

## **In-Service Early Childhood Education Teachers' Training Program Evaluation Through Kirkpatrick Model**

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Early Childhood Education (ECE) is an emerging field worldwide. This study was aimed to evaluate the effectiveness of in-service Early Childhood Education (ECE) teachers' training programs for public schools of Punjab organized by Quaid-e-Azam Academy for Educational Development (QAED), School Education Department, Government of Punjab. The theoretical framework was based on Kirkpatrick's (2006) four-level evaluation model: reaction, learning, behaviour and results. The quantitative approach was applied through the application of a random sampling technique. The adapted questionnaire was used to collect data from ECE trained teachers ( $n=100$ ) by QAED from Lahore. Quantitative data were analyzed through descriptive and inferential data analysis techniques. The reliability ( $\alpha = .877$ ) of the instrument was found satisfactory. The results revealed a substantial and significant positive correlation among all the four levels of the Kirkpatrick model. Motivation to transfer training and social support was also found significant and positively correlated with four levels of the Kirkpatrick model. The training outcomes depend on the second level and third level of the Kirkpatrick's model for the evaluation of training program along with motivation to transfer training and colleague support. Future studies can be conducted to find out the moderating factors for ECE teacher's training effectiveness.

**Keywords:** *Early Childhood Education (ECE), Kirkpatrick model, Quaid-e-Azam Academy for Educational Development (QAED), Training effectiveness, Professional development.*

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### **Introduction**

Early Childhood Education (ECE) is an emerging field in the Pakistani context, and it is universally considered as a core phase in the holistic development of a child (Ahmed, 2011; Ghumman & Khaild, 2016). ECE is provided in the form of pre-primary education with the name of "Katchi class" for 3-5 years old children in public schools of Pakistan to meet the international commitments i.e., Education for All (EFA), Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) (MoE, 2017). Since then, Early Childhood Education (ECE) had become a topical issue in Pakistan (MoE, 2017). ECE in Pakistan was mainly provided by the private educational institutions or by the Non-Governmental Organizations (NGOs) prior to the year of 2000 (Ahmed, Anjum & Rehman, 2015). Pakistan put special emphasis on ECE after being a partner in

the Education for All (EFA) declaration in the year 2000. Article 25-A of the 18<sup>th</sup> Amendment in April 2010 was immersed towards providing free and quality education at the primary level (Khan, 2018). National Education Policy (NEP) 2009 and NEP 2017 have put special emphasis on early childhood education to achieve international commitments. The National ECE curriculum was formulated by Govt. of Pakistan in the year 2002, and it was also revised in 2007 (MoE, 2017).

The province of Pakistan "Punjab" is also making substantial efforts to spread ECE over its territory as a partner of the National Commitment regarding ECE (Farooq, 2018). Quaid-e-Azam Academy for Educational Development (QAED) launched the ECE program with the title "Introduction of ECE in Primary Schools in Punjab with High Enrollment and Improvement of Environment of Schools to

convert them into Child-Friendly Schools (CFSs)” in its all 09 divisions and 36 districts in the year 2013 (QAED, 2018). According to Shami, Ahmad, & Khyzer (2014), there is more gross enrolment ratio (GER) in Punjab as compared to the national level, but it further requires hard efforts to meet the EFA targets by 2015. However, the prophesied targets for achieving 100% goals in enrolment of ECE and achieving targets of Universal Primary Education (UPE) are steadily underachieved all over Pakistan as well as in Punjab, too (Farooq, 2013). The major problem in Punjab is the retention of drop-out ratios at the primary level. ECE has not proved a helpful source of bringing to an end this alarming situation in Punjab. There is an enormous difference between policy and implementation in Punjab (GoP, 2017). The only four days training program is being imparted to the in-Service teachers, headteachers, and caregivers to run the program in Punjab by Govt. of Punjab through QAED (QAED, 2018). Different donors are cooperating in spreading ECE in Punjab with QAED, e.g., UNICEF and Program Monitoring and Implementation Unit (PMIU.)

The overall increasing demand for Early Childhood Education but less enrollment in public schools of Punjab as compared to private schools has placed question mark upon the given quality of public schools. Therefore, it is the need of the hour to investigate and evaluate the training program in public schools of Punjab to benchmark the practices. So that the existed differences and deficiencies among the public schools may be explored (Shakeel and Aslam, 2019).

**Aim and relevant objectives**

This study was aimed to evaluate in-service ECE teachers’ training program through the Kirkpatrick model. The study has following objectives:

- 1- To find out the association among four levels of the Kirkpatrick model for the evaluation of in-service ECE teachers’ training program.

- 2- To measure the impact of perceived social support on training outcomes.
- 3- To measure the impact of the transfer of training’ motivation among trainees on outcomes of training

**Research question**

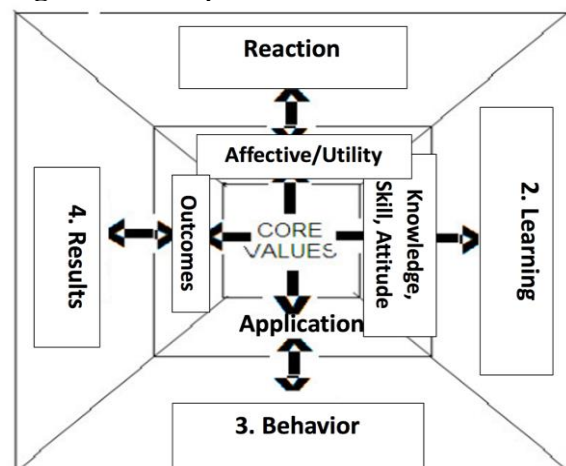
The present study consists of the following research questions:

- 1. What are the trainees’ perceived reactions towards the training program they have attended?
- 2. How much trainee perceived that they learned teaching competencies through training?
- 3. What are trainees perception about change in their professional behavioral due to the training program?
- 4. What is the degree of social support such as colleagues and peers available for trainees to implement training?

**Theoretical Framework**

Kirkpatrick’s (2006) evaluation model was first formulated in 1976. It is widely reviewed and applied in social sciences for evaluating the program and its effectiveness (Madaus, Scriven & Stufflebeam, 2000). So many studies extensively utilize it for evaluating the training programs as it carries the evaluation process after the program’s launchings (Frye & Hemmer, 2012).

**Figure: 1.** Kirkpatrick Model



Source: adapted by Homklin, (2014)

Four levels in Kirkpatrick’s model are:

1. Reaction: It deals with the assessment of the feelings of participants about the numerous aspects of a training program (How do the trainees feel about the instructor, the material, and the experience?).
2. Learning: It measures the occurred change in the trainees regarding acquired knowledge and developed capabilities.
3. Behavior: The application of learned knowledge, principles, or techniques in the daily practices of trainees are measured.
4. Results: It entails the final results of the training that occur due to acquired training.

Newcomer, Hatry & Wholey (2015) argues that it is necessary to apply all four levels respectively, to enhance the validity of the study.

Based on Kirkpatrick’s (2006) model, the present study will follow the below mentioned key terms for analysis of the effectiveness of in-service ECE teachers’ training program:

Reaction deals to assess trainees’ feelings about the training program. Affective reaction measures the degree of satisfaction of the participant with different features of the training e.g., provision of the quality of

**Table 1:**

*Evaluation Models Summary*

Year	Evaluation Models
1987	Brinkerhoff’s six-stage model
2003	Brinkerhoff’s Success case method
1990	Bushnel’s Input, process, output model

the content and facilities. Utility reactions measures the degree of practically application of the learned content by the trainees to their daily work.

Learning refers to the enhancement of competencies of the trainees, which includes acquired knowledge, skills, and attitude.

Behavior measures the level of the application of acquired skills by the trainees which can be assessed in their workplace.

Results include the attainment of training objectives such as improved job performance and commitment to the profession.

Motivation, learning motivation, social support on the effectiveness of the ECE training program will be measured through this study with the application of the Kirkpatrick model.

**Model for Evaluation of the Program**

Stufflebeam & Shinkfield (2007), has presented 22 approaches to program evaluation. These approaches are assembled into five categories: Pseudo evaluations, experimental studies, benefit-cost analysis approach, improvement and accountability-oriented and social agenda/advocacy-directed approaches.

There are different models presented by different researchers on the basis of the above-mentioned approaches i.e.

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1996	Holton's HRD evaluation and research model
1959	Kirkpatrick's four-level model
1993	Kraiger et al.'s learning outcomes model
1994	Kaufman's and Keller's five levels of evaluation
1996	Phillips' return on investment model for evaluation
1983	Stufflebeam's Context, input process, product model
1970	Warr et al.'s Context, inputs, reactions outcomes evaluation model

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Table 1 Royse, Thyer & Padgett (2015) are at standpoints that no model is less important but it depends on the need and suitability of the researcher.

**Measuring the effectiveness of the training programs**

According to Al-Mughairi (2018); Devi and Shaik (2012) and Homklin (2014), the improvement in the process of a training program can be procured by measuring the outcomes of that training program: as achieved the settled targets or not. Bates and Coyne (2005), reflect that “the capacities and abilities of the trainees can be enhanced through training effectiveness which is finally implemented in the work environment”. The usefulness of any training can be measured through assessing the two elements: improvement in individual performance and evaluating the process of delivery of the training (Al-Mughairi, 2018; Al Yahya & Mat, 2013). Effectiveness of training can be best judged through evaluation of the training program in terms of motivation to transfer training, and social support on training effectiveness which deals with reaction, learning, behavior and results (Homklin, 2014).

Evaluating training effectiveness includes the extent of progress in the employee's skill and behavioral” (Al Yahya and Mat,

2013). Mohammad (2016), is at the standpoint that variables perform the role of guidance in the process of measuring the effectiveness of training to decide the accomplishment of the objectives of the training. Individuals as well as organizational traits fundamentally affect the process of the entire training program prior and after imparting training (Alvarez et al., 2004).

Contemporary researches have suggested that effectiveness of training can not only measure at the end of the training program rather would be done as formative and summative evaluation i.e. “Baldwin and Ford, 1988; Warr et al., 1999; Salas and Cannon-Bowers, 2001; Kraiger, 2002; Iqbal et al., 2011; Ghosh et al., 2011; Homklin,2014; Al-Mughairi, 2018 (Reio et al., 2017). . Manyika (2014), contemplates that evaluation of training effectiveness provides a clear picture of what has been achieved by the training and what is not.

**Trainee and work environment characteristics**

Trainability is the practical application of the learned material which is acquired through a training program (Noe & Schmitt, 1986). Weber et al., (2015), refers the trainability as a provision of suitable resources and environment. Individual and

work environment traits are recommended by many empirical researches. These researches emphasize on the need of motivation to transfer training, learning motivation (individual features) and social support (colleagues) for the success of a training outcomes (Homklin, 2014; Noe & Schmitt, 1986; Weber et al., 2015). Below is discussed the individual and work environment characteristics variables:

Motivation can be distinct as impulsiveness in behavior is not an individual attribute to persistent (Homklin, 2014). Motivation in a training program is distinct by Baldwin and Ford, (1988) as “motivation leads a trainee to utilize his (her) learning on the job.

Motivation to transfer is the learner’s intentions to apply the learned skills to the work situation (Homklin, 2014). Training transfer requires learning as well as motivation. Learning is the essential part of transferring the training to the workplace (Homklin, 2014; Neo, 1986). Expectancy Theory focuses on the transfer of learning and it asserts that desire performance can be achieved by motivating the trainees which will play an important role in improving their work behavior on job (Vedny, 2017).

The concept of social support influential effects on employees believes that their administrator and colleagues provide them with all type of opportunities for implementing new skills in the job settings (Crane, 2017; Noe, 1986). Implementation of learned knowledge requires adequate chances to apply what they have learned (Ford et al., 1992). Empirical researches have conferred the need of social support to utilize the learned skills e.g. “Al-Mughairi, 2018; Al Yahya & Mat, 2013; Baldwin and Ford, 1988; Bates et al., 2000; Crane, 2017; Homklin, 2014. Positive transfer of learned content and skills demand the support of subordinates and management with the strong relationships built by them before, during, and after training (Medina, 2018; Kim et al., 2017).

Crane, (2017) considers social and organizational support as a core component

for promoting a positive school environment and the execution of learned skills in the job settings. A descriptive review of individual and work environment characteristics’ effects on the training effectiveness is well elaborated by the study of Homklin (2014). However, this study was focused on the relationships between effects of moderators with four levels of Kirkpatrick model.

### **Methodology**

This study was applied survey design for the evaluation of the effectiveness of in-service ECE teachers’ training programs through the Kirkpatrick model. This study consisted of the population of all the trained ECE in-service teachers in public schools of Lahore. A sample (n=100) of in-service ECE trained teachers by QAED in public schools from districts of Lahore was drawn through simple random sampling techniques. This study adapted a questionnaire by Homklin (2014) which consisted subscales of four levels of the Kirkpatrick model, social support and learning motivation. Training Evaluation Questionnaire (TEQ) was developed by Homklin (2014) and adapted with the author’s permission. It was translated into “Urdu” by an expert for the comfort of the respondent of the sample of the study. This questionnaire has three parts. First part comprises of demographics which include: Age, qualification, experience, training participation, gender, and location of the school. The second part consisted of four levels of the Kirkpatrick model i.e., reaction, learning, behavior and results. Each level has been measured by using a 5 Likert-type scale. At the same time, the third part of the questionnaire was based on variables, which include i.e., social support and motivation to transfer training.

Five experts from the relevant field measured the validity of the questionnaire. The confirmatory factor analysis (CFA) was applied through the maximum likelihood method and varimax rotation. The KMO= .78 value was found significantly adequate ( $< .05$ ). The

reliability of the construct was found Chronbach Alpha .877, which shows

consistency among items of the construct as shown in the table 3:

**Table: 2**  
*Reliability of the instrument*

Cronbach's Alpha	N of Items
.877	90

Table 2 The CR values of the factors were greater than .7 and AVE value was also observed above. 4 for each factor. Cronbach's Alpha showed that factors were

reliable (Cronbach's alpha >.7) as shown in the Table 3.

**Table: 3**  
*CR and AVE of the Factors*

	CR	MaxR(H)	AVE	Cronbach
F1	0.878	0.891	0.549	.82
F2	0.836	0.838	0.421	.79
F3	0.842	0.847	0.516	.85
F4	0.868	0.871	0.452	.74
F5	0.824	0.846	0.612	.82
F6	0.76	0.773	0.515	.79

F1=Competence, F2=Reaction, F3=Results, F4= Learning Behaviour, F5=Motivation, F6=Colleague Support, F7= Social Support

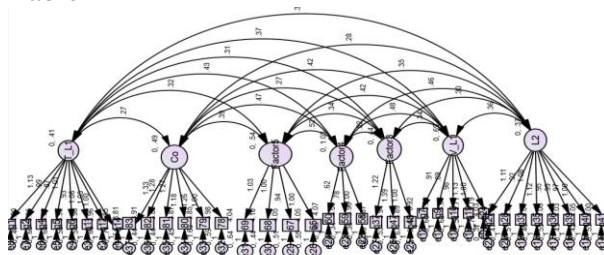
Table 3 CFA was performed on the AMOS 21. The standardized factor loading for each item relevant to the factor was found >.4 as shown in the figure 2. The construct

was found a good fit with the CFI, GFI, CFI>.9, RMSEA and RMR<.04 and P>.05 as shown in the Table 4:

**Table: 4**  
*Good Fit Model for Construct Validation*

CMIN/DF	CFI	RMSEA	RMR	TLI	GFI	P
3.355	.916	.050	.04	.92	.93	.07

Table 4



**Figure 2:** *Construct Validation through CFA*

**Data Analysis**

Data were tabulated and analyzed by using different statistical techniques. The analysis was run by using (SPSS) version 22.

A descriptive analysis of the factors of the construct was performed. Effect ( $M=3.36, SD=.47$ ). Learning ( $M=3.63, SD=.52$ ), Behaviour ( $M=3.38, SD=.49$ ), Results ( $M=3.43, SD=.53$ ). Social support ( $M=3.36, SD=.60$ ) tends to the agreement. Motivation to transfer learned skills

( $M=3.9$ ,  $SD= .40$ ) towards agreement as shown in the Table 5:

**Table: 5**

*Descriptive Statistics*

Variables	Minimum	Maximum	Mean	Std. Deviation
Effects	1.24	4.36	3.3685	.47173
Learning	1.08	4.58	3.6343	.52009
Behavior	1.91	4.45	3.3874	.49098
Results	1.67	4.53	3.4363	.53587
Social support	2.00	4.70	3.3675	.60395
Motivation to transfer	2.33	4.83	3.9458	.40459

Table 5 Inter variable correlation among factors was observed. There were a strong and positive correlation and significant ( $p<.01$ ) among effects, learning, behavior and results. Learning motivation also substantial ( $p<.01$ ) and a positive correlation with four levels of the Kirkpatrick model. Social support has a

**Table: 6**

*Inter-Variable Correlation*

Variables	1	2	3	4	6	8
Level1: Effects	1					
Level 2: Learning	.687**	1				
Level 3: Behavior	.569**	.478**	1			
Level 4: Results	.604**	.639**	.566**	1		
Social Support	0.206	.263*	.348**	.367**	1	
Motivation to transfer	.273*	0.117	.239*	.369**	.235*	1

Table 6 Simple linear regression was performed on four levels of the model and confiding variables. Results were taken as the dependent variable, while learning ( $B=.357$ ,  $p<.002$ ), behavior ( $B=.246$ ,

positive and significant ( $p<.01$ ) correlation with four levels except for level 1 “Effects”. Social support has a positive and significant ( $p<.01$ ) correlation with all four levels of the Kirkpatrick model. Motivation to transfer training has a positive and significant relationship with other variables as shown in the table 6.

$p<.05$ ) and motivation to transfer training ( $B=.244$ ,  $p<.05$ ) have a significant influence on the dependent variable results as shown below:

**Table: 7**  
*Regression Model*

	Unstandardized		Standardized		Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta	T	
(Constant)	-.927	.501		-1.851	.068
Effects	.118	.133	.104	.888	.378
Learning	.366	.115	.357	3.194	.002
Behavior	.267	.111	.246	2.418	.018
Social Support	.015	.084	.017	2.181	.012
Motivation to transfer	.331	.125	.244	2.659	.010

*Dependent Variable: Results and R square=.587*

**Discussion**

As the present study deployed all the four levels of Kirkpatrick model in the field of ECE teachers’ training program. The findings of study revealed that the participants of this study showed agreement on the effect of level 1 “reaction”. They elaborated the gained benefits through the imparted training program, and finally expressed that they were learning and thinking in the workplace for the first time. While level 2 “learning” was also shown the tendency of the participants towards agreement. The improvement in competency were indicated as mastery of skills in them. As Level 3 “Behaviour” was assessed by survey data and it was revealed from the responses of the participants that there were improvements in using basic skills on the job. Meanwhile, this study highlighted a strong, positive and significant correlation among all the four levels “Reaction, Learning, Behavior and Results” of the Kirkpatrick model. Several studies were conducted to find out the correlation among the four levels of kirpatrick model e.g.

meta analyses of training evaluation studies by “Alliger and Janak’s (1989) and Alliger et al.’s (1997), Arthur, Bennett, Edens and Bell, (2003, Bates and Coyne, (2005); Brown and Gerhardt, (2002); Brinkerhoff, (1986); Ford and Wroten, (1984); Giangreco et al., (2009); Mann and

Robertson, (1996); Swanson and Sleezer, (1987); Tannenbaum and Woods, (1992)” (Homklin, 2014).

While, numerous researches have ascertained that learning motivation is an important pillar for reap knowledge in any training program for trainees (Al-Mughairi, 2018; Devi and Shaik, 2012; Homklin, 2014; Reio et al., 2017; Thornton, 2019). Noe, (1986) refers to learning motivation as an aspiration for the trainee to learn the contents of the training program. Knowledge acquisition is correlated with learning motivation during training program (Noe, 2000). Colquitt et al., (2000); Homklin, (2014); Ryman and Biesner, (1975); Seymour, and Morris, (1992); Zazanis, Zaccaro, and Kilcullen, (2001) have illustrated in their researches that trainee learning motivation is strongly related to acquired knowledge and implementation of newly learned skills. Additionally, it is found by Thornton, (2019 ) that learning motivation signals are linked with the positivity of motivation. Contemporary researchers have introduced social and organizational support factors as an important indicator of the transfer of training. Work environment characteristics include four major sources of social support i.e. top management, administration and colleagues. While, top management support includes interpersonal relationships as well



as institutional measures at the organizational level (Homklin, 2014).

### **Conclusions**

The evaluation of early childhood education training program has shown its effectiveness on trainees. ECE teachers those participated in training program have shown a positive and satisfactory attitude towards training program. They perceive that it helped them to enhance their teaching competences. ECE training program also brought changes in their perceived professional behavior. ECE teachers were motivated to transfer knowledge, skills and abilities learned through training program. Social support was available to them for the implementation of the skills learned through training program. Overall, ECE teachers perceived training program satisfactory.

### **Limitations**

This study has utilized survey to evaluate the effectiveness of the program. Although, Kirkpatrick model is an established tool to evaluate trainings. However, a mixed methods research approach can give more in-depth and comprehensive results.

### **Implications of the study**

The present study has presented the effectiveness of ECE in-service teachers' training program for public schools of Punjab. It will be knowledge addition by applying a theoretical framework "the four levels of the Kirkpatrick model" in the field of early childhood education in Pakistan.

The study will be beneficial for different stakeholders i.e. policy makers, QAED management, donor agencies and pre-service teachers' education departments. The present study will help the QAED management, school education departments as well as Govt. of Punjab to better plan their training program of ECE. It will also be a source of awareness for donor agencies about the utilization of their aids in the field of ECE. This study will also open a new path for future researchers. There can be done more research-based on the present research.

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