International Journal of Home Science 2017; 3(2): 679-692

International Journal of Home Science

ISSN: 2395-7476
IJHS 2017; 3(2): 679-692

www.homesciencejournal.com
Received: 09-03-2017
Accepted: 10-04-2017

Ngurdingliani Sailo
Lady Irwin College. Sikandra Road. New Delhi, India

Correspondence
Ngurdingliani Sailo
Lady Irwin College. Sikandra Road. New Delhi, India

Children's response to educational television in Mizoram

Ngurdingliani Sailo

Abstract
Television transcends all national borders and reaches the homes of the Mizo people. Children in the family arrange their lives around this magic box. They learn from this medium and are positively or negatively influenced by it depending on the content. Educational programme designers recognized its power to induce learning and they carefully designed programmes for a long range educational benefit.
This paper consists "children's response to educational television" a section on one research in Mizoram, one of the North-Eastern dominant tribal States in India. This section was part of a careful research design. 20 younger and 20 older children from the private schools in Aizawl and Champhai were selected. Private school children were selected because of their facility in the use of English. The two districts were selected because of their willingness. Younger children were shown 3 different episodes of GGSS which have similar format and content like learning numbers, letters and other socio-emotional skills. Older children were shown 3 different episodes of Science Mein Twist as the content has practically applicable experiments and were close to children's academic syllabus.
Children's focus toward the educational programme was noted to be both engaging as well as leading to inter-personal talk or other responses. Younger children seemed to have a nature of shifting their screen-focus. This nature was quickly reverted with change of scene through music and some sounds. Older children engaged in the programme with their, eyes, ears and pens. They were quite focused and seemed to lose interest only when the programme had too much narratives and the accent bars their understanding. The pre-test and the post-test indicated the efficacy of educational television as a tool of learning.
Parents reported that the programme increased the desire to own a product and also altered family conversation as well as entertainment patterns. Children's responses indicated that they learn from educational programme. However, duration on how long they will remember such learnt concepts, new words and behaviours remains ambiguous. Children's responses indicated that it was difficult for them to comprehend new accents, fast and unfamiliar language. They also easily lost attention when the shows become too static with long dialogues. Language, novelty, age of the viewer, captions, clarity in content, speed, humour, action filled characters and practical applicability were significant in engaging children's interest and comprehension.

Keywords: Educational programmes, comprehension, language, younger children (4-7 years), older Children (8-11 years).

Introduction 1
"We are passing through a period of 'Information Explosion. All information has been reaching into our homes. This changed the psychology of people and their life style Television has helped people in making their opinion and affected their thinking process and approach towards life. Radhye Shyam Sharma (2002)
Television industry transcends all borders and has been residing in almost every abode and even if a household does not own a TV set, it has a way to make its presence felt through various means. This fast growing industry even reached the remote areas of Mizoram in 1979-1980. During the first ten years, the only available broadcaster was Doordarshan. However, there was frequent viewing of Bangladesh programmes for few hours as it shares its land borders. The dull production of Doordarshan or the vague Bangla channels did not stop people from admiring the content or the medium. They were captured by its qualities and were glued to the box especially when few soaps drama like 'Mahabharata', Ramayana and a popular Bollywood programme 'Chitrahar' were telecast (Lalmuansangkimi, 2015) [13].

Later, around ten years after television entered Mizoram, the first cable television 'Best Vision' was introduced in March, 1991 followed by 'Skylink' on 5th September, 1991 (Lalhmachhuana, 2005) [14]. Soon private buyers took interest and created competition. With the entry of many private buyers and exchange of ownership, Laldailova Pachuau and Sons (LPS - a family enterprise) and Zonet (collaboration of three people) became the two main cable operators in Aizawl, the capital. There are also some small cable operators in other districts and villages. The smaller districts cable operators produce few local-district programmes, but they mainly subscribe the local programmes from the larger operators in Aizawl. These cable operators broadcast programmes day and night with a mix of foreign programmes and of local content catering to the demand of adult viewers with few child friendly programmes. Television has the power to capture children's interests, attention and possesses momentous qualities to induce learning as it informs, entertains and educates (Mahajan & Luthra, 1993). Through the years, this technology has become an instrument for transfer of knowledge and a story teller rather than only religious bodies, schools, immediate experiences of families or neighbours (Singorielli, 2001). Good television programmes can be amazing story tellers that connect and unite people. Through its stories, children learn about their immediate surroundings and even different cultures of the world. It teaches them about their tribes and introduces them to new places, cultures and people that they may have little or no opportunity to learn about in their everyday life (Scantlin, 2007) [27].

Learning from television

Learning is the acquisition of information (Lefrancois, 2012) [15]. It is a dynamic and continuous process which may also involve change in capabilities (Jemon, 1997). When we talked about the process of learning, it is important to realise that learning is not only confined in the structure of the school regime, but rather comes from the child's ecological system where television is beginning to be a "techno-member" of social ecology that plays a vital role in imparting passive learning in young viewers (Krugman & Hartley, 1969).

Television has a way to maintain the gaze of children through 'orienting response'. The term was first coined by Ivan Pavlov in 1927. Orienting response is the process that makes the human brain easily attracted by new sounds and sights; it keeps our brain eager to respond to something interesting, new and unexpected. This process keeps children engrossed in a programme, even if they might not comprehend all the content; they are mesmerized by the rapidly changing images, light, sound blares, etc. (Christakis, 2007) [4]. Moreover, television has the ability to combine multiple symbols that could be presented simultaneously, like music and sound effect with visual images or spoken words with captions. All these combined symbols have been contributing to a child's learning for several years (Moeller, 1996) [19]. The visual images provided in television create appeal to our sense of sight; it clarifies unclear thought by making it concrete and also helps in comprehending concepts (Towns, 2001) [31]. Young children are also turned not only to the images on television but also to the rhymes and rhythms of sound and music. They can recognize the tunes and jingles of a programme and specify that particular programme (Sunderaj, 2006) [29]. In today's technological world, visual images have been increasingly used in various ranges and formats for learning and teaching (Martin, 2008) [18].

Television transcends all barriers, travels across all international borders, seizes ability to create learning and provides images that are easily understood by almost everyone (Martin, 2008) [18]. It has the ability to teach specific skills like reading, listening, etc. and helps children gain cognitive abilities (Moeller, 1996) [19]. As children absorb information and learn from every available source, the idea of creating an educational programme was then initiated. It was believed that since children were influenced by this medium, it could be used to positively educate rather than simply used it for entertainment (Cohen, 2001) [5].

Theories on learning from television

There were several theories that thread around learning from television. Educational programme designers have been creating and designing children's programme with some guidance of television viewing and learning theories.

Bronfenbrenner's ecological theory

According to Bronfenbrenner's ecological theory, the five environmental systems ranging from the inner-self to the broader context of the culture influence children's development. They learn from the simplest system of their immediate surroundings to the complex patterning of environmental events (Santrock, 2007) [26]. In general, it means children learn from everything around them, and television being a part of their 'techno-ecology' can influence their learning.

Social or observational Learning theory

Albert Bandura's learning towards imitation has evolved social or observational and learning theory. He states that children learn the world around them by observation and imitation. Television can add to their learning if it provides new information and stimulate a child's interest. They learn how to manipulate media devices, find information and solution to problems, develop their skills and gain knowledge about the world (Hofferth, 2010; Fisch, 2005) [6].

Cultivation Theory

George Gerbner in the wake of growing media visibility developed the cultivation theory proposing that extreme viewing of television changes people. It influences beliefs, notions about life, and the society as they deeply connect with television's message (Morgan, 2007) [20]. This theory emphasizes on the importance of the message and content rather than the medium. It states that media content affects the viewers and alters their behaviours (Hofferth, 2010) [8].

Use and motivation theory

This theory placed more importance on the individual audience and age of viewer. It states that the influence of television depends on the individual's ability, disposition and age. Younger children are more susceptible to be influenced by television because they were not able to critically examine the programme. They are in a stage where their attitudes, ideas, beliefs and knowledge develop rapidly (Hofferth, 2010) [8].

These theories show how children learn from television and gave importance on the message and the audience. The content of the viewed programmes needs to be selected carefully so that there will be positive learning in children

Educational television

Keeping in mind the theories, vulnerability and uniqueness of each child, educational programme has been solely created for

a long range educational benefit, (Kaiser Family Foundation, 2005) [11].

During the period between 1948 and 1952, the idea of creating an educational television was developed and supported by a television station license 'freeze'. During its formative years, educational television struggled through its programmes. They featured adult 'talking heads', varied puppet shows, few sketches or edgy pictures which dissatisfied educators and the general public (Bryant & Bryant, 2007) [2]. Then, the first episode of educational programme 'Sesame Street' was telecast in 1969 (Cohen, 2001) [5]. which was created by Joan Ganz Cooney and Children's Television workshop (Vollmer, 2007) [32]. Sesame Street revolutionized educational television; they gave rise to educational programme by connecting the positive qualities of television. Years later, in August 15, 2006 Galli Galli Sim Sim a co-Production of Sesame Street and Turner Broadcasting India was launched in India through Miditech on Cartoon Network (Indian television, 2006). Then, Science Mein Twist, a child friendly series of science was developed to create curiousity and awareness about science and technology, culture, nature, etc. It was aired in Nat Geo Junior through Miditech on 8th February, 2010 (Mukherjee, 2010) [21].

Engaging children in the programme

The curricular goals of educational television spread in a wide range from physical to cognition, culture and social-emotional. What remains constant, however, is the challenge of providing educational content while being entertaining and engaging. To achieve its intended goals, children must 'want to watch' the programme (Cohen, 2001) [5]. And for making the programme more beneficial, it needs to capture a child's attention. Researches on educational television show that children need engaging and appealing elements with humours, games, actions, etc. The content that the message conveys must be clear, direct and it should reinforce concepts through repetition. It also has to motivate children to actively engage and participate in the programme and persuade them for further learning (Fisch, 2005) [6]. Language and topics of the programme needs to be age-appropriate. The level of difficulty must be tailored to children's knowledge and developmental level. Since children are all individually different, the influence of television on them also varies. Their chronological age is linked with their cognitive abilities and the way they learn and understand differs (Roe, 2007) [25].

Benefit of educational television

Several studies indicated the cognitive benefit of educational television. An educational programme promotes school readiness, reading habits, knowledge of current events and problem solving skills in younger children and creates curiousity for science and technology in older children (Hofferth, 2010) [8]. The long-term benefit of Sesame Street was noted by Anderson, Huston, Schmitt, Linebarger and Wright (2001) [1]. They found that high school children who watched educational programmes as young children had higher grades, better comprehension in English, Mathematics and Science (as cited in Fisch, 2005) [6]. Other studies also found the positive relationship between television viewing and language development. They found that educational television extend their understanding to familiar words, increase their comprehension of spoken words and reproduction of the words but lack in grammatical domain (Niagles & Mayeux, 2001). Besides learning letters, numbers, language etc. the social benefit of educational television was also noted by various studies. The pro-social programmes have significantly shaped children's behaviour and induced positive change in them. They learned how to behave in a socially acceptable manner, how to share and help others. However, it is also important for parents to realise that children learn more from these pro-social programmes when they connect with their real-life experiences (Fisch, 2005) [6].

Despite all the critics who claimed that television negatively affects children's behaviours, attentions or learning, educational television has proven that, television is neither good nor bad. What really matters is the content of the programme (Fisch, 2005) [6]. According to Bickham, Wight and Huston (2001) [1]. "The medium itself matters hardly at all. It is its content that has lasting, cumulative impact". (p. 102).

Studies in other countries have proven effective for children who were exposed to these programmes. However, will these educational programmes prove effective and benefit children from all nations with different cultures, language, social structure and different economical background?

Methods 2

This research was largely a mixed method research which is often referred as the "third methodological movement" (Teddlie & Tashakori, 2011, p. 285). A mixed method research integrates both qualitative and quantitative data into the study.

Location of the study

This research was conducted in Mizoram, one of the seven sister states in the North Eastern region of India. Like every other Northeast State in India, Mizoram comprises different tribal clans and sub-clans; yet, she is the only tribal state in the country, where the indigenous people use one common dialect 'Mizo'. The locale of the study was selected from the eight districts in Mizoram using 'stratified sampling'. In this sampling method, the population was divided into a specific set of strata where members within each stratum have similar attributes such as literacy which is above 80% and members between strata have dissimilar attributes such as occupations. In this study, the districts were divided into different regions - north, east, west and south. The data was collected from parents, child participants and families from these selected districts: Aizawl, the capital in the North, Lunglei in the South, Mamit in the West and Champhai to the East.

However, for this particular section, understanding Mizo children's response to educational television, two districts Aizawl and Champhai were selected because of their ready willingness to participate.

Sampling procedure

The sampling technique for the study utilized a non-probability sampling method. Although a probability sampling method with multi stage technique was planned, willingness of the sample to participate was of vital importance in the study. For this section of screen responses purposive sampling was adopted. There were 40 children with 20 younger (4-7 years) and 20 older (8-11 years) children from the selected Private schools in Aizawl and Champhai. Private schools were particularly chosen due to familiarity with the English language.

Description of the tools

The participant's world was studied and tools were created carefully to obtain the necessary information. It was field tested through pilot study and was modified as necessary.

Interaction or Participant observation

Participant observation was conducted. The locality and the people were studied. The researcher casually interacted with the participants and some local people in their local dialect. Few games were played as an ice-breaker. After becoming acquainted, the importance of the study and the roles they could play were explained.

Screening of selected programmes

Specially selected educational programmes were identified and shown to children of both age groups: younger children (4-7 years) and older children (8-11 years). The programmes were selected on the basis of age appropriate educational programme. It was in English as it was more suitable although more clarity would be attained if it was in Mizo. These programmes have not been watched before reducing the effect of recent exposure which helps in identifying their responses from these educational programmes.

One of the programmes was a pre-school programme 'Galli Galli Sim Sim (GGSS)' which was conceptualized by a New York based group of education in the sixties. They have created curricular goals for developing children's vocabulary, numeric ability, emotions, physical well-being, social relations (pro-social behaviour) and familiarity with cultural diversity. It uses muppets whose characters are flash-out according to the cultural norms. Moreover, all the curricular goals were shaped in the background of India's cultural diversity. Another programme was 'Science Mein Twist', with a curricular goal to cultivate curiosity and generate awareness about science and technology, animal, nature and culture. This programme was intended for older children. It aimed to help children understand about science in a fun, joyful and exciting manner with accessibility.

For this study, three different episodes of GGSS were selected for younger children as they had similarities in certain concepts like learning of numbers, letters, etc. For older children, three different episodes of Science Mein Twist were selected because the content was practically applicable and were all close to academic syllabus.

In both these programmes, no evident aggressive behaviours were noted and the characters involved were harmless.

The Screening

- Screening of programme within time intervals: Three different episodes of GGSS and Science Mein Twist were screened to the same children at different times within a period of four months, two months each for Aizawl and Champhai. A pre-post test was conducted in all the screening to explore their understanding of concepts that were part of the programme. Comprehension was examined and a follow-up observation was conducted after every screening.
- Pre and Post viewing test**:** A pre-post test was designed based on questions formulated from the selected educational programmes for both age groups. The test was to ascertain the status of information before and after the show.
- Eyes on screen (EOS) and Behaviour coding sheet (BCS): These were used to code engagement and behavioural reactions of children while screening the program. EOS measures children's appeal through coding eyes on the screen at specific intervals of time. BCS is the child's reaction between specific intervals of time while watching the show. Both tools have been used as a research tool in Galli Galli Sim Sim. It was partially modified by the researcher for simplicity and conveniences.
- Story Narration: Story narration was used as a part of screen responses to educational programme. It was used to understand children's level of comprehension and identify the scenes that engage them. It is a spontaneous recall of the episode. Specific questions were designed for further probing. Children were asked to narrate the programme and the recalled scenes were noted. They were also probed in relation to the scenes in the programme. The questions were set on how children absorb the information; whether the information is assimilated as generalized or with a specific understanding. In some cases, children may provide application or assertion of the content.

Materials used for engagement and motivation

In this study, various materials which helped keep the child engaged and motivated during data collection were used:

Children's educational books

Children's educational books were used to generate appeal and focus on attention especially with younger children. These types of books were new for the participants; it was attractive with interesting colours, pictures and alphabet-slides. Children were told that they could look into the books or play with the slide if they co-operated with the researcher. It was also used to fill the gaps of boredom while other children were being attended.

Pictures of different concepts

Pictures of different concepts based on the programme like children sharing things, helping others, colours, etc. were used for younger children. These pictures were related to some concepts in the programme. They were shown after conducting the pre-posttest and the story narrations. While showing these pictures, they were explained in the local language 'Mizo' so that children would become familiar with such concepts.

Screening of Mizo alphabet

An animated cartoon based on Mizo alphabet was screened in-between and during post-testing and comprehension testing. It was done to sustain attention and interests while conducting a comprehension test and a post- test on one participant. It was helpful in keeping children calm and engaged while they waited for their turn. An animated programme in their own dialect was new and fascinating that easily grabbed their attention.

Reward or reinforcement

Small gifts were given after every screening as a gratitude for participation. It was effective as it motivated participation, provide a sense of achievement and reward for good behaviour. This idea of rewarding the participants follows B.F. Skinner Operant Conditioning theory that states "actions that are reinforced by rewards or praises are more likely to happen again in the future" (Cherry, 2015) [3].

Procedure of screening data collection

- All the screenings were video recorded.
- In Aizawl, screening of the selected programme took place in a separate classroom for both age groups. It was conducted one week apart during school days at free-period. In Champhai, screening for younger children took

place in the caretaker's room and in the teacher's room for older children. It was again conducted one week apart but during weekends (Saturday). Screening for the different age groups took place on a separate day.

- A medium screen laptop was used to show the programme. Three different episodes of GGSS for younger children and Science Mein Twist for older children were shown to the selected children.
- Before each show, a pre-test question based on the programme was administered. Post- test was conducted immediately after every screening for immediate recall. The questions were mostly a repetition of pre-test. This was done to ascertain children's knowledge level before and after the programme.
- While screening, EOS and BR were observed on a pre-coded sheet with an assistant who had previous practice during pilot study. It was also video captured with the help of a professional to fill the gaps in recording.
- Children were asked to narrate the programme to understand their level of comprehension. They were also probed in relation to the scenes. The segment that was recalled without probing was noted to identify the scenes that engaged them.
- After every screening, a follow-up was conducted after 4-5 days of each screening to identify the participants' reaction and also to note their sustained recall of the programmes. Parents and children were asked about their reactions to the programmes and their responses were noted

Analysis of the Data

Data obtained were both quantitative as well as qualitative. The data from pre-test and post-test, EOS and BCS were examined to discover specific patterns, behavioural reaction and diminutive learning of any sorts amongst children from educational television. Story narration was also used to understand levels of comprehension and the segments that triggered and engaged a child's imagination. The obtained data in the local language were translated and transcribed verbatim for detailed examination and analysis.

Results and Discussion 3

Television's powerful ability to influence and impart learning in children has been of interest to many researchers leading to the creation of educational television for children. The present samples were quite unexposed to any kind of specially designed educational programmes. It seemed necessary to identify educational implications and effectiveness on learning if provided with educational content. Therefore, to ascertain the efficacy of educational television as a tool for learning, age appropriate educational programmes (in English) were screened to private school children. They were informed that certain selected programmes were going to be screened.

General reactions to the intervention

The idea of being a part of a new project made children feel important. Novelty in the programme excited the children as it also seemed to provide new twist for educational experience. Interest in the programme was also influenced by whether the screening was during school time or during holidays. In Aizawl, screening process took place during school time and in Champhai, it was conducted on a Saturday (non-working). All children from Aizawl were enthusiastic to take part in the process as it paves a way of escape from classroom regimen while some younger children from Champhai were quite apathetic towards any school related activities during holiday. They were more oriented to free play and resented the time away from outdoor play with friends. The presence of TV in Mizoram does not perhaps substantiate the displacement theory of viewing replacing playtime or increasing tendency for obesity (Hofferth, 2010) [8]. The case was different for older children from Champhai; throughout screening they were eager and showed excitement. Their report indicated that their interest was also directly linked with similarity of content with class syllabus.

The content of educational television itself created appeal and entertained the children. However, language often became a barrier in sustaining interest. The absence of Mizo was definitely missed by children. This language difficulty in children was also accentuated by the presence of dubbed in Mizo TV shows limiting exposure of the native speaker to programmes in other languages, lowering chances of linguistic acquisition from programmes. Across districts and age, children requested post viewing translation of jokes or songs or even dialogues. They subsequently asked for translation and explanation of some concepts and its meaning which is evident that the programme generated appeal.

Resistance to being 'researched' was observed amongst children. They only wanted to view and not to be questioned. Across locations, children's interest was higher in watching the programme than responding to the content. The pre-posttest and story narration (content comprehension test) often restrained children influencing their spontaneous enjoyment of the programme. They felt they were being tested for performance and the anxiety about responding to questions reduced their excitement of viewing. Some said quite directly that they do not like being questioned and they don't enjoy taking 'test'. Children liked viewing TV for sheer entertainment, they enjoyed educational programme as part of entertainment but not as an educational informative medium. On the other hand, even though responding to the all the tests was daunting, older children from both districts asked whether these programmes could be a part of their school curriculum so that learning about science would be more interesting and not so intimidating.

The popularity of television as evidenced in the study was reassuring for the intended intervention. The following sections describes children's responses to the specially screened programmes

Behavioural Reactions to the Programmes

The behavioural coding sheets helped in capturing the essence of children's reaction to the programme. Throughout the screening there was absence of any kind of aggressive behaviour such as hitting, crying or pushing other children.

Younger children

Younger children's reactions were easily triggered as they engaged themselves towards new scene in the programme but at the same time easily lost attention and become restless. While viewing, they were quite vocal and enthusiastically commented on the programme and perceived muppets as different from cartoons. Anecdotes also indicated that muppets were often seen as 'talking dolls'. Children share their views on muppets and said, "Those are not real cartoons (muppets) those are real cartoons (animations). They also said muppets were ugly but were curious about them. They asked questions like, "How do they move? Are they toys/dolls? How do they talk? How are they made?"

Novelty in the educational programmes evokes excitement. They enthusiastically showed several vibrant behaviours such as talking to friends, talking and pointing to screen, laughing, smiling, counting along, moving and playing with friends. Some children sang aloud with the Galli Galli Sim Sim theme song and moved along with the rhythm of the sound and music. They imitated and attempted to guess how the movement of the muppet is manipulated. It was of great interest to mimic different possibilities with their hands. Repeated imitation of actions, movements and even pronunciation was quite dominant across locations. The child oriented content and characters did invoked childhood imagination and evoked interests.

Smiling was the most common behaviour while viewing. They smiled out of delight, interest in the non-ordinary scene and behaviours of animated and muppet characters. They showed interest in most of the animated characters such as a man selling tomatoes, a tailor stitching garments for an elephant, a boy misusing water and wastage of water causing discomfort to a fish as well as a rhino or an ant or a man with a violin. They also enjoyed Chamki's rigorous movement of her head to question when she imitated a detective. Display of confused behaviours of large characters like Boombah and Aanchoo and their inability to separate apples and mangoes seemed funny to them. They also find humour in actions that became repeated distraction for a character who are attempting to concentrate.

Some children often spontaneously laughed aloud as certain characters and behaviours amuse them. In the introduction scene, the theme song had one small girl dropping her slipper at the end. Children identified with her 'clumsiness' and finds it hilarious. They enjoyed when the muppet characters sang as rhythm and rhyme is appealing; they laughed at their body movements and singing. Absurdity of the mermaid as muppet singing a song while riding on 'alphabet U' triggered immense laughter, ignited curiousity and interest. They also find humour in the errors enacted by Super Grover's character while attempting to get an apple for Elmo.

Children as children' life action acts excited them as they identified with themselves. Children in a village school cleaning their classroom with mud made them laugh as they enjoyed children's free play and the freedom to be dirty. Across locations, cleaning a classroom means sweeping, mopping, dusting, etc. while cleaning with mud induces curiosity about the possibility of using mud. It also evoked interest in how spaces could be different in other places as one girl commented "I think it is an anganwadi". The absence of furniture and unfamiliar use of mud made them infer it to be an ICDS project. They also registered the diversities between children in different places. One girl commented, "Oh! They are Indian children" to which another girl replied, "Yes, they are Indian children.

Children laughing, having fun and happy scenes seemed to create pleasure as they enthusiastically commented on the segments where children simply jumped around near an ocean. They also laughed and commented simultaneously in the segments of a girl with a hula-hoop. All children found the scene of the grandmother's un-coordinated movement while she swings the hula-hoop very hilarious. They laughed out loud saying she looked so funny. Mistakes or an errors enacted by a character, or the juxtaposing of the unpredictable over the predictable is a source of amusement. Children's trials and errors were source of identity, humour and self-worth. The quick identification with children on the screen was reflected in the dialogues amongst the participants.

Younger children's engagement with the content could be noted by their quick presentation of personal experiences related to the visuals. They also enjoyed talking with friends while viewing. They conversed about the show or other related topics linking to part of the programme. They also enjoyed commenting on the show, sharing their views with friends and asking each other questions. Some children even critique the singing, "They are bad singers" I am a better singer than them".

Older children

Older children's behaviours were more of deep engagement than just vibrant and spontaneous as younger children. They were disciplined in the way they connected to the screen as the content related to school subjects in an engaging manner. They viewed the programme to learn more about science and technology. Their interest to learn could be observed by their earnest note making of the scientific terms and words. They talked with their friends about the present show. They asked their friends what they have missed out and noted down the necessary terms. Some children also smiled during the screening. Unlike younger children, they were able to find humour in some English dialogues. They made faces when they saw how bio-gas was made or how sandwich grows moulds under different conditions. They looked amazed as they saw something new and innovative.

EOS (Eyes on Screen) with specific time intervals

EOS was taken for all screenings with specific intervals of 30 seconds. The EOS coding sheets helped in determining children's attention and focus to various scenes on the screen.

Younger children focused intensely with 100% EOS for the first few minutes. However, this declined as they easily got distracted. A change of scene could revert their attention. With change of scene through music and some sound effect they quickly turned towards the screen. The EOS graph indicated the point where viewing dropped or when there was an increase in the viewership. The muppets' characters evoked interest as it provided novelty, but the 'static-facial expressionless' characters seemed to bother children and generated curious responses. It was noted that the EOS level becomes higher with animated clips and when different muppets characters come with queer voices. Live human characters were also appealing to the younger children in the two districts with 100% EOS during live action film. The presence of children attracted them as they identified with children on the screen. Children lost their engagement when the segments had long dialogues lacking action filled visuals.

Older children were more focused in their viewing. They seemed to lose their interest only when the programme had too much narrative and the accent bars their understanding or when the scene is 'all talk and no doing" (when practical applicability is absent).

Younger children's EOS

a. **Programme 1: Things around us:** EOS was 100% in the first 2 minutes and when children in the village cleaning their classroom were shown at 5:30- 7:00 minutes. They were really interested when the muppet characters started singing. Pictures of a kite, rainbow, fish, etc. along with a song at 9:30-10:00 minutes engaged them. They responded immediately and enthusiastically in Mizo and also in English when the pictures were asked. In Aizawl, the EOS level dropped after 10:30 minutes and from 18:00 minutes onwards all the participants became restless and tired.

In the two districts there were differences in viewing behaviour. Children from Champhai were not as vocal as children from Aizawl while viewing. The graph has shown that the participants from Champhai were a little more attentive in their viewing. At 11:00- 13:30 minutes, Aanchoo was exploring in the jungle. In this scene, the level of EOS was quite different between the two districts. All the children from Champhai were focused and attentive. They were excited to see the binoculars in Aanchoo's hands. Their comments indicated their appeal for Aanchoo walking around in the jungle with a binocular; they commented, "She is holding a binocular". However, in Aizawl children started playing and talking with their friends. When sound effects with animated pictures were on screen between 13:30 -14:00 minutes, they sat up and started looking towards the screen. Aizawl children were not familiar with the jungle as a geographical reality.

In both district, children got distracted for few seconds after 14:00 minutes. There was a pick-up in viewing between 15:00- 17:30 minutes when the letter of the day 'Z' was sung by two muppets followed by an animation clip of a man selling a tomato (Figure 1)

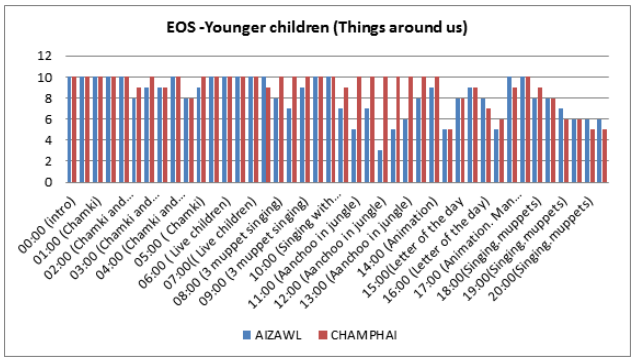

Fig 1: EOS- Younger children (Things around us)

b. Programme 2: Share: The episode share had full EOS at the first two minutes. It almost remained full till 6:00 minutes as children watched Chamki teaching Ba and Baba (sheep muppets) the mantra of sharing, Boombah and Aanchoo sorting apples and mangoes followed by the number of the day. In between these segments, there was a sharp drop for about 30 seconds in Champhai (3:00) because of external factor as one boy disturbed the others. All the children intensely viewed the programme when an animated clip of a boy and a fish taught about water conservation between 10:00-10:30 minutes. At 11:00 minutes a mermaid muppet sang a song. EOS was 100% for 30 seconds, and children discussed spontaneously about the scene with their friends. Their involvement reflected appeal and engagement with the content. Animated scene of a tailor stitching clothes for an elephant at 16:00-16:30 minutes was of particular interest to them. By the end of the programme, a song was sung by all muppets where most eyes were on screen.

In Aizawl, children started playing and talking to their friends. They imitated the sound and accents of Bert and Ernie (muppets) when they played game of opposites (6:30-8:00) while children from Champhai were just looking around and seemed restless. The graph showed an increased viewership from 8:31 minutes when the scene changes but dropped between 13:30- 15:30 minutes when Bert helped Ernie search for his rubber ducky. Later, an animated clip at 16:00 minutes elevated their attention (Figure 2).

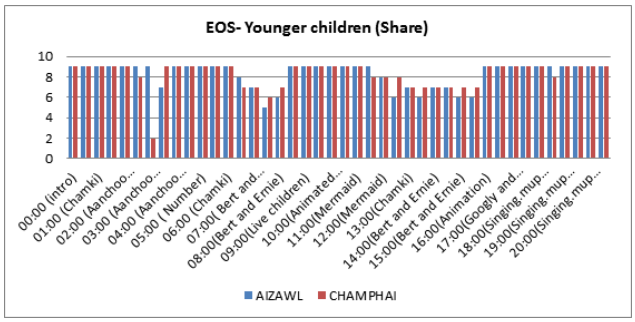

Fig 2: EOS- Younger Children (Share)

c. Programme 3: Let's get over this: The graph showed difference in the number of children because 3 children from Champhai were absent. In this programme, most eyes were on the screen at all times. They enjoyed the animated seen of an umbrella, ant and a rhino between 3:00-3:15 minutes. They were engaged to the screen when Super Grover attempted to get an apple for Elmo at 5:30-7:30 minutes and when a man with violin was on screen at 8:00-8:30 minutes. A small girl swinging a hula-hoop at 11:30- 13:00 minutes was of great interest for the children; they all watched it intensely. It fascinated them and had mad appeal because children acquired challenging skills. Attention peeked when they were (16:00- 16:30) counting the numbers along on screen. By the end of the programme, Chamki and Googly sang about 'bidding fear goodbye' which was also appealing to the children. They asked the meaning of the song, discussed about the different actions and objects they had seen.

Children from Champhai became more open and vocal in the last show; they started talking with friends and discussed the show while viewing. After the hula-hoop scene, the letter of the day was on screen at 13:30-15:00 minutes. During this scene, two girls continued to discuss about the hula-hoop. Yet the content elated to alphabet which they saw while talking stayed in their memory. They laughed and talked about the different words that start with the letter 'J'. A little later (16:30), some children started talking about the hula-hoop again. In Aizawl, around 9:00-9:02 minutes two girls discussed the appearance of the Count; one girl said, "I thought he looked like a ghost", the other said, "I think he looks like a wizard". While Chamki and Googly sang, two children from Aizawl moved to the music while some asked questions and talked to each other (Figure 3).

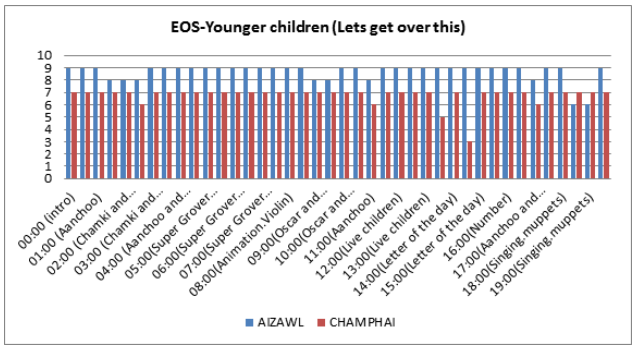

Fig 3: EOS- Younger children (Let's get over this)

Younger children were attracted to music and actions of characters that they could identify. Such as real children playing and having fun or engaging in challenging activities such as the hula-hoop which was popular amongst all viewers. They also enjoyed the nonsensical characters and their unpredictable behaviours. Novelty in concepts like an alphabet garage, a muppet mermaid singing and a muppet super hero excites children. Socially relevant concepts could enrich and enhance learning as it ignites children's curiousity and imagination.

Older children's EOS

Older children's programmes were close to their academic syllabus. The participants were quite attentive and were keen to take notes on important terms. There were 'blank screen' between scenes which was utilized for making notes.

a. **Programme 1 Light** All children watched the programme with curiousity. There was 100% EOS when the show was on how light reflects different colours (4:00-5:00) and when they showed how to make a mount board at 5:30-6:00. They closely watched and listened to the narration about the wave length of light but seemed a little lost. They were interested in photogram (9:30-10:30), demonstration of lenses (10:30-13:00), illusion (14:00-14:30), the uses of LASER and how light bends through 'total internal reflection'.

The graph showed a slight difference between the two districts. In both districts, when the participants were keen to make notes on important terms, the EOS lowered. Children from Aizawl were a little distracted from external disturbances at 6:30 lowering EOS level (Figure 4)

.

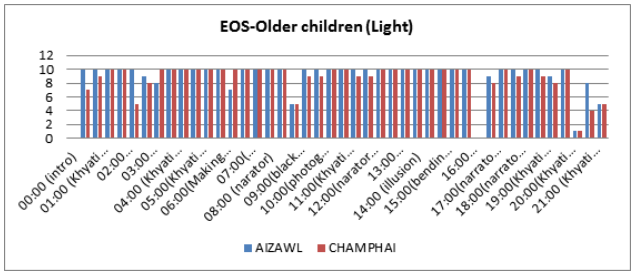

Fig 4: EOS- Older children (Light)

b. **Programme 2 Heat** In most cases the participants were making notes. They were really interested in the egg experiment in the beginning of the programme. The demonstration of good and bad conductors of heat (5:00-6:30), making of the hot air balloon (13:30-15:50) and the solar cooker (16:30- 18:30) fascinated them. When the villager explained about his invention in Hindi at 12:30 minute, the level of EOS decreased.

The graph showed that there was a steep drop at 2:00 minutes in Champhai; some were making notes while some talked to their friends. Besides taking notes, children from Champhai were more relaxed and talked more with friends. At 12:30 minutes when the villager explains his invention they started talking, smiling and made notes of the previous scene. In Aizawl, children were focused and did not talk much with friends (Figure 5).

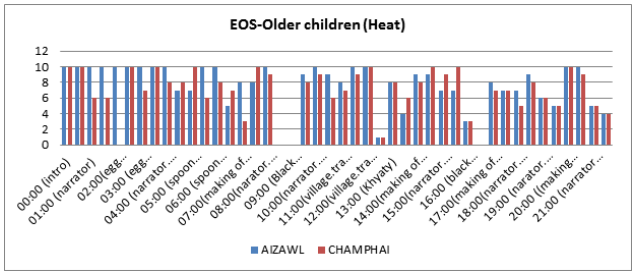

Fig 5: EOS- Older children (Heat)

c. **Programme 3_Microbiology** All the children showed high interest in the programme. They were watching intensely but were busy taking notes at the same time.

One boy from Champhai reported that they have studied about microbes and Alexander Fleming in their science subject. In Aizawl, an isolated room was not available in the third screening. The participants were a little distracted as other children who were not a part of the screening process watched the programme for few minutes from the back. These other children also showed their eagerness in programme and started to move forward. Due to overcrowding and high noise level, they were requested to leave eventually. Such behaviour indicated that the use of audio visual as a learning tool evoked interest in children (Figure 6).

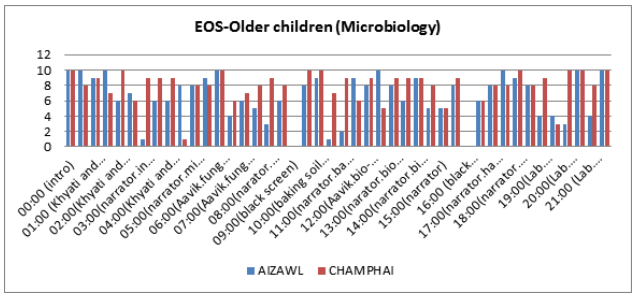

Fig 6: EOS- Older children (Microbiology)

Older children's interest in the content was high. Their eyes might not be on screen but they sincerely engaged with their ears. The use of a commonly available material like simple laser light and an egg for a scientific experiment sparked their interest. They were also fascinated by the innovative concept of applicable invention like a hot air balloon or a solar cooker. Just like younger children, challenging activities and visual familiarity elicited their curiousity.

Pre-test and post-test: learning from educational TV

The participants were given a pre-test based on the content before the screening to identify their knowledge levels. After each screening, a post-test was immediately conducted to ascertain any increase in knowledge level. Responses were noted in immediate recall where differences before and after watching the programme was noted. The pre-post test conducted on both age groups indicated differences on the mean scores for all three programmes for each of the two groups. The content of educational television impacted children's learning and did have the means to educate children.

Galli Galli Sim Sim: Each programme of GGSS was designed around a theme, and teaching letters and numbers was one of the primary goals. Besides literacy and numeracy, the programme content also contained curricular goals of social, emotional, health and well-being. Children recalled different

features in each of the programme. However, the pre-posttest questions for younger children emphasize more on the language skills.

There was increase in vocabulary for the younger children. They learnt new words from the programme with increase in linking words to phonetics. Other studies also noted an increase in vocabulary as well as phonological skills after watching educational programmes (Prince, Grace, Linebarger, Atkinson & Huffman, 2002; Linebarger, Moses, Liebeskind & McMenamin, 2013). Children learnt different word meanings and even translated in Mizo. There was excitement when they could identify terms in Mizo. The new found skills or abilities in linking two different language register was very rewarding for children.

Programme 1 Things around us

In screening first programme, children learnt new words from the letter of the day 'Z'. They were able to recall zero, zigzag, and zipper. Children from Aizawl were especially excited to learn the phonetics for 'Zero'. They reported that they have learnt numeric words from 'one' in school and know numeric '0' but did not know that zero starts with a 'Z'. Chamki's repeated questioning also helped some children realised that who, what, where, when, how and why are questions which are used for asking something. Few children were able to give the meaning of who, what, where and when even in Mizo.

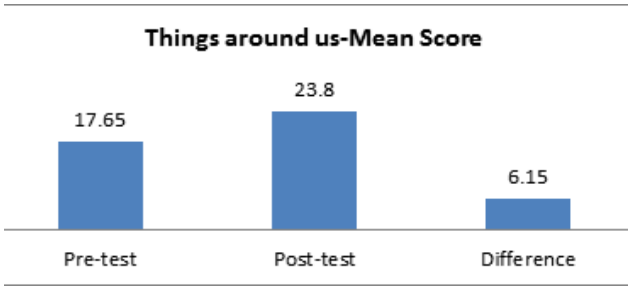

Fig 7: Mean differences- pre-post test score (Things around us)

Programme 2 Share

In screening of the programme, 'Share', it was noted that children were confused with the word 'Boat and Both' 'Nose and Lost' and 'Sheep and Ship' because of accent variation. 5-7 years old could translate opposite in Mizo but there was some confusion with opposite-words as the literal translation of 'opposite' in Mizo closely relates to 'reverse'. Some children gave the correct opposite-word for no, stop and forget. However, some children from Champhai took the meaning literally and reversed the spelling of 'No as On' or 'Stop as Pots'. The accent and the meanings of certain word in the local dialect have an effect on children's learning from the educational programmes.

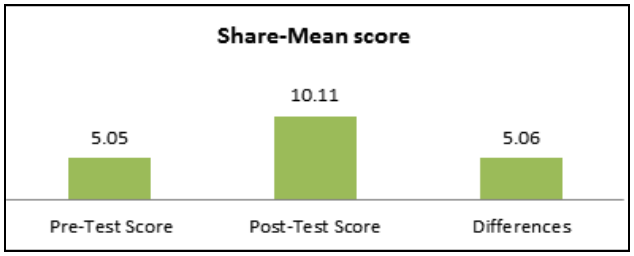

Fig 8: Mean differences- pre-post test score (Share)

Programme 3 let's get over this

In one of the segments, Googly and Chamki enacted and explained the meaning of help. Chamki (a pretend professor) forgot the spelling and asked Googly, he spelled out 'HELP' and Chamki repeated the spelling. Googly repeatedly asked her help for scratching his back. By the end, Chamki scratched Googly's back. This repeated expression and action of the word 'help' assist children in understanding the meaning of help and even scratch. Older children in the group even learnt the spelling of HELP as it was recited by both the muppet characters. The concept of going to an alphabet garage was of great interest. The repetitive information that the customer's 'J' cannot jump, jog, jiggle and jazz enhanced children's learning of new words for J. In their responses, it was noted that children thought academic teachings was the only correct answers. The programme helped them realised that there could be more to academics and one could learn beyond classroom boundaries.

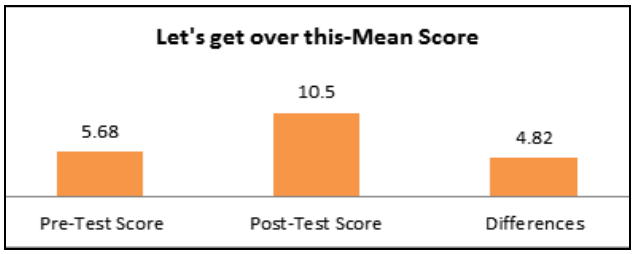

Fig 9: Mean differences- pre-post test score (Let's get over this)

Science Mein Twist

The themes for each programmes in Science Mein Twist was based around the concept of different subject in Science. The pre-posttest question for older children focused on the terms, names, words and some of the scientific reason behind the working of an experiment.

Older children learnt several concepts about science from the programme. In all the three different programmes, older children in the group remembered more scientific terms and names as some concepts were repetition of their academic syllabus. In each of the programmes, immediate recall of some concepts was better when there were pictures and captions on screen.

Programme 1 Light

The picture of colour with its name on screen helped some children learn all the names of primary colours of pigment (red, blue and yellow) and of light (red, blue and green). For children, remembering and understanding certain concepts were clearer with practical demonstration. Aavik's experiment with a photogram in a laboratory registered in children's mind. This helped them in understanding the difference between photogram and photograph. They also understood that while making photogram the exposed area turns black and the covered area turns white. However, these concepts were not clear to all, as some children said the exact opposite. They remembered the visuals but certain specific details needs clear and concrete explanation or repetition. Children also learnt different uses of laser, bending light with laser but could not explain the theory of total internal reflection.

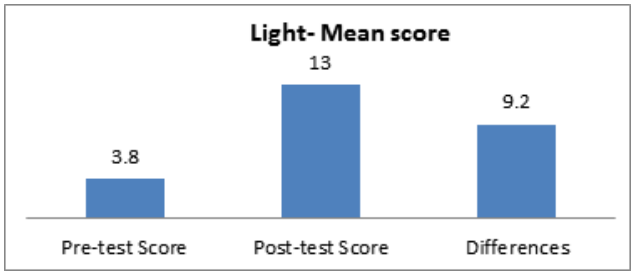

Fig 10: Mean differences- pre-post test score (Light)

Programme 2 Heat

In screening of programme 'heat', all children could explain the practical experiment in their own understanding like how to put a boiled egg inside a bottle, how to make hot air balloon and a solar cooker but they were not able to give the scientific reason. The demonstration of good and bad conductors with different materials of spoons by Aavik and Daksh helped children in understanding materials for good and bad conductors of heat. There were children who could mention all the three ways in which heat moves around (conduction, convection and radiation) as the names were written on the screen, but some remembered only conduction or convection. Few children were able to learn from the narration on how solar cooker worked on the principles of reflection and how microwave uses radiation to heat food.

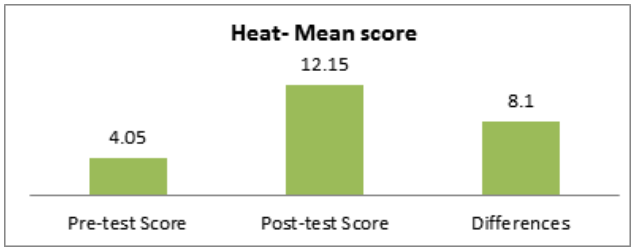

Fig 11: Mean differences- pre-post test score (Heat)

Programme 3 Microbiology

The third programme 'microbiology' had lots of captions with pictures. The names of the different microbes, the big and small ones, the harmful and useful microbes were written on screen with pictures. This helped children the names of the 5 microbes and remembered the small and big microbes. It also helped them learn about the helpful are harmful microbes. Most of them generally understand and described the experiments without specifying the working of microbes.

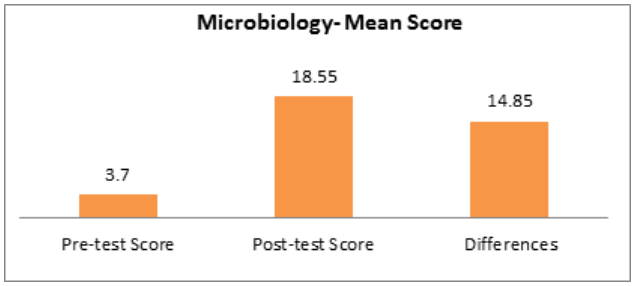

Fig 12: Mean differences- pre-post test score (Microbiology)

The average pre-post test scores of the three different programmes in Figure 13 showed younger children had lower differences in mean scores than older children. This seemed to indicate that learning from educational television was more effective in older children who are in Piaget's concrete operational stage as they have logical reasoning and can learn from concrete object (Santrock, 2007) [26].

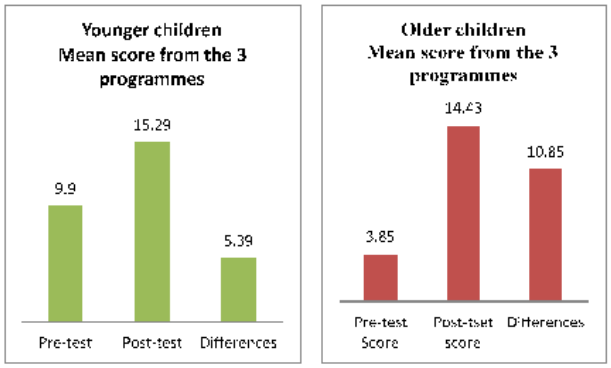

Fig 13: Mean score of the three programmes (Younger and older children)

Comprehension of content

Children were asked to narrate the story and their learning of the educational goals was noted. They were marked on the degree of generalization and specific narration of the story. In some cases, they were probed by clues for the segment such as what Aanchoo and Boombah did (GGSS) or the experiment on conductors of heat by Aavik and Daksh (Science Mein twist) etc.

The narratives were more open to general responses than the pre-posttest. Children were able to narrate the programmes in their own understanding. Story narration was especially helpful in identifying some of the social and life skills that younger children could comprehend from the content. The excitement and involvement in watching content had been intense. However, young children resisted talking about the content. Perhaps Mizo children were unfamiliar in expressing their opinion in a formal setting of a classroom.

Younger children needed constant motivation and persuasion for narrating the story because they were tired of the test. However, with a little cajoling and a play exercise, they enjoyed sharing the programmes and their views. It was noted that the younger participants, four year old children were unclear about the aim of the programmes. They responded that the programmes were about muppets dancing and singing. Four and five years old have limited understand for the lyrics in the songs but they were captured by picture, movement and the rhythm of sound and music. Action was more appealing while the meaning was not very apparent. 6-7 years old were able to understand the learning objectives of the programme.

All the children could narrate the programmes in parts and only very few were able to give elaborate narrations. The segments which children narrate without probing were also noted. This helped in identifying what content and treatment engages and triggers their curiosity.

Table 1: Remembered scenes and un-comprehended segments (Younger children)

Story narration: Younger children				
	Scenes remembered without probing		**Scenes which were not comprehended**	
Show	**All Children**	**Some children**	Age	
	Children cleaning their	Chamki and Aanchoo	4	Unclear about the song
	School in the village	cleaning her room		on reusing old materials
Things	Animated man selling	Letter of the day		They said Aanchoo was
around	tomatoes	Aanchoo exploring the		looking at the trees
us	Champhai- Aanchoo	Jungle	4 and 5	Unclear about the song of
	exploring the jungle			'Questioning'
Share	Children jumping around	Boombah and Aanchoo	4 and 5	Bert and Ernie playing
	Letter of the day	sorting apples and		opposite game
	(mermaid muppet)	Mangoes Song about recycling	4 and 5	Bert and Ernie when Ernie
	Animated fish and boy		Champhai	lost his rubber ducky
	Animated tailor and an			
	elephant			
Let's get	Super Grover and Elmo		4	When Aanchoo tried to
over	trying to get an apple	Letter of the day		help Zoonie skate
this	Animated man with	Baby Natasha kissing		When Chamki imitate a
	violin	Oscar		professor(unclear what she
	Numbers on the screen			is doing understand meaning
	(they were counting)			of help due to monitoring
	Small girl with hula-hoop			What Googly wants Chamki
				to do(scratch his back)
				Unclear on the song about
				biding fear goodbye

The chart indicated that children engaged in characters which they could socially and physically relate to. They recalled live action films as there was high appeal for real life children. They also liked actions that connected with childhood. Their imagination was ignited by the cartoon like animation clips. They also remembered unusual characterizations such as mermaid muppet or Super Grover with his super qualities of a savior or protector. All children from Champhai remembered Aanchoo in the jungle with her binoculars. They could easily identify with this visual because of its proximity to their social and physical reality. Champhai has green areas and some children still explore in the nearby woods looking for birds, wild berries, etc. It also showed that, 4-5 years old lacked in understanding the dialogues between Bert and Ernie, Chamki and Googly and the concept of Aanchoo helping Zoonie. The verbal content of lyric and dialogues decreases younger children's understanding of some segments.

On the other hand, older children obediently explained theProgram, but their expression and body gesture showed their desire to quickly finish the narration. Like younger children, only few children narrated the programme with details. Some children reported that they enjoyed the programme because it was practical and would understand it much better if they were in Mizo.

The learning objectives of the programme were easily known to older children. 8 years old and two 9 years old did not specify the focus of the particular programme while 10 and 11 years old were more specific in their responses.

They all recalled the experiments and demonstrations like bending light, egg experiment, making of hot air balloon or solar cooker, etc. yet, only few children were able to understand the scientific reason. Some children said, "They know how to do the experiment because they saw it, but do not understand the theory". All the children know that bio gas is made from cow dung or manure because they saw it in the programme, but they did not understand how microbes worked to create the gas.

Table 1(b): Remembered scenes and un-comprehended scenes (Older children)

Story narration : Older children				
	Scenes remembered without probing		**Scenes which were not comprehended**	
Show	All Children	Some children	Age	
Light	Bending light	Coloring with light	8 and 9	Demonstration on
	Different uses of laser	Primary colours of	Some	concave and convex lenses
	Photogram	light and pigment	10,11,12	How different colours are
		Optical illusion		seen
Heat	Egg experiment		8 and 9	Reason why egg
	Demonstration of good	3 ways in which heat	Some	went inside the bottle
	and bad conductors	moves around	10,11,12	Reason why hot air
	of heat			balloon fly
	Making of solar cooker			Reason why food get
	Making of hot air			cooked by sun
	balloon			
Microbiology			8, 9 and	What yeast do to the bread
	Baking bread	Harmful microbes	one 11	
	Bio-gas	Useful microbes	8 and 9	What microbes are
	Moulds experiment	Aavik and Khyati	8 and 9	know the mould
		baking pots to kill	Some	experiment, don't know
		microbes in soil	10,11,12	the different specific
		Malaria		condition n how it grows

The chart showed that all the practical experiments engaged them as they were interesting, challenging and applicable. Just like younger children, inability to fully comprehend dialogues, explanation and narration deplete their understanding to the scientific theory behind all the experiments.

In both age groups, children remembered the picture and the experiment while only few understood the dialogues. Even though the programmes were in English, most children have difficulty in interpreting the dialogue as there was a wide difference in accent and speed. Some concepts were explained too fast without captions or pictures. Thus, language, pictures, captions and speed is of great importance to enhance learning from educational television.

Follow-up

The follow up observation conducted after 4-5 days of each screening had two focuses. First, it focused on children's reaction towards the selected educational programme and its possible influences. Second, it focused on what they recalled from the programme.

During the subsequent stay and contact, it was observed that children engaged in the programme. Two younger children from Champhai were seen playing with mud with friends. They told their friends that Indian children from a village cleaned their classroom using mud. Two older boys from Aizawl performed the egg experiment in their house with their friends and siblings. Other boys from Champhai were seen experimenting on bending light.

Families reported that children excitedly talked about viewing the educational programmes. The programmes 'GGSS and Science Mein Twist' had an impact on families. The dynamics of family conversation shifted towards educational television. Children enthusiastically explained the programme to their families. Some parents even reported that they discussed it over dinner. The pattern of family entertainment also turned towards the programme as children demonstrated the experiment to their family. The response of parents also indicated that the programme increased desire for a product influencing purchasing behaviour. There was pressure on the parents to purchase a hula-hoop or a laser light. Some parents of younger children mentioned that their children wanted a hula-hoop and explained how children from the show swing it around. Parents of older children reported that their children asked for a laser light.

Younger children's activities were also influenced by the GGSS programmes. They performed the activity like swinging a hula-hoop. They also showed the behaviour of helping their families by cleaning. The science experiment evoked interest in older children's play activity. Two boys from Aizawl reported that they experimented on the hot air balloon with their friends. Other boys form Champhai said they tried on the solar cooker with their friends.

The programme sparked children's imagination, interest and curiousity. Parents responded their children told their friends and siblings about the programmes (muppets and science) with excitement. Most parents mentioned that the programme sparked their curiousity. Parents of older children mentioned their children's curiosity about science and especially yeast 'doidim' after the programme.

Sustained recall (after 4-5 days) During each follow up observation, children were also asked what they remembered from the programme. It was conducted as a part of understanding the segments that captured and lingered in their memory.

Younger children could recall zero and clean. They all mentioned about children cleaning their classroom with mud. Some 6-7 years remembered zipper, zigzag and difference between messy and dirty from the 1st episode. From the episode 'Share', all the children recalled the scenes of the live action film when children played and jumped around and the animated clip on water usage (a fish and a boy). Some 6-7 years old recalled mixed, share, jump, sorting, together and opposite while younger children from the group forgot most of the words. In the 3rd episode again, all the children remembered the scene of the girl with the hula-hoop. They all recalled the meaning of help and few older children in the group recalled the spelling of help. Some 6-7 years old could recall jump, jog, and jiggle, dark and swinging.

All older children mentioned about photogram and how to bend light. Some remembered the primary colours of light and pigment, optical illusion and uses of lasers from the 'Light' episode. From 'Heat' episode, all children mentioned the egg experiment, making of hot air balloon and solar cooker. They remembered good and bad conductors and few remembered the ways in which heat moves around. In the third episode, 'Microbiology' all children remembered the segments where yeast was used for baking bread, how moulds were grown in different conditions and the visit to a bio-gas plant.

The first part of follow-up on the programme helped in identifying children's responses to the educational television. The programme engaged them, evoked interest, elicited curiousity and influenced purchasing behaviour. It affected their play activity and behaviour as children performed the different activities with friends and families. It also impacted the dynamics of family conversation and pattern of entertainment. The second part helped in understanding the words and segments that remained in children's memory. Their sustained recall was also linked with their comprehension of content. They had better recollection of the scenes they narrated without probing. Younger children recalled the words and segments which they could relate with their experiences. Older children remembered the applicable experiments and segments close to their academic syllabus.

Reactions of early childhood children to Mizo alphabet show

One animated programme in Mizo was located. This animated Mizo alphabet show was screened to younger children as a part of engagement and motivation. It was also screened to identify the contrast in Mizo and English programme. It indicated that the programme engaged children to a great extent. It was not fancy, but an animated educational programme in Mizo was new and fascinating. It captured their attention because they were familiar with the language and understood the content. They repeated the alphabets together and sometimes mimicked their voices. After screening the same show for several times, children were still interested and kept repeating the alphabets. Some participant could pre-recite the alphabets; this seemed to make them feel alphabetically powerful and capable over other participants.

Conclusion

Responses on educational programme indicated that children learn from educational programme. However, the duration on the how long they will remember such learned concepts, new words and behaviours remains ambiguous. Children's engagement is largely invoked by action, music and engaging presentation. Their responses indicated that children were

unable to utterly comprehend new accents, fast and unfamiliar language. They also easily lost their attention when the shows become too static with long dialogues. The repeated mention of using Mizo in the telecast can be a warning that programmes could be bilingual. Use of code switching such as 'Light or Batti or Eng' can enhance both comprehension as well as exposure to other languages. Language and novelty plays an important part for making learning possible. Age of the viewer, captions, clarity in content, speed, action-filled characters, practical applicability and humour are significant in engaging children's interest and comprehension. As Pavlov in 1927 indicated, children learn through their 'orienting responses'. They need interesting visuals, captivating scenario, change and novelty in scene for their brain to eagerly response to the screen (Christakis, 2007) [4]. It is also very important to create cultural and visual familiarity in content as they learn more effectively when they integrate with lesson they already know (Towns, 2001) [31].

Implication for educational programme maker

Programmes with specially designed child content did have positive learning outcome. Research on Sesame Street has shown that educational television improves academic abilities. They found that children who have better reception of educational TV were 14% more likely to do better in school (Kearney & Levine, 2015). It also increases phonological skills, vocabulary, concepts and awareness of diversity (Prince, *et al*. 2002; Gyan Vriksh Technologies Report, 2009) [7].

The hard works of educational programme makers were noted to have positive outcome for children. It even proved effective for Mizo children who have different language, cultural and economic background. The study provides evidence for appeal and engagement for programme that are close to children's lives. Familiarity and linguistic proximity thrills children. If difficult challenges of everyday life such as problem situations or emotional conflicts are dealt in the content, children feel rewarded. Older children like academic enhancement and demonstration of concepts and phenomena. Content that address curiousity, experimentation and possibility for exploration attracts and engages childhood imagination. It has shown that children learn some new words, word meanings, phonetics, concepts about science and favourable behaviour from the educational television. Learning from this educational programme largely depends on language comprehensibility and age of the viewer.

There were some noteworthy responses from the present study in Mizoram which could contribute for the effectiveness of educational television.

There is evidence that the content is enriched by the factor like music, mix of medium such as live action studio or animation. Mizo children were attracted by the novelty in educational television. 'GGSS' programme excites younger children (4-7 years). They were ambivalent towards 'Muppets'; they liked the 'newness', but the static-facial expression seemed to bother them influencing their attention. They took pleasure in watching TV for entertainment and not as an educative medium. They also enjoyed watching a programme in a relaxed atmosphere along with free-play. They played and moved from one space to the other but were still engaged in the programme. When there was a change in scene with sound effect or when animated clips and real life action film were shown, their focus was easily reverted. They also wanted a more concrete and challenging content like swinging a hula-hoop. Older children (8-11 years) were interested in the Science Mein Twist programme except when the speed and accent becomes difficult to understand; when the show is 'all talk and no do'. Their curiosity was noted in their keen observation towards the programme and their constant note making process. It seems as if they wanted to commit each aspect to memory.

The intervention through educational content conveyed children's ability to engage and comprehend. Children need appropriate content for constructive television use. Exposure to inappropriate content may be detrimental to children's development as violent films or incomprehensible adult behaviour may leave children confused or anxious. It also indicated that children learnt in a naturalistic manner with more entertainment than rigid educational teachings.

Following are certain features of technique to foster visual content.

- To enhance the effectiveness of educational programme children need engaging content. They pay more attention when they could decipher the message and comprehend its content (Chernin & Linebarger, 2007). Familiarity in language helps in understanding the content that makes it an important factor to impart learning. Language needs to be comprehensible, age-appropriate, cultural and regional appropriate. It needs to be at a regular pace in speed with voice modulation and clarity of voice-tone.
- For older children, appealing curricular content, text with interesting visual features, practical applicability especially in the concepts of science ignites excitement and curiosity. Example: some simple experiments like 'bending light' or 'putting a boiled egg inside a bottle' aroused children's interest as they were practical and applicable at home.
- Clarity of visuals would be beneficial for both age groups (younger and older children). For older children, it would be useful if there is a caption for specific words and terms especially for science educational programme. For younger children, it would be helpful if the numbers, shapes, colours, letters are shown clearly on the screen.
- Children are captured by the aesthetic quality of the scenes. They need a scene where they 'want to be in the show', like a child wanting to slide down the golden stairs, hops around in a meadow, etc.
- Children need humour with action filled images. Younger children enjoyed slap-stick humors and other animated cartoons. They also enjoyed the juxtaposing humour of the impossible over the possible.
- Children need change and novelty in scenes; they easily lose focus when a particular segment becomes too static with long dialogues. They learn from television through their 'orienting responses', a process which excites the brain's responses for something new and exhilarating.
- Patterns in rhymes and rhythms needs to be culturally relevant and content appropriate. It delights them and easily captures their attention.
- Familiarity- they need and enjoy something that they identify themselves with or visualize. Example: They identified with children having fun, jumping around and enjoying free-play.

References

1. Bickham DS, Wright JC, Huston AC. Attention, comprehension and the educational influences of television. In D.G. Singer & J.L. Singer (Eds.), *Handbook of children and the media* United States of

America: Sage Publication. 2001; 101-119.
2. Bryant J, Bryan JA. Educational television history 1950's to the 1980's. In J.J. Arnett (Ed.), *Encyclopedia of children, adolescents, and the media* United States of America: Sage Publication, 2007; 258-260.
3. Cherry KA. Operant conditioning. Retrieved from http://psychology.about.com/od/behavioralpsychology/a/introopcond.htm, 2005,2015; 24
4. Christakis DA. Attention-deficit hyperactivity disorder. In J.J. Arnett (Ed.), *Encyclopedia of children, adolescents, and the media* United States of America: Sage Publication, 2007; 108-111.
5. Cohen M. The role of research in educational television. In D.G. Singer & J.L. Singer (Eds.), Handbook of children and the media United States of America: Sage Publication, 2001; 571-586.
6. Fisch SM. Children's learning from television. It's not just violence. Retrieved February from online.de/jugend/izi/english/publication/televizion/18_2005_E/fisch.pdf, 2005, 2013; 25
7. Gyan Vriksh. Technologies. The reach and impact of the Galli Galli Sim Sim television show in India: End-line report of a naturalistic longitudinal study. New Delhi: Sesame Workshop Initiatives India Pvt. Limited, 2009.
8. Hofferth SL. Home media and children's achievement and behavior. Child development, 2010; 81(5):1598-1619.
9. Indian television. Galli Galli Sim Sim' to launch on 15 August on Cartoon Network. *Indian Television*. Retrieved September from, http://www.indiantelevision.com/headlines/y2k9/aug/aug86.htm. 2006, 2013; 30.
10. Jomon MG. Towards creative learning: A shift in Paradigm. Studies on classroom process and school effectiveness at primary stage. New Delhi: NCERT, 1997 472-48.
11. Kaiser Family Foundation. The effect of electronic media on children aged zero to six: A history of research (Issue Brief. pp.). Retrieved March from https://kaiserfamilyfoundation.files.wordpress.com/2013/01/the-effects-of-electronic-media-on-children-ages-zero-to-six-a-history-of-research-issue-brief.pdf, 2005, 2012; 20:1-16.
12. Krugman HE, Hartley EL. Passive learning from television. Retrieved March fromhttp://vasulka.org/archive/Writings/PassiveLearningFromTelevision.pdf, 1969, 2013; 30.
13. Lalmuansangkimi C. A reflection on the emergence of print and electronic media in Mizoram. *Global Media Journal-Indian Edition*, Retrieved March, from http://www.caluniv.ac.in/global-mdia-journal/ARTICLE_JUNE_DEC_2015/Article3.pdf, 2015, 2016; 6(1/2): 30
14. Lalhmachhuana5th Mizo general knowledge. 5th ed. Mizoram: Zofa, 2005.
15. Lefrancois GR. Theories of human learning. What the professor said. (6th ed.) United States of America: Wadsworth, Cengage Learning, 2012.
16. Linebarger DL, Moses A, Liebeskind KG, Mc.Menamin K. Learning vocabulary from television: Does on screen print have a role? Journal of Educational Psychology, doi: 101037/a0032582, 2013; 105(3):609-62.
17. Mahajan AJ, Luthra N. Television and children. In Family and television. New Delhi: Gyan Publishing House, 1993; 65-83.
18. Martin P. Visual Communication. New Delhi: Global Vision Publishing House, 2008.
19. Moeller B. Learning from television: a review report. Retrieved, 1http://cct.edc.org/publications/learning-television-research-review, 1996, 2013: 29.
20. Morgan M. Cultivation theory. In J.J. Arnett (Ed.), Encyclopedia of children, adolescents, and the media United States of America: Sage Publication, 2007; 225-227.
21. Mukherjee PK. Science Mein twist. *Spectrum: Science Report*. Retrieved September, from http://nopr.niscair.res.in/bitstream/123456789/7522/1/SR%2047 (3) %20(Spectrum).pdf, 2010, 2013; 30.
22. Naigles LR, Mayeux L. Television as incidental language teacher.In D.G. Singer & Singer (Eds.), Handbook of children and the media New Delhi: Sage Publication. 2001; 135-152.
23. Prince DL, Grace C, Linebarge DL, Atkinson R, Huffman JD. Between the Lion: Mississippi Literacy initiative. A final report to Mississippi educational television. Retrieved, 2016, 2002; 30.
24. http://www-tc.pbskids.org/lions/parentsteachers/pdf/btl-mississippi.pdf
25. Roe K. Television, viewer age. In J.J. Arnett (Ed.), *Encyclopedia of children, adolescents, and the media* United States of America: Sage Publication, 2007; 820-821.
26. Santrock JW. Lifespan development. (3rd ed.) New Delhi: Tata McGraw Hill Publishing Company, 2007.
27. Scantlin RM. Educational television, effects. In J.J. Arnett (Ed.), Encyclopedia of children, adolescents, and the media United States of America: Sage Publication. 2007; 255-258.
28. Singnorielli N. Television's gender role images and contribution to stereotyping. In D.G. Singer & J.L. Singer (Eds.), *Handbook of children and the media* United States of America: Sage Publication. 2001; 341-357.
29. Sunderaj V. Children and television. New Delhi: Authorspress, 2006.
30. Teddlie C, Taskakkori A.. Mixed method research: Contempory Issue in an emerging field. In N.K. Denzin, & Y.S. Lincoln (Eds). *The sage handbook of qualitative research* London: Sage Publication. Retrieved April, from https://books.google.co.in, 2001, 2016; 285-299:6.
31. Towns EL. Students learn differently. In What every Sunday school teacher should know. Andhra Pradesh: Authentic Book. 2001; 45- 48.
32. Vollmer ML. Educational television programme. In J.J. Arnett (Ed.), encyclopedia of children, adolescents, and the media United States of America: Sage Publication, 2007; 260-263.