight and thus self-explanatory. At some places large headlines are preferred but at other places short, snappy headlines are used. A perfect example is the following headline published on 14 November 2008 in The Hindu:

You can't put a price tag on moon mission : ISRO

Some news stories carries headlines which themselves starts with a question. A perfect e.g. of such type is given below which get published on 23 October 2008

Why ISRO changed the orbit-transfer strategy

Jargon laden language is avoided in the news stories but at some places it is profusely used. It can be said that the language is used keeping in mind the general awareness of science student. The reports are also armed with extra scientific data and facts and stress is laid on elaborating the concept of Chandrayan in the best possible manner.

Comparative Analysis and Conclusion:

Quantitative Comparison

The comparative analysis of both the newspapers revealed that The Times of India and The Hindu are almost equal in its coverage of Chandrayan. In the entire duration of the study, which is one month, Times of India published as many as 25 news reports whereas The Hindu published just 24 news reports. The Times of India (with 107 stories) was far ahead of The Hindu (with 93 stories) in its coverage of science and technology news.

The total space occupied by these stories was however more in The Hindu as compared to Times of India. Reports of the coverage of Chandrayan-1 covers 1693 col.cm in The Hindu and 1007.5 column cm. in

Newspapers	No of stories	Space Occupied
Times of India	25	1007.5 column cm
The Hindu	24	1693 column cm

Times of India

Comparison on Chandrayan coverage by Times of India and The Hindu

The analysis of the themes in both newspapers showed different pattern of emphasis on different issues by both. Taking gross scientific news into account, Times of India gives more coverage to news linked with physical sciences whereas The Hindu focus more on Biological science. As far as the language is concerned, Times uses layman language whereas Hindu advocated for scientific terminologies, wherever required.

Comparison of Sources of News

Times of India mostly rely on its own news agency i.e. Times News Network for the coverage of the news. Though, four of the Chandrayan related stories are contributed by PTI, AP and other agency. Among the news reported by the correspondents, Srinivas Laxman of Times of India has the maximum share. Further, in the analysis of source, it was found that the news covered by TNN largely outnumbered the sum total of news covered by special correspondents and other news agencies. As far as The Hindu is concerned, it thoroughly retrieves news from its news agency or special correspondents. Hardly one or two report is contributed by different agencies. While 84% of the reports are contributed by the internal sources in Times of India, about 91.66% reports are contributed via internal sources in The Hindu. In the Hindu, the internal sources given for stories were divided into bylines, special correspondents and staff reporters, while stories in The

Times of India either covered by TNN or has bylines. It indicates both newspapers put a high premium on sending

Source	The Hindu	Times of India
Internal	91.66%	84%
External	8.34%	16%

out their own staff for newsgathering and reporting on science and technology matters.

Comparison of Sources in The Hindu and The Times of India :

Comparison of visual presentation

There was again a vast difference in the packaging and presentation of stories by the two newspapers. Times of India was far ahead of The Hindu in publishing photographs to accompany its reports on Chandrayan. Moreover, most of the pictures in The Times of India are colored photographs, making the story more attractive and acting as a powerful force to drag in the reluctant reader. 80% of all the Chandrayan based reports were accompanied with photographs.

The Hindu, which is a very popular newspaper in India having the third largest readership fared very well when it came to the packaging and presentation of news stories. In the entire study period of one month, 18 photographs were published in connection to Chandrayan. That means, 75% of all the Chandrayan based reports were accompanied with photographs. Most of the photographs are colored

Newspaper	No. of photographs	% of total news story
Times of India	20	80%
The Hindu	18	18%

while a large chunk of pictures are also black and white. Few pictures are animated and impressively illustrated. Most of the photographs were either three column and two column photographs.

Qualitative Comparison

By analyzing the news content qualitatively, the present study tried to focus on the treatment of news in both newspapers, through the language, the framing, the issues highlighted and the follow-up coverage.

The quantitative analysis revealed that science and technology news was a big component of the coverage by both newspapers, although The Hindu and Times of India are much more the same as well as different in various aspects discussed. However, there were marked differences in the way Chandrayan-1 stories were

presented by both newspapers.

As far as the language of both newspapers is concerned, Times of India was found to be more catchy and conversational language supplemented with emotional content to attract its readers towards stories that would ordinarily have seemed mundane. Times of India used both its headlines and its photograph as strategic equipment to drag in the readers and keep their interest alive.

As a contrast to this, The Hindu used purely straightforward and formal language in its headlines and lead paragraphs, maintaining its image as a 'serious' newspaper. The stress on objectivity by the newspaper was evident in the factual and non-conversational tone of almost all the news stories. The difference in language was maintained throughout the stories, with The Hindu using a more formal vocabulary, while the vocabulary used in Times of India was simpler and more in keeping with the common man's language. The Hindu, whose largest reader base is in South India, featured a lot of science stories or technological advancement stories from the southern states. Thus it can be seen that a variety of differences came to fore in the approach of both the newspapers with regard to their Chandrayan coverage—both qualitatively and quantitatively. It reflects on the different priorities of both and their different weight age to different news value factors.

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Mass Communication Education in India: A Status Report

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ABSTRACT

In the present age of communication revolution and emergence of information society, the general state of mass communication education is anything but revolutionary in India. Though, a humble beginning was made in the pre-independence era as journalism education with lofty ideals and great expectations for the advancement of the press and the public, much ground needs to be covered even today, in view of the demands of the digital age. Determined efforts by stakeholders are called for owing to the issues specific to the media industry and the broader media environment.

Introduction

Mass media play an important role in the development of knowledge societies. Their role goes well beyond reporting news and events to contribute to the freedom of expression and plurality of information, engaging and empowering communities and underpinning sustainable development and good governance. The free flow of ideas by word and image is a pre-requisite for social and economic development. The mass media are disseminators of news and information everywhere. However, they are instruments of development in Third World countries like India. With the proliferation of private news channels in India, the range and scope of their power and influence has accelerated in recent years.

Radical changes in Information Technology (IT) together with the changing information requirements of the societies and their impact on power and cultures have led to the growth and development of journalism and mass communication as profession. The revolution in electronic media and information technology and a spurt in both regional and national streams of the print media have also contributed to better training of communication professionals turning them into excellent communicators.

Indian media informs, educates, and entertains a population of 1.2 billion, which is roughly one-sixth of the world population. India's burgeoning media landscape encompasses nearly 65,000 newspapers and periodicals reflecting the cultural diversity of the country in as many as 123 languages and dialects. There are more than 300 national and regional television channels featuring news and entertainment programmes in English and 22 national languages. There are nearly 300 million mobile phone subscribers and a rising number of active Internet users in India. India's expanding media have been catapulted by its growing economy, which is the world's

fourth largest after United States, China, and Japan defined in terms of gross domestic product at purchasing power parity per capita. This report explored the current state of university-based journalism education.

- a. The objective of this study is to create awareness about the required characteristics of Mass Communication. Education in the present age of communication revolution and emergence of information technology.
- b. This report examined both the challenges and potential for journalism education in support of democracy through journalism schools and university programs around the world.

Evolution of Journalism Education

The credit for starting journalism education goes to Joseph Pulitzer, the 'Father of Investigative Journalism', who changed the face of American journalism beyond recognition. It was Pulitzer who bequeathed \$ 2 million as endowment to establish the Graduate School of Journalism in 1911 at Columbia University in New York (USA).

There are 1,859 journalism education institutions around the world, according to the preliminary findings of the World Journalism Education Census, supported by the John S. and James L. Knight Foundation and conducted by the Gaylord College of Journalism and Mass Communication at the University of Oklahoma. Dr. Charles Self, president-elect of the Association for Education in Journalism and Mass Communication (AEJMC), and Dr. Joe Foote, director of the World Journalism Education Congress, reported in Singapore that their initial research located these institutions as follows: Africa (118), Asia (362), Europe (408), Latin America (368), Middle East (73), North America (476) and Oceania (54). Their definition of an institution of

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journalism education is broad, covering a mixture of journalism, communications, and industrial training programs, including undergraduate, graduate, doctoral, and technical degree, as well as certificate programs.

There was a time when it was commonly reckoned that “journalists are born and not trained” and the very notion of teaching journalism at the university level was looked askance at and poooh-pooohed. Credit goes to the famous theosophist and freedom fighter Dr. Annie Besant for making arrangements for starting the first ever journalism course in India as a subject in the Department of English in the National University at Adyar in Madras (now Chennai). However, this course came to an end after five years.

The oldest continuing department of journalism of the Indian sub-continent was established by Prof. Prithvi Pal Singh in 1941 in the pre-partition India at Panjab University in Lahore (now in Pakistan). Prof. Singh had to brave tremendous opposition from journalists who were not convinced about the relevance and utility of such an educational course in preparing journalists. He was ridiculed by most of the journalists of Lahore for teaching journalism in a class room in lieu of newsroom. After partition, this department was shifted to New Delhi. This department continued to function from New Delhi for 15 years till July 1962, when it was eventually shifted to the new campus of Panjab University in Chandigarh.

During 1947 to 1954, the number of university departments of journalism in Indian Universities had increased to a mere five. These were Madras University (1947), Calcutta University (1950), Mysore University (1951), Nagpur University (1952), and Osmania University (1954). Notwithstanding, their number increased to 25 in 1981, when the first ever ‘Report on the Status of Journalism and Communication Education in India of the UGC’ was brought out in 1981. This report also gave the profile of 25 University departments of journalism.

India’s media boom has led to rapid developments in journalism and communication education. The number of institutions for journalism and communication education has increased from six in the 1940s to more than 86 universities with curricula for journalism and communication education. In addition, more than 283 private institutions offer training programs on various aspects of the media industry.

Design of Journalism Education Curriculam

Over the last few years, the number of news media outlets in developing countries and emerging democracies has grown rapidly. There has been an increased recognition of

the crucial role of journalism in promoting democracy, and this has created an urgent demand for well-trained journalists. As the lead UN agency in promoting freedom of expression and access to information and knowledge, UNESCO has taken various initiatives to improve the quality of journalism education worldwide. In December 2005, in response to numerous requests from Member States for help in the design of journalism education curricula, UNESCO convened an experts’ consultative meeting in Paris. Major outputs of the consultation were the identification of courses, which should be included in a journalism curriculum. Also, a document on model journalism curricula was launched at the first World Congress of Journalism Educators held in June 2007 in Singapore.

The UNESCO document on model journalism was prepared after a year-long consultation with university faculties, journalist training organizations, newspaper industries and journalism education associations across member states. The model curriculum primarily focuses on developing countries and was created for journalism schools in the region. This generic model, curriculum can be adapted and customized as per each country’s specific needs, as it takes full cognizance of the social, economic, political and cultural contexts of developing countries and emerging democracies, highlighting the connection between democracy and journalism and arguing for a more cross-disciplinary approach within journalism training centres.

This model curricula for journalism education aims to develop

- (i) The ability to think critically, incorporating skill in comprehending, analyzing, synthesizing, and evaluating unfamiliar material quickly and well enough to explain it clearly to others, as well as a basic understanding of evidence and research methods;
- (ii) The ability to write acutely, using narrative, descriptive, and analytical methods;
- (iii) Knowledge of local, regional, national and international political, economic, cultural, religious, and social institutions issues;
- (iv) Knowledge of current affairs and general knowledge of history and geography.

This document is posted on UNESCO’s website. The website features links to a database of courses and programmes and provides an interactive forum for journalism educators and others to discuss the curricula and other issues.

Improving Journalism Education

At the First World Journalism Education Congress (WJEC) held in June 2007 in Singapore, 400 delegates from 45 countries highlighted these opportunities and challenges. They noted that in many countries journalism education remains a stepchild at the universities despite growing enrollments. Most programs lack the money and institutional support to reform and adapt to the digital age. Too many universities focus heavily on the theory of journalism and fail to provide hands-on experiences to students. The UNESCO model curricula for developing countries that were unveiled at the WJEC advocate a balance between theory and practice. This may be a useful starting point for some journalism schools, but it is clear that there is no one-size-fits-all approach to university-based journalism training.

A key to improving journalism education around the world is ability of the media developers—government agencies, foundations, and multilateral organizations that support reform in journalism education—to grasp a picture of the challenges facing journalism educators and focus their support where it can be most effective.

The media sector has changed dramatically, but many journalism programs fail to meet the new challenges of the industry. Media developers can help overcome this gap in several ways: funding teacher training and curriculum development, providing updated educational materials and adequate equipment, facilitating the creation of student-run media to develop practical skills, and funding cross-disciplinary partnerships and programmes.

Although journalism departments had begun with lofty ideals and great expectations for the advancement of the press and the public, many were little more than industry-oriented trade schools by the 1970s and 1980s. The paradigm of mass communication education has not changed much over the years despite massive changes throughout the field of mass communication.

The general state of journalism and mass communication education is dismal. It is a field grossly underfunded, even when compared with other university departments, schools and colleges. Journalism/mass communication units have large, sometimes massive, enrollments, and tiny, overworked faculties, again by standards of the university generally. These units rarely play a major role in the governance of the university and rarely provide persons for the top cadre of leadership.

In the midst of what has been called a communication revolution, the nation's journalism/mass communication

schools seem anything but revolutionary. In their fundamental structure and curricular offerings, they had not changed much in decades until recently. What changes they had made were typically incremental course additions and occasionally new sequences of study.

Mass communication education in India can't progress significantly if there is not a clear critique of its central dilemmas, be they financial, structural, intellectual or simply human. While any critique of journalism/mass communication education tends to point up deficiencies, there are many understandable reasons for the field's problems. At the same time, there is much that is right with journalism/mass communication education, which with all its faults is still the best of its kind. A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of journalism education brings to fore the weaknesses and strengths of today's journalism education in Indian universities.

The curricula of journalism & mass communication now taught as Bachelor, Master and Post Graduate Diploma courses at the university level are invariably the ones recommended by the University Grants Commission (UGC). Of late, new papers like Corporate Communication, New Media Technology, Inter-cultural Communication, Environmental Communication, Health Communication, Science & Technology Communication, Human Rights and Media, among others have been incorporated either as compulsory or optional papers at the Post-Graduate level in Indian universities. There is an acute need of relevant books on these new and advanced topics by Indian authors and in Hindi in particular as old books by western authors are of not much use to Indian students. Development of skills and value-oriented syllabi and alternative teaching materials should be given high priority in the journalism & mass communication courses in the Indian context.

Overworked and overcommitted faculties can hardly be expected to thoughtfully debate the implications of paradigm change in mass communication for mass communication education. Hence, journalism departments were not exactly centers of innovation. They were regarded as following industry, not leading it; as the handmaiden to industry, not its critic or visionary guide.

There are still very few departments of journalism & mass communication who can claim to fulfill the UGC norm of minimum staffing pattern which adversely affects the teaching of students as well as the research. To meet emerging challenges in journalism & mass communication, UGC and the universities must take prompt measures to fill up the posts lying vacant for several years.

Besides, those teachers who are eligible for promotions under the UGC's Career Advancement Scheme (CAS) must be promoted from the due dates.

newspapers or by means of internships on newspapers and TV channels.

Special attention should be given by the journalism & mass communication departments to create employment opportunities for the students passing out from them just as various managements departments of Indian universities do. In this regard, it is imperative that close contact with various media organizations should be maintained so that the students get proper placements in the jobs appropriately suited to their abilities.

Mass Communication curricula should (a) accommodate and generate new knowledge; (b) accommodate technological change; and (c) create awareness about the personnel needs of the communication industries. It is imperative to develop and evaluate a new curricular structure periodically to meet the demands generated by the infusion of high technology and rapid information exchange into the fabric of national life itself as well as the communication industry. All courses should have a five-year review rule wherein course outlines and plans are submitted voluntarily to outside referees to ask whether the course includes the best of new knowledge, is responsive to technological change and is calibrated to social needs. New knowledge must be monitored and integrated into the mass communication curriculum. New technology must be addressed. In the age of communication revolution, mass communication departments must give their students utilitarian information about the state of the art in technology that will affect communications, both from the standpoint of its social impact and practical "hands-on" experience. Finally, the communication industries needs for educated personnel as well as society's needs for educated citizens who know and understand mass communication must be recognized and dealt with.

The fundamental question is whether the journalist in the modern world needs the broad educational background and maturity of a university graduate, or whether he can acquire these in adequate measure, during the early years of his working career. The trend of opinion is that it is difficult for him to do so, especially under the pressures of modern media production. One of the criticisms of university training in journalism has been that it was too academic and unrelated to the real needs of the industry. This objection has, to a large degree, been overcome by closer relationships between the universities and the profession, the latter frequently visiting as guest faculty and practical/viva-voce examiners to the journalism departments. A considerable amount of practical work is included in the curriculum of the better departments, through laboratories or 'workshops', through laboratory

the exchange of information and facilitation of discussion for and by journalism educators, academics, journalists, and students on better practice models, curriculum, sharing of resources, teaching approaches, research, and practices in these areas.

Journalism research is the original investigation of all types of journalistic practice in order to gain knowledge and understanding. High quality journalism research is the key to raising the stature of journalism departments within the university campus. This is feasible only when serious efforts are made to know the state of journalism education research worldwide and concerted efforts are made to raise its stature.

Journalism educators can improve this situation by:

- (i) Creating clearer criteria for judging “good” journalism research.
- (ii) Identifying common journalism methodologies. For example, journalism research consists of more than content analyses and surveys. More research should focus on international collaborations to both explore additional research methods and to help join journalism researchers worldwide into a truly unified field.
- (iii) Inspiring journalism teachers without doctoral degrees to conduct research. e.g., motivate them to work on research that helps bridge the professional/academic divide.
- (iv) Support research demonstrating relative findings for the news industry.
- (v) Help build stronger relationships between journalism educators and industry—make clear how journalism research can serve industry professionals.

Journalism research in Indian universities should include:

- (i) Research of direct relevance to the news media, journalism practitioners, citizen journalists, and the public in specific political, historical and cultural contexts.
- (ii) Scholarship that leads to new or substantially improved insights about journalism.
- (iii) Reflexive practice that uses existing knowledge in the experimental development of new or improved journalism practices.
- (iv) Exemplars of journalistic practice that demonstrate

research values and use systematic methods to produce new insights.

Whilst it may be inter-disciplinary, journalism is an emerging field of study working to develop its intellectual infrastructure. Research outputs in journalism may use a variety of platforms including newspapers, broadcast, and online media. The peer reviewing process may include experienced practitioners as well as journalism academics.

According to the World Journalism Education Congress (WJEC) syndicate team’s recommendations, the ultimate journalism education should possess the following six elements.

- (i) Journalists as social researchers with analytical, critical thinking skills.
- (ii) A focus on the needs of stakeholders – students, industry, and society – that helps students get jobs and improve society.
- (iii) Inspiration – journalism education should excite and incite. Students should be passionate about the possibilities of journalism.
- (iv) Journalism education needs to be put in context. Practice and theory need to be explained so all will understand journalism’s extremely important role in society.
- (v) A social responsibility model.
- (vi) Journalism education should be a mix of theory and practice. Core skills and an understanding of journalism’s scholarly body of knowledge are essential. Journalism education should include instruction on reporting (news gathering—text, sound, image, interviewing), writing (telling stories – text, sound, image, news and features, analyzing, processing, transmitting), and ethics.

Journalism education tends to be too interdisciplinary, which waters down scholarship. As a result, few outside journalism education circles have a sense of what exactly journalism education is, let alone how it can positively influence the field. After all, if anyone can be a journalist (bloggers, etc.), what is the need for journalism education. The bright side of the picture is that there is increasing realization that journalism education is important and relevant to society. It attracts an increasing number of students, and its emphasis on engaging students and creating critical thinkers helps create smart, well-rounded graduates. In other words, journalism students receive a high quality education. It offers a quality education by

sharpening students' minds and helping them build a wide variety of skills, including critical thinking, intelligent inquiry, and the ability to express complex ideas in a clear, straight-forward manner.

Press" Varuna, pp 13-15, Vol. V & VI, 1980-81, Deptt. of Journalism & Mass Communication, BHU,

Conclusion

Presently, journalism education has a very limited impact on the media industry which is largely due to the uneasy relationship between the two. While many journalism educators view their industry counterparts as people looking for technology savvy reporters dedicated to writing quicker (often less researched) scripts, journalism educators see themselves as the keeper of the flame—producing future journalists who possess not only industry-based training, but also an understanding of how the media can, and should, serve society. After all, journalism education offers much more than an apprentice-style education in which future journalists learn to act like their mentors. Journalism educators try to instill in their future reporters an appreciation of high quality journalism, hoping to inspire them to become leaders in their own right

Regardless of journalism educators and media industry conflicts, both groups need to work together to raise their individual and collective, credibility and influence. Journalism educators should be helping journalism students, and existing journalists keep up with technological changes. Journalism educators needs to provide the education based on the fast pace and IT savvy media industry. Journalists need to get back to "questioning stated truths and preconceptions instead of trying to carve new truths in stone."

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ABSTRACT

Late Jawahar Lal Nehru, India's first Prime Minister maintained that modern life is an offspring of science and technology. Nehru had the vision to recognize the importance of science and technology in the social and economic development of a Nation much before our country gained independence. Since independence, Science and Technology developments in India has come a long way but the fact remains that a sizeable section of India's population is still deprived of the benefits of Science & Technology. Therefore, need of the hour is to communicate science to the people as science communication can play an important role in the speedy development of the Nation by inculcating scientific temper among the masses.

Key words: Scientific Temper, Science Communication, Science, Technology, Development, Masses

Introduction

Media, all over the world play a significant role in covering the controversial issues such as climate change, cloning, Genetic Modified food or nuclear energy. India too has had its share of public scientific controversies in Bt brinjal, 123 Nuclear Agreement with USA and recent Kudankulam Nuclear Power Plant. These public scientific controversies have also highlighted the tension that exists between scientific experts and the general public. Masses are often blamed for not having enough understanding about scientific matters and thus taking an erroneous stand on such issues.

Media too strategically frame the news according to their editorial policies. Overall what one witnesses today is a growing mistrust between scientists and the public as well as between scientists and the media. Though, researches suggest a growing interest in science, the fact remains that majority of the people feel left out of the business of science both in terms of understanding and also their agreement on the way science is being practiced today.

The Constitution of India through Article 51 A (h) under Fundamental Duties prescribes that, "It shall be the duty of every citizen of India to develop the scientific temper, humanism and the spirit of inquiry and reform". The term scientific temper is the creation of Pandit Jawahar Lal Nehru, India's first prime minister. In fact Nehru had the vision to recognize the importance of science and

technology in the social and economic development of a nation much before our country gained independence. It would not be wrong to assume that a society without scientific temper would be at a loss when it comes to deciding the scientific and technological priorities. In order to effectively participate in decision making, the general public need to understand science and its implications as well as the impact of new technologies on society and environment. It is only through communicating science that we can aim at making the general public scientifically literate.

The Present Scenario

Unfortunately, in most societies, science and technology are seen as specialized areas of study meant only for a few gifted individuals. This inevitably leads to public ignorance of the complexities of scientific developments and even indifference to its implications. Surveys in the Western world too present a dismal picture of the scientific literacy of the masses. Of course there are people who accept the ideas of science. But this acceptance has less to do with conviction than with the human urge to comply with a dominant 'truth'.

Little help is gained by the fact that the style of science teaching at schools and the feeling of alienation are inextricably linked. Most education in science avoids personalities and gives less emphasis to the process of science.

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Moreover, science has failed to address itself to those intuitive questions which have been troubling human mind for quite some time. As Appleyard has put it: "Science is effective, but what does it tell us about ourselves and how we must live? The brief answer to this is nothing." Science's inability to satisfy the inner self of the human beings often makes them more insular and takes them away from the alien world of science.

Absence of any corresponding mechanism between scientists and the general public has increased the already existing distance between the two. Undoubtedly, there is a deep seated fear and hostility towards science. Such events as Chernobyl, Bhopal gas tragedy, Fukushima disaster and loss of life due to mishaps in mines, factories and transport systems have further accelerated public's disenchantment with science and technology.

On the other hand researches in science and technology are being driven by the commercial interests and priorities are determined exclusively by scientists and scientific bureaucrats. Therefore, a general awareness of science and technology has to be universally achieved to give the right direction to researches conducted in this field.

In a developing country like India where over 80% of scientific research is funded from public sources, it is particularly disturbing to see science being driven by commercial interests and the logic of knowledge as private property. It is imperative therefore that science is sustained as a public good until the developing societies are able to absorb the shocks generated by the market forces. A system which allows only a few to prosper can hardly be called an ideal arrangement.

In agriculture, chemical pesticides and herbicides bearing long term risks to human beings are used on a mass scale. Violent experiments are conducted on animals to test safety devices and chemical hazards. Moreover, uses of warfare technologies are leading to chaos and violence and loss of such values as compassion and spirituality. Science also continues to pose a string of questions with regard to the ethics of use of foetal eggs for fertilization, cloning, embryonic stem cells, genetically modified organisms and similar other less exalted examples of genetic engineering.

Lack of Scientific Temper

In spite of being a constitutional obligation, the Indian society unfortunately seems to be little concerned with the development of scientific temper and spirit of inquiry as even after 65 years of independence the masses are

entrenched in superstitions and retrogressive customs as fortune tellers and tarot card readers thrive on their ignorance.

It can therefore be said, without much doubt, that science has not yet become part of Indian culture as it has not been able to find its way into the hearts and minds of Indians at large. Despite rapid development of science and technology, blind following of retrogressive rituals and ceremonials have more or less remained unchanged. The questioning attitude, absence of superstitions and disregard for traditional form and ceremonials of worship are yet to be found on a larger scale in India. Modern development which is characterised by scientific thinking and attitude as witnessed in later part of 19th century in England and rest of the Western world has yet to find its place in the Indian society.

Moreover, today one third of the Indian population is living below the poverty line untouched by the wonders of science. This speaks volumes about the failure of modern science and technology, as practiced in India, as basic problems of hunger and poverty of the masses remain more or less unchanged. The onus largely falls on the policy makers as scientific endeavours and technological goals are still poorly related to the achievement of total enrichment of the quality of life of the Indian masses. There are pockets of prosperity in the cities and big towns of India but the rest of India, which accounts for about 80% of our population and lives on agriculture, traditional industries and service occupations, has had little impact of science and technology. All these issues compel us to contemplate over a single important question. Is there anything that can be done to ensure that science and technology cater to the basic needs of the society, particularly to the needs of the developing societies like India?

Role of Science Communication

It is here that the role of science communication assumes greater significance. The importance of science communication through various media in making science popular and enhancing public understanding of science can not be ruled out, as only an enlightened and aware public can effectively participate in decisions on scientific matters having societal impact.

The prevalent notion that science and technology are specialized areas of study meant only for a gifted few inevitably leads to public ignorance of scientific development and even indifference to its implications. A general awareness of science and technology has to be universally achieved to give a direction to researches

conducted in this field. The public understanding of science can thus create a climate for a change of priorities determined exclusively by scientists and technocrats. It can make the India's developmental efforts more inclusive and realistic than is the case today.

Where science is socially sensitive, public interests and concerns should be identified and incorporated into the processes of science policy making. In order to do so, some European nations have started organizing "Consensus Conferences". A consensus conference is a forum in which lay people develop and put forward their views on socially sensitive scientific questions through dialogue with experts. In India, Mr Jairam Ramesh, ex Minister of State for Environment and Forests announced a moratorium on the introduction of Bt Brinjal after a series of countrywide consultations with stakeholders from the general public.

Science communication can play a very crucial role in educating people about the impact of science and technology on their lives in order to control the advancing forces of technological determinism. Mass media can be used to warn people of the dangers inherent in matters relating to science and technology as well as of activities detrimental to the interest of the general public. Although different means of communication could be used to enhance public understanding of science, a direct face-to-face dialogic model with immediate feedback possibility should be preferred.

The scientists, science writers, teachers and social workers can play an active role in such activities as the publication of popular science books, magazines, health care material and commencement of adult science literacy programmes. Science museums, science fairs and exhibitions could also be used.

In a country with a low literacy rate like India, traditional media consisting of folk theatre, folk songs, dance and cultural performances could also be harnessed to promote scientific temper.

Above all, if societies are to benefit from the democratic system of governance, its members must develop the "scientific temper," i.e. qualities such as skepticism and doubt, respect for facts and data and the questioning of assumptions in their approach to public issues, as there is a close link between the values of science and democracy.

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3D Technology: Shaping the Future of Entertainment

Deepak Uniyal*

ABSTRACT

Most of us, at one time or another, have been fascinated by some form of 3D technology. Whether it is the red-and-blue comics in the back of a magazine or a stunning IMAX 3D film, there is something inherently captivating about seeing flat images come to life in vibrant three-dimensionality. The 3D technology has brought a drastic change in cinema and television viewing. Brands like Sony, Panasonic and Philips are promising excellent 3-D technology input in TVs. It is going to create a kind of 3D revolution where we would be able to experience the depth without the eyewear. This paper gives an overview of working of 3-D technology, transmission process and its future.

Keywords: Stereoscopy, Lenticular screens, auto stereoscopy, computer generated imagery

Introduction

3-D technology refers to three dimensional technology that is used in films and motion pictures that provides some kind of illusion of depth perception and viewers enjoy some different kind of experience to this technology. The latest release of such a technology has been in the blockbuster movie called 'Avatar.' The movie was shot with special motion camera to record the images. This technology is derived from stereoscopic photography technique. Special projection hardware and eyewear are required to enjoy 3-D technology of the movies.

The 3-D films have been there since 1950s but have found prominence during the end decade of the last century and first years of 21st century. But, 3-D technology has now experienced a world-wide resurgence and is coinciding with the computer generated imagery and introduction of high definition video standards. Today, the technology has also found space in Televisions.

But, the TV industry is trying to portray the fact that one won't need the typical specs for watching the 3-D TVs. They are trying to revive the technology and make the 3D watching specs free affair, though, it has not been possible yet.

Normally to watch 3D movies, we need circular polarized or active LCD shutter glasses. These glasses are used in theatres by public to enjoy the 3D images or pictures. The present day glasses or spectacles use circular polarized or active LCD shutter that ensure that each eye has different

image and have different feelings that altogether create the impact on the brain.

In 1838, Sir Charles Wheatstone first described the process of stereoscopy, the process by which humans perceive three dimensions from two highly similar, overlaid images or, the process by which Avatar looks like a mind-blowing immersive alien landscape instead of a bunch of brightly colored fuzz.

Stereoscopy: The Science Behind 3D Technology

"Stereoscopy," refers to how our eyes and brain create the impression of a third dimension. Human eyes are approximately 50 mm to 75 mm apart accordingly, each eye sees a slightly different part of the world.

The image on either side should be pretty similar but slightly offset. These two slightly different images enter the brain, at which point it does some high-powered geometry to make up for the disparity between the two images. This disparity is "3D", our brain making up for the fact that we are getting two different perspectives of the same thing.

This is also, essentially, what modern 3D technology is trying to replicate. The sunglasses and silver-coated projectors are all designed to feed the individual eyes a different perspective of the same image.

It is easy for our brain to figure out the disparity between the two images. Our brain can automatically figure out all

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the angles and math and geometry to sync the images. The hard part is getting a camera to do the same thing, and to get the different images to the individual eyes without changing the whole effect.

Approaches in 3D Content Production

There are three main approaches to creating 3-D content:

- Live camera capture,
- Computer generated imagery,
- 2D to 3D conversion.

Live Camera Capture

Live events require the use of stereo cameras. In addition, it is possible to obtain depth information using time-of-flight (TOF) cameras, or rangefinders or additional cameras at a set position. Depth maps can also be calculated on a pixel-by-pixel basis in real time or offline, with the data available from the two stereo cameras, or more realistically by using an additional pair of cameras at a greater inter-ocular distance. While all the techniques have their difficulties, the main point is that additional hardware and/or processing are necessary to generate depth information and to integrate it with the conventional spatial imaging. Therefore, at the moment the professional solution is the use of two customized HD cameras mounted on a rig or mirror rig and the most widely available output is an independent pair of co-timed images, giving the left and right view. The table below shows the four providers of professional 3D systems for live acquisition of 3D content.

Company	Camera Type	Depth	Format
Pace	2X Sony HDC-950 HD 2X Sony HDC-1500 HD		HDCAM-SR HDCAM-SR
3ality digital	2X Sony HDC-1500 HD	Yes	HDCAM-SR
Paradise FX	2X SI-MINI 2K 2X Red One		CineForm RAW RedCode RAW
P + S Technik	2X -SI-MINI 2K - RED One - Sony HDW-750, -790 - Sony HDC X3000 - Sony PMW=EX3		CineForm RAW RedCode RAW HDCAM HDCAM XDCAM

Table 1: Professional systems for live 3D content acquisition

Computer Generated Images (CGIs)

Computer-generated content is typically considered as the easiest method of stereo generation. The rendering system can render one or more related views depending on the application. In this case, all the information about depth,

occlusion and transparency is known and readily available in the form of a dense map that may be easily integrated with the digital imagery.

2D to 3D Conversion

This process requires the segmentation of the 2D image. For each object, it is necessary to calculate (by the use of 2D visual cues) and assign relative depth to each object. It is also necessary to locate occlusion areas and fill them with suitable portions of other objects. The conversion can be either real time or non-real time. Real-time conversion is particularly problematic as segmentation is currently an open field of research in the digital image processing area. This process may create depth and occlusion maps that are suitable for integration with imagery. However, as the depth is assigned to each object and not each pixel, the objects rendered with such technique may appear “flat” and therefore unrealistic. This technique is suitable if one wants to update 2D legacy content to 3D, not really for new content creation and it should not be considered as a form of up-sampling.

Transmission Platforms in 3D Content

A 3D video signal would require a bandwidth of 12Mbps (this is about the constant bit-rate estimated to be necessary for a 1080p50 currently)

There are a number of transmission platforms where 3D contents may be deployed:

- Terrestrial Broadcast
- Cable
- Satellite
- Packaged Material
- IPTV
- Internet Download
- Mobile TV

Terrestrial Broadcast

This is possibly the most restrictive and there is a limited bandwidth, 6MHz per channel in the US and Japan and 8MHz in Europe, strictly regulated from the point of view of standards, needs to be compatible with both 2D and 3D devices at home and to allow for legacy issues. DVB-T goes up to a little less than 32 Mbps for an 8MHz channel.

Cable

This platform is relatively less restricted in terms of bandwidth; it is well regulated, but already has a business model that could be used for deployment of 3D, in terms of Video on Demand. So, cable platforms could opt for 3D-only channels, with a set-top box to decode and present the material, and 2D compatible channels. DVB-C has

channels of 2MHz, 4MHz, 6MHz, 8MHz and 10MHz going up to 64 Mbps.

Satellite

Telecommunications satellites house between 24 and 32 transponders, with bandwidths between 27 and 50 MHz. Typically each satellite transponder has a bandwidth of 36 MHz. The business models to deliver 3D content are also similar. The difference is that the satellite platform is not restricted by external regulations. DVB-S2 goes up to a little less than 46 Mb/s.

List of digital television broadcast standards DVB standards (countries) DVB-T (terrestrial)

- DVB-T2:DVB-S (satellite)
- DVB-S2:DVB-C (cable)
- DVB-C2:DVB-H (handheld)
- DVB-SH (satellite)

Packaged Material

This can be media such as Blu-ray or DVD. This medium may contain movies or games. It is expected that packaged media such as Blu-ray discs will be the main platform for 3D home entertainment. The Blu-ray disc format has large disc storage space (25/50 GB). The video decoding can support up to a 40-Mbps data rate and the 1080p format.

The Blu-ray 3D specifications have been finalized in December, 2009. The disc capacity and bit rates Blu-ray Disc provides enable us to deliver 3D in Full HD 1080p high definition resolution. The Blu-ray 3D specification also allows PS3 game consoles to play back Blu-ray 3D content in 3D. Additionally, the specification supports playback of 2D discs in forthcoming 3D players and can enable 2D playback of Blu-ray 3D discs on the large installed base of Blu-ray Disc existing players.

The Blu-ray 3D specification calls for encoding 3D video using the Multiview Video Coding (MVC) codec, an extension to the ITU-T H.264 Advanced Video Coding (AVC) codec currently supported by all Blu-ray Disc players. MPEG4-MVC compresses both left and right eye views with a typical 50% overhead compared to equivalent 2D content, and can provide full 1080p resolution backward compatibility. Source: Blu-ray Disc Association.

IPTV

IPTV is a service provided through a telecommunications infrastructure. IPTV covers both live TV as well as stored video (video on demand, or VOD). The playback of IPTV requires either a PC or a set-top box connected to a TV. Video content is typically compressed using either an

MPEG-2 or an MPEG-4 codec and then sent in an MPEG transport stream delivered via IP multicast in the case of live TV or via IP unicast in the case of video on demand. IP multicast is a method in which information can be sent to multiple computers at the same time. The (MPEG-4) H.264 codec is increasingly used to replace the older MPEG-2 codec.

Internet Download

Internet TV generally refers to streams sent over IP networks (normally the Internet) from outside the network that connects to the user's premises. An Internet TV provider has no control over the final delivery and so broadcasts on a "best effort" basis. Compared to IPTV, Internet TV is a quick-to-market and relatively low investment service and relies on existing infrastructure.

Mobile TV

Mobile TV and cell phones can also provide 3D content using single-view auto stereoscopic screens. They use a different format from broadcast quality video. Bandwidths are currently very limited for video services.

As far as television is concerned, the most likely platforms for delivery of 3D content are satellite and cable, maybe a hybrid satellite/cable IPTV service (if they take off). Satellite and cable platforms have the advantage of having the available bandwidth to cope with 3D content. They do not have the need to worry about 2D compatibility, since they have the flexibility to dedicate channels only to 3D TV or to operate an on-demand service. As subscription services, their business model is already oriented to premium customers. Free-to-view services have the additional restriction of regulation, not least with regard to eye strain, which is a major issue for regulators. Terrestrial broadcast has very limited bandwidth and especially free-to-view operators have the paramount need to ensure compatibility with 2D technology and content.

IPTV models have not established themselves and 3D mobile TV will use completely different technology and compression schemes, so these platforms are less interesting at the moment. Internet download could be an easy way to update software and firmware or even content to be viewed somewhere else. Also, if the content is to be seen on the computer screen, possibly the public will have lower expectations and it could be the medium to experiment with different solutions. For 3D, the expectations of the consumers in terms of cinematic experience, availability of 3D content in Blu-ray and DVD packages and the availability of 3D games seem likely to drive the request for 3D compatible displays and then a willingness to view 3D television as well.

The expectation of the public in terms of quality experienced through DVD has driven the requirement for HDTV. Now, even though the transition from SD to HD has taken decades, by now enough of the public is familiar with the visual quality of HDTV, at least by the usage of packaged material. Once the step from SD to HD is made for this kind of audience, the transition to 3DTV may be considered the natural progression and a small incremental step to be embraced (provided the price is right, i.e. not much more than HDTV)

Figure: Possible platforms for delivery of 3D content and



their possible interplay

Anaglyph: The 3D Technique in Films

Film has been one of the pioneers of 3D. There are largely two ways 3D has been achieved in motion pictures: anaglyph and polarized glasses.

Anaglyph is a fancy way of referring to the red-and-blue glasses we used to wear. By projecting a film in those colors — one in red, one in blue — each eye would get an individual perspective and our brain would put the 3D effect together. Other colors could be used, providing they were distinct enough to be separated on screen. This technique, however, didn't allow for a full range of color and had a tendency to "ghost," or have the once-distinct images bleed into one another.

Much more common is the use of polarized glasses, which take advantage of the fact that light can be polarized, or given different orientations. For example, one image can be projected in a horizontal direction while the second can be projected in a vertical direction. The corresponding glasses would allow horizontal polarization in one eye and vertical polarization in the other. The problem is that this

kind of 3D requires us to keep our head still. Tilting our head can distort how the waves get to your eyes, messing with the color and 3D effect.

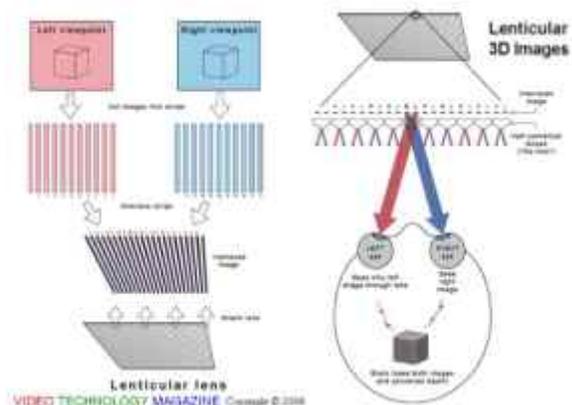
To counteract this, 3D now uses rotational polarity, meaning the film being projected actually has two different spins to it. The glasses then pick up those opposite rotations clockwise in one eye, counterclockwise in another eye to separate the image.

Television: 3D at Home

Films use special silver-coated screens that are much better at reflecting light back to the viewing audience. Our television, unfortunately, is not silver-coated. There are, however, two ways to get 3D at home: active and passive.

The most common, active 3D, involves wearing those electronic RoboCop glasses. The glasses are synced up to your television and actively open and close shutters in front of your eyes, allowing only one eye to see the screen at a time, but the shutters move so quickly that they're hardly noticeable. These shutter lenses are made possible because of the refresh rate on televisions. 3D-enabled televisions have high image refresh rates, meaning the actual image on screen is quickly loaded and reloaded. Through the glasses, you receive one constant image instead of a flicker.

Passive systems are less common but run much like your 3D film. These televisions have a thin, lenticular screen over the standard display. A lenticular screen is made up of a series of incredibly thin magnifying strips that show a



slightly different perspective of the screen to each eye, as illustrated above. While this technology doesn't require bulky, expensive glasses, it can limit the image quality. Essentially, each eye only sees one half of the screen at any given time. For example, if a screen had 100 pixels, 50 pixels would be magnified and sent to the left eye and the

other 50 pixels would be magnified and sent to the right eye. In practice, your brain is actually able to put the two images together and retain the entire 100 pixel fidelity.

Synchronizing Images Through Cameras

To get a 3D image, we essentially need two versions of the same scene filmed from the precisely correct angle as if our eyes were seeing the same scene. Filmmakers need to triangulate the distance between the two cameras and make sure they are focused on the same object. They also need to zoom and track, or move, at the same speed, otherwise the images won't sync up. In modern film rigs, these two cameras are bolted into place preventing any unwanted jostling or disparity.

Close-ups, a staple of modern film, are hard to capture in 3D because the cameras need to be extraordinarily close together to mimic the angle of your eyes. To solve this, filmmakers sometimes use mirror rigs. Mirror rigs film through one lens, and that image is then bounced by a tiny internal mirror to another camera where a second image can be recorded. Providing there are no imperfections on the mirror (including scratches, dirt or warping), the close-up will be filmed in 3D.

Creating 3D Images Through Computer Graphics

There is a difference between creating three-dimensional graphics and images that appear to be 3D in the theater. Again, it is all just a matter of some high-tech geometry. To get a movie like *Toy Story 3* into 3D, animators create two versions of each frame, one from the perspective of each eye. Because computer-generated movies don't need cameras, it's much easier to get perfectly synced images and to fine-tune any mistakes in post-production.

It's possible to create a 3D video game using the same technique; however, games add their own complications. Films and shows are largely pre-recorded and all have a fixed perspective and you cannot move the camera's focus or orientation when you are watching a film. Video games allow you to change the perspective by moving your on-screen character. This creates a labor-intensive problem since animators need to create objects that can be seen in 3D from a variety of angles depending on where the user is looking and moving.

The Future of 3D Technology

One of the toughest problems to solve with 3D technology is the fundamental halving of any image. Lenticular screens send half the image to each eye, shutter lens

glasses physically blocks one eye from seeing the image, and polarized glasses only send half the displayed light to each eye.

The human eye needs approximately 50 frames per second in order to see film as one continuous image. 3D effectively halves that so each eye would only see 25 frames per second and get some nauseating flicker. Modern technology has been able to significantly up that frame rate (or refresh rate in televisions) so that we can achieve the illusion of 3D.

Advances in computing and memory have also made 3D possible in a number of handheld and consumer products. There are already prototypes for 3D laptops, cameras, camcorders, and a variety of other tech.

Conclusion

In the coming years, auto stereoscopy or 3D that doesn't require glasses in any way will completely change the future of entertainment. The Nintendo 3DS, Nintendo's newest portable 3D gaming device, is one such device. One of its tricks is syncing a lenticular display with its forward-facing camera. By using eye recognition, it can track where the user's face is and shift the display to accurately display 3D no matter how the user views the screens. Some of the upcoming films in 3D, which will drastically change the future of viewing cinema are *Kung Fu Panda 2*, *Justin Bieber Never Say Never*, *Cabin In The Woods*, *Nutcracker*, *Tron Legacy*, *Sanctum*, *Gulliver's Travels* and many more to come.

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