Chapter-3
Methodology

Any research method development passes through stages of construction, testing, and replication of testing. Types of testing may vary suiting different purposes of construction. As the present research aimed at developing a method by which creators would be able to come closer to needs and aspirations of readers and reflect the same in content, it has taken up a quasi-experimental research design. A reading into aspects of quasi-experiment, which has purposive flexibility in design is in order to justify the decision.

3.1 Quasi-Experiment

In Social Science research, experiments are conducted in real-life or field settings, where researcher has less control over the experimental conditions. Control varies on continuum. Field experiments are done in natural settings. Experimenter’s control here is based on internal validity and external validity. There are differences between laboratory experiment and field experiment. Field experiment have greater external validity but lower internal validity. Control is less, generalizability is high. Quasi-experimental designs are common in field experiment (Neuman, 2004).

In this design, at least one characteristic of a true experiment is missing i.e. either randomization or the use of a separate control group. However it always includes manipulation, to test if the intervention has made any difference.
The present research on developing method to ensure communication satisfaction was operationalized in quasi-experimental design because-

a) The readers of three issues of the test newspaper (here the magazine Nabamas) were spread in different parts of West Bengal. Their readings happened in different real-life settings on which researcher had no control. It was not possible to know what each of the readers did before reading, which might have an influence on reading any or many of the articles.

b) In this research, it is tried to gather data on prior media experience of probable readers before developing first issue besides defining their broad inclusion characteristics for reader panel (knowing Bengali and being habitant in semi-urban or rural setting in West Bengal). In this way, we know the general media experience of the panel, thereby increasing external validity of research.

c) Readers are anonymous, large in number and heterogeneous in nature. Control of the readers’ reading choice and responsive behavior varies from one to other many reasons and set up. From this point of view, there are very less chance to control the readers’ reading behavior or selection.

d) Creators, in this research, were from journalism school and having same type of media training for one and half years before being made part of the quasi-experiment. They were questioned in discussion and later, in a different setting asked to fill up questionnaire on broad range of perception about readers’ traits, preference along with perception about own role and writing preferences. These two ways were adopted to crosscheck trustworthiness of writing with reference to that of opinion in discussion. It offered higher control in creator groups in contrast to lower control in reader panel, thereby conforming on the norm of varied control in quasi-experiment.

e) No separate control group of creators or readers were introduced in this study. However manipulation of the creator group for increasing internal validity
was taken up. Here we have only experimental groups engaged in creation-reception binary.

This design helps researcher to test causal relationship in a variety of situation, where classical design is difficult to employ. As it is variation of classical experimental design, so it is called Quasi (that appears to be, but is not really so) (Gunter, B. 2000).

**Use of Quasi-Experimental design:**

Lunt, P. and Livingstone (1996), in their research study ‘Rethinking the Focus Group in Media and Communication Research’ discussed about the uses of quasi-experimental design with focus group in social science research. They mentioned that when researchers try to discover the participants’ meaning and ways of understanding, it is very helpful.

The present study was conducted under the Quasi-Experimental design for ‘generalized causal inference’ (D.Campbell, 2002) between audience need fulfillment and Communication satisfaction. The study was conducted with experimental group of readers and content creators of the test magazine (newspaper) Nabamas with **Matchmaking (Pre-test): Treatment: Post-test.**

This quasi-experiment was conducted with the experimental group of readers in three periods to discover the same phenomenon of communication satisfaction. Creator group membership had both common participants through issues and replacement with same traits. So this study has followed longitudinal research design too with two panels- one of creators, the other of readers.
J. Jeffrey Arnett (2007), in his work ‘Children, Adolescents, and the Media’ discussed about the causal inference in natural experiment with respect to media effects. For this he mentioned about the conditions where this inference can be derived.

The first condition for making a causal inference is the knowledge that the media cause preceded its effect in time, which is easily met in natural experiments. This timing difference make researcher interested for studying the situations.

The second condition for causal inference is the media exposure (which is treatment condition) and its effect on users. For this purpose statistical measurement is done, but there are chances for statistical error in the measurement. Error may be type I error, where difference exists in the sample of study but does not exist in the population it represents. Otherwise conversely, the uses of statistical measurement may fail to detect the true pattern of covariance which does not exist in the population. This is called the type II error. Otherwise if enough statistical power is there in a very large sample, then the presence of trivial relationship is not important for the effect on study (Type III error).

When above mentioned explanations of the effects can be treated as threats to the internal validity of the natural or in quasi-experiment, then the relationship can be assumed to be causal.

When the study is done under natural experiments, it is also important to check the construct validity, it is an alternative interpretations for measurement and manipulations.
3.1.2 Internal and External Validity in quasi-experimental design

In case of experiments only the independent variable differs across condition. So, changes in the dependent variable is caused by the independent variable. But here the study was done under less ideal conditions which fit Quasi-experiment. There are many number of independent variables which differ across conditions, which make it more difficult to see whether it was the independent variables that is responsible for changes in the dependent variable or some other reasons exist in the environment.

To the extent that a study allows one to conclude that the independent variable affected the dependent variable, then it is said that it has good internal validity. So an ideal experiment has perfect internal validity, whereas quasi-experiment has less internal validity.

External validity in real life or field experiment is high with quasi-experimental design as it approximates real life dynamism and realities of working. In this study, the purpose being to develop the method which would work under real environment of media creation and consumption, ensuring external validity was ensured through steps of method development in quasi-experiment design.

Cook et. al (1990) emphasized that internal validity is most important for making causal inferences. They, through inspection of various research design examples suggested that it can be accomplished in natural and other quasi-experiments through research design rather than statistical adjustment.

Present study, in different component of research design such as, reader sampling (for qualities of representativeness, adequacy, objectivity, and replacement with
least sample composition change) and tool construction (to make it reliable, adequate, objective and having capacity to bring out the phenomenon in details) along with aspects of historicity and maturation has ensured that the internal validity.

**Historicity and Maturation:**

J. Jeffrey Arnett (2007) identified that a necessary condition for making causal inference in natural experiments is that there exists no specific alternative explanations for the effects, like the behavioral change which is not directly linked to the impact of medium. The relationship between the presumed media cause and its effect might be the other historical events that happened between the pre-test and post-test. This could be either a general societal change which is affecting all the members of the groups or some local historical change. In case of present study, between reading of magazine and recording responses, or between two issues, there were not perceptible changes which might influence continuity drastically.

The presumed causal relationship between independent and dependent variables might be due to maturation which comes from the participants’ older, wiser or changing nature. If there are no differences between the group of pre-test and post-test, then it can be said that maturation happened with causes of any other pre-post differences. Testing effects are measured according to test wise knowledge. Pretest- and post-test differences occurs due to a change in the measuring instrument and statistical regression toward the mean.

This condition occurs due to different types of audience member in the group, which is preexisting. The researcher trying to understand the group in the natural experiment differs from the pre-test due to demographic variables or also with the behaviors of special interest.
Otherwise, if the same individuals are studied with longitudinally, is there any attrition or drop out between the first study and subsequent collection of data. This internal validity should be low for all of the groups in the study. Selection maturation, where the groups may contain different types of people, who may mature at different rates in the behavior, finally there is chance for ambiguity about the direction of causal inference, but it can happen in correlation studies. This is not a usual problem with quasi experiment.

Present study, in its longitudinal design has faced no such problem due to very less attrition in panel of experimental reader group through three issues. Further, whatever replacement of respondents for the third issue was done, was in conformity with reader traits defined before product development.

**Construct validity and criterion validity**

The pre-test study did not use construct validity as it was not posited in any theory. Rather, it is trying to explore whether it is possible to create creator-audience matchmaking to approximate the aspiration of media creation for high reader preference and satisfaction. So it used criterion validity which is employed in a research where predictor variables has effect on criterion variable.

This conforms J. Jeffrey Arnett (2007), comments that about the media effect study in natural experiment must be concerned about the external validity. To generalize the findings obtained from their samples can be used with other times, places and people.
3.2 Concepts Relating to Research Design

3.2.1 Dependent and Independent Variables

This quasi-experiment considered communication satisfaction as the varying degree of preferences for various features of content. In this study nine independent variables as content preference decider were selected as causal to estimate the communication satisfaction (dependent variable) of readers going through magazine reading experience. This is based on the premise that if X may be considered to be the cause of Y, then X is described as explanatory variable (also termed as causal or independent variable), and Y is described as criterion variable (also termed as resultant or dependent variable) (Kothari & Garg, 2014).

Table 1: Variables

<table>
<thead>
<tr>
<th>Nine independent variables (Causal):</th>
<th>One dependent variable (Resultant):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Information Richness</td>
<td>Communication Satisfaction</td>
</tr>
<tr>
<td>2) Design/ Lay out attraction</td>
<td></td>
</tr>
<tr>
<td>3) Content as satisfier and exciter</td>
<td></td>
</tr>
<tr>
<td>4) Language ease</td>
<td></td>
</tr>
<tr>
<td>5) Presence of humor</td>
<td></td>
</tr>
<tr>
<td>6) Thought and action-provoking content</td>
<td></td>
</tr>
<tr>
<td>7) Idea for share</td>
<td></td>
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</tbody>
</table>
8) Feeling of pride by reading content  
9) Cover page interest

<table>
<thead>
<tr>
<th>Variables</th>
<th>Factor</th>
<th>Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Information richness</td>
<td>Information</td>
<td>Cognitive</td>
</tr>
<tr>
<td>2) Design &amp; Layout attraction</td>
<td>Aesthetic enjoyment</td>
<td>Affective</td>
</tr>
<tr>
<td>3) Cover page interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Thought and action</td>
<td>Identity</td>
<td>Personal integrative</td>
</tr>
<tr>
<td>5) Feeling of pride through by reading content.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Idea to share</td>
<td>Integration</td>
<td>Social integration</td>
</tr>
<tr>
<td>7) Content as satisfier and exciter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Lucid Language</td>
<td>Entertainment</td>
<td>Escapist</td>
</tr>
<tr>
<td>9) Presence of humor.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Variables:** Variables are parameters which are not consistent, or having a fixed pattern. These are liable to change from item to item in perception of respondents. For this study nine variables were selected in two steps. First, from the literature review (McQuial, 1987, Loho Chowdhury, 2008) several probable variables were noted down. Then, from perception of audience (probable reader respondents) and
creator, only nine of these were preliminarily shown as having relevance. This identification required discussion and survey, both.

Illustration of nine select variables:

1) **Information richness:** General purpose for media utility are based on receiving information from media sources for outer reality and happenings and getting pleasant enjoyment and entertainment from the media experience. Here information richness refers to sufficient, up to date, relevant facts as content elements in the reading content.

2) **Design and layout attraction:** Choice of color, selection of photos/pictures with the matching of content and advertisement, presentation of writing, word selection all are the elements to attracting audience towards the particular magazine choice.

3) **Content as satisfier and exciter:** The content which is being created through deep emotional and rational understanding of audience by creator are satisfiers. Where the content are able to fulfill the latent desire of the audience through exposing them to unexpected, unknown stories and writing, reader get excitement.

4) **Language easiness:** Language is the medium to express feelings and thoughts. Use of simple language by which can clearly offer the meaning of content to its reader, which is able to create sense among all kind of readers is preferred.
5) **Presence of humor:** In ‘Sadharanikaran’ theory of Communication nine rasas are mentioned as main rasas. Among the nine, humor is one. To remove monotony and hardness in life, readers enjoy the sense of humor in creation.

6) **Thought and action provoking content:** Audience, through media experience receives stimulus for start new action, new way of thinking. Not only they want to enjoy the media experience, they also search inputs which can activate their mind for accomplishing any constructive activity.

7) **Content to share/ Interact:** When people interact with others, they need some kind of content which can be shared. It may be information, idea, new way of discussions, and narration of any events. This sharing and interacting process helps individual reader to extend and connect to other members of the society.

8) **Sense of Pride:** Every reader has his/her own distinct identity which refers to different cultural background, values, desires, beliefs and practices of individual’s life. When readers find any identification of their own image in the media content experience, they feel happy having this kind of exposures. When they find any content which shows the country or people in good light, they also feel proud.

9) **Cover story Good:** Before reaching to inside of magazine, external part of magazine which is created through emotional identification of readers, are easily accessible to readers’ eye and mind.

**Factor:** In this study factor refers to the probable reason for consuming any media product. Here the considered factors are Entertainment factor, Information factor, Personal Identity factor, Aesthetic factor, Integration and social interaction factor. There are many sub factors but considered factors are the main which will cover
others. The nine variables are fitted under different factors according to their characteristic matching between variable and factor.

D. Mcquail (1987) listed gratification indicators for the media product user. From the list, major factors have been used for this study to establish the inclusive relationship between various needs of readers (needs are considered as factor) and probable variables (as content element) in item. It is assumed that the items are created with the probable variables which are able to fulfill the various need of readers.

1) Information factor
2) Entertainment factor
3) Aesthetic Enjoyment factor
4) Personal Identity Factor
5) Integration and social interaction Factor

**Information Factor**- Priority task of media product is to provide information to its audience to make them aware and informed. Collection of information are varied from one to other purpose. In communication all the meaningful messages are information. In general term information refers to the supportive factual data about the real world. This includes opinions, reports, and suggestions about the events of the world. Information helps to audience for discriminating the uncertainty in some domain of reality.

Variable 1: Information richness.
**Entertainment Factor**- From commercial point of view entertainment factor get the prior importance in media production and consumption. In media product consumption entertainment refers to the elements of content which generally create the mood of enjoyment, excitement, pleasant feelings, diversion and talking people out from cocoons of self. It is also termed as diversion from the daily life routines task and its monotony.

Variable 3: Content as satisfier and exciter.

Variable 4: Lucid Language.

Variable 5: Presence of humor.

**Personal Identity factor**- In content of communication product process, it is necessary to form and maintain the identity i.e. Characterization of person, place, by self or others according to biographically, socially, culturally, linguistics and other features of identification. Here audience can connect themselves with their own surroundings and known identifications.

Variable 6: Thought and action provoking content.

Variable 8: Proud feeling by reading content.

**Integration and social interaction factor**- As a member of society, audience represents individual and collective self. To harmonize the society, integration and interaction among the members is needed. This integration process occurs through different events and ways. Interaction is used as reciprocal process between one member to others to build relationship. Interactivity and integration refers to mutual adjustment, co-orientation, finer control and greater efficiency in most communication relationship and processes.

Variable 7: Idea to share/ interact.
**Aesthetic Enjoyment Factor** - Apart from the above factor, some elements which are subtle, creates pleasantness in mind. These are visible in picture selection, word selection, and presentation. These add the value in creation.

Variable 2: Design or Lay out attraction.

Variable 9: Cover page interest.

**Need:** Here need refers to the requirement of fulfilling different mental and material utilities of a person. This is connected with different kind of aspiration and persuasion of members of audience. For nurturing this aspiration and persuasion, they need different sources which would help them fulfill their goal in life. These sources come from the using of different media products. The needs media product covers are Cognitive needs (Information), Affective needs (Emotion), Personal integrative needs (Identity), and Social integration needs (Interaction) and Escapist need (entertainment).

The considered factors for consuming any media product has the direct relationship with the above mentioned needs of audience. The use of media product or preferences for its specific content segment reflects audience need fulfillment. This fulfillment is in match with the audience personal or social goal. Finally reaching this goal, audience become satisfied with the consumed media product.

**Cognitive Need:** Cognitive needs involve the strengthening of information, the acquisition of knowledge and the understanding of the environment and the world through the media content. Another dimension that is also satisfied in obtaining information is curiosity and exploration (Heldi, 2009 & Heath, 2000).

**Affective Need:** Affective needs refer to search for emotional fulfillment, pleasant feelings and aesthetic experience (Mondi et. Al 2008, P.2). The pursuit of pleasure
and entertainment is one of the most basic motivations for media consumption (Heldi, 2009, Hunter, 2005).

**Personal Integrative need:** Personal integrative needs relate to the confirmation of credibility, confidence and stability as well as the status of the individual (Heldi, 2009). The personal integrative needs originate from the individual’s desire for self-esteem (Heldi, 2009).

**Social Integrative need:** The desire for affiliation and social contact is addressed in the social integrative needs. Individuals continuously search to strengthen contact with family, friends and the world (Bryant & Heath 2000).

**Escapist need:** The fifth need gratification, escapist needs, relate to the desire to escape, to release tension and seek diversion (Heldi 2009, Severin & Tankard, 1992).

### 3.2.2 Experimental group

When a group of respondents are exposed to any creation with special condition or environment is termed as experimental group of the study. To develop this study we have considered only experimental groups of readers and creators. The intervention variation were understood within the groups in three phases.

### 3.2.3 Treatment
The different conditions under which experimental groups are put usually referred to as treatment. In this study intervention of treatment was done with the creation of new magazine called ‘Nabamas’ with the creator and reader participation. For understanding the communication satisfaction of readers from a magazine product, this test magazine is developed for three phases and presented to the experimental readers.

3.3 Data Collection

3.3.1 Survey
Survey method was used to elicit the responses from the probable readers and content writers of the new magazine. Open ended and structured questionnaire were used as survey instrument for perception and reality understanding.

After completing each phase of new magazine creation and circulation to the experimental readers, feedback form was used to record the reading experience of the test magazine.

3.3.2 Qualitative Longitudinal Observation (QLL):

The study depended on qualitative longitudinal observation (QLL); longitudinal observation was conducted through time and experimental group of readers and creators to explore the variation in item creation and consumption. 117 readers of print media were in reader panel for three years from 2012 to 2015.
3.3.3 Scaling Instrument

Choice from nine probable independent variables were determined according to reader’s choice. The choice of selection was organized with a questionnaire of six dimensional rating scale as magazine attributes for buyer, who had been asked to rate the each and every attribute with 1 to 6. Here 1 refer to most liking, 6 is the least liking. From this task, the dominant variable was also found out before doing factor analysis.

3.4 Study Sample and Method

3.4.1 Purposive Sampling

Generally, the sampling design is done with some considerations of the nature of inquiry and other related factors. As the study followed with pre-test: treatment: post-test design to maintain low cost and convenience, purposive sampling was appropriate. It is called judgmental sampling (W.L. Neuman 2007, Bryman 2012).

For using purposive sampling in the study, researcher use their special knowledge or expertise about some group to select subjects who represent this population (Bruce L Berg, 2001).

3.4.2 Readership Sample
To understand the coverage gaps and expectations arising out of magazine experience of rural & semi-urban Bengali readers, an all West Bengal profile of the sample was carefully crafted. Santiniketan (Birbhum) & Balichawk (West Midnapur) were the places where it is possible to get a congregation of different segments of people from the state. Therefore, most of the respondents representing Bengali readers of the broad trait mentioned above were taken from these two places for the probable readers’ survey.

Sample of 160 readers were drawn purposively to know their media habits, gaps and expectations in magazine experience and their content preference of various genres/segments of stories appearing in magazine. Only those readers from this sample, who bought the test magazine were approached to volunteer for their liking-disliking preferences only after lapse of minimum one month after reading. This was done for two reasons- 1. to approximate the quasi-experiment as much as possible with real media experience from a commercial media product; and 2. to ensure that volunteer readers answer the survey from their memory which would speak for their real liking (people can keep such inputs in memory which are in accordance to their taste or liking. Dislikes, unless extreme are not remembered.)

For measuring communication satisfaction level with Creator-Audience participation, this surveyed readers were treated as experimental group during pre-production, production and experiencing-feedback phases of publishing three issues. A total number of 117 members constituted the experimental reader group. This is a sufficient sample size for a quasi-experiment design.

3.4.3 Content Creator Sample
To know content creators’ understanding about this category of respondents including traits, needs and aspirations of them as readers, and to know their visualization of readers’ preference, content creators were invited to three rounds of group (30) and one-to-one discussions with the research team. This was followed by filling up of reader perception-cum-content perception form by content creators. Content creators included editing persons, feature writers, designers and reporters of the test magazine.

3.4.4 **Justification for sampling and area selection.**

The above mentioned sampling design is justified as-

a) It has adequate numbers of sampled respondents with appropriate characteristics of the proposed readership,

b) It has sufficient number of creators with appropriate skills, orientation and traits.

c) The longitudinal panel of reader samples has very few replacements in second and third year. Replacements were having same broad traits and same locations.

d) Creators’ panel 10 for every year had at least two persons from previous years. Others had the same traits of being explored to same type of orientation, same schooling and education.

3.5 **Steps in Proposed Creator-Audience Match Making Method**
To establish a valid Creator-Audience matchmaking process for generating communication satisfaction in readers, the researcher followed a systematic approach for achieving the purpose of the study. The data were collected from the readers and content creators. The readers’ data are based on their demography, Magazine experience, gaps from existing magazine read, perceived expectation from any new magazine, and the genre preference or broad content segments of any new magazine. The creators were asked about their target audience identification, content preferences for target audience and perception about target audience background according to their micro and macro environment. This collection of two kinds of dataset was analyzed to set up the common orientation between Creator and Audience. To achieve this, the two levels of conformity and dissonance measurement were undertaken.

After completing above phases, task of new magazine development was done providing treatment for the target audience in three phases. The resultant of common orientation between creator and audience has been incorporated as satisfaction and exciter elements in new communication package of magazine. The prepared magazine was named ‘Nabamas’. This test magazine was circulated to the reader panel as experimental group. After one month of their reading experience, feedback forms were filled up by the same readers. To measure the response score of the audience with nine independent variables for content liking of the magazine rating scale was employed. The measurement here was considered as impact of magazine on experimental group for generating satisfaction for reading experience.

Creator-Audience matchmaking process was executed with nine stage research framework proposed by lohochoudhury (2011) to find out efficiency of the proposal towards creator-audience match making. Steps are:
Step 1: Audience Demography Identification.

Step 2: Previous Print Media Experience Survey.

Step 3: Audience Perception of Gaps in Previous Print media experience & Expectations from Proposed Product.

Step 4: Schedule of Expected Return for Audience.

Step 5: Schedule of Creators’ Audience Need Perception.

Step 6: Schedule of Creators’ Communication Preferences.

Step 7: Creator’s conformity and dissonance identification.

Step 8: First Level Creator Consistency-Audience Expectancy Conformity Testing.

Step 9: Field testing of the product (Treatment).

3.5.1 Research Vehicle: Test Magazine

Here research product is magazine which was prepared according to probable readers’ demand for a new magazine experience.

Magazine: A type of Newspaper

According to Registrar of Newspapers in India any information containing sheet of any specific periodicity (day, week, fortnight, month etc.) is a newspaper. Any
newspaper of a larger periodicity than a day is known as magazine. Newspapers attempt different measures of audience reach. This is based on the difference potential newspaper and magazine reading publics. This potential differs in reading ability, availability of reading, and regularity for reading.

**Magazines are Commodities**

They are commodities produced in order to be sold to readers and which make their income through selling the attention of their readers to advertisers (M.Iqani, 2009).

**Magazines are Visual Media**

They are asymmetrically reliant on visual forms of mediation, incorporating image, color, design, layout and illustration in their formats.

**Magazines are about leisure and entertainment**

They are concerned with entertainment, creating their content so as to appeal to moments of escapism and relaxation and implying that reading them is an act of leisure.

**Magazines address reader as consuming individual**

They address readers as consuming individuals, highlighting matters related to private life and consumption as a mode of addressing personal development and defining self-identity.

**Magazines asserts an authority on style**

They assert an authority on style, offering education on how best to consume and appropriate commodities available to consumers.

### 3.5.2 Pilot study
For media consumption it is standard procedure to conduct qualitative pilot studies (Jensen, K.B. 2012). A preliminary testing in which the researcher seeks to try out a new idea, system or approach; to determine whether intended study is feasible to clarify assumptions and improve instrument of measurement (Bloomsbury dictionary of media and communication studies) is a pilot. Present study, though qualitative in nature, made use of measurement of non-parametric variables.

In this study whole task is considered as pilot study to know the execution ability and reliability of used match making process under development. As this tool will be referred to media organizations for decreasing their uncertainty in audience dealing (following a structural methods of audience identification to field testing of product) the test magazine is used the media product vehicle for the study. A nine steps research framework was run with Quasi-experimental design by using longitudinal purposive sampling of readers and creators for determining how creator and audience gap can be eliminated gradually. Increasing consistency was considered as the mark of improvement in product development.

The significance of Pilot-test, is to find out uncover aspects of the experiment that needs refinement. The test was done on a small scale in order to see if it is successful enough to be replicated on a large scale. The pilot study was undertaken for testing robustness of Creator-Audience match making tool, taking ‘Nabamas’ as the input and vehicle for measuring output of text where creator would be assimilate various tastes, preferences and needs of the reader in product.
### 3.5.3 Duration: 2012-2014 (Every year one issue)

Whole design of the study has been rotated with the time frame and activity in this way:

<table>
<thead>
<tr>
<th>Survey</th>
<th>Case</th>
<th>Reader</th>
<th>Creator</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Phase</td>
<td>Before creation of product</td>
<td>160(open)</td>
<td>N.A.</td>
<td>3months,2012</td>
</tr>
<tr>
<td>2nd Phase</td>
<td>Product Creation-Product Experience</td>
<td>117(Experimental)</td>
<td>10</td>
<td>6mnths,2012</td>
</tr>
<tr>
<td>3rd Phase</td>
<td>Do</td>
<td>117(Experimental)</td>
<td>10</td>
<td>6mnths,2013</td>
</tr>
<tr>
<td>4th phase</td>
<td>Do</td>
<td>117(Experimental)</td>
<td>10</td>
<td>6mnths,2014</td>
</tr>
</tbody>
</table>

In two phases of 2nd & 3rd, creator was asked perception about reader and his/ her creation.

In 4th phase, Creator was asked with a set of twenty questions regarding the knowledge of his/ her target Readers’ surroundings along with second and third phase questions.
Sequential phase of Pre-test & Post-test of New Media product (Magazine) Development:

Table 4:

<table>
<thead>
<tr>
<th>Part I-Trial</th>
<th>First issue of New product Creation(Called ‘Nabamas’)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td><strong>Respondents</strong></td>
</tr>
<tr>
<td>Pre-test</td>
<td>Open Reader</td>
</tr>
<tr>
<td>Treatment</td>
<td>Development of New Product.</td>
</tr>
<tr>
<td>Post-test</td>
<td>Experimental group</td>
</tr>
</tbody>
</table>

Open reader of Pre-test were converted into experimental group of Post-test. Intervention of post-test is the feedback form of treatment (i.e.-Product Performance).

Table 5:

<table>
<thead>
<tr>
<th>Part II-Trial</th>
<th>Second issue of ‘Nabamas’ Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td><strong>Respondents</strong></td>
</tr>
<tr>
<td>Pre-test</td>
<td>Whole task of first phase has become pre-test in second phase</td>
</tr>
<tr>
<td>Treatment</td>
<td>Development of New Product with the help of Creator-Audience match making process.</td>
</tr>
<tr>
<td>Post-test</td>
<td>Experimental group</td>
</tr>
</tbody>
</table>

Table 6:

<table>
<thead>
<tr>
<th>Part III-Trial</th>
<th>Third issue of ‘Nabamas’ Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td><strong>Respondents</strong></td>
</tr>
<tr>
<td>Pre-test</td>
<td>Whole task of Second phase has become pre-test in third phase.</td>
</tr>
</tbody>
</table>
 Modification towards the way of treatment has been introduced to perfect the creation process. 
By the time, some previous reader has been replaced with other readers.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Development of New Product. Creator-Audience Match making with special effort on creator.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-test</td>
<td>Experimental &amp; replaced group Structured questionnaire June-Oct’2014</td>
</tr>
</tbody>
</table>

3.6 Statistical tool applied with SPSS

3.6.1 Factor Analysis

A factor analysis is a way of determining if a large number of variables have fewer or more basic factors underlying those (Williams, 1968).

Factor analysis is a multivariate technique. It is highly effective and functional approach to explore or define the psychological or behavioral variables. It is a sophisticated statistical technique to determine the latent factors among the large number of independent variables. It has the capacity to design the multiple-item scales, where each scale represent a different dimension.

To understand the latent factors of the communication satisfaction, probable nine independent variable was used as ‘item liking’ parameters of any magazine. Here ‘item’ refers to individual published content (story/ poem/ news/ interview/ article/ debate etc.). Liking/disliking of any item in the magazine has direct link with the selected variables. All selected variables are the latent factors of communication function of informing, entertaining, personal identification, integration and interaction and aesthetic. Nine independent variables were tried to be
operationalized by creators in item creation to satisfy five factors as “Communication Satisfaction generator” for readers.

**Factor:** It is an underlying dimension of numerous interrelated variables.

**Factor loading:** It is numerical values which explains how closely the variables are related with the each factor discovered. They are the co-relation between factor and variable. It is the absolute size of the loadings that is important to interpret the data. For identifying the latent variables or constructs, there must be minimum standard or cut-off for factor loadings. Latent variable are selected from the minimum factor loading for each variable. The value of factor loading varies depending upon the nature of the study. Some researchers consider that factor loading should be decided on the basis of sample size. It is the 10 percent of the sample size.

a) **Communality:** It shows that how much of each variable is accounted for by the underlying factors taken together.

b) **Eigen value:** (or latent root): It is the sum of squared values of factor loadings to a factor. It indicates the relative importance of each factor in accounting for the particular set of variables under study.

c) **Total sum of squares:** it is the total of Eigen values of all factors.

**Purpose of using Factor analysis:**
The purpose of applying factor analysis or data reduction method is to remove highly correlated variables or redundant variables from the original data set with a smaller number of uncorrelated variables. To construct a solution first one has to go for extraction method. The principal component method of extraction has been decided to find out the linear combination of variables or component from the point of high variation. Then it will find another factor that accounts of high variation and uncorrelated from the earlier variables. Generally, only few components will account for high variation and these components can be replace with the original variables. To reducing the number of variables from the data set, this method is helpful.

### 3.6.2 Linear Regression Analysis

Here the researcher adopted linear regression analysis, reason is one dependent variable (Communication Satisfaction) functioning with nine independent variables. The purpose is to predict about the dependent variable based on its covariance with all concerned independent variables (Kothari & Garg, 2014).

### 3.6.3 Measurement: Reliability and Validity test

**Validity:** When we use the instrument for study, the result must be valid. Validity indicates the degree to which an instrument measures what it is supposed to measures. Validity signifies the utility. In other sense, validity refers to the extent to which differences found with measuring instrument reflect true differences among those being tested.
For this connection there are three types of validity-1) Content Validity 2) Criterion- related validity and 3) Construct validity

In this study we have considered Content Validity and Criterion related validity.

Content Validity is used to know the total coverage of the study with the measuring instrument. If the instrument contains a representative sample of the universe, the content validity is good. Its determination is judgmental and intuitive which can be measured. Otherwise it may be determined by the panel of persons who can judge how well the measuring instruments satisfies the standards. In this study content validation was done with literature review and pre-test.

Criterion-related validity is used to predict some outcome or estimate the existence of some current condition. This form of validity reflects the positive effect of measures which has been used for some empirical estimation (Kothari & Garg, 2014). In this study nine independent variables were selected from literature review followed by perception match between probable reader and creator group with reference to variable suggested from literature review. These were used as content element for predicting the communication satisfaction level of the audience with the test magazine.

**Reliability Test:** Reliability test is the measurement of soundness. An instrument is reliable if it provides consistent result. Reliable measuring of instrument supports the validity. A reliable instrument need not be a valid instrument, but valid instrument is always reliable. Satisfied reliability test increase the confidence that the transient and situational factors will not intervene.
Two aspect of reliability is stability and equivalence. The stability aspect is concerned with securing consistent results from the same instrument and same readers with repeated measurement.

The equivalence aspect considers the error that may get introduced by different investigators or different samples of the items being studied.

### Cronbach Alpha Measurement for validity and reliability.

<table>
<thead>
<tr>
<th>Cronbach’s alpha</th>
<th>Internal Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha&gt;0.9</td>
<td>Excellent</td>
</tr>
<tr>
<td>0.8&lt;alpha&lt;0.9</td>
<td>Good</td>
</tr>
<tr>
<td>0.7&lt;alpha&lt;0.8</td>
<td>Accepted</td>
</tr>
<tr>
<td>0.6&lt;alpha&lt;0.7</td>
<td>Questionable</td>
</tr>
<tr>
<td>0.5&lt;alpha&lt;0.6</td>
<td>Poor</td>
</tr>
<tr>
<td>Alpha&lt;0.5</td>
<td>Unacceptable</td>
</tr>
</tbody>
</table>

**Source:** Deb, A. (2013).

### Table7: Reliability statistics for all the variables of 3 sets data.

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>No. of items</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.532</td>
<td>22</td>
<td>2012</td>
</tr>
<tr>
<td>0.692</td>
<td>21</td>
<td>2013</td>
</tr>
<tr>
<td>0.81</td>
<td>25</td>
<td>2014</td>
</tr>
</tbody>
</table>

Reliability test of every issue was done with respect to selected nine variables, no. of items in magazine and item wise responses from 117 readers for every issue. The initial value of Cronbach’s Alpha test is 1. Every year’s cumulative performance of magazine was understood by comparing the initial value of test. In the first phase, reliability test value is 0.532 which is fifty percent. In the second phase, it is 0.692,
which is proving better reliability. In the third phase it is 0.81. Which is closer to initial value, means it is maintaining increased consistency level in test.

**Identification of Communication Satisfaction parameters:**

Nine independent variables have been considered for this study. These variables almost cover the attributes of a good magazine that may give communication satisfaction to readers. Magazine as a media product, must have some features which helps it recognition as quality offer for readers. Magazine presents a communication package of different contents related to audiences various needs in a longer periodicity than a daily newspaper. The Communication Package is a mix of informative, entertaining, opinionating, ideating and other reader utility based contents. Not only the content but how it is presented is part of the package.

Attributes were determined according to reader’s response of various items of magazine. Cumulative response against all items of magazine helps to understand the performance (utility) of the product in reader’s perception. Overall performances were calculated on the basis of cumulative score of different degree of attribution choices.

It was crucial to determine the exact attributes for item creation which would be able to beget communication satisfaction of readers.