Chapter 4

Data Analysis and findings

4.1 Introduction

The purpose of this study is to contribute to the body of knowledge on training transfer issues. Specifically, it highlighted and analyzed different factors which play important role and helpful to maximize the training transfer. This study will provide clear insight to the Human Resource Development (HRD) professionals and training managers about the factors effecting transfer of training.

This chapter will present the data collected by the researcher using the survey instrument procedures outlined in chapter 3. Then this chapter will examine the research questions outlined in chapter 1 and will discuss the results.

Table 4.1

Hypothesis

No.	Hypothesis
HI (a)	Transfer motivation mediates the relationship between performance self-efficacy (an individual factor) and training transfer.
HI (b)	Transfer motivation mediates the relationship between learner readiness (an individual factor) and training transfer.
H2	Training retention (an individual factor) mediates the relationship between the instrumentality or intrinsic reward (a situational factor) and training transfer.
H3 (a)	Transfer motivation mediates the relationship between peer support (an environmental factor) and training transfer.
H3 (b)	Transfer motivation mediates the relationship between supervisor support (an environmental factor) and training transfer.
H4	Transfer motivation mediates the relationship between instrumentality or intrinsic rewards (a situational factor) and training transfer.
H5 (a)	Performance self-efficacy mediates the relationship between perceived content validity (a training design factor) and transfer motivation.
H5 (b)	Performance self-efficacy (an individual factor) mediates the relationship between transfer design (a training design factor) and transfer motivation.

H6	Affective reaction mediates the relationship between perceived content validity (a training design factor) and transfer motivation.
H7	Transfer motivation mediates the relationship between affective reaction and training transfer.

The results of the correlation analysis provide some evidence for the hypothesized relationships among important research variables. Performance self-efficacy (an individual factor) showed significant positive relationship with transfer motivation. Learner readiness (an individual factor) was positively related with transfer motivation. In addition, environmental factors (peer and supervisor support) were positively related with transfer motivation. The results of correlation analysis also indicated that instrumentality or intrinsic rewards (a situational factor) positively related with transfer motivation and training retention. Perceived content validity (training design factor) positively related with affective reaction. Furthermore, affective reaction positively related with transfer motivation. The results of correlation analysis also provide some evidence that transfer motivation positively related with training transfer. Perceived content validity (a training design factor) showed significant positive relationship with performance self-efficacy (an individual factor). Finally, the results of correlation analysis showed that transfer design (training design factor) positively related with performance self-efficacy (an individual factor).

Table 4.2:

Summary of Model Fit Indicators

Overall Model Measure	Acceptable Baseline
CFI	≥ 0.90
AGFI	≥ 0.80
RMSEA	< 0.10
CMIN/DF	< 3
TLI	≥ 0.89
IFI	≥ 0.90

Table 4.3

Structural Model fit

Overall Model Measure	Proposed Model	Competing Model A	Competing Model B	Acceptable Model Fit	Acceptable Baseline
CFI	0.900	0.962	0.962	Passed	≥ 0.90
AGFI	0.852	0855	0.855	Passed	≥ 0.80
RMSEA	0.048	0.046	0.046	Passed	< 0.10
CMIN/DF	2.162	2.067	2.065	Passed	< 3

TLI	0.890	0.657	0.957	Passed	≥ 0.89
IFI	0.901	0.963	0.962	Passed	≥ 0.90

The above table shows the standardized model fit. Six indicators have been selected to explain the model fit. In this model Comparative fit index (CFI) is 0.90 for proposed model, 0.962 for competing model A and B which touch the acceptable baseline (CFI $\geq$ 0.90) indicates adequate fit (Cleveland al., 2009; Chan et al., 2008; Cheng, 2007; Chau, 1997).

With reference to adjusted goodness of fit Index (AGFI) the value is 0.852 for proposed and competing model A and B which fulfills the acceptable baseline (AGFI $\geq$ 0.80) indicates good fit (Cheng, 2007; Chau, 1997). Furthermore, root mean square error of approximation (RMSEA) is 0.048 shows model fit value which should be less than 0.05 indicate a good fit (Byrne, 2001, p, 85) and higher up to 0.10 can indicate average fit (Chen et al., 2008) but above a value of 0.10, the fit is said to be poor (Byrne, 2001, p, 89). The chi-square/degree of freedom (CMIN/d.f) is 2.162 also indicate good fit CMIN/df < 3 (Cheng, 2007; Byrne 2001; Chau, 1997). In addition, Tucker-Lewis Index (TLI) is 0.890 for proposed model and 0.95 for competing model B indicate adequate fit (Loibl et al., 2009). Finally, IFI is 0.901 which also consider adequate fit (Lai; 2009).

4.2 Notes for the Model

Table 4.4

Computation of degree of freedom

	Proposed Model	Competing Model A	Competing Model B
Number of distinct sample moments	820	666	666
Number of distinct parameter to be estimated	107	110	100
Degree of freedom	713	556	566

Tables 4.5

Results

Minimum was achieved	Proposed Model	Competing Model A	Competing Model B
Chi-square	1541.391	1149.36	1168.91
Degrees of freedom	713	556	566
Probability level	0.000	0.000	0.000

The final step is to compare the proposed model with 2 competing nested model (Hair et al., 2006) to ensure that no other model is acceptable. Therefore, three models were examined, for which the model parsimony, fit indexes and theoretical justification were compared.The first model is proposed model with the chi-square 1541.39, the second model, competing model A added the direct paths and have lowest chi-square with 1149.36 and degree of freedom 556 but at the same time competing model A have highest number of parameters. Therefore the alternative was the parsimonious. Furthermore, the results showed that the mostly paths were not statistically significant. The third model is competing model B with chi-square 1168.91which is lower than proposed model and good model fit as compare to proposed model. However, "good model fit alone is insufficient to support to proposed structural theory" (Hair et al., 2006) page 757. Therefore, proposed model have been accepted.

Table 4.6

Summary of Effects

Variables	Direct Effects	Indirect Effects	Total Effects
Intrinsic rewards--> Training Retention	0.152	--------	0.152
Intrinsic rewards --> Transfer Motivation	0.142	---------	0.142
Intrinsic rewards ---> Training Transfer	--------	0.091	0.091
Learner Readiness-> Transfer Motivation	0.155	---------	0.155
Learner Readiness ---> Training Transfer	--------	0.065	0.065
Supervisor support->Transfer Motivation	0.145	--------	0.145

Supervisor support --> Training Transfer	----------	0.060	0.060
Peer support ------> Transfer Motivation	0.125	------	0.125
Peer Support --> Training Transfer	------	0.052	0.052
Reaction-----> Transfer Motivation	0.105	--------	0.105
Reaction --> Training Transfer	---------	0.105	0.105
Self-Efficacy--> Transfer Motivation	0.291	---------	0.291
Self-Efficacy --> Training Transfer	----------	0.122	0.122
Training Retention--> Training Transfer	0.207	---------	0.207
Transfer Motivation -> Training Transfer	0418	---------	0.418
Transfer Design--> Self-Efficacy	0.484	--------	0.484
Transfer Design ---> Transfer Motivation	--------	0.141	0.141
Transfer Design ---> Training Transfer	--------	0.059	0.059
Training Content --->Affective reaction	0.516	---------	0.516
Training Content ----> Self-Efficacy	0.379	---------	0.379
Training Content--> Transfer Motivation	-------	0.164	0.164
Training Content--> Training Transfer	------	0.059	0.059

All constructs are statistically significant with p-value less than 0.05 ($p < 0.05$; Hair et al., 2007). In order to see the effects of different factors on transfer motivation and training transfer, Researcher has explained the parameters of the significant paths. The results also indicated that perceived content validity influence transfer motivation through affective reaction. In other words, affective reaction plays mediating role between perceived content validity and transfer motivation. Therefore, when trainees believes that they can improve their performance, they will be more motivated to transfer the learned skills ($\gamma = 0.291$). Performance self-efficacy indirectly influences

training transfer through transfer motivation. Furthermore, Affective reaction influence training transfer mediated by transfer motivation.

When the trainees have basic knowledge and skills to perform different tasks during training, they will get more motivated to transfer the learned skills ($\beta = 0.155$). In other words, learner readiness exerted significant indirect effect on training transfer through transfer motivation. In addition, environmental factors, like supervisor and peer support also motivate the trainee to transfer the learned skills. In this regards, supervisor support ($\beta = 0.145$) and peer support ($\beta = 0.125$) also motivate the trainees to transfer the learned skills and influence the training transfer through transfer motivation. With reference to instrumentality (intrinsic rewards) not only motivate the trainees to transfer the learned skills ($\gamma = 0.142$) but also make trainee to retain the learned skills and transfer ($\gamma = 0.152$). Therefore, when trainees will retain more learned skills, the more they will transfer to the workplace ($\gamma = 0.207$). The results of the study also indicated that instrumentality (intrinsic rewards) exerted significant in direct effect on training transfer mediated by training retention and transfer motivation, but have stronger indirect effect through training retention as compare to transfer motivation. In addition, the more the trainees will get satisfied from training activities the more motivated they would be to transfer the learned skills ($\beta = 0.105$), subsequently, when trainees will be motivated to transfer the learned skills the transfer level would be higher ($\beta = 0.418$)

The relationship between transfer design and performance self-efficacy is much stronger (effect = 0.484) than transfer motivation (effect = 0.141) which explain that transfer design influence transfer motivation through performance self-efficacy. In other words, transfer design has strong direct effect on performance self-efficacy and influence transfer motivation indirectly. Furthermore, training content have significant direct effect on affective reaction (effect = 0.516) and performance self-efficacy (effect

= 0.379) but strong direct effect on affective reaction as compare to performance self-efficacy. Similarly, instrumentality directly influence training retention (effect = 0.152) and transfer motivation (effect = 0.142) which leads to influence the transfer motivation. These findings suggest that training retention play equal role as transfer motivation to influence the training transfer.
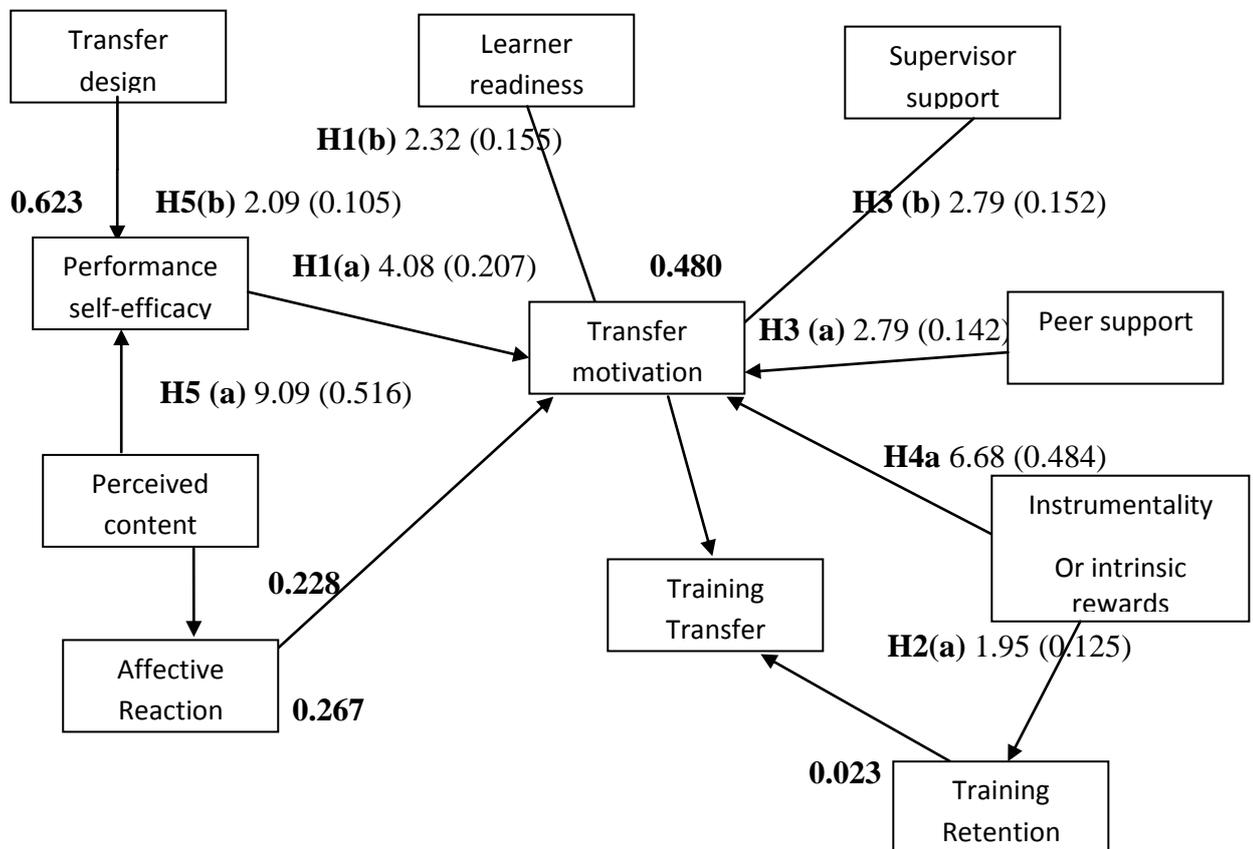
Figure 4.1- Standardized Model fit

Figure 4: *Complete model (standardized) t value and affects are displayed in brackets. Squared multiple correlation are also displayed in bold. Error terms excluded.*

Transfer design and perceived content validity explain 62 percent of the variance of performance self-efficacy. In addition, 27 percent of the variance of affective reaction is explained by validity of perceived content. Performance self-efficacy, affective reaction, learner readiness, peer support, supervisor support and instrumentality (Intrinsic rewards) explain 48 percent of the variance of transfer motivation. Furthermore, instrumentality (Intrinsic rewards) also explains only 2 percent of the variance of training retention. Finally training retention and transfer motivation explain 23 of the variance of training transfer.

4.3 Examination of Research Questions

4.3.1 Research Question 1:

How does transfer motivation mediate the relationship between individual factors (learner readiness and performance self-efficacy) and training transfer?

4.3.2 Rationale for Research Question 1:

This research question sought to determine, how transfer motivation mediate the relationship between individual factors (learner readiness, and performance self-efficacy) and training transfer. It will increase the level of understanding about individual factors. Finally, the role of transfer motivation in the training transfer process will be analyzed.

Performance self-efficacy relates to individual factors which effect the transfer motivation to increase the training transfer. The concept of performance self-efficacy explains that if the trainee believes that they can change their performance. In this regards, when trainee believe that s/he have ability to apply the learned skills, the ability of trainee on his/her ability increase the efficacy level. When trainees try to

apply the learned skills, sometimes they face some difficulties to apply the learned skills. The trainee believe about they can overcome the difficulties and problem while applying the learned skills increase the trainees efficacy. Furthermore, trainee confident about applying newly learned skills also increase the efficacy level of the trainee. Therefore, all these indicators build trainee performance self-efficacy which influence the transfer motivation. As hypothesized:

H1 (a): Transfer motivation mediates the relationship between performance self-efficacy (an individual factor) and training transfer.

The results of the study supported the H1 (a) and indicated that transfer motivation mediates the relationship between performance self-efficacy and training transfer t-value (t = 4.610; t > 1.96; Hair et al., 2006). The results shows that performance self-efficacy directly affect the training transfer motivation (effect = 0.291). The results of this study also provide evidence about p-value (p = 0.001; p < 0.05: Garver and Williams, 2009) indicate that the path (performance self-efficacy have positive relationship with transfer motivation) is statistically significant.

Learner readiness also covers the boundaries of individual factors which effect the transfer motivation and play important role in training transfer process. The concept of learner readiness explains that the trainee should have basic knowledge and skills to perform different tasks during training. The understanding of trainees about how training will affect the job related development will enhance the level of training transfer. Furthermore, if the trainees know what to expect from training and believe that training will improve their job performance, they will maximize the training transfer. As hypothesized,

H1 (b): Transfer motivation mediates the relationship between learner readiness (an individual factor) and training transfer.

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The results of this study t-value (t = 2.320; t > 1.96; Hair et al., 2006) indicated that transfer motivation mediate the relationship between learner readiness and training transfer and supported the H1 (b). Learner readiness motivate the trainees to transfer the learned skills and directly influence transfer motivation (effect= 0.155). The p-value (p = 0.020; p < 0.05; Garver and Williams, 2009) indicate that the path (learner readiness effect the transfer motivation) is statistically significant. In other words, Learner readiness, however, exerted indirect effect on training transfer mediated by transfer motivation.

4.3.3 Research Question 2:

How does individual factor (training retention) mediate the relationship between situational factor (instrumentality or intrinsic rewards) and training transfer?

4.3.4 Rationale for Research Question 2:

This research question will establish, how training retention mediate the relationship between a situational factor (instrumentality or intrinsic rewards) and training transfer. It will also analyze the effect of an individual factor (training retention) on training transfer.

The concept of training retention explain that if trainee remember the training content for longer period and apply them at work place. In addition, trainee can easily recall the learned skills and thinks about the learned skills while working at work place.

H2: Training retention (an individual factor) mediates the relationship between the instrumentality or intrinsic reward (a situational factor) and training transfer.

The result of hypothesis H2 indicates that training retention mediates the relationship between instrumentality or intrinsic rewards and training transfer t-value (t=4.086, t>1.96; Hair et al, 2006) and influence training transfer (effect = 0.207). The results of this study also indicates the positive relationship between training retention and instrumentality (intrinsic rewards) p-value (p=0.001, p<0.05; Garver and Williams, 2009). Therefore, training retention work as a mediating factor between instrumentalities (Intrinsic rewards) and training transfer.

4.3.5 Research Question 3:

How does transfer motivation mediate the relationship between environmental factors (peer and supervisor support) and training transfer?

4.3.6 Rationale for Research Question 3:

This research question will establish the mediating effect of transfer motivation between environmental factors (peer support and supervisor support) and training transfer. It will analyze the effects of environmental factors (peer and supervisor support) on transfer motivation.

Among the environmental factors, peer support plays an important role to motivate the trainee and maximize the training transfer. The concept of peer support explain that when trainee get support from their peers to apply the learned skills. The peer support can be in terms of encouragement, appreciation and expectation to apply the learned skills at work place. Therefore, the supports which trainees get from their peer motivate them to transfer the training. As hypothesized:

H3 (a): Transfer motivation mediates the relationship between peer support (an environmental factor) and training transfer.

The results of this study t-value (t > 1.96; Hair et al., 2007; t = 1.96) indicated that transfer motivation mediates the relationship between peer support and training transfer H3 (a). In other words, peer support directly influence the transfer motivation (effect = 0.125). The p-value (p < 0.05; Garver and Williams, 2009; p = 0.049) indicate that the path (peer support positively related with transfer motivation) is statistically significant.

Among the environmental factors, supervisor support play important role in training transfer process. But the contradictory findings in past research make the situation complex. The concept of the supervisor support measure that the meeting of the supervisor to solve the problems that trainee may have while applying newly learned skills at work place encourage trainee to transfer the learned skills. Furthermore, supervisor support in terms of discussion to apply training on the job and setting goals for trainee to apply the learned skills also motivate trainee to transfer the training. Therefore, as hypothesized in this research:

H3 (b): Transfer motivation mediates the relationship between supervisor support (an environmental factor) and training transfer.

The results of this study indicated that transfer motivation mediates the relationship between supervisor support and training transfer with t-value (t > 1.96; Hair et al., 2007; t = 2.156) and supported H3 (b). In addition, the results also explain that supervisor support positively influence transfer motivation (effect = 0.145) and p-value (p < 0.05; Garver and Williams, 2009; p = 0.031) indicate that the path (supervisor support positively related with transfer motivation) is statistically significant.

4.3.7 Research Question4:

How does transfer motivation mediate the relationship between one situational factor (instrumentality or intrinsic rewards) and training transfer?

4.3.8 Rationale for Research Question 4:

This research question aims to highlight the importance of a situational factor like instrumentality (intrinsic reward) in the training transfer process. It will analyze the mediating effect of transfer motivation in the relationship between intrinsic rewards and training transfer. Furthermore, how these rewards affect employees' transfer motivation will be analyzed.

The concept of instrumentality (intrinsic rewards) explains that when trainee participate in training activities for personal satisfaction and think that training will increase their autonomy at work, they will intrinsically motivate. Furthermore, when trainees think that participation in training will increase their knowledge and helps them to acquire more skills also increase the level of training transfer. Trainees are also intrinsically motivated when they think that participation in training will increase their confidence level at work and also increase the work efficiency. This study explains that instrumentality (intrinsic rewards) motivate the trainee to transfer the learned skills. As hypothesized:

H4: Transfer motivation mediates the relationship between instrumentality or intrinsic rewards (a situational factor) and training transfer.

The results of this study t-value (t > 1.96; Hair et al., 2007; t = 2.794) indicated that transfer motivation mediates the relationship between instrumentality (intrinsic rewards) and training transfer. The results of this study also explain that instrumentality (intrinsic rewards) positively influence transfer motivation (effect = 0.142) and p-value (p < 0.05; Garver and Williams, 2009; p = 0.005). In addition, the results of this study p-value (p < 0.05; Garver and Williams, 2009; p = 0.005) provide evidence and explain that instrumentality (intrinsic rewards) positively related with training retention (effect = 0.152).

4.3.9 Research Question 5:

How does an individual factor (performance self-efficacy) mediate the relationship between training design factors (perceived content validity and transfer design) and transfer motivation?

4.3.10 Rationale for Research Question 5

This research question will investigate the effects of training design factors like transfer design and perceived content validity in the training transfer process. Furthermore, it will highlight the mediating effect of an individual factor (performance self-efficacy) in the relationship between training design factors (perceived content validity and transfer design) and transfer motivation?

The concept of perceived content validity explains that the instrument or instructional system should be similar with the trainee actual job and the method that trainer employ for training purpose should be similar with actual job. These similarities between training and actual job increase the efficacy level of the trainee and influence the training transfer process. As hypothesized:

H5 (a): Performance self-efficacy (an individual factor) mediates the relationship between perceived content validity (a training design factor) and transfer motivation.

The results of this study supported the H5 (a) and explain that performance self efficacy mediate the relationship between perceived content validity and transfer motivation t-value (t > 1.96; Hair et al., 2007; t = 5.467). The results of this study p-value (p < 0.05;

Garver and Williams, 2009; p = 0.001) also provide evidence and explain that perceived content validity positively influence affective reaction (effect = 0.516).

The concept of transfer design explains that when trainee would have seen the practical way how to transfer the learned skills, this practical exposure increase the efficacy level of the trainees. When trainee will see the level of understanding of trainer about training transfer and using example during training to practically show that how trainee will apply the learned skills increase the trainee confidence to transfer the skills. As hypothesized:

H5 (b): Performance self-efficacy (an individual factor) mediates the relationship between transfer design (a training design factor) and transfer motivation.

The results of this study explain that performance self-efficacy mediates the relationship between transfer design and transfer motivation t-value (t > 1.96; Hair et al., 2007; t = 6.688).

4.3.11 Research Question 6:

How does affective reaction mediate the relationship between perceived content validity and transfer motivation?

4.3.12 Rationale for Research Question 6:

This research question aims to analyze the effect of perceived content validity on affective reaction. Furthermore, it will establish the mediating effect of affective reaction on the relationship between perceived content validity and transfer motivation.

The concept of perceived content validity explains that the instrument or instructional system should be similar with the trainee actual job and the method that trainer employ for training purpose should be similar with actual job. These similarities between training and actual job increase the efficacy level of the trainee and influence the training transfer process. The role of the perceived content validity is two-fold. First, perceived content validity influence the performance self-efficacy and also develop positive affective reaction. As hypothesized:

H6: Affective reaction mediates the relationship between perceived content validity (a training design factor) and transfer motivation.

To motivate the trainee and to maximize the training transfer, the trainee should have positive affective reaction. The concept of affective reaction explain that when trainee feel inner satisfaction while participating in training program and enjoy the training activities, it means trainees are expressing positive affective reaction. Furthermore, when trainees perceive that the training program is interesting, this kind of trainee behavior also indicate positive affective reaction towards training activities.

The results of this study supported H6 and explain that affective reaction mediated the relationship between perceived content validity and transfer motivation t-value (t > 1.96; Hair et al., 2007; t = 9.098). The results of this study p-value (p < 0.05; Garver and Williams, 2009; p = 0.036) also provide evidence and indicated that affective reaction positively influence transfer motivation (effect = 0.105).

4.3.13 Research Question 7:

How does transfer motivation mediate the relationship between affective reaction and training transfer?

4.3.14 Rationale for Research Question 7:

This research question will investigate the mediating effect of transfer motivation on the relationship between affective reaction and training transfer. It will further explain the effects of transfer motivation on training transfer.

H7: Transfer motivation mediates the relationship between affective reaction and training transfer.

Transfer motivation also relates to individual factor which maximize the level of training transfer. The concept of transfer motivation explain that when trainees perceive that training will increase their personal productivity and want to transfer the learned skills immediately these indicators shows that trainees are motivate to transfer the learned skills. In addition, when trainees believe that training will help them to do their job better, these believe system also motivate trainees to transfer the learned skills. As hypothesized;

The results of this study t-value (t > 1.96; Hair et al., 2007; t = 2.097) supported the H7 and explain that transfer motivation mediate the relationship between affective reaction and training transfer. The results p-value (p = 0.001; p < 0.05; Garver and Williams, 2009) also provide evidence and explain that transfer motivation positively influence training transfer (effect = 0.418).

4.4 Summary

This chapter described the data collection procedures using the survey instrument procedure outlined in chapter 3. Of the 1000 subjects, 503 (51% response rate) participate in the study by completing and returning the survey to the researcher. Next, the chapter outlined the data processing procedures that the researcher performed to prepare the raw data for statistical analyses. For this quantitative research study, descriptive statistics and frequency distribution has been used to report the attributes variables and numeric variables associated with demographic data. To test the proposed model and answer the 5 research questions, structural equation modeling (SEM) has been used. The results of the structural equation modeling indicate that all paths are statistically significant.

Specifically, the results indicated that perceived content validity and transfer design work together and influence performance self-efficacy. Furthermore, the results indicated the dual role of perceived content validity and explained that perceived content validity not only increase the performance self-efficacy but also develop positive affective reaction and increase the level of transfer motivation.

The results of this study also indicated that intrinsic rewards affect the level of training retention. When trainees believe that training is important for their career development and for better future, they retain more learned skills and maximize the training transfer. Furthermore, when trainees perceive training content is similar with their actual job, they react more positively and get motivated to transfer the learned skills.

The results of this study also explained that peer support, supervisor support and learner readiness positively related with transfer motivation. In comparison, peer support has slightly stronger effect on transfer motivation as compare to supervisor support. The correlation analyses have also confirmed the proposed relationships.

Chapter 5 will discuss further the findings for each research question, compare the findings with previous training transfer research and present the conclusion and recommendations of the study.