

Traditional Media Confluence Model of Science Popularization Reception Analysis of *Sasthra Kala Jathas*

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Abstract

The study explores the nature of the interconnection between alternative sources of science information and the public in a less privileged social milieu, taking Sasthra Kala Jatha, a traditional media confluence model of science popularization employed by Kerala Sasthra Sahitya Parishad, a prominent Indian science popularization organization. Set in an active audience approach based on reception analysis, it pinpoints the inner dynamics of the pattern of the rural peoples' consumption and evaluation of the model.

Introduction

The report of the Royal Society published in 1985 on the public understanding of science expressed concern that the public at large knew little science. In that context, the results of surveys in the US and Europe seem to make alarming reading. In Europe, for instance, 41 per cent of adults believed that astrology was a 'sort of scientific' inquiry (Van Deelen, 1990), while a British survey indicated that fewer than 30 per cent of respondents knew that antibiotics could not kill viruses (Durant *et al.*, 1989). Such results suggest that public understanding of science is largely dependent on the efficient communication of ideas and information as well as the amount and

quality of interaction between the sources of science information and the public. Recognizing this aspect, governments in different countries have begun to focus on formulating policies for better communication of science.

Over the decades, science communication has undergone transformation caused by the changes in the society and its communication and pedagogic practices. For instance, the rapid growth in science and technology has resulted in an incremental expansion and increased complexity of the communication process. Similarly, the shifts in the nature and magnitude of the audience as well as the emergence of new type of sources have affected the process of science communication. Also, 'old and new reasons for the promotion of science in public are put forward: understanding is important for making informed consumer choices; it enhances the competitiveness of the nation's industry and commerce; and it is part of tradition and culture' (Thomas and Durant, 1987; Durant, 1993; Gregory and Miller, 1998). Questions thus have begun to come up relating to the efficacy of science communication process as well as the methods employed in different times in different contexts.

Following the publication of Hurd's (1958) "*Science Literacy: Its Meaning for American Schools*" a number of studies have been carried out in science communication domain. Their focus has changed according to the changes in the nature of and approaches to science communication. While the first generation studies viewed the audiences as a powerless entity whose deficit in science knowledge should be filled, the second-generation studies followed 'the limited effects' approaches. Quantitative and qualitative studies of the public understanding of science conducted in many countries have provided important insights into the extent to which laymen understand important scientific concepts, and into the ways in

which they seek and use scientific knowledge. A majority of the studies focused on areas such as mass media coverage of science, expert-to-expert communication of science, public perception of science etc., ignoring the scope of informal sources of science information like public science movements and the alternative channels like traditional media. Likewise, science communication in less privileged cultural settings including India has remained unexplored. It is in this context that the present study was carried out.

The Study

The study attempted to reveal the nature of the interconnection between alternative sources of science information and the public in a less privileged social milieu. For this purpose, the investigation was conducted focusing on *Sasthra Kala Jatha*, one of the alternative science communication methods employed by Kerala Sasthra Sahitya Parishad, a prominent Indian science popularization organization. KSSP communicates its ideas and philosophy of science through a variety of print and traditional media. In the print media sector, it brings out three regular publications: *Sasthragathi*, a monthly for general public; *Sasthra Keralam*, a monthly for college students, and *Eureka*, a biweekly for school children. In addition, it periodically issues pamphlets and books on a wide variety of science subjects. Besides print media, KSSP employs, *Sasthra Kala Jatha*, a novel cultural program with innovative theatrical experiments and participatory communication approach converging traditional art forms of Kerala, often along with modern theatrical experiments like arena theatre, guerilla theatre, street drama methods etc. The traditional art forms used by KSSP in *Sasthra Kala Jathas* range from *Ottanthullal* to *Mappilapattu* and *Kakkarissi Natakam* to *Villupattu*, which are an integral part of rural Kerala. Being indigenous art forms born and nurtured in rural areas, they are attended to by the village communities without any reservations. That being the

potential, KSSP has been employing them to communicate science messages.

The study sought to identify the extent of the use of the *Sasthra Kala Jathas* of KSSP as science information sources by the public and to find out the socio-demographic variables that influence the use. It also analysed the audiences' perceived satisfaction with the *Sasthra Kala Jatha* in terms of its form and content. Since KSSP, is a large organization spread across Kerala and it uses a variety of communication channels, necessary data for the study was generated through a sample survey.

Theoretical Framework

It is widely held that media do not bring about uniform effects as the audience tend to be selective, motivated and resistant to change. Thus the audiences' perceptive and assessment of the media assume salience in evaluating media use and effects. Based on these fundamental premises of active audience theory and reception analysis approach, the study centered on the analysis of audiences' use of and satisfaction with KSSP's much discussed traditional media confluence model of science popularization.

Being an exploratory study, the present investigation did not seek to examine any hypothesis. However, it has explored a variety of internal factors that are important in determining the efficacy of science popularization in rural settings, in particular.

The objectives of the study are to

1. identify the use of *Sasthra Kala Jatha* of KSSP as science information sources.
2. identify the socio-demographic variables that influence the use of *Sasthra Kala Jatha*.

3. analyse the audiences' perceived satisfaction with *Sasthra Kala Jathas* in terms of their form and content.

Methodology

A multi-stage random sampling technique was used taking geographical units of the State such as districts, blocks and village panchayats into consideration. From the village panchayats which represent the rural areas of the State, a quota sample of 480 users of KSSP channels was arrived at. However, data of 60 respondents was incomplete. The data was collected using a four-part interview schedule that focused on demographic details, information acquisition habits and science awareness level of the sampled population. It also extracted data on their exposure to and evaluation of the *Sasthra Kala Jathas*.

To cater to the objectives two important variables were subjected for measurement in connection with audience's use and evaluation of this convergence system of traditional and alternative communication methods. They are regularity of the use and perceived satisfaction with media performance. To determine the frequency of the use of KSSP communication channels by the audience four regularity categories were used. They are: regular, quite often, sometimes and rare. And, these regularity categories are predefined according to the type of media considering the differences in their periodicity.

Perceived satisfaction with media performance refers to audience's satisfaction with media, based on their four form and content parameters such as visual performance, comprehensibility of content, simplicity of language and capacity of narration to contribute to understanding. This four-dimensional performance of the medium is an important construct in the present work as it defines the user's satisfaction with operational efficiency of each medium. The evaluation scale comprises of four statements about

form and content of each medium was prepared. The statements which pertained to the variables of design, content, language and narration were: a) 'The design / visual performance is attractive', b) 'It is easy to understand the content', c) 'The language is simple', d) 'The narration contributes to understanding'. And, the respondents were asked to choose their response from three options such as 'Agree', 'Neither Agree Nor Disagree', 'Disagree' .

Results

What is the use pattern of these channels among those who depend on KSSP communication media for science information? This question is being explored in this study. Along with this, an attempt was made to analyse the audiences' evaluation of the channels studied, based on their four variables such as design, content, language and presentation style (narration). Such an investigation was essential to explore the nature and depth of the audiences' involvement and interest with the media in terms of four vital dimensions of their form and content. Moreover, such an assessment was critical to identify the possible areas of communication barrier and to determine the operational efficiency of the medium.

Regularity of the Use of KSSP Channels

As many as 207 (46 per cent) of the 450 respondents indicated that they regularly attended the annual *Sasthra Kala Jathas*. Another 229 (50.89 per cent) respondents reported to attending *Jathas* quite often, ie. once in two years. Those who attended rarely constituted a minority of 3.11 per cent of the respondents.

Table 1 : Regularity of the Use of KSSP Channels

KSSP Channels	Regularity Nature				Total
	Regular	Quite Often	Sometimes	Rare	
<i>Sasthra Kala Jatha</i>	207 (46.00)	229 (50.89)	0 (0.00)	14 (3.11)	450 (100.00)
<i>Sasthragathi</i>	26 (5.78)	124 (27.56)	205 (45.56)	95 (21.10)	450 (100.00)
Pamphlets	12 (2.67)	332 (73.78)	83 (18.44)	23 (5.11)	450 (100.00)
Science Books	2 (0.44)	69 (15.33)	243 (54.00)	136 (30.22)	450 (100.00)

Figures in parentheses denote percentage

From such a distribution, it clearly emerges that *Sasthra Kala Jathas*, the traditional medium remains the most popular science communication vehicle of KSSP, followed by *Sasthragathi*, pamphlets and science books in that order. This finding certainly assigns importance to the role of traditional media in popularising science in contemporary rural Kerala. It validates the assumption that the traditional art forms employed in *Sasthra Kala Jathas* have immense potential to increase people's participation and hopefully initiate social change because they are compatible with the cultural values of the audience and are more persuasive, persistent, and personal. In addition, they are participatory in nature with ample scope for people to play an active role in their production and performance. Such an involvement often erases the distinction between the performer and the audience. Moreover, they are inexpensive and affordable. They require no elaborated stage arrangements, excessive accompaniments and intricate microphysical movements as in the case of classical art forms. With such unique features, these art forms provide for easy interpersonal communication with a

potential for greater impact in rural communities than the impersonal mediated channels of electronic and print media. Their cultural proximity and traditional belongingness permit them to match well with the cognitive competence of rural masses. Naturally, it is assumed that all these characteristics of the traditional art forms used in the *Jathas* positively contribute to their popularity.

Such being the popularity of *Sasthra Kala Jatha*, which represents the traditional media used by KSSP for science popularisation, an effort was made to investigate whether the demographic variables of gender, age and education had a bearing on the respondents' frequency of attendance.

Regularity of Attending *Sasthra Kala Jatha* by Gender

The analysis reported in Table 1 revealed that male and female did not differ much in the frequency of attending *Sasthra Kala Jathas*. The large majority of both male and female respondents attended *Sasthra Kala Jathas* either 'regularly' or 'quite often'.

Table 2 : Regularity of Attending *Sasthra Kala Jatha* by Gender

Gender Groups	Regularity Nature				Total
	Regular	Quite often	Sometimes	Rare	
Male	114 (46.72)	120 (49.18)	0 (0.00)	10 (4.10)	244 (100.00)
Female	93 (45.15)	109 (52.91)	0 (0.00)	4 (1.94)	206 (100.00)
Total	207 (46.00)	229 (50.89)	0 (0.00)	14 (3.11)	450 (100.00)

Figures in parentheses denote percentage

Pearson Chi-square: 2.03588, d f=2, p=.361351

It is to be noted that there is no significant gender difference ($p=.361351$) in attending the Jathas, in any of the regularity categories, possibly thanks to the relatively better gender 'equality' and women empowerment in Kerala.

Regularity of Attending Sasthra Kala Jatha by Age

In terms of the four age groups, there were statistically significant differences in the way the *Sasthra Kala Jathas* were attended to. The incidence of attending *Sasthra Kala Jathas* 'rarely' (8.33 per cent) and 'quite often' (63.33 per cent) was dominant in the elderly age group of 50-59 years (See Table 3). The tendency of attending *Sasthra Kala Jathas* 'rarely' was found to decrease with an increase in age of the respondents.

Table 3: Regularity of Attending Sasthra Kala Jatha by Age

Age Groups	Regularity Nature				Total
	Regular	Quite often	Sometimes	Rare	
20-29 years	58 (40.56)	84 (58.74)	0 (0.00)	1 (0.70)	143 (100.00)
30-39 years	69 (53.08)	59 (45.38)	0 (0.00)	2 (1.54)	130 (100.00)
40-49 years	63 (53.85)	48 (41.03)	0 (0.00)	6 (5.13)	117 (100.00)
50-59 years	17 (28.33)	38 (63.33)	0 (0.00)	5 (8.33)	60 (100.00)
Total	207 (46.00)	229 (50.89)	0 (0.00)	14 (3.11)	450 (100.00)

Figures in parentheses denote percentage

Pearson Chi-square: 25.0383, df=6, p=.000337

Such a distribution which was found statistically significant ($p=.000337$) suggests that middle and younger age groups attended *Sasthra Kala Jathas* more frequently than the elderly in rural Kerala.

Regularity of Attending *Sasthra Kala Jatha* by Education

As noted in Table 4, those with Plus-Two education (56.06 per cent) were the most regular in attending *Sasthra Kala Jathas* as compared to those with PG and above (54.55 per cent), below SSLC (38.89 per cent) and SSLC (37.19 per cent) educational qualifications. In contrast to such high regular attendance by those educational groups, less than 7 per cent graduates attended *Sasthra Kala Jathas* regularly. They also constituted the largest majority of those who rarely attended the *Sasthra Kala Jathas*. The incidence of attending *Sasthra Kala Jathas* ‘quite often’ was the highest among ‘below SSLC’ respondents followed by SSLC, Degree, Plus-Two and PG and above educational groups.

Table 4: Regularity of Attending *Sasthra Kala Jatha* by Education

Education Groups	Regularity Nature				Total
	Regular	Quite often	Sometimes	Rare	
Below SSLC	28 (38.89)	44 (61.11)	0 (0.00)	0 (0.00)	72 (100.00)
SSLC	45 (37.19)	72 (59.50)	0 (0.00)	4 (3.31)	121 (100.00)
Plus-Two	74 (56.06)	56 (42.42)	0 (0.00)	2 (1.52)	132 (100.00)
Degree	7 (6.80)	48 (46.60)	0 (0.00)	48 (46.60)	103 (100.00)
PG and above	12 (54.55)	9 (40.91)	0 (0.00)	1 (4.54)	22 (100.00)
Total	207 (46.00)	229 (50.89)	0 (0.00)	14 (3.11)	450 (100.00)

Figures in parentheses denote percentage

Pearson Chi-square: 19.9758, df=8, p=.010444

Such an education-wise distribution of respondents in terms of their frequency of the use of *Sasthra Kala Jathas* was found to be statistically significant at a probability level of .01044.

From the above analysis of the regularity of attending *Sasthra Kala Jathas* by respondents belonging to various demographic variables, it emerges that the variable of gender had no bearing on their attendance in *Sasthra Kala Jathas* organized annually by KSSP in rural Kerala. However, the demographic variables of age and education appeared to have some influence on the regularity of attending *Sasthra Kala Jathas*.

Audiences' Evaluation of *Sasthra Kala Jatha*

In addition to assessing the influence of demographic variables on the regularity of attending each of the channels of KSSP, audiences' evaluation of the channels was also carried out. The data of such an analysis was given in Table 4.7 in respect of *Sasthra Kala Jatha's* form and content parameters namely design (visual performance), understandability of content, simplicity of language and style of narration.

Table 5: Evaluation of *Sasthra Kala Jatha's* Form and Content

Form and Content Parameters	Respondents' Evaluation			
	Agree	Neither Agree Nor Disagree	Disagree	Total
'The visual performance is attractive'	396 (88.00)	53 (11.78)	1 (0.22)	450 (100.00)
'It is easy to understand the content'.	355 (78.89)	72 (16.00)	23 (5.11)	450 (100.00)
'The language is simple'	306 (68.00)	144 (32.00)	0 (0.00)	450 (100.00)
'The narration contributes to understanding'	278 (61.78)	172 (38.22)	0 (0.00)	450 (100.00)

Figures in parentheses denote percentage

A large majority of the respondents reported to be satisfied with *Sasthra Kala Jatha's* form and content parameters. An overwhelming 88 per cent of the respondents found *Sasthra Kala Jathas* visually attractive. Close to 80 per cent of the respondents reported that they could understand the content of the messages communicated through various traditional modes employed in *Sasthra Kala Jatha*. The proportion of those who were satisfied with the simplicity of language and presentation style of the messages communicated through *Sasthra Kala Jatha* was relatively less – 68 per cent and 61.78 per cent respectively. A large majority of the respondents reported to be satisfied with the *Sasthra Kala Jathas'* form and content. The visual performance of the *Jathas* satisfied more viewers, followed by the understandability of content, simplicity of language and style of narration.

Conclusion

The study revealed the higher popularity of *Sasthra Kala Jatha*, KSSP's traditional media as compared to its print media among the rural folk. The impressive popularity of traditional media emanates from their special features like cultural proximity, traditional belongingness, infotainment capability and cost-effectiveness.

It is also to be noted that the rural audiences assessed the traditional media used by KSSP as more satisfactory in respect of their form and content parameters as compared to that of KSSP print media. Such an assessment owes largely to the fact that KSSP does not modify the original format of traditional art forms when it incorporates new science content into them. Instead, it develops science content for traditional media imbibing the linguistic simplicity and textual comprehensibility of the folk art forms. This method helps the rural audiences to easily recognize and enjoy their

familiar art forms and to comprehend the message presented through them.

For instance, KSSP in one of its presentations illustrated the life story of well-known scientist Galileo Galilei through the traditional art form of *Villupattu* (*Villadichanpattu*). *Villupattu* is a folk skit performed in connection with temple festivals. Bows (*villu*) adorned with small musical devices are used to produce tunes to which artists perform their skits with satiric folk songs. KSSP kept all these features and paraphernalia of *Villupattu* while telling the story of Galileo. At the same time, it utilized the potential of the art form to satirically present the stupidity of the clergy which tried to swaddle the scientific truth by killing the scientist.

Using similar technique, KSSP presents many science related issues through arts forms like *Komaramthullal*, *Mappilapattu*, *Oppana*, *Chakyarkoothu* and the like. Audience's positive evaluation of the form and content of traditional media used in *Sasthra Kala Jathas* amply reflects the prospect of traditional art forms in rural communication in general and in science popularisation in particular.

The most remarkable aspect of *Sasthra Kala Jatha* of KSSP is that it facilitated the confluence of traditional media representing diverse cultural and ethnic groups of Kerala. Before the introduction of *Sasthra Kala Jatha*, KSSP used to perform individual traditional art forms enriched with science messages as individual programmes. The confluence of art forms began with the innovation of *Sasthra Kala Jatha*. Folk art forms ranging from *Ottanthullal* to *Nadanpattu* are perfectly mixed in the *Jathas*. Each year the *Jathas* focus on a particular theme and the art forms featured in it are conceived to present each aspect of the theme. Moreover, the *Jatha* as one complete programme is set in a particular theatrical method like arena theatre (as in 2005) or pure street theatre model (as in 2007). Thus, KSSP preserves the identity of *Sasthra Kala Jatha* as a complete theatrical experience even when various traditional art forms are blended together without losing their original format.

Such a model of traditional media confluence introduced by KSSP through *Sasthra Kala Jatha* has the potential to satisfy different cultural and ethnic groups in the audience. At the same time, the confluence model provides for all segments of the audience to enjoy the programme as a unique single theatrical experience focusing on a particular theme. Thus, to a certain extent, the model transcends the limitations of selective-exposure tendency of the audiences.

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