

**Measuring the Training Effectiveness in the Police Sector of  
Pakistan: A Kirkpatrick Model Intervention**  
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**Abstract**

*The aim of the study was to investigate the chain of association amongst the four level model of Kirkpatrick's training effectiveness with the integration of individual and work-related characteristics within the Police sector of Pakistan. The questionnaires were distributed amongst the trainees of the police department at Khyber Pakhtunkhwa, Punjab and Sindh provinces of Pakistan. The collected data was computed and analyzed via statistical software's namely SPSS and AMOS. The factor analysis, structure equation model and path analysis tools to measure the result. The statistical consequence exhibited that there exists a significant chain of relationship within the four levels of training effectiveness model and trainee self-efficacy, learning-motivation and social support were found considerable moderators of the training effectiveness model. Moreover, the trainee motivation was found as an insignificant moderator in a relation with our level of the training effectiveness model. The study concluded that the trainers must consider the importance of individual & work-related characteristics when giving training. The outcome of this study was projected to deliver a valuable contribution to the theoretical/academic research investigation and the professionals of Human Resource Development (HRD) working in Pakistan.*

**Keywords:** Kirkpatrick, Training Effectiveness, Factor Analysis, SEM

**Introduction**

Measuring the effectiveness of training is valuable for the organizations (Kassem, 2018). In order to measure the training effectiveness, Kirkpatrick's (1994) introduced four level model consisting of measuring a) trainee reaction, b) trainee learning, c) trainee behavior, and d) trainee result. The measurement of the effectiveness of training is a persistent and growing problem in almost all the organizations working in Pakistan (Aziz, 2013). Studies reported due to the complication of getting the pertinent information researchers restricted on only two levels of the Kirkpatrick effectiveness of training model i.e. a) reaction and b) learning (Kassem, 2018; Gandomkar, 2018; Abdel-All et al., 2018) and

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overlooks the other vital and considerable levels i.e. c) behavior and d) result (Homklin, 2014; Aziz, 2013). Research study conducted on measuring the training effectiveness in public sector organizations of Pakistan reported that there exists no study in which all the four levels of Kirkpatrick's model are measured particularly in the context of Pakistan (Masood&Usmani, 2015; Khalid, Ashraf &Rehman, 2012). Masood&Usmani (2015) reported that none of the study so far completely measures the hierarchal/causal relationship of Kirkpatrick's model of effectiveness in Pakistan. Measuring the effectiveness of training with hierarchal chain of relationship amongst the Kirkpatrick's model levels is a persistent and emergent problem in all the organization of Pakistan. The inappropriate measures of effectiveness of training ultimately effects on the enterprise performance and enhance the propensity of counterproductive behaviors which harm the effectiveness of workplace. In addition, empirically, none of the study so far measures the hierarchal chain of relationship amongst the four levels of training effectiveness with the moderating intervention of individual and work-related characteristics in Pakistan. Therefore, the objectives of the study are to investigate the hierarchal chain of association amid four levels of effectiveness of training and to measure with moderating effect of individual and work-related characteristics as a case example about the trainees of Pakistan Police.

## Literature Review

### *Kirkpatrick's Model of Training Effectiveness*

In the year 1967 Kirkpatrick established the framework which measures the effectiveness of training via four levels namely, a) reaction, b) learning, c) behavior and d) result. The Kirkpatrick model later attained much popularity and reputation. In the year 1994 the Kirkpatrick practically implemented his model and measures the effectiveness of training and delineates its effectiveness. Researchers found that there exist pivotal trainee's individual characteristics which influence on four hierarchal levels of effectiveness of training (Homklin, 2014). These are (trainee's self-efficacy) (Homklin, 2014), (trainee's learning motivation) (Liao &Tai, 2006), (trainee's transfer motivation) (Homklin, 2014; Traceet al., 2001) and environmental characteristics i.e. (social, coworkers and work-related support) (Homklin, 2014).

### *Relationship amongst Variables and Hypotheses*

The study of Homklin (2014) exhibited that the level-I of the effectiveness of training model i.e. reaction is affirmatively related to

level-II of i.e. learning (Homklin, 2014). Another study conducted in Portugal on measuring the soft skills training efficacy on student performance. The study statistical consequence exhibited the reaction is positively related to learning of trainees (Paull, Whitsed&Girardi, 2016). The study of Thammachai (2018) exhibited that the level-II and level-III i.e. trainee learning is affirmatively related to trainee behavior (Thammachai, 2018). Very insufficient amount of studies examined and explore the relationship amongst level-III i.e. behavior and level-IV i.e. result of training effectiveness model proposed by Kirkpatrick. Only one study found in Japan, which found confirmatory relation amongst trainee behavior and result (Homklin, 2014). Study reported the existence of weak relationship amid trainee reaction in training and trainee learning, whereas, strong and considerable relation exist amongst trainee learning, trainee behavior and result (Alliger&Janak, 1989). Cannon-Bowers & Salas (1995) hypothesized the learning motivation affirmatively related to knowledge/skill acquisition and learning motivation is pivotal for attaining basic job knowledge. Homklin (2014) found constructive moderating effect of learning motivation in a relation amid positive trainee reaction and trainee learning. The self-efficacy found affirmative predictor of trainee learning and trainee behavior (Cheng, 2000; Gurrero& Sire, 2001; Chuang, Liao & Tai, 2005). Homklin (2014) found the self-efficacy as moderator in a relation with trainee reaction and trainee learning. Axtell et al (1997) also found motivation to transfer is considerable predictor of affirmative transfer that trainee perceived that they attained subsequently by participating in training session. Trainee motivation and trainee learning are vital for transferring the training (Gegenfurtner et al., 2009). However, only one study reported the existence of optimistic effect of motivation to transfer as a moderator in training process effectiveness (Homklin, 2014). Organization delivers emotional and material benefits/assistance in the learning place in order to appropriately transformation of skill/knowledge to the trainees which have considerable effect on trainee behavior (Homklin, 2014). Only one study reported the considerable moderating effect of social/work-related support in training effectiveness (Homklin, 2014). Based on work-related support theory, researcher perceived the social/work-related support optimistically affect in relation of trainee learning and trainee behavior. Based on literature the study hypotheses are underneath.

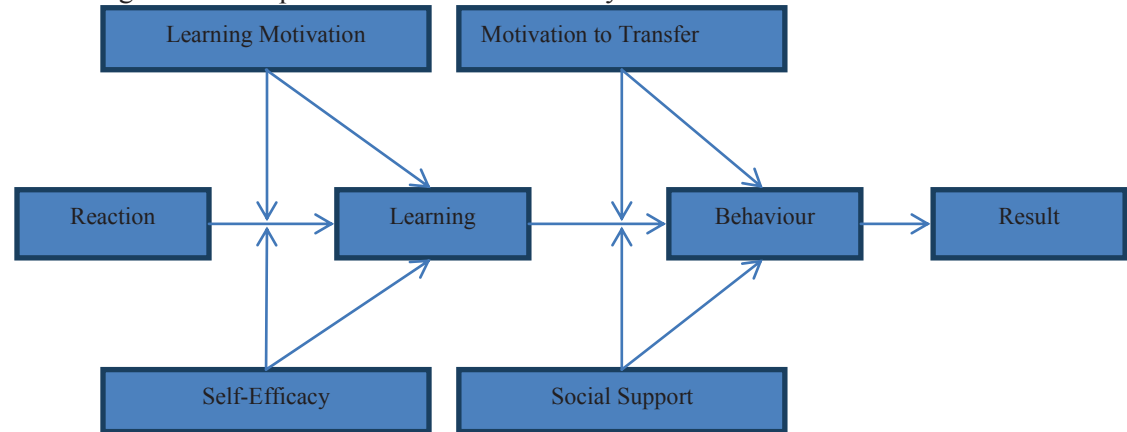
*H<sub>1</sub>: There exists hierarchal relation amongst reaction, learning, behavior, result.*

*H<sub>2</sub>: Trainee learning motivation, self-efficacy, motivation to transfer and social/work-related support has moderating influence*

in a relation amongst reaction, learning, behavior and result.

### Conceptual Framework

Following is the conceptual framework of the study.



### Methodology

#### Population and Sample

The total population was comprised of 1612 police officials including Inspectors, Sub Inspectors, Assistant Sub Inspectors and Constables who are getting training of Basic Computer course in different police schools and academies located in the diverse locations of Khyber Pakhtunkhwa, Punjab and Sindh provinces of Pakistan. For determination of appropriate sample size the Yamane (1967) formula was utilized. The final size of the sample was 652 police officials. For data congregation the stratified sampling (probability method) was used with proportion method of allocation. Following is the detail.

Table 2 Proportionate

S #	Police Training Schools	Population	Proportion
1	Police School of Investigation, Peshawar	120	49
2	Police School of IT, Peshawar	134	55
3	Police School Nowshera	47	19
4	Police School, Mardan	58	25
5	Police School of Tactics Peshawar	42	17

6	Police Recruit Training Center Hangu	78	32
7	Police College, Sihala	260	106
8	Police Training, Lahore	234	95
9	Police Training School, Multan	185	75
10	Police Training School, Sargodha	138	56
11	Police Training School Rawalpindi	87	35
12	Police School of Information Analysis, Lahore	46	17
13	Police Training College, Karachi	127	50
14	Police Training School, Larkana	56	21
<b>Total</b>		<b>1612</b>	<b>652</b>

#### *Data Collection*

The primary data was gathered via survey method by using the adapted questionnaire. Total 652 questionnaires were dispersed and 649 returned response was 99.5% which is in good and appropriate standard set by (Sekaran, 2003).

#### *Measurements*

A questionnaire was used for collection of data based upon the scale of Likert i.e. (1=strongly disagree to 5=strongly agree). The trainee reaction, trainee learning, trainee behavior and result were measured with (8), (7), (5) and (8) items respectively. All the items were borrowed from the study of (Homklin, 2014). The learning motivation was measured with 5 items which was borrowed from the study of (Lima, Lee and Nam, 2007). The self-efficacy was measured with 5 items borrowed from the study of (Homklin, 2014). Trainee motivation of transferring knowledge was measured with 5 items which were borrowed from the study of (Gegenfurtner et al., 2009), and the trainee social support was measured by 5 items which were taken from the study of (Kupritz, 2002).

### Data Analysis

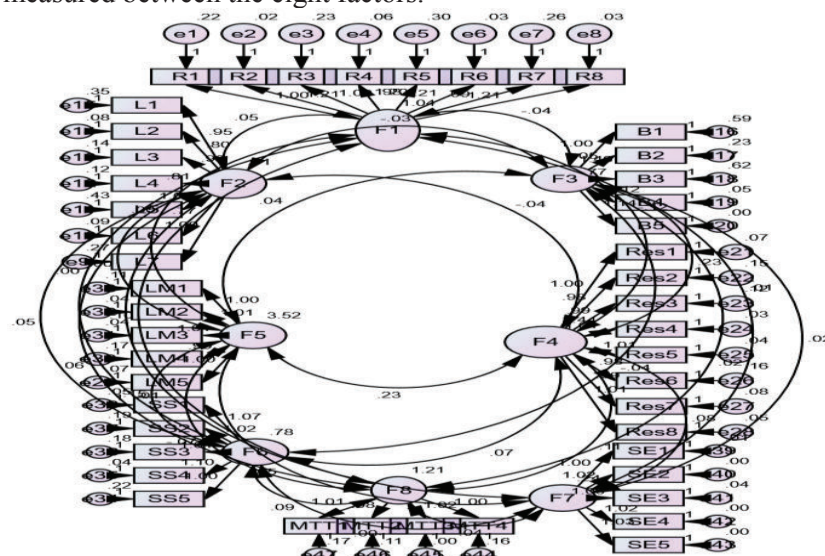
Table 3: Trainees Demographics

Details of respondents demographics are mentioned underneath.

Gender	Frequency	Percentage
Male	597	91.6
Female	55	8.4
Total	652	100.0
Ages	Frequency	Percentage
18—28years	542	83.1
29—39 years	84	12.9
40 and > years	26	4.0
Total	652	100.0
Designation	Frequency	Percentage
Constable	348	53.4
ASI	203	31.1
Sub Inspector	80	12.3
Inspector	21	3.2
Total	652	100.0

### Confirmatory Factor Analysis (CFA)

The below figure exhibited the CFA consequences that is measured between the eight factors.



Where F1=Trainee-Reaction, F2=Trainee-Learning, F3=Trainee Behavior, F4=Trainee Result, F5=Efficacy, F6=Learning-Motivation, F7=Social Support, F8=Motivation-Transfer,

Figure (1)

Table 4: CFA Fit Statistics

Indices	Weights	Variables	CR	AVE	MSV
$X^2/df$	$p=2.9$	TraineeReaction	0.784	0.688	0.006
GFI	$p=.99$	TraineeLearning	0.765	0.697	0.003
SRMR	$p=.05$	TraineeBehavior	0.760	0.629	0.009
RMSEA	$p=.08$	TraineeResult	0.897	0.675	0.008
NFI	$p=.94$	TraineeEfficacy	0.795	0.576	0.011
AGFI	$p=.96$	TraineeLearningMotivation	0.769	0.662	0.012
TLI	$p=.93$	TraineeSocialSupport	0.791	0.658	0.007
CFI	$p=.91$	Trainee-Motivation-to-Transfer	0.779	0.720	0.008

Note:  $X^2/df$ =Chi<sup>2</sup>/degrees-of-freedom, GFI=Goodness-of-fit, SRMR=Standardized-root-mean-square, RMSEA=Root-mean-square-error-of-approximation, NFI=Normed-fit-index, AGFI=Adjusted-goodness-of-fit-index, TLI=TuckerLewisindex, CFI=Comparative-fit-index, AVE=Average-variance-extracted, CR=Composite-Reliability, MSV=Maximum-Shared-Variance

Eight fit indices were computed for CFA and consequence exhibited that all models have their own considerable loadings (Bentle, 1990). According to Gaskin and Lim (2016) for no validity concern the values of AVE and CR value must be greater than  $p \geq .50$  and  $p \geq .70$  accordingly. As per statistical value of all variables consequences demonstrated that no concern of validity (Gaskin & Lim, 2016).

#### Mediating Effect

The consequence of the direct and indirect effect of (trainee reaction, trainee learning, trainee behavior and trainee result) was estimated and mentioned below.

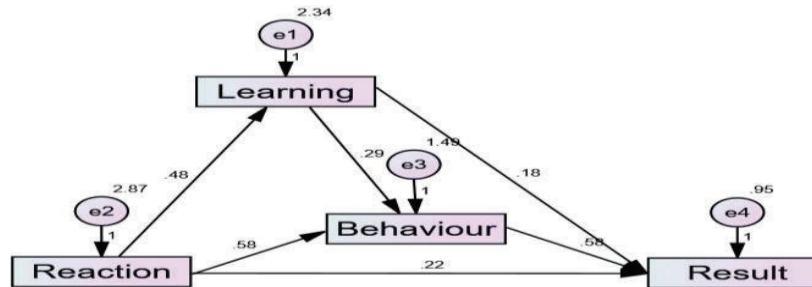


Figure (2)

Table 6: Mediation

Direct Effect			Estimate	S.E.	C.R.	P
Learning	<---	Reaction	.480	.035	13.578	***
Behaviour	<---	Reaction	.575	.032	17.986	***
Result	<---	Reaction	.216	.031	6.904	***
Indirect Effect			Estimate	S.E.	C.R.	P
Behaviour	<---	Reaction+Learning	.294	.031	9.406	***

***	Result	<---	Reaction+Learning	.176	.027	6.580	***
	Result	<---	Reaction+Behavior	.479	.029	16.51	***

( $p < .01$ ), SE=Standard Error, CR=Critical Ratio, P=probability(Sig)

The statistical/computed value exhibited that trainee reaction has affirmative significant/considerable effect on trainee learning i.e. ( $t=13.57$ ,  $p < .05$ ), trainee behaviour ( $t=17.98$ ,  $p < .05$ ) and trainee result ( $t=17.98$ ,  $p < .05$ ). Secondly, the indirect or mediating effect of trainee learning was estimated in a relation with trainee reaction and trainee behavior and value was found ( $t=9.4$ ,  $p < .05$ ), the indirect or mediating effect of trainee learning was estimated in a relation with trainee reaction and trainee result and value was found ( $t=6.58$ ,  $p < .05$ ) and the indirect or mediating effect of trainee behaviour was estimated in a relation with trainee reaction and trainee result and value was found ( $t=16.51$ ,  $p < .05$ ) respectively. Based on statistical consequence study found that there exist partial/significant chain of relationship within the four level of training effectiveness including all four levels.

#### Moderating Effect

The consequence of the direct and the moderating effect of (trainee reaction, trainee learning, trainee efficacy, trainee learning-motivation, trainee motivation-to-transfer, social support, trainee behavior and trainee result) was estimated and mentioned below.

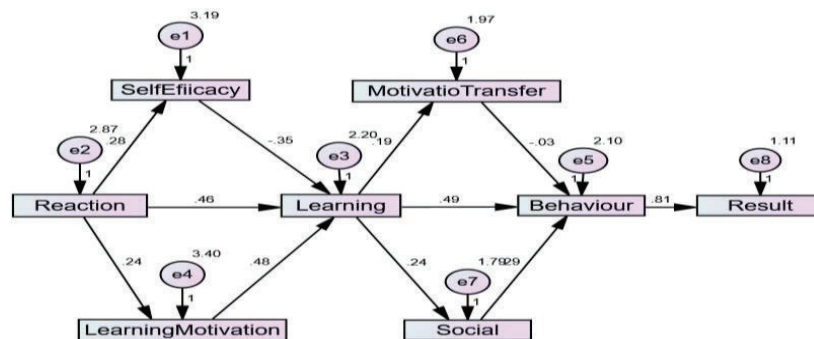


Figure (3)

Table 7: Moderation

Direct Effect			Estimate	S.E.	C.R.	P
Learning	<---	Reaction	.464	.036	12.8	***
Efficacy	<---	Reaction	.277	.041	6.69	***
Learning-Motivation	<---	Reaction	.237	.043	5.54	***
Behaviour	<---	Learning	.493	.031	15.8	***
Motivation-to-transfer	<---	Learning	.194	.027	7.09	***
Behaviour	<---	Motivation-to-transfer	.201	.041	4.91	***
Social Support	<---	Learning	.243	.026	9.29	***
Result	<---	Behaviour	.812	.022	36.8	***
Indirect Effect			Estimate	S.E.	C.R.	P
Learning	<---	Reaction×Efficacy	-.352	.033	-10.8	***
Learning	<---	Reaction×Learning-Motivation	.479	.032	15.1	***
Behaviour	<---	Learning×Motivation-to-transfer	-.026	.040	-.634	.526
Behaviour	<---	Learning×Social Support	.293	.042	6.90	***

\*\*\* ( $p < .01$ ), SE=Standard Error, CR=Critical Ratio, P=probability(Sig)

The statistical/computed value exhibited that trainee reaction has affirmative significant/considerable effect on trainee learning i.e. ( $t=12.8$ ,  $p < .05$ ), trainee efficacy ( $t=6.69$ ,  $p < .05$ ) and trainee learning-motivation ( $t=5.54$ ,  $p < .05$ ). Whereas, the direct path of trainee learning on trainee behavior revealed that ( $t=15.8$ ,  $p < .05$ ) and on trainee motivation-to-transfer revealed that ( $t=7.09$ ,  $p < .05$ ). The direct effect of trainee motivation-to-transfer upon trainee behaviour revealed that ( $t=4.91$ ,  $p < .05$ ). The direct effect of trainee learning upon the social support exhibited that ( $t=9.29$ ,  $p < .05$ ) and the direct effect of trainee behaviour upon the trainee result was exhibited that ( $t=36.8$ ,  $p < .05$ ). On the other side, the moderating effect of trainee learning was estimated in a relation with trainee reaction and trainee efficacy and value was found ( $t=-10.8$ ,  $p < .05$ ), the moderating effect of trainee learning-motivation was estimated in a relation with trainee reaction and trainee learning and value was found ( $t=15.18$ ,  $p < .05$ ), the moderating effect of trainee motivation-to-transfer was estimated in a relation with trainee learning and trainee behaviour and value was found ( $t=-.634$ ,  $p < .05$ ) and the

moderating effect of social support was estimated in a relation with trainee learning and trainee behaviour and value was found ( $t=6.90$ ,  $p<.05$ ).

### Discussion

Initially, the direct effect of trainee reaction upon the trainee (learning, behaviour and result) was estimated and consequence exhibited that trainee reaction was the significant constructive predictor of trainee (learning, behavior and result). The consequence was consistent/matches with prior studies, i.e. (Lim & Johanson, 2002; Maister, 2008). Secondly, the mediating chain of relation was estimated and consequence found that there exist partial chain of relationship within the four level of training effectiveness. The consequence was consistent/matches with prior studies, i.e. (Homklin, 2014). The consequence of moderating model revealed that trainee self-efficacy and trainee learning-motivation considerably moderates in a relation with trainee reaction and trainee learning and trainee motivation to transfer insignificantly moderates in a relationship with trainee learning and trainee behavior. The trainee social support considerably and affirmatively moderates in a relationship with trainee learning and trainee behavior. The consequence was consistent/matches with prior studies i.e. (Lim & Johanson, 2002; Maister, 2008).

### Conclusion

Study concluded that the human resource specialist precisely, trainers must consider the importance of trainee individual and work-related characteristics when giving training to the trainees. By considering the vital trainee individual and work-related characteristics the trainer will get better outcome of provided training. Moreover, the training professionals and training experts of Police sector must consider and measure the training effectiveness by measuring the a) trainee reaction, b) trainee learning, c) trainee behavior and d) trainee result with the vital intervention of individual and work-related characteristics i.e. (trainee self-efficacy, trainee learning-motivation and trainee social support) whenever conducting or giving trainings. In addition, the trainees of Police sector must consider that he/she will get the necessary feedback/support from their trainers pertaining to his/her performance that's make the transferring knowledge/training more effectively. Moreover, the serious determination regarding the quality of work-related and social support has to be incorporated to enhance the effectiveness of training.

### Recommendations

The policy makers and the Government should intervene with the Police sector by providing necessary infrastructure/instrument to the trainee for transferring of learned skills/knowledge and disseminating of information inside organization. Moreover, government should provide the assistance/support by giving guidance to the supervisors/trainers from a good mentors or coaches and fully equip supervisors/trainers with knowledge/skills under the monitoring of special team.

### Future Area

In future, the study will focuses on measuring the effectiveness of training model in diverse technical education schools by adding more moderators and intervening variables to measure the outcomes.

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