



## How Prepared are the Prepared: Effectiveness of Training Programs by National Institute of Disaster Management (NIDM) Pakistan

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**Paper ID: AMRJ: 09**

**Volume 2 Issue 1**

### Keywords:

Training evaluation; Kirkpatrick; Reaction; Disaster Risk Reduction; Pakistan

### Abstract

The study focused on the impact evaluation of selected nine variables (Key Objectives, Training Modules, Facilitation Method, Facilitation Tools, Training Facilitators, Training Venue, Logistic Support, Professionalism of the Organization, and Information Management) on Reaction of trainees. National Institute of Disaster Management (NIDM) was taken as case study to evaluate its training programs using the first level (Reaction) of Kirkpatrick model. A questionnaire adapted from Rae, (2004) was used for data collection. Sample of the study comprised 212 men and women. They were from different segments of the society such as government, UN agencies, I/NGOS and academia etc. The respondents had professional experience ranging from 1-16 years & above and having a variety of qualification from matriculation to doctoral level. Descriptive and inferential statistical techniques were applied to see the desired impact. The multiple regression revealed that five (Facilitation Tools, Training Venue, Logistic Support, Professionalism of the Organization and Information Management) out of nine independent variables had impact on the response variable however rest of the four (Key Objectives, Training Modules, Facilitation Methods, Training Facilitators) did not have any significant impact. It was recommended that training evaluation should be given due importance in the public and private sector, by investing required time and resources. The study concluded with the emphasis on exploiting other three levels of the Kirkpatrick model for training evaluation in NIDM and other public and private training institutes by the future researchers

## **1. Introduction**

Since developing the human capital becomes the priority for resilience and sustainable development therefore many different ways are adopted to do this (Downey et al., 2018). Training is the most common and significant activity in the field of human resource development (Ashton & Easterby-Smith, 1979). It is also revealed as a key component in socioeconomic development (Akbar & Leila, 2012). It is used as a problem solving tool by the organizations e.g. for changing approach of the employees' towards problem solving and adopting the new roles and responsibilities (Alkema, 2020; Chunn & Thacker, 1993; Halterman, 2018). The effectiveness of employees in performing their jobs is also influenced by training that improves their suitability, eligibility, skill and value (Holton III & Torraco, 1998; Miller, 2002; Moskowitz, 2008; Prokopenko, 1987). That is why billions of US dollars have been spent in trainings by organizations (DeSimone & Werner, 2009).

However, the cost-benefit ratio of trainings sometimes does not reflect positive trends (DeSimone & Werner, 2009). There are obviously different factors that stand responsible for this negative trend (Schlachte, 2019). Carrying out the training evaluation casually or even neglecting it completely, are critical among these factors (Rajeev et al., 2009; Tennant et al., 2002). Evaluation is neglected even by the organizations spending huge amount on trainings; if there are some organizations that conduct the evaluation, it is mostly confined to reaction, which is the first level of Kirkpatrick model (Ostrom & Mierlo, 2008). Time and resource constraints are also general cause of being restricted to the reaction level for evaluation (Kraiger et al., 2004). The Complexity of its procedure may also be one of the excuses of not evaluating all trainings (Carnevale & Schulz, 1990).

Importance of training evaluation is quite obvious as it contributes in gauging the efficiency and efficacy of the institutions providing training as well (Powell et al., 2004). Further to it, evaluations and findings of training may help both in resolving issues as well as goal setting (Enkuzena & Kliederer, 2011). Since there is realization in the developed world that the spending on evaluation is an investment and will bring return, so there it is taken as the real spirit of training (Kraiger et al., 2004; Tennant et al., 2002). Spending of 10% of the annual budget allocated for training on evaluation by a sample of organizations in US is a good example, as evident by a study (Magdy, 1999).

On the other hand, developing countries are unable to set such examples and the literature reflects vice-versa (Baytiyeh, 2018). Such as in Kuwait, the percentage of public and private organizations that carry out the evaluation of their trainings is 7.5 % and 13.5% respectively (Al-Athari & Zairi, 2002). The government of Malaysia in 1992 set a good example by enacting and putting a legal binding on the private sector to contribute 1% of the overall payroll to the Human Resource Development (HRD) council for conducting training evaluation (Hashim, 2001).

## **2. Literature Review**

Besides all this, organizations either avoid training evaluation entirely or apply it casually (Pershing & Pershing, 2001; Twitchell et al., 2000). Researches highlight that professionals still find it difficult to analyze the data of pre and post training as it is tiring and time consuming task (Eseryel, 2002; Hashim, 2001; Olufemi et al., 2016). Different models are used for training evaluation and sometimes the existing models are amended (Hashim, 2001). Eseryel (2002) investigated the hypothetical and realistic features of various evaluation models. In this backdrop, the Kirkpatrick Model was selected to do the needful. The Kirkpatrick model is highly recognized as basic planning tool for the training evaluation for the business organizations (Kaufman & Keller, 1994).

The extensive use and well reputed name of Kirkpatrick model, across the globe, is because of being logical, practical, and useful framework for evaluation (Bramley & Kitson, 1994). The impressive utilization of the model by practitioners is because it contributed with a constructive, clear, and practicable way of evaluation (Moseley & Larson, 1994). The model has become a reference for studies in this time in the field of evaluation. The study launched by American Society for Training and Development (ASTD) for exploring the best practices in evaluation in 1992 is a point in case (Kimmerling, 1993). The contribution of the Kirkpatrick model towards the processes and thoughts of evaluation is highly valuable (Newstrom, 1995).

It is critical to decide the appropriate point to initiate the evaluation. Kirkpatrick suggests that it should be started from the level-1 i.e. Reaction and move ahead to the next levels depending upon the availability of time and the opportunity. He discourages to start evaluation from the 3<sup>rd</sup> or 4<sup>th</sup> level (Brown & Seidner, 2012). The 'Reaction' being the level-1 of Kirkpatrick model gives the insight of the participants' thinking regarding the training programs and its factors that include the resource persons, resource material, facilitation methods and the content, etc. Measure of learning that take place during the process is beyond the scope of reaction (Basarab & Root, 2012).

Kirkpatrick & Kirkpatrick (2006) insists that not only the Reaction but the positive reaction of the participants is important as the continuity of training program, in future, cannot be ensured if the participants are not happy. Evaluation at Reaction level is similar as to measure the satisfaction of the customers (Brown & Seidner, 2012). Data collection, at Reaction level evaluation, is done by using structured questionnaires to get the reflection of trainees about the training event. The length of questionnaire depends upon the nature of training and the type of participants; mostly the number of issues discussed is limited (Harris, 2005).

Literature reflects that most of the evaluation is conducted at Level I i.e. Reaction (Brown & Seidner, 2012). A survey by the ASTD revealed that 45 % of the organizations surveyed measured only the reaction of the participants' (Bassi & Buren, 1999). Research shows that 93 percent of training courses are assessed at first level, i.e. Reaction, 52 percent at second level, i.e. learning, 31 percent at third level, i.e. behaviour and 28 percent are evaluated at the fourth level i.e. results. Obviously, most of the organizations do not make use of the complete model, therefore the assessments end up at the first level (Reaction) or maximum at second level (learning). Since the processes become more complex as the level of assessment rises, it may justify why the evaluation is conducted only at level 1 and 2 (Eseryel, 2002).

Summing up the debate, it is learnt that the Kirkpatrick's four level model, has enjoyed the widespread acceptability across the globe and it is still relevant as it was some five decades earlier. The model possibly becomes more relevant in this era, as the training providers are more required to bring results instead of just sharing the smile sheets only; and Reaction, as advised by Kirkpatrick himself, is the level to start the evaluation with.

The disaster management approaches give equal importance to the measures taken for building capacities in order to respond disastrous situations effectively and efficiently (Brock et al., 2019; Mönter & Otto, 2018). The financial and technical capacities of the disaster management institutions are not up to the mark hence need due attention so that they may contribute as expected. NIDM is imparting training to certain key stakeholders, since 2010, with limited technical and human resources. The NDMA (2012-2022) identifies the activities for capacity building in its volume -1 titled Human Resource Development Plan (HRDP) that costs 64.30 million USD i.e., 5.68 PKR Billion (NDMA, 2012). The implementation of HRDP in true letter and spirit may contribute significantly towards building the required capacities of human capital in Pakistan.

Various public and private entities, organizations and institutes are providing professional trainings, across the country, however very few of them provide trainings in the field of Disaster Management (Kiran, 2011). Current study has focused training courses offered by the National Institute of Disaster Management that is the only training institute in public sector dedicated for national capacity building and human resource development in disaster management and related disciplines. All segments of the society, including government entities, humanitarian stakeholders, academia, media and general public etc. are the target audience of NIDM training programs. The Inclusion of women participants is encouraged by the institute in its trainings. Since trainees are the core source of realistic feedback in training evaluation so the authors have compiled data that reflects the perception of trainees regarding training programs of NIDM.

The insight and observation of trainees can play a pivotal role in standardizing the evaluation exercise and processes (Hashim, 2001). Assessing the role of participants in a training course may become the basis for enhancing the efficacy of an overall training program (Miller, 2002). NIDM holds training courses both on-campus (Islamabad) and off-campus (provinces/districts). The off-campus training programs are conducted in all provinces of Pakistan, AJ&K and Gilgit Baltistan. In future, as visualized by the management, NIDM would be an international center of excellence and regional hub of learning and knowledge sharing.

Out of total trainees 13% were women while 87 % were men. Summing up the discussion, it is critical to know the fact that disasters are unpreventable completely; measures to reduce the disaster risks would be a wise investment in developing countries (Chatterjee et al., 2015; Zulfiqar et al., 2019). Mainstreaming DRR and CCA into development process is critical to minimize the disaster impacts in future (Glantz et al., 2014; Kelman et al., 2015).

Global community is well aware of the established DRR approaches that may come to rescue in gaining resilience against disasters (Mercer, 2010). However, there is great need to strengthen the skills and learning to cope with any unforeseen disturbance (NDMA, 2013). Effective policy formulation focused on research & development, strengthening of learning infrastructure and innovative approach, in Asia, is a must (Velasquez, 2012). The Human Resource Development Plan of NDMA, which is the part of NDMP (2012-2022), insists on developing human resource equipped with information, preparedness, innovation and organization for effective disaster management and national resilience (NDMA, 2012). The national commitment to gain resilience through developing skills and strengthening knowledge base is the key to success. The research question of this study was how various training dimensions influence the trainees' Reaction?

### 3. Research Methodology

Conceptual framework communicates the rational correlation between independent and dependent variables. The researchers developed the conceptual framework based on Reaction, the first level of the Kirkpatrick (1959) for training evaluation. In this research the independent variables include key objectives, facilitation method, facilitation tools, training facilitators, training venue, logistic support, professionalism of the organization, information management and training modules while the dependent variable is "Reaction". Frequency of the reference in literature denotes the theoretical importance. The schematic diagram further elaborates the framework.

Although there are four levels in the Kirkpatrick model for evaluation, yet the authors put a limit to the first level i.e. Reaction. The restriction on the application of model to only first level was imposed due to scarcity of time and obviously the resources.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_i + \varepsilon$$

Where

Y: Dependent variable

$\beta_0$ : Coefficient of the regression

$\beta_i$ : Partial correlation coefficient of independent variables

$X_i$ : Independent variables

$\epsilon$ : Random error

$$R = \beta_0 + \beta_1 KO + \beta_2 TM + \beta_3 FM + \beta_4 FT + \beta_5 TF + \beta_6 TV + \beta_7 LS + \beta_8 PO + \beta_9 IM + \epsilon$$

Where

R = Reaction (dependent variable)

$\beta_0$  = Constant of proportionality

KO = Key objectives

TM = Training modules

FM = Facilitation method

FT = Facilitation tools

TF = Training facilitators

TV = Training venue

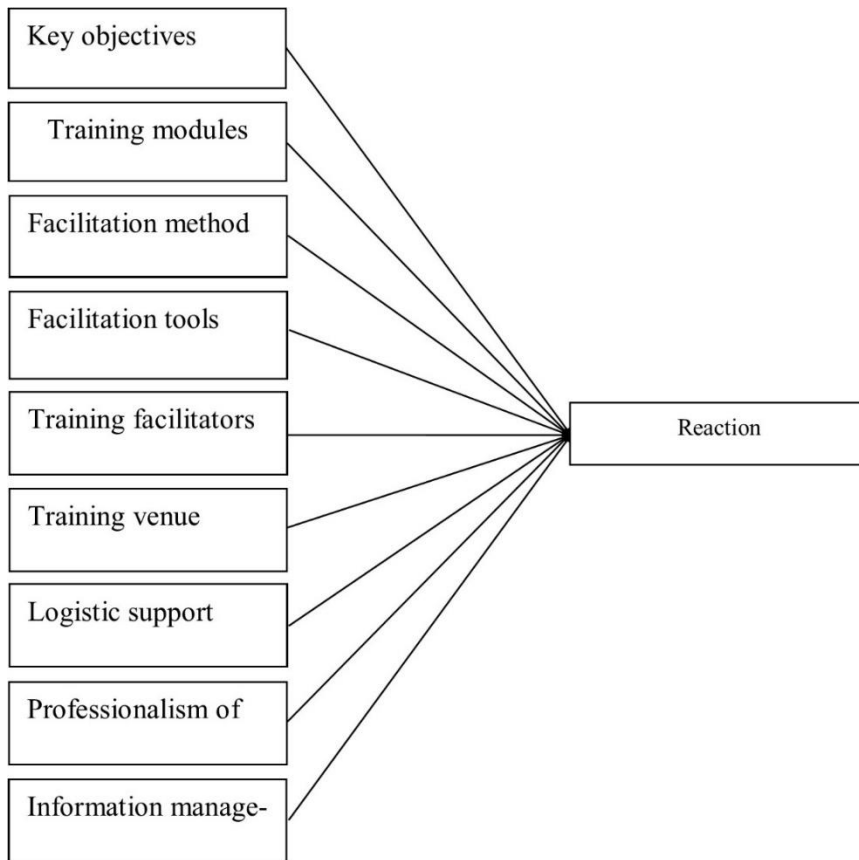
LS = Logistic support

PO = Professionalism of the organization

IM = Information management

And

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$  and  $\beta_9$  are independent variable coefficients.



**Independent Variable**

**Dependent Variables**

Source: (Kirkpatrickpartners, 2016)

This study makes use of the case study research design that is extensively used research technique in the social sciences. The case study technique helps for deep explanations of social behaviors (Zainal, 2007). This technique assists in replying “how” and “why” queries (Baxter & Jack, 2008). The primary data through a predesigned questionnaire is collected and analysed in this study.

The instrument for data collection i.e. the questionnaire was tailored from the “Training Evaluation Survey”, conducted by Rae, (2004). It consists of two sections. The Section one collects demographic data while the section two deals with training dimensions. The subsections of sections one identifies trainee qualification, gender, type of organization and length of experience. Similarly, the subsection two gathers information on the nine dimensions having number of relevant questions. Twenty-six questions were asked from the respondents in total, which were divided among the nine dimensions mentioned earlier. A seven-points rating scale was taken as measurement scale for the current research. Responses, as per the scale were to be “strongly agree, agree, slightly agree, neither agree nor disagree (neutral), slightly disagree, disagree and strongly disagree”. Reliability of the tailored questionnaire was tested through Cronbach's Alpha.

The authors opted to use questionnaire among the various tools in practice for evaluation. These tools include structured interviews, meetings, questionnaires, focus group discussion and surveys. Questionnaire was used as it is comparatively an economic mode of collecting feedback. Indira (2008) while conducting an assessment of a training programs, under Kirkpatrick model, adopted two tools i.e. interview and questionnaires. The questionnaire is valued as more reliable tool for assessment and evaluation in Kuwait; that is why the government and private organizations make use of it approximately 70 % and 81% respectively (Al-Athari & Zairi, 2002). Kenney & Reid (1988) rated questionnaire as the most economic tool and suitable for collecting even larger samples.

Data collection from the respondents was done mostly right after the completion of training; however, a certain number of questionnaires were collected later on as well. The researchers assured the respondents of the confidentiality and purpose of study i.e. academic only, as they were asked to contribute voluntarily.

Nature of present research is descriptive and quantitative. It is a causal study as the researchers tested the impact of various dimensions on ‘Reaction’. Population for the current study was four thousand nine hundred sixty-eight (4968) participants of one hundred and thirty-eight (138) training courses conducted by NIDM during February 2010 - June 2022. The training participants’ during this period represented various segments of society, including foreigners, government departments, armed forces, humanitarian organizations, academia, media, industry and others.

The convenient sampling technique was applied, and questionnaire was distributed among 303 participants of different training programs conducted by NIDM. The sample selection was based on the formula to calculate the minimum sample size given by Tabachnick & Fidell (1996) as described in Pallant & Lae (2002) i.e.  $N > 50 + 8m$  (where  $m$  = number of independent variables used in study). Eighty nine percent of the sample selected consisted of men and rest of 11 % were women training participants. All sectors of the population were represented in the sample and no gender was excluded from the study. The women contribution in the study corresponds to the overall women share in participants. Women participation was also hampered by the travelling involved to participate in NIDM trainings organized at various regional hubs.

The researchers have analyzed the collected data through commonly used software for social sciences studies i.e. Statistical Package for the Social Sciences (SPSS). Multiple regression model and descriptive analysis were run to obtain findings. Descriptive statistics is instrumental to manipulate information regarding training participants. The relationship

between dependent and independent variables is reflected by regression analysis (Gupta, 2000). Regression equation is an important tool to establish bond between independent and dependent variables (Chatterjee et al., 2015; Chatterjee & Hadi, 2015). Before testing the multiple regression models the researcher satisfied the assumptions of Multicollinearity, Normality, Homoscedasticity (homogeneity of variance) and Independence as under:

- Multicollinearity was identified by the analysis of inter correlation among the independent variables.
- The residuals around the regression line, was assumed to have a normal distribution.
- The supposition of Homoscedasticity presented that the variance within each of the population is equal.
- The researcher used T- test to satisfy the assumption of independence of observations.

#### **4. Results**

The impact of nine dimensions including key objectives, training modules, facilitation method, facilitation tools, training facilitators, training venue, logistic support, and professionalism of the organization and information management on Reaction was studied and two data analysis processes, including descriptive and confirmatory were taken up. In descriptive data analysis mean, standard deviation and range were taken into consideration. The degree to what the dependent variable was influenced by different independent variables was found by running regression.

The number of training participants approached, out of target population of 4968 trainees, was 303 including 270 men and 33 women. The response rate was approximately 70%, where 212 training participants took part in this study by answering the questionnaire. Men among the respondents were 195 and women were 17 in total that makes approximately 92 % and 8% respectively. Less percentage of feedback from women was noticed that may be due to their low representation in the overall training programs of NIDM.

The academic qualification of the respondents in the current study shows that 2% of the respondents (4) had M. Phil. /MS degrees, 45% of the respondents (96) had master degree, 33 % of the respondents (70) had BA/B.Sc. and 3% of the respondents (6) had intermediate/matriculation. Medical doctors were 10% (21) and engineers were 7% (15) among the respondents.

The professional experience of the respondents in the current study shows that 32% of the respondents (68) had an experience of 1-5 years, 38% of the respondents (80) had an experience of 6-10 years, 14% of the respondents (30) had an experience of 11-15 years and 16% of the respondents (34) had an experience of 16 years and above.

Trainings organized by NIDM are open to all segments of the society. Sectors of the respondents in the current study shows that 76 % of the respondents (161) were from government (federal and provincial), 8 % of the respondents (17) were from government of Afghanistan, 5.5 % of the respondents (12) were from UN/INGOs, 2 % of the respondents (4) were from NGOs, 6 % of the respondents (14) were from academia and 2 % of the respondents (4) were from the industry.

**Table 1: Reliability Analysis**

Variables /Dimensions	Status	Cronbach's Alpha	No. of items
Key Objectives	Good	.827	2
Training Modules	Good	.826	3
Facilitation Method	Fair	.638	4
Facilitation Tools	Acceptable	.735	2
Training Facilitators	Acceptable	.780	4
Training Venue	Acceptable	.734	3
Logistic Support	Acceptable	.736	2
Professionalism of the Organization	Fair	.627	3
Information Management	Acceptable	.710	3
Reaction	Good	.818	10

Table 1 shows the value of Cronbach’s Alpha of all dimensions of the current study. Sekaran & Bougie (2003), describes that the degree of correlation between various items is explained by Cronbach’s Alfa. Maximum value of Cronbach’s Alpha is 0.827 (for Key Objectives), which is interpreted as good internal consistency whereas minimum value is 0.627 (for Professionalism of the Organization), which is interpreted as fair internal consistency.

**Table 2: Mean, Standard Deviation and Range (N=212)**

Variables	Mean	Std. Deviation	Range	
			Minimum	Maximum
Key objectives	5.4198	.94803	3.00	7.00
Training modules	5.6321	.89045	3.00	7.00
Facilitation methods	5.7358	.65022	3.00	7.00
Facilitation Tools	6.0613	.79155	3.00	7.00
Training facilitators	5.9811	.73480	3.00	7.00
Training venue	5.5000	.78190	3.00	7.00
Logistic support	5.5377	.93560	3.00	7.00
Professionalism of Organization	5.7925	.69141	2.00	7.00
Information management	5.8443	.70160	3.00	7.00
Reaction	5.9009	.51018	3.00	7.00

Table 2 shows the mean values of key objectives, training modules, facilitation method, facilitation tools, training facilitators, training venue, logistic support, professionalism of the organization, information management and reaction. The table evidently portrays the concurrence of the responding participants while slighter disparities are revealed by standard deviation. Overall harmony was found with regards to all dimensions in the findings.

The correlation and degree of influence of independent variables upon dependent variable is calculated by regression. Sekaran & Bougie (2003), described that multiple regression explains the linear relationship of dependent and independent variables. Further the



practical and purposeful association among concerned variables is analyzed by using multiple regression.

In regression models, independent variables are placed simultaneously, so this is named as simultaneous method too. The degree of binding between dependent and independent variables is calculated through multiple regression. Impact of independent variables i.e. Key Objectives (KO), Training Modules (TM), Facilitation Method (FM), Facilitation Tools (FT), Training Facilitators (TF), Training Venue (TV), Logistic Support (LS), Professionalism of the Organization (PO) and Information Management (IM) on a single dependent variable ‘Reaction’ , is also gauged by this method, in this study.

**Table 3: ANOVA**

Model	F	Sig.
Regression	22.346	.000 <sup>a</sup>

- a. Predictors: (Constant), KO, TM, FM, FT, TF, RV, LS, PO, IM
- b. b. Dependent Variable: Reaction

Table 3 describes the value of F statistics, which is 22.346 and is significant at  $p < 0.001$ .

The value of R Square (.499) denotes that model explains 50% variance in Reaction that is due to the independent variables included in the model. Nevertheless, this is sufficient to establish the robustness of the model.

**Table 4: Model Summary**

Model	R	R Square	Std. Error of the Estimate
1	.706 <sup>a</sup>	.499	.36911

- a. Predictors: (Constant). KO, TM, FM, FT, TF, RV, LS, PO, IM

The study established that evaluation is a key feature and has great influence on the successful accomplishment of training. A positive contribution of training evaluation, towards an improved and enhanced level of skill and knowledge ability, was established. The results may also be instrumental for inspiring the high ups of organizations. These are convincing enough to motivate them to pay due attention to and allocate sufficient time slot for evaluating a training, to ensure the efficacy and improvement in training programs.

The positivity and significance of independent and dependent variables were established by descriptive statistics. Response to the questionnaire was found encouraging as 72% of the men and almost 50% women of the sample selected returned the questionnaires. Involvement of qualified trainees, e.g. more than 47 % master level and above, provokes for quality assurance through evaluation. Results reveal that almost 70% of the respondents have experience between 1-10 years, which reflects the more acceptability of such trainings in young professionals. Similarly, 30 % representation of highly experienced professional (11-16 + years) reflects the sensitizations among senior management regarding the need for learning about disaster management and their willingness to embrace change. The evaluation model suggested in this study will add value to the NIDM training programs and be instrumental in attracting more professionals and field practitioners to participate in these trainings. The top lot of any relevant sector, once convinced of the quality of training and evaluation, can play a pivotal role in getting the downstream lot trained and skillful.

The presence of 65 % of government officers among the population of this study is evidence that governments are giving due attention towards building the capacity of those who

have to respond disastrous situations, on the ground. The acceptable value of Cronbach's Alpha proves the reliability of training dimensions.

The results of this study using Kirkpatrick model depict that there was a positive impact of only five variables on Reaction. As far as other dimensions are concerned, facts of the study reveal that 83 % of the respondents were on the agreement side to validate the relevance and influence of "KO" on Reaction. Results indicate that facilitation methods adopted by facilitators of training at NIDM are mature and interesting as 97 % of the respondents agree to this fact. Similar is the case of facilitation tools, where more than 80 % of the respondents supported the fact that "FT" used in NIDM trainings were interactive and helping towards effective learning process.

The competence, strong knowledge base and grip on the subject matter by the training facilitators was agreed upon by almost 97 % of the participants that reflects the seriousness of NIDM in selecting the most appropriate facilitators. The concern shown by 11 % respondents, including those who remained neutral on training venue is a matter of concern for the management as it could hinder their learning process.

Five variables did express their impact on Reaction but four did not. The variables that expressed their impact were Facilitation Tools, Training Venue, Logistic Support, Professionalism of the Organization, and Information Management.

## **5. Conclusion**

The study intended to evaluate the impact of selected nine variables (Key Objectives, Training Modules, Facilitation Method, Facilitation Tools, Training Facilitators, Training Venue, Logistic Support, Professionalism of the Organization, and Information Management) on Reaction of trainees. National Institute of Disaster Management (NIDM) was taken as case study to evaluate its training using the first level of Kirkpatrick model. A sample of 303 men and women, who participated in NIDM trainings at various time, from various segments of the society such as government, UN agencies, I/NGOS and academia etc. was taken where 212 participants responded to the questionnaire. The respondents had professional experience ranging from 1 – 16 years & above and having a variety of qualification from matriculation to doctorate and professional academic background. Descriptive and inferential statistical techniques were applied to see the impact of nine variables on Reaction of trainees. Following are the brief descriptions of the null hypotheses of the study.

1. The null hypothesis H01: Key Objectives have an insignificant effect on 'Reaction' of trainees, was failed to be rejected.
2. The null hypothesis H02: Facilitation Method has an insignificant effect on 'Reaction' of trainees, was failed to be rejected.
3. The null hypothesis H03: Facilitation Tools have an insignificant effect on 'Reaction' of trainees, was failed to be rejected.
4. The null hypothesis H04: Training Facilitators have an insignificant effect on 'Reaction' of trainees, was rejected.
5. The null hypothesis H05: Training Venue has an insignificant effect on 'Reaction' of trainees, was failed to be rejected.
6. The null hypothesis H06: Logistic Support has an insignificant effect on 'Reaction' of trainees, was rejected.
7. The null hypothesis H07: Professionalism of the Organization has an insignificant effect on 'Reaction' of trainees, was rejected.
8. The null hypothesis H08: Information Management has an insignificant effect on 'Reaction' of trainees, was rejected.
9. The null hypothesis H09: Training Modules have an insignificant effect on 'Reaction' of trainees, was rejected.

This may be summarized that five out of nine independent variables had impact of the response variable however rest of the four did not have any impact. The significance of association between one dependent and nine independent variables was explored by using multiple regressions. Multiple  $R \neq 0$  visibly describes the existence of affirmative and significant bond between dependent and independent variables. A direct and logical correlation was established between the Reaction and the dimensions of training and they were found mutually supportive. Significant relationship ( $R^2 \neq 0$ ) and ( $p < 0.01$ ) between Reaction, the dependent variable and nine independent variables proves that the model is fit.

## **6. Discussion and Recommendations**

### ***6.1. For government and humanitarian institutions***

Both the government and non-government training entities should enhance and add value to the knowledge and proficiency of training participants by keeping the evaluation in the spotlight. Evaluation of training programs should be the consistent feature of disaster management training initiatives. A handsome number of resources are invested in planning and executing the training programs so it is critical to make the effective evaluation process an integral component of the overall training models, especially in disaster management so that desired goals of national resilience against disasters may be achieved. The regular feedback of training participants should be taken as an effective tool for quality assurance and enhancement of training activities.

The Government and the humanitarian stakeholders should allocate sufficient number of resources at all tiers. Government should engage the academia, as third party, for conducting evaluation of the training programs and courses held at various levels. This initiative may promote the culture of research in the government sector and bring the both sections of the society even closer. Government should further devise a coordinated and inclusive mechanism involving all stakeholders to standardize the training as well evaluation processes. Government should also promote the use of technology both for training and evaluation.

### ***6.2. For the national institute of disaster management.***

NIDM should make the effective evaluation process an integral part of its training model and further should lead in standardizing the evaluation approach be followed by other institutes and entities engaged in disaster management related trainings, across the country. Allocation of required time and resources for training evaluation is a must. NIDM should also take the lead in establishing a national body while engaging the representatives of all stakeholders, including government, humanitarian stakeholders, academia, media and industry, etc. to standardize the training curricula, manuals, modules and sub content of various thematic areas addressing and incorporating the established needs. This initiative can bring harmonization in the national training system in the field of disaster management. Since Facilitation Tools, Training Venue, Logistic Support, Professionalism of the Organization and Information Management have impact on the reaction of trainees so NIDM should give even more attention to further add value to these dimensions.

NIDM is suggested to make use of available state of the art technologies for training evaluation and develop a web based online training evaluation module. It should have the potential to be used by multiple training providers in the field of disaster management. NIDM, being the national entity dedicated to disaster management training, should use the online database of evaluation done by various organizations through its web system. The database may be utilized to devise guidelines for the improvements of training programs in the future.

### ***6.3. For private sector***

The management of training should spare and allow enough financial resources and time to facilitate the process of training evaluation. Participants may learn more and perform even better if there are some incentives attached to the good learners in the trainings. Private sector, to get maximum benefit, should develop an effective coordination mechanism with the government training and evaluation institutions, since the services at government institutions are provided either free (such as NIDM) or even at very subsidized charges.

#### ***6.4. For the disaster management trainers and trainees***

The trainers should devise a well thought evaluation process at the time of designing the training program keeping in view the set objectives. The TD discussed in this study should be taken care of before and during the process to achieve the perceived benefits from the training program. The evaluation should not be limited just to a smile sheet since the management of participating organizations are keen on seeing the overall impact of the performance of the participants. Questionnaire for evaluation should be balanced collecting both for qualitative and quantitative information. It should not be lengthy, especially in case of respondents from the government departments as they do not tolerate lengthy questionnaires.

The trainers are further recommended to make use of technology in performing the evaluation. Since there remains the pressure of increased productivity within a limited timeframe as well the need for the homogenized evaluation procedure to ensure the effectiveness of training, therefore the use of technology would help a lot. It may be done by automating the planning as well as a data collection process that may further help in avoiding the probable prejudice of the internal evaluators. The trainees should participate actively in the evaluation process as their feedback values a lot to the training facilitators as well as the management in improving the future programs. The researchers should go for exploring the other levels of Kirkpatrick model. They are recommended to take the real-life issues for research and development. The training programs by government and humanitarian stakeholders are an opportunity for researchers to take as case studies.

#### ***6.5. Further Research Scope***

Researcher in this study has gauged the impact of nine important dimensions of training on 'Reaction', the first level of Kirkpatrick model. Training dimensions are the indicators and instrumental in evaluating the training courses so more research to exploit even further dimensions is the need of time. It will add value to the literature and help improving the quality of training initiatives in the country. There is space for researcher to investigate other three levels of the Kirkpatrick model along with other training dimensions, too. Current study perhaps is very first research where the Kirkpatrick model has been used to evaluate the trainings conducted by the NIDM; this trend should not only be continued for evaluation of NIDM training programs but may be followed for other public sector training institutes also.

### **Acknowledgement**

The authors acknowledge that there is no funding received for this research project

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