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Review

A meticulous investigation on the power of perceived training quality near training on T&D in Indian Information Technology (IT)/Information Technology Enabled Services (ITeS) industry

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Training is one of the most inevitable compulsions for personal and professional evolution. One has to be on a rocket which always points towards a continuous and continual development. As time passes, it is not the fittest who survive, it is the one who quickly adapts to the change that survives, and this can only be through a continual and lifelong training and learning process which is goal oriented and systematic. Many studies have been conducted on training and the needs of training but the scope further existed to explore whether the concept has relevance in those IT and ITes companies which have the highest process level of maturity Capability Model level 5 (CMM level 5). The resolution of this study was to define a talented research on the prominence of training in CMM level 5 Indian Information Technology (IT)/Information Technology Enabled Services (ITeS) industry. The study was also designed to establish whether various factors reported are having significant relationships with major factors as training quality and perceived benefits. The task of improving the training quality would begin with a strong effort of measuring it and this thesis has tried to develop a scale for measuring the prominence of training in CMM level 5 Indian IT and ITes industries. Various factors were identified and the relationships were also studied. As a part of the study, a model of the relationship was also proposed. To further confirm the relationship between these variables, hypotheses were formulated and they were tested with the latest statistical tools for confirmation. To arrive at a conclusion, all the variables and factors were conceptualised on the strength of established theory and were measured using suitable indicators based on the response of the respondents by conducting a survey using structured questionnaires. The study concludes that to enhance the training quality it is mandatory that training quality with respect to the content, delivery, place and trainer need to be upgraded, and the perceived benefits of the training have to be made well aware to the trainees to create a positive image in the mind of the trainees before the training program.

Key words: Perceived training quality, trainer quality, content quality, delivery quality

INTRODUCTION

India has climbed to countless pinnacles, an absolute Everest, in the software business. Software books for 25% of the total Indian trades. From a bare minimum of $2 billion industry in 1994 to 1995, the Indian Information Technology (IT)/Information Technology Enabled Services (ITes) industry has grown phenomenally over the years.

The Indian information technology part has been contributory in pouring the nation's economy onto the rapid growth curve. According to the Nasscom-Deloitte study, the IT/ITes industry's contribution to the country's gross domestic product (GDP) has increased to a share of 5.2% in 2007, as against 1.2% in 1998.

Industries are considered to be the engines of economic growth. This is more so in the case of the developing countries like India which aims at achieving faster economic growth. However, with the poor capital formation, the objective of achieving is a higher economic growth could be achieved only through the development of small scale and medium scale industries. The IT and ITes industries are playing a multifaceted role in the economy of Indian like the creation of employment, contributing to export earnings and eventually to the state and the national income of the economy.

With such an immense role being played by the IT and ITes, the major problem confronting the industries is their poor output and high average cost of production. With the important characteristics of such industries being the labour intensive units, an important cause of such a poor performance is their poor labour productivity. Most employees have one or the other weaknesses in their skills necessary at the workplace. A training program allows you to strengthen those skills that each employee needs to improve. An employee who receives the right type and necessary training required for his or her job is able to perform the job better.

A training program allows one to strengthen those skills that each employee needs to improve. More specifically, a well-structured training and development program organized by the firm ensures the employees to upgrade and update his skills and background knowledge constantly and consistently. Providing the necessary training creates an overall well-informed staff with employees who can take possession of one another as needed, work on teams or work independently without continuous help and administration from others. A development program brings all employees to a higher level so they all have similar skills and knowledge.

The Indian software industry has grown from $ 150 million in 1991 to 1992 to a staggering $ 5.7 billion (including over $ 4 billion worth of software exports) in 1999 to 2000. With the industry's annual growth rate dipping to 16 to 17% in 2008 from about 30% in 2004, the aggregate revenues were $ 60 billion, including export revenues of $47 billion in 2008.

Training can be defined as the systematic development of the knowledge, skills and attitudes required by an individual to perform adequately a given task or job (Armstrong, 2006). It can also be defined as the act of increasing knowledge and skills of an employee for doing a particular job (Flippo, 1993).

Training and development of workforces is precarious in businesses in this epoch of antagonism due to the point that organizations need to endure, cultivate and progress. Inevitably, training and development has turn out to be an issue of strategic prominence. According to Wills (1994), Palo and Padhi (2003) and Baensch (2004), training is deliberated as the procedure for elevation of the knowledge, increasing skills, stimulation of attitude and behavioural changes, and enlightening the capability of the learner to accomplish responsibilities meritoriously and resourcefully in organisations. Stewart (1996) syndicates the two notions of training and development and gives an organisation meaning. This safeguards the involvement of personalities and crowds in accomplishing the organisational goals through the development of applicable awareness, skills and attitude of the employees. The support and enhancement of organisation enactment is principally over and done with expansion of individuals as personalities, work groups and as associates of the comprehensive establishment. Furthermore, training and development of workers is an organized process that intends to ensure that the organisation has effective employees to meet the exigencies of its dynamic environment.

While knowledge management activities have been concentrating on collection of documents and their storage, in the past couple of years companies had realised the fact that employees are the real knowledge and assent of a company and that real knowledge management is by supporting the communication and networking among the employees. IT has highlighted the high potential of networked employees by increasing the productivity and speed of innovations in a company.

Even though, the use of administration records, auxiliary diagrams, business trips for newly employed graduates, job alternation packages and boundless sequence of official sequences characterize training and development as a motorized procedure. It must be celebrated that organizations have initiated to appreciate that it is not satisfactory to consent everything to unintended and natural mixture and experimental and mistake, henceforth, the propagation of training and development in organisations.

Organisations have long back realised the importance of training and have started adopting various means of training. Halleran and Wiggins (2010) and Summers (2012) tried out innovative methods of training for armed forces to better understand their roles and responsibilities. This is now emulated in the IT and ITES industries and innovative techniques of training need to be introduced

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to have a lifelong learning programme.

The purpose of this study is to find out the importance of training and development program in IT and ITES industries and the ways in which they are used as a tool for increasing organisational efficiency. The study will analyze the perception of various training programmes in the mind of the trainees, the attitude towards various training programme, measure the influence of training and evaluate the prominence of feedback and models of evaluation.

It was decided that the US governments would offer annual tax shield of $5000 per employee per year to companies that keep jobs in the US. Indian software and outsourcing industry depends on the US markets for 65% of their revenues. President Obama's proposal aims to alter to raise the revenues of the US government. Senior executives at several corporations now touring India also say that the anti-outsourcing policies are impractical and could adversely impact world trade.

The Indian software industry has grown from $150 million in 1991 to 1992 to a staggering $5.7 billion (including over $4 billion worth of software exports) in 1999 to 2000. With the industry's annual growth rate dipping to 16 to 17% in 2008 from about 30% in 2004, the aggregate revenues were $60 billion, including export revenues of $47 billion in 2008. The IT/ITES industry has proven to be the major growth pole in the service sectors, which in turn, drones the several economic indicators of growth in the country. A study, commissioned by NASSCOM, attempts to identify areas in the economic and social sectors where IT/ITES industry has made a significant contribution of the country's GDP which increased from a share of 1.2% in 1998 to 5.2% in the year 2007. Increasing number of IT/ITES industry in US, UK, Canada, EU and Australia prefers BPO from low-cost countries like India. It evidences that IT/ITES industry has been struggling with several issues concerning availability and quality of talent.

REVIEW OF LITERATURE

Sullivan (2005), in their study, point out that there do exist a relationship between managerial style and knowledge which is affected on the conflict resolution. Conflict resolution can be done with the help of experts' opinion of the managers and positive attitude which would guide them in the right direction of success. It has also pointed out that the presence of a charismatic leader would largely affect the way in decision has been taken by the employees and it would even affect the type of decision that would be taken. Raja et al. (2011) have done a comparative study on e-learning and traditional form of training. In the study, the advantages and disadvantages of both were highlighted; it also pointed out that e-learning when compared with the traditional learning has a lot of advantages, has a wider range of reach and also reaches out to quite a lot of people and even those who do not want to travel to a place for getting things known can also use the facility. Say for example if a training program is conducted to an audience who is not at all interactive and the trainer will also have a very bad feeling and would not be motivated to give maximum productivity out of this session. But in fact, if the trainees are really questioning the concepts being explained by the trainee, are quite inquisitive to know more and have attitude which would make them ask questions to gain knowledge out of the session, it will highly impact the way in which the training programme would be going further; and the level of knowledge that also passes from the trainer to the trainee will also enhance the trainees' expectations to be met.

Kwek et al. (2010), in their study on educational quality process and its influence on perceived quality, confirm that quality has become an important topic and it has highly affected profitability, satisfaction level of the customers and the same also promotes customer retention. These benefits make it important to identify those parameters which would enhance the quality. As a part of the study, around 458 undergraduate business students of a private university were studied and the result showed that the quality of the education process depends on the quality of the examinations, curriculum, and other services like library and laboratory. Sahinidis and Bouris (2008)'s study was designed to investigate the relationship between perceived employee training effectives and job satisfaction, motivation and commitment which was done on a group of 134 employees in the lower management cadre. The study provides support of the hypotheses that was proposed indicating a significant correlation between the employee perceived training effectiveness and their commitment, job satisfaction and motivation. It also points out that this is first of a study of its kind that was done and no such study was done on similar grounds. Similar studies were not conducted and those which were conducted could only propose employees' attitude which appears to be having a greater value when compared with other parameters that were identified which were increased productivity turnover and absenteeism.

Raja et al. (2011), in their study measuring perceived quality of training in the hospitality industry, explore the viability of new training evaluation criteria which is linked to the perceived benefits of an employee and the perceived quality of the training and the methodology that is being used for transfer of knowledge between the trainer and trainee. This study takes into account the fact that the training is a kind of a service that happens in a very structured way and allows information flow from the person who is well educated on a certain concept of the skill to a person who has less awareness of those facts. The study was conducted with the help of 164 trainees from various instructor led training programmes and close observation was done for the set of behaviour that they

could show. An exploratory factor analysis was also done to elucidate the various dimensions of perceived training quality and it has the mind that measurement first used already should have been updated. Raja et al. (2011), in the study on organisational downsizing and its perceived impact on various management practices, point out that many organisations with high amount of quality in their management practices engage a practice of downsizing for various reasons. This study highlights the relationship between organisational quality and its impact on organisational downsizing. This also points out to an extent how the employees would be affected when organisational strategy moves from regular working to downsizing. The study was conducted on a Canadian organisation with a sample size of 343 which was currently under the practice of downsizing due to a certain place in which they want to disclose. This study shows that the strategy of downsizing has changed the attitude of the employees, and this has highly affected the productivity which in turn has reflected on the quality of the management practices currently done. Such companies whose employees' morale is not the focused enhance service quality and customer satisfaction. Calvo-porral and Novo-corti (2013), in the study on perceived quality on higher education which was an empirical study, find out that there is difference in the perceived quality for both private and public universities. The research aims to analyse various dimensions that would affect the perceived quality in higher education for the students from their own perspective. This was a kind of a comparative study which was compared to the various ways in which the practice is done in private as well as public institution. The result shows that there are various variables which are quite effluent like empathy which have to be addressed and differences in the practices for both the private and public centres. These cells pointed out by the study could enhance the quality of the strategy of the institution, and the present study actually relies upon the sample taken by the researcher from the undergraduate students of the same private and public centres. Also it points out that teaching quality of both institutions differed substantially when compared on a certain scale. Golparvar et al. (2012), in their study intended to explore the relationship of training climate with perceived organisational effectiveness in a factory, point out that there exists a relationship between training climate dimensions and perceived organisational effectiveness. The study was conducted with the help of a questionnaire that was given to 203 employees of the manufacturing company and the result shows that there is no relationship between the organisational supports with the perceived customer focus effectiveness; the other training climate components which are identified as a part of the study had a positive relationship and showed significant relationship between perceived organisational effectiveness. The study further explains and points out the relationship between organisational support and leadership effectiveness in the way in which information is being shared and information is effectively used by human resource for an effective and better result. It also points out that the managerial occupational supporters are indeed necessary for a customer centred effectiveness and managerial effectiveness for a better process of effectiveness.

EXPLORATORY FACTOR ANALYSIS FOR PERCEIVED TRAINING QUALITY CONSTRUCT

The next step in the analysis procedure was to explore the dimension structure of perceived training quality construct using exploratory factor analysis; 20 scale items were used to measure training quality with the help of SPSS 20. This approach was recommended in the literature as a means of identifying actual, rather than perceived, factor groupings (Rosen and Surprenant, 1998). The role of factor analysis is to identify the components or factors derived from a set of variables, that is, to identify the subset of correlated variables that form a subset which is reasonably uncorrelated with other subsets (Hair et al., 1998; Tabachnick and Fidell 2014; Tabachnick and Fidell, 2001). An exploratory Maximum likelihood factor analysis with varimax rotation was performed as it incorporates common, specific and error variance and was appropriate when the objective was to identify the minimum number of factors associated with the maximum explanation of variance (Hair et al., 1998). The items that load higher than 0.4 are retained while low loading items are dropped. In general, higher factor loadings are considered better, and typically loadings below 0.30 are not interpreted. As a general rule of thumb, loadings above 0.71 are excellent, 0.63 very good, 0.55 good, 0.45 fair, and 0.32 poor (Tabachnick and Fidell, 2007).

The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.880 and the Bartlett test of sphericity was significant ($p<0.001$) with a Chi square value of 4088.091 having 190 degrees of freedom as shown in Table 1; this confirmed the goodness of the data for further analysis and provided support for factorization. The exploratory maximum likelihood factor analysis identified eight components with an Eigen value greater than 1, which together explained over 63.602% of the variance. Tables 1, 2 and 3 illustrate outcome of exploratory factor analysis (EFA).

The factor structure emerged after EFA had items with adequate loadings; each identified factors had marginally less evidence for conflicting cross loadings. All the 20 items could be classified into four dimensions in alignment with the pre-conceptualized pattern. The following conclusions were drawn from the exploratory factor analysis conducted:

(1) There existed four underlying factors which represent

Table 1. KMO and Bartlett's test.

KMO and Bartlett's test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.880
Bartlett's Test of Sphericity	Approx. Chi-Square	4088.091
	Df	190
	Sig.	0.000

Table 2. Total variance extracted.

Component	Total variance explained								
	Initial Eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	6.619	33.094	33.094	6.619	33.094	33.094	4.339	21.695	21.695
2	2.935	14.677	47.771	2.935	14.677	47.771	3.014	15.070	36.765
3	1.683	8.417	56.187	1.683	8.417	56.187	2.715	13.573	50.338
4	1.483	7.415	63.602	1.483	7.415	63.602	2.653	13.264	63.602
5	.904	4.521	68.123	-	-	-	-	-	-

Table 3. Factors extracted after EFA.

Rotated component matrix[a]	Component			
	1	2	3	4
tq1	0.643	-	-	-
tq2	0.705	-	-	-
tq3	0.607	-	-	-
tq4	0.774	-	-	-
tq5	0.843	-	-	-
tq6	0.845	-	-	-
tq7	0.772	-	-	-
cq1	-	-	-	0.775
cq2	-	-	-	0.755
cq3	-	-	-	0.794
cq4	-	-	-	0.708
dq1	-	-	0.847	
dq2	-	-	0.542	
dq3	-	-	0.872	-
dq4	-	-	0.876	-
iq1	-	0.800	-	-
iq2	-	0.820	-	-
iq3	-	0.783	-	-
iq4	-	0.704	-	-
iq5	-	0.508	-	-

Extraction method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. [a]Rotation converged in 6 iterations.

the training quality in the perceptions of a CMM Level 5 Indian IT/ITES employee in South India.

(2) Each item was mainly related to only one factor except for relatively lower cross loading shown by certain

Table 4. Factor structure after EFA.

S/N	Factor name	No. of Items	Alpha value
1	Trainer quality	7	0.892
2	Content quality	4	0.813
3	Delivery quality	4	0.809
4	Infrastructural quality	5	0.826

indicators which can be theoretically justified as correlations among reflective measures are expected and possibility of respondents conceive a different factor perception for certain indicators cannot be ruled out.
(3) The identified factors were named on the basis of the theme behind the items that formed a group.

The details are illustrated in Table 4 with reliability co-efficients at this stage of analysis. The next step was to conduct a confirmatory factor analysis of the training quality dimensions identified.

CONFIRMATORY FACTOR ANALYSIS (CFA): PERCEIVED TRAINING QUALITY DIMENSIONS

The primary objective of conducting CFA was to determine the ability of a predefined factor model to fit an observed set of data. It provides estimates for each parameter of the measurement model. CFA is useful in (1) testing the significance of a specific factor loading; (2) testing the relationship between two or more factor loadings; (3) testing whether a set of factors are correlated or uncorrelated; and (4) assessing the convergent and discriminant validity of a set of measures.

CFA has strong links to structural equation modelling and hence the procedures demand verification of certain assumption explained earlier. CFA requires validation of measurement models of each identified factors from EFA followed by validation of structural model containing all factors. The measurement model is the part of an standard error of mean (SEM) model that deals with the latent variables and their indicators. The measurement model was evaluated for validity like any other SEM model, using goodness of fit measures. Maximum likelihood (ML) estimation method was used in all analysis using Amos.22. Maximum likelihood aims to find the parameter values that make the observed data most likely (or conversely maximize the likelihood of the parameters given the data)" (Caron et al., 2006; Brown, 1997). It has several desirable statistical properties:

(1) It provides standard errors (SEs) for each parameter estimate, which are used to calculate p -values (levels of significance) and
(2) It provides confidence intervals, and its fitting function is used to calculate many goodness-of-fit indices

In model evaluation using AMOS software involves the use of significance tests to assess the adequacy of model fit. Fit refers to the ability of a model to reproduce the data (that is, usually the variance-covariance matrix). The fit measures generated by Amos output can be classified into six as absolute fit measures, relative fit measures, parsimony fit measures, Chi square distribution based fit measures, information theoretic fit measures and fit measures based on sample size. There is wide disagreement among researches as to which fit indexes to report. Hooi (2010) and Bradshaw (2012) recommend use of at least three fit tests, one from each of the first three categories above, so as to reflect diverse criteria. Kline (2005) recommended the use of least four tests, such as Chi-square; GFI, NFI, or CFI, NNFI, and SRMR.

Many indices are affected by sample size and for this reason CMIN, GFI and AGFI are no longer preferred measures of goodness of fit. The Parsimonious fit measures are used primarily to compare models on the basis of some criteria that take parsimony. It is suggested that other goodness of fit measures are used to assess acceptable models and parsimony measures are used to select among the set of acceptable models.

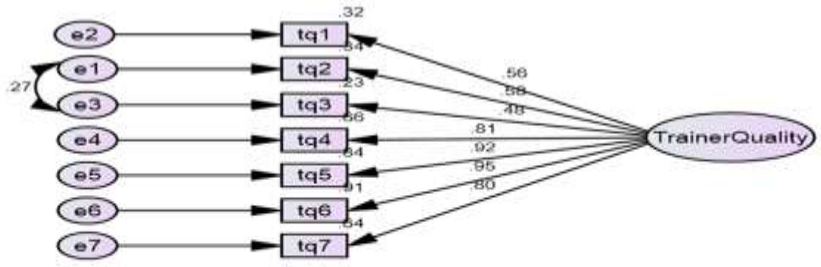
The first stage in confirmatory factor analysis was validating the measurement model for all first order dimensions of training quality construct.

Measurement model for "trainer quality" dimension

The seven indicator variable model of "Trainer Quality" dimension was suggesting poor fitting model in the first estimate. The normed alpha, RMSEA and CFI were above the permissible level. As per modification indices, an error correlation was added between indicator variables "tq2" and "tq3" considering theoretical grounds. To correlate error terms there need to be a strong theoretical justification behind such a move. Jöreskog (1993) and Bollen and Long (1993) develop a well fit and significant model. The model was found to be good fitting model with recommended indices as illustrated in Figure 1. All the paths shown in the model are significant as critical ratios were above 1.96.

Measurement model for "content quality" dimension

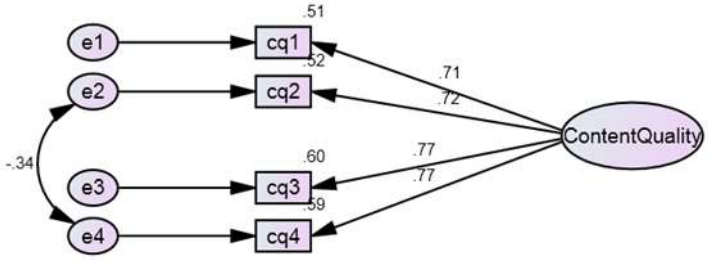
The four indicator variable model of "Content QualitITes" dimension was showing a poor fitting model in the first



Measurment Model for "Trainer Qualities" Dimension

CMIN/DF = 2.377 , CFI = 0.990, GFI = 0.976, SRMR = 0.0292
RMSEA = 0.060, PCLOSE = 0.247, HOELTER = 345

Figure 1. Measurement model for "Trainer Quality" dimension.



Measurment Model for "Content Qualities" Dimension

CMIN/DF = 3.390 , CFI = 0.995, GFI = 0.996, SRMR = 0.0155
RMSEA = 0.079, PCLOSE = 0.197, HOELTER = 752

Figure 2. Measurement model for "Content Quality "dimension.

estimate. The normed alpha, RMSEA, and NFI above the permissible level as illustrated in Figure 2. As per modification indices, an error correlation was added between indicator variables "cq2" and "cq4" in consideration with the theory behind. All the paths shown in the model are significant as critical ratio was above 1.96.

Measurement model for "delivery quality" dimension

The four indicator model reported a best fit model with recommended indices as illustrated in Figure 3. All the paths shown in the model are significant as critical ratio was above 1.96.

Measurement model for "infrastructural quality" dimension

The five indicator variable model of "Infrastructural Quality" dimension suggests a poor fit mode and hence, an error correlation was added between indicator variables "iq2" and "iq4"as per the modification indices considering theoretical grounds. All indices considered are above the desired level with significant paths as illustrated in Figure 4.

STRUCTURAL MODEL FOR PERCEIVED TRAINING QUALITY CONSTRUCT

The statistical significance of relationships among training quality and its extracted dimensions were of interest to this study. The well-fit measurement models of training quality dimensions are taken together to arrive at a fitting structural model for training quality. The model developed is illustrated in Figure 5. The primary task in this model-testing procedure is to determine the goodness-of-fit between the hypothesized model and the sample data.

The first model developed had all fit indices above the permissible limits and hence a good-fitting model explaining the training quality construct.

Table 5 provides RMSEA value for the above

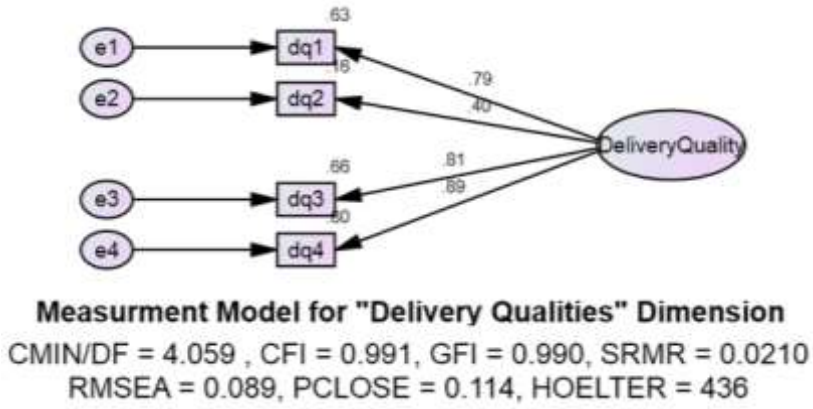


Figure 3. Measurement model for “Delivery Quality “dimension.

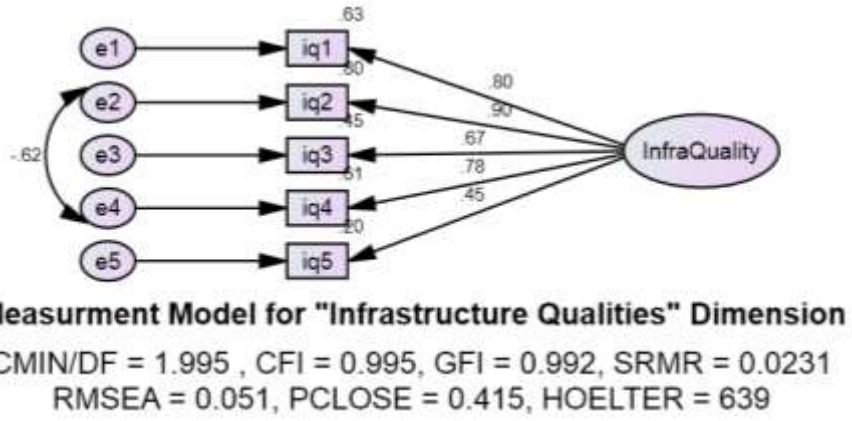


Figure 4. Measurement model for “Infrastructure Quality” dimension.

hypothesized model and was found as 0.045, with the 90% confidence interval ranging from 0.036 to 0.053 and the p-value for the test of closeness of fit equal to 0.843. Interpretation of the confidence interval indicates that, 90% confidence can be assigned that the true RMSEA value in the population will fall within the bounds of 0.036 and 0.053, which represents a good degree of precision (Table 5). Given that (1) the RMSEA point estimate is < 0.08 (.045); (2) the upper bound of the 90% interval is also within permissible limits; and (3) the probability value associated with this test of close fit is >0 .050 (p = 0.843), it can be concluded that the initially hypothesized model fits the data well.

The proposed structure of the hypothesized model on the sample data needs to be tested to find how well the observed data fit this restricted structure. Because it is highly unlikely that a perfect fit will exist between the observed data and the hypothesized model, there will necessarily be a differential between the two; this differential is termed the residual. The model-fitting process can therefore be summarized as follows:

Data = Model + Residual

where Data represents score measurements related to the observed variables as derived from persons comprising the sample. Model represents the hypothesized structure linking the observed variables to the latent variables and, in some models, linking particular. Residual represents the discrepancy between the hypothesized model and the observed data.

The discrepancy between the restricted covariance matrix, demonstrated by the hypothesized model, and the sample covariance matrix is captured by the residual covariance matrix reported in the AMOS output. The standardized residual co-variance should be less than 2.58 to conclude statistically significant co-variance between two variables (Byrne, 2010). Hence, observations were standardized residual co-variance more than 2.58 can be considered for exclusion in further analysis. Another criterion for identifying significant items is verification of critical ratio reported in AMOS output along with estimates. The critical ratios (CR) are to be >

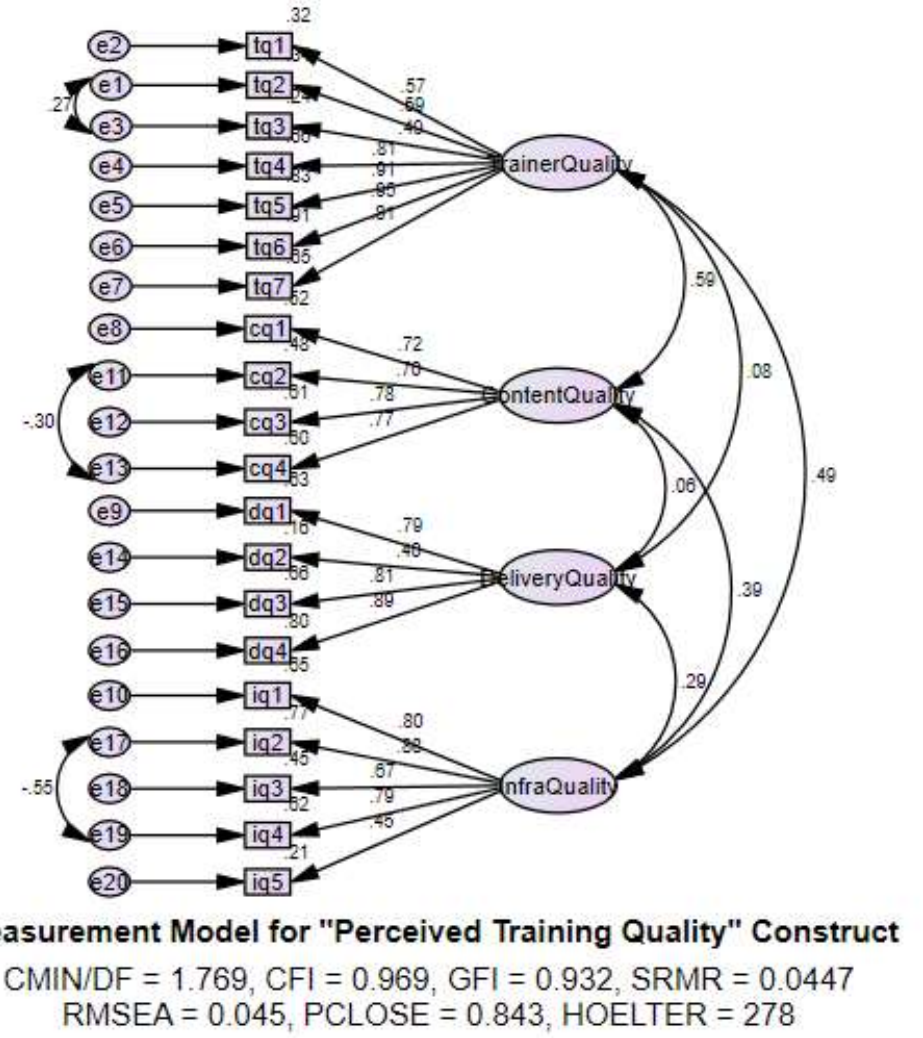


Figure 5. Confirmatory model for training quality construct.

Table 5. RMSEA estimates.

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.045	0.036	0.053	0.843
Independence model	0.234	0.227	0.240	0.000

±1.96 for concluding statistical significance of items used for measuring latent variables. Non-significant parameters, with the exception of error variances, can be considered unimportant to the model; in the interest of scientific parsimony they should be deleted from the model (Byrne, 2010). Here, all standardized residual covariances among items were below 2.58 and critical ratios above 1.96, to confirm satisfactory completion of the estimation process to draw conclusions on relationship among variables.

VALIDATION OF THE PERCEIVED TRAINING QUALITY SCALE

To demonstrate the soundness of measurement scale developed, first of all, it was necessary to address the issue of common methods variance (CMV). Common methods variance can be a major source of measurement error in data collection when variables are latent and measured using the same survey at one point of time. CMV may inflate the true correlations among latent

constructs and threaten the validity of conclusions. Harman's single-factor test is most widely known approach for assessing CMV in a single-method research design (Organ et al., 2006). In single-factor test, all of the items in the study are subjected to EFA. CMV is assumed to exist if (1) a single factor emerges from unrotated factor solutions, or (2) a first factor explains more than 50% of the variance in the variables (Organ et al., 2006)

The EFA conducted with all variables in the study yielded four distinct factors with an eigenvalue above one. The first factor accounts for 33.094% of the variance at unrotated stage and all factors together account for 63.602% of the total variance to confirm that CMV was not a major concern in this study.

Convergent validity was established when the relationship between measurement items and the factor were significantly different from zero. Based on this criterion, critical ratios were used to evaluate the statistical significance. Parameters which have a critical ratio greater than 1.96 were considered significant based on the level of p=0.05. In this study, all of the measurement items represented their factors significantly, as the critical ratio of every item exceeded the 1.96 value; hence, all of the measurement items satisfied the convergent validity test. Also, the standardized regression weights should be significantly linked to the latent construct and have at least loading estimate of 0.5 and ideally exceed 0.7 (Hair et al., 2006). In this study the factor loading ranged from 0.508 to 0.876 and all loadings except two were found more than recommended value of 0.5. The convergent validity assessment also included the measure of construct reliability and average variance extracted. According to Anderson and Gerbing (1992), variance extracted refers “the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error”. Further, Anderson and Gerbing (1992) suggested that variance extracted to be a more conservative measure than construct reliability. As a rule of thumb good reliability is suggested if, Cronbach’s alpha estimate is higher than 0.7. Further, variance extracted (AVE) for a construct should be larger than 0.5 indicating reliable factors (Hair et al., 2006). Another rule of thumb for checking composite reliability is in comparison with squared multiple correlations provided in the Amos output. Composite reliability is considered high if squared multiple correlation R2 (“smc”) greater than 0.5, moderate if between 0.3 and 0.5 and poor if less than 0.3 (Amos et al., 2014). In this study, the squared multiple correlations reported more than 0.5 except for 14 indicators, between 0.3 to 0.5 for four items and below 0.3 for two items to generally conclude adequate composite reliability.

Discriminant validity was confirmed by examining correlations among the constructs. As a rule of thumb, a 0.85 correlation or higher indicates poor discriminant validity in structural equation modelling (Field, 2004). None of the correlations among variables were above 0.85. The results suggested adequate discriminant validity of the measurement. The validity statistics can be determined using Microsoft Excel based Validity Concerns Toolkit developed by Prof. Gakingston. Table 6 reports the composite reliability (CR), average variance extracted (AVE), maximum shared variance (MSV) and average shared variance (ASV) of the dimensions.

Dimensions were with CR more than 0.7 to meet reliability criteria. All AVE’s were found more than 0.5. Since MSV < AVE and ASV < AVEs, discriminant validity could be established (Hair et al., 2010). Further, all standardized residual co-variances among items were below 2.58 and critical ratios above ±1.96, to confirm significance of items used in the measurement (Byrne, 2004). All standardized regression coefficients were above 0.50 suggesting that each of the items should remain in the model (Hair et al., 2010). From the aforementioned observations, it was confirmed that the scale developed was having adequate psychometric soundness for measuring perceived training quality.

TESTING THE MULTIDIMENSIONAL STRUCTURE OF TRAINING QUALITY CONSTRUCT

This study required to verify the psychometric soundness of the training quality construct, which is conceptualized as multi-dimensional formative one with four first order dimensions. Identification of formative indicator constructs in Amos 22 required modifications as proposed by Jarvis et al., (2003). Accordingly, two theoretically appropriate reflective indicators were introduced and paths were constrained. The estimated model is presented in Figure 6.

The validity statistics can be determined using Microsoft Excel based Validity Concerns Toolkit developed by Prof. Gakingston. Dimensions were with CR more than 0.7 to meet reliability criteria. All AVE were found more than 0.5 to confirm convergent validity and since MSV < AVE and ASV < AVEs, discriminant validity could be established. From the aforementioned observations, it was confirmed that the multi-dimensional formative structure of training quality is psychometrically justifiable.

It was confirmed from the confirmatory factor analysis that perceived training quality is a multidimensional hierarchical, one formed with four first order dimensions namely Trainer Quality, Content Quality, Delivery Quality and Infrastructural Quality. The item structure is illustrated in Table 7.

To assess the model fit with the data, it was recommended that the p-values for average path coefficient (APC), average r-squared (ARS) and average adjusted R-squared (AARS) should be with p<0.05. In addition, it was recommended that the average variance inflation factor (AVIF) be lower than 5. The various quality criteria for assessing the psychometric soundness of the model are reported in Table 8.

Table 6. Quality assessment details for dimensions.

Quality	CR	AVE	MSV	ASV
DeliveryQuality	0.828	0.563	0.084	0.031
TrainerQuality	0.896	0.564	0.346	0.197
ContentQuality	0.831	0.552	0.346	0.167
InfraQuality	0.849	0.539	0.240	0.158

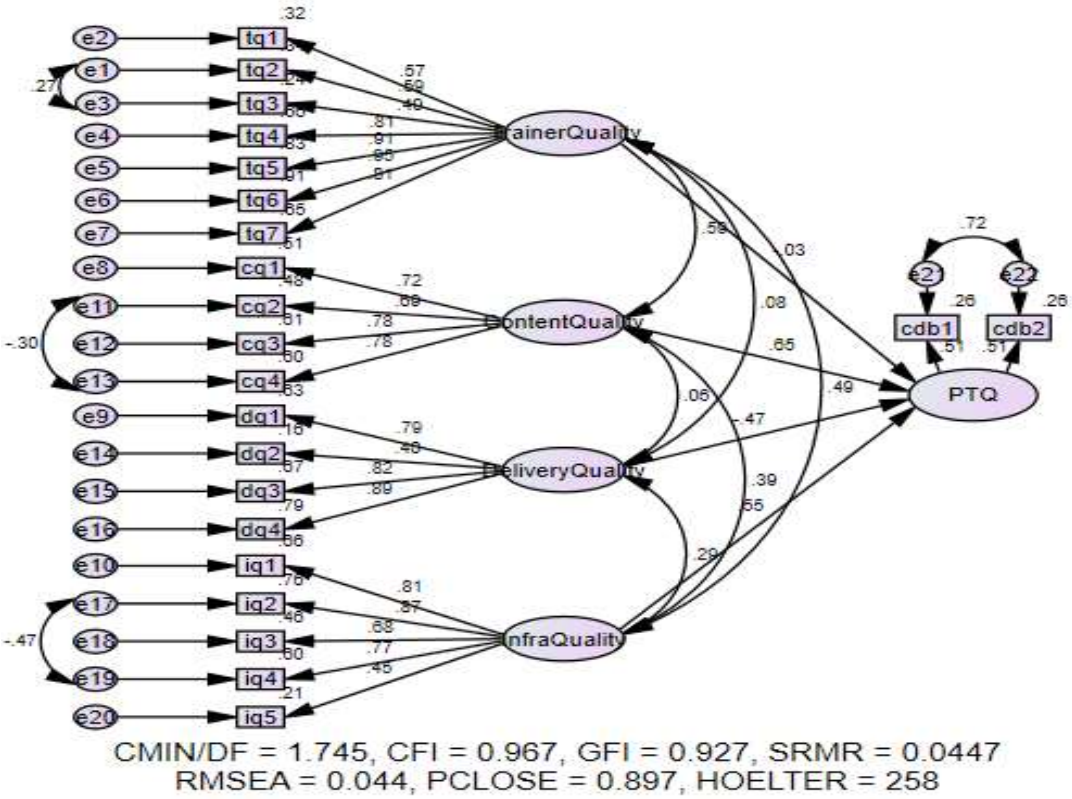


Figure 6. Multi-dimensional formative model of training quality construct.

Table 7. Item structure of training quality construct.

S/N	Factor name	No. of items
1	Trainer quality	7
2	Content quality	4
3	Delivery quality	4
4	Infrastructural quality	5

The research model estimated using WarpPLS 5.0 is illustrated in Figure 7. The significant indicators identified after confirmatory factor analysis was only used for model estimation. The model emerged as a well fit model with admissible fit criteria and other quality guidelines. Expect two paths all other paths emerged as significant as p values were less than 0.05. Various fit criteria are reported as follows:

(1) Average path coefficient (APC)=0.270, P<0.001
(2) Average R-squared (ARS)=0.737, P<0.001
(3) Average adjusted R-squared (AARS)=0.735, P<0.001

Table 8. Fit and quality guidelines for PLS models.

S/N	Consideration		Guideline (WarpPLS 5.0)	
			Reflective constructs	**Formative constructs**
1	Goodness of fit criteria	1	"p" values for Average path coefficient (APC), Average R-squared (ARS) and Average adjusted R-squared (AARS) to be less than 0.05	
		2	Average full collinearity VIF (AFVIF) ok if <= 5, good <= 3.3	
		3	Average block VIF (AVIF), ok if <= 5, good <= 3.3	
		4	Tenenhaus GoF ;small >= 0.1, medium >= 0.25, large >= 0.36	
		5	Sympson's paradox ratio (SPR) acceptable if >= 0.7, ideally = 1	
		6	R-squared contribution ratio (RSCR) acceptable if >= 0.9,	
		7	Statistical suppression ratio (SSR) acceptable if >= 0.7	
		8	Nonlinear bivariate causality direction ratio, good if >= 0.7	
2	Cronbach alpha coefficient		>0.7	NA
3	Composite reliability		>0.7	NA
4	Average variance extracted		>0.5	>0.5
5	Convergent validity		p values associated with the loadings be lower than 0.05; and that the loadings be equal to or greater than 0.5; cross loading less than 0.5	VIF<5; all indicator weights should be with p<0.05
6	Discriminant validity		The square root of the average variance extracted should be higher than any of the correlations involving that latent variable	The square root of the average variance extracted should be higher than any of the correlations involving that latent variable
7	Effect sizes of path co-efficient		Effect sizes (f-squared) of 0.02, 0.15, and 0.35, respectively for small, medium, or large effect (Cohen, 1988)	
8	Predictive validity		Positive higher value of Stone-Geisser Q-squared co-efficients	

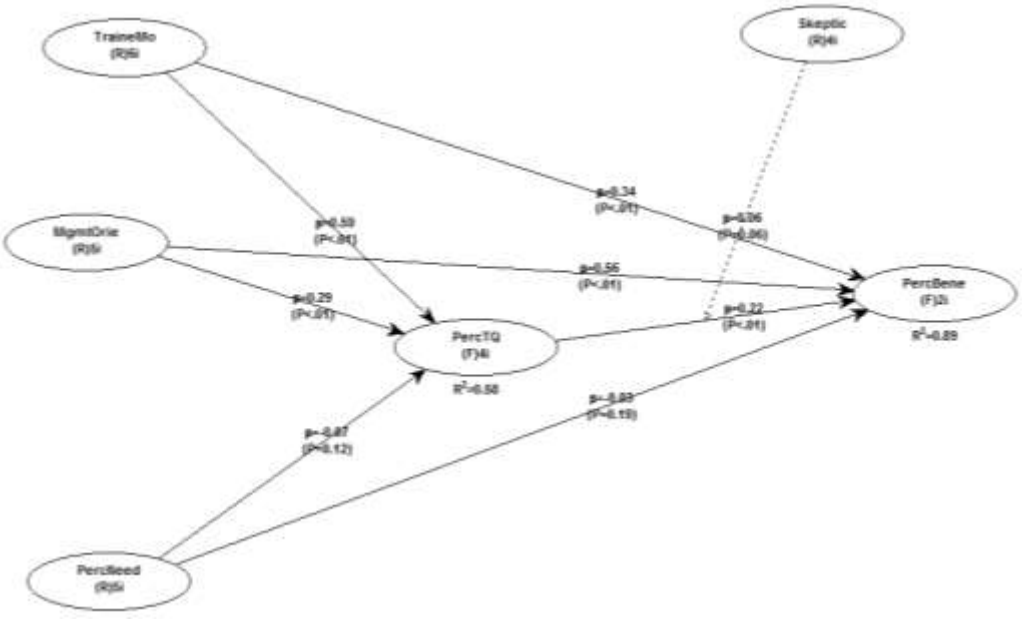


Figure 7. Estimated research model.

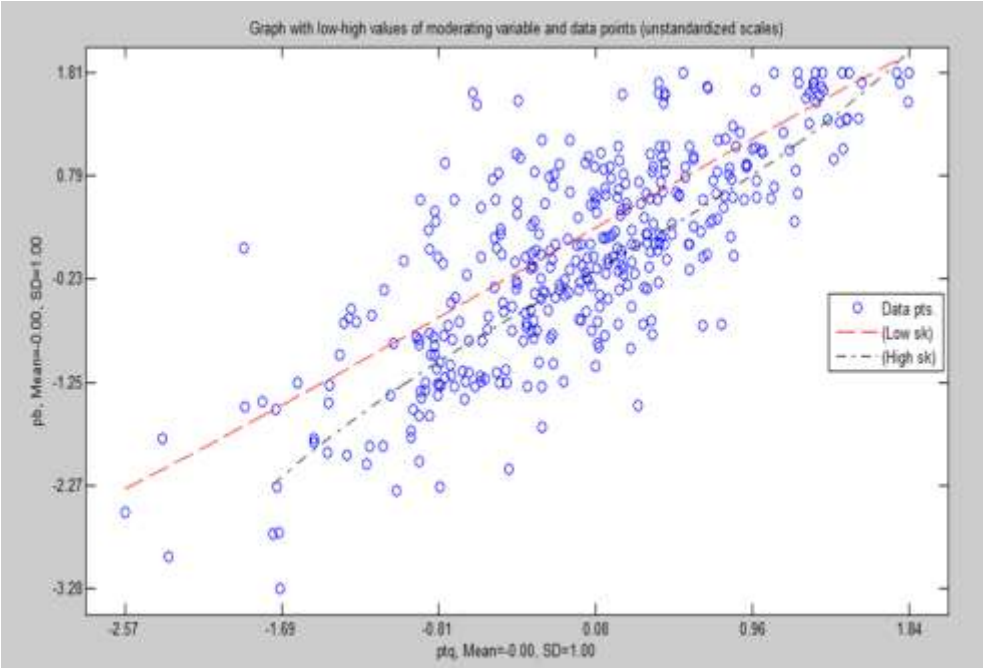


Figure 8. Relation between PB and PTQ vs. SK.

(4) Average block VIF (AVIF)=1.449, acceptable if <= 5, ideally <= 3.3
(5) Average full collinearity VIF (AFVIF)=3.702, acceptable if <= 5, ideally <= 3.3
(6) Tenenhaus GoF (GoF)=0.647, small >= 0.1, medium >= 0.25, large >= 0.36
(7) Sympson's paradox ratio (SPR)=1.000, acceptable if >= 0.7, ideally = 1
(8) R-squared contribution ratio (RSCR)=1.000, acceptable if >= 0.9, ideally = 1
(9) Statistical suppression ratio (SSR)=1.000, acceptable if >= 0.7
(10) Nonlinear bivariate causality direction ratio (NLBCDR)=0.938, acceptable if >= 0.7

It was found that, all the aforementioned fit criteria were met and that the model has acceptable predictive and explanatory quality as the data is well represented by the model. The loading of all items used to measure various latent variables were found adequate with p values less than 0.05. Various other quality criteria were found above threshold limits as illustrated in the table.

Graphs help in evaluating the effect of the independent variable at different values of the moderator. Figure 8 illustrates the moderation effect of skepticism on the relationship between perceived training quality and perceived benefits. The moderation effect also known as interaction effect depends on the sign and the power of the path coefficient of a moderated relationship. The path coefficient of the moderating effect of top management commitment has a value of 0.02 at $p<0.05$. The positive path coefficient of an effect that moderates a positive direct relationship concludes that causal power of training quality to develop benefit will go down in value as favourable perception about scepticism occurs. In case of employees with low level of feeling about scepticism, the formation of benefit feel from training quality is relatively high in comparison with employees having high impact towards modifier. A steady development of benefit feel is found for employees who perceive low levels of scepticism.

The relationship between other variables in the study is also explained in Figure 9. It shows the relationship between significant relationship between training quality and the antecedent variables, trainee motivation and management orientation. It also shows the significant relationship between benefits and the antecedent trainee motivation and management orientation. From Figure 10, it can be noticed that the trainee motivation shows a linear trend with respect to both training quality and benefits whereas there is a slight nonlinear relationship existing between management orientation with training quality and benefits.

A test of homogeneity was performed to check whether the assumption of homogeneity is violated to make valid inferences. Levene's test for homogeneity was not significant ($p>0.05$) as shown in Tables 9, 10, 11 and 12 and hence, it can be concluded that population variance of each group is approximately equal. In order to find out the significant difference in the perception towards training quality, benefits and scepticism among the respondents with different age groups, one-way analysis

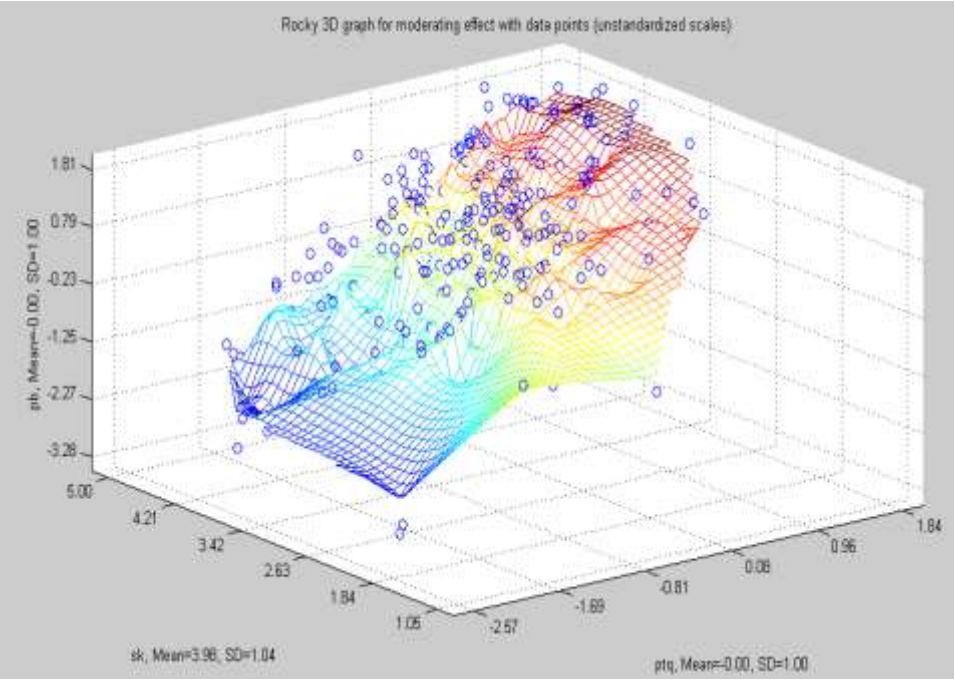


Figure 9. Relation between PB and PTQ vs SK depicted by Rocky Plot.

of variance was administered for each case. The resulted 'F' statistics are illustrated in Table 11 suggesting that there is a significant difference in perceptions of employees about all the three variables studied at 0.05 levels.

Levene's test of homogeneity was performed to check whether the assumption of homogeneity is satisfied. The result gave a p value greater than 0.05, concluding the population variances of each group are approximately equal. The p value (at 10% significance) in the ANOVA Table 11 suggests that there is significant difference in perceptions of employees based on age groups with respect to training quality. From the post hoc result, it can be clearly seen that employees above age group 45 years have a difference in perception when compared to other age groups and the mean value of employees above 45 years are greater than others showing that they perceive training quality stronger than others.

A test of Homogeneity was performed to check whether the assumption of homogeneity is violated to make valid inferences. Levene's test for homogeneity was not significant ($p>0.05$) as shown in Table 13 and hence, it can be concluded that population variance of each group are approximately equal. In order to find out the significant difference in the perception towards training quality, benefits and skepticism among the respondents with different job roles, one-way analysis of variance was administered for each case. The resulted 'F' statistics are illustrated in Tables 14 and 15, suggesting that there is a significant difference in perceptions of employees about all the three variables studied at 0.05 levels.

Levene's test of homogeneity was performed to check whether the assumption of homogeneity is satisfied. The result gave a p value greater than 0.05, concluding the population variances of each group are approximately equal. The p value (at 5% significance) in ANOVA Table 15 suggests that there is no significant difference in perceptions of employees based on their job role with respect to perceived training quality.

A test of homogeneity was performed to check whether the assumption of homogeneity is violated to make valid inferences. Levene's test for homogeneity was not significant ($p>0.05$) as shown in Tables 16, 17, and 18 and hence, it can be concluded that population variance of each group is approximately equal. In order to find out the significant difference in the perception towards training quality, benefits and skepticism among the respondents with different income levels, one-way analysis of variance was administered for each case. The resulted 'F' statistics are illustrated in Table 19, suggesting that there is no significant difference in perceptions of employees about all the three variables studied at 0.05 levels.

A test of homogeneity was performed to check whether the assumption of homogeneity is violated to make valid inferences. Levene's test for homogeneity was not significant ($p>0.05$) as shown in Tables 20 and 21, and hence, it can be concluded that population variance of each group is approximately equal. In order to find out the significant difference in the perception towards training quality, benefits and skepticism among the respondents with different length of association, one-way

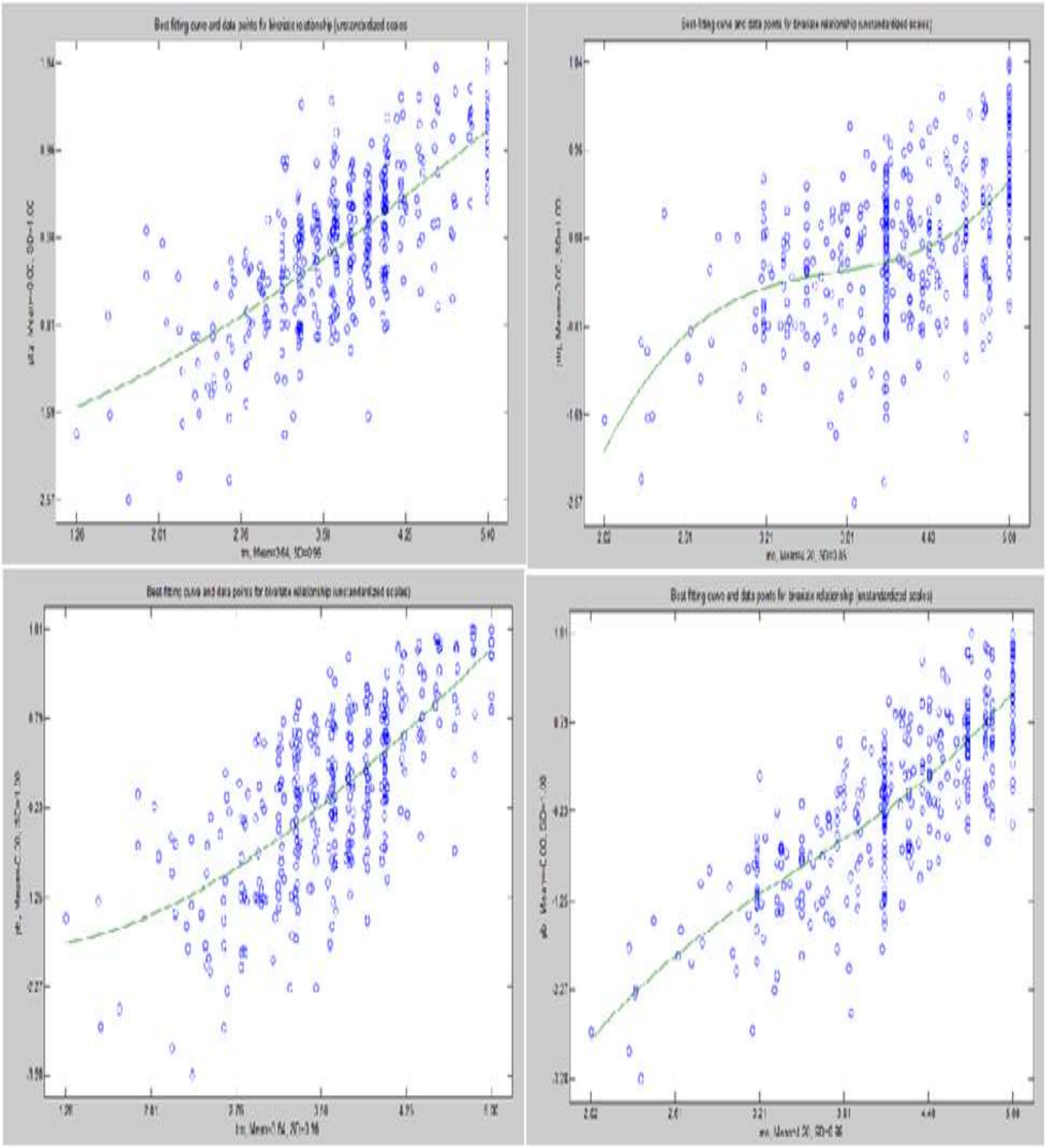


Figure 10. Relationship between variables.

analysis of variance was administered for each case. The resulted 'F' statistics are illustrated in Table 21, suggesting that there is no significant difference in perceptions of employees about all the three variables

Table 9. Descriptives of age.

Age		Frequency	Percent	Valid (%)	Cumulative (%)
Valid	Below 25	74	19.2	19.2	19.2
	26 to 35	139	36.1	36.1	55.3
	36 to 45	124	32.2	32.2	87.5
	Above 45	48	12.5	12.5	100.0
	Total	385	100.0	100.0	-

Table 10. Test of homogeneity of perceived training quality.

Levene Statistic	df1	df2	Sig.
2.158	3	381	0.093

Table 11. ANOVA of perceived training quality.

Perceived training quality	Sum of squares	df	Mean square	F	Sig.
Between groups	4.305	3	1.435	2.51	0.058
Within groups	217.867	381	0.572	-	-
Total	222.173	384	-	-	-

Table 12. Post Hoc of perceived training quality.

Perceived training quality	Age	N	Subset for alpha = 0.05	
			1	2
Tukey HSD[a,b]	36 to 45	124	3.4657	-
	Below 25	74	3.4730	-
	26 to 35	139	3.5288	3.5288
	Above 45	48	-	3.8021
	Sig.	-	0.952	0.101

Means for groups in homogeneous subsets are displayed.

Table 13. Descriptives of job role.

Job role		Frequency	Percent	Valid (%)	Cumulative (%)
Valid	Sr Mgr	7	1.8	1.8	1.8
	Mid Mgr	136	35.3	35.3	37.1
	Jr Mgr	121	31.4	31.4	68.6
	Programmers	121	31.4	31.4	100.0
	Total	385	100.0	100.0	-

Table 14. Test of homogeneity of perceived training.

Levene Statistic	df1	df2	Sig.
0.666	3	381	0.574

Table 15. ANOVA of perceived training quality.

Perceived training quality	Sum of squares	df	Mean square	F	Sig.
Between groups	3.056	3	1.019	1.509	0.212
Within groups	257.254	381	0.675	-	-
Total	260.31	384	-	-	-

Table 16. Descriptives of income level.

Income Level		Frequency	Percent	Valid (%)	Cumulative (%)
Valid	Below 2.5 L	42	10.9	10.9	10.9
	2.5 to 3 L	121	31.4	31.4	42.3
	3 to 4 L	96	24.9	24.9	67.3
	Above 4 L	126	32.7	32.7	100.0
	Total	385	100.0	100.0	-

Table 17. Test of homogeneity of perceived training quality.

Levene Statistic	df1	df2	Sig.
1.625	3	381	0.183

Table 18. ANOVA of perceived training quality.

Perceived training quality	Sum of squares	df	Mean square	F	Sig.
Between groups	1.204	3	0.401	0.751	0.522
Within groups	203.615	381	0.534	-	-
Total	204.818	384	-	-	-

Table 19. Descriptives of length of association.

Length of association		Frequency	Percent	Valid (%)	Cumulative (%)
Valid	Less than 1 year	11	2.9	2.9	2.9
	1 to 3 years	44	11.4	11.4	14.3
	3 to 5 years	60	15.6	15.6	29.9
	Above 5 years	270	70.1	70.1	100.0
	Total	385	100.0	100.0	-

Table 20. Test of homogeneity of perceived training quality.

Levene Statistic	df1	df2	Sig.
0.374	3	381	0.772

Table 21. ANOVA of perceived training quality.

Perceived training quality	Sum of squares	Df	Mean square	F	Sig.
Between groups	0.584	3	0.195	0.363	0.78
Within groups	204.234	381	0.536	-	-
Total	204.818	384	-	-	-

studied at 0.05 levels.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Assessment of factors affecting performance of agricultural cooperatives in wheat market: The case of Gedeb Hasasa District, Ethiopia

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The purpose of this study is to provide an explanation of factors Affecting Agricultural Cooperatives Marketing Performance (In The Case Of Gedeb Hasasa District). In this study, descriptive statistics tools were used to give clear picture about the socio-demographic characteristics of respondents. To answer the research questions and measure the construct and predictors effects on Agricultural Cooperatives Marketing Performance (ACMP), both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used. EFA results showed that the Kaiser-Mayer Olkin of 0.90 and Bartlett test of 0.00 shows that factor analysis is appropriate. The principal component analysis extraction method was used to analyze the data with Promax Rotation Method; five factors were extracted and statistically significant. The first factor explained 32.11% of the variance, the second factor explained 11.92% of the variance, the third factor explained 8.08% of the variance, the fourth factor explained 7.07% of the variance and the fifth factor explained 4.56 %, of the variance. The obtained results from the EFA results revealed that five extracted factors explained 63.75 % of the variation of influencing factors on agricultural cooperatives. Under CFA, Measurement Model and structural modeling techniques were used with the aid of AMOS and Smart PLS3 statistical packages to explain the relationships among multiple manifested variables and exogenous and endogenous factors. CFA confirmed that five factors have a significant positive impact on ACMP. Implications of this research work will help ACs and CPO to identify the major factors that can affect ACMP.

Key words: Agricultural cooperatives (ACs), agricultural cooperatives marketing performance (ACMP), cooperative governance factor (CGF), financial factor (FF), infrastructural factor (IF), marketing factor (MF) and members value factor (MVF).

INTRODUCTION

Cooperative enterprise born in the Agricultural and Industrial Revolutions of the 19 and 20th centuries, modern cooperatives bear a long and rich history. Founded in 1844, the Rochdale Society of Equitable Pioneers usually considered as the first successful cooperative enterprise, following the - Rochdale

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Principles‖, used as a model for modern cooperatives. A group of 28 weavers in Rochdale, England, set up the society to open their own store selling items otherwise unaffordable. This first success was the one of a consumer co-operative (Euro Coop, 2008).

Cooperatives have existed for around two hundred years. While operating in all fields of economic activity, cooperatives have greater longevity than for-profit firms. The cooperative model has continually adapted to changing conditions, and innovative forms of cooperation have emerged to address new economic and social concerns (Carlo and Giulia, 2012).

Since 1884, many types of cooperatives have been established worldwide to meet their members common economic, social and cultural needs, including Consumer cooperatives, agricultural cooperatives, worker cooperatives, credit unions, credit cooperatives, and mutual-aid societies have been set up almost everywhere. According to the ICA (2011), in total, about one billion people are involved in cooperatives in some way, either as members/ customers, as employees/participants, or both. Cooperatives employ at least 100 million people worldwide. It has been estimated that the livelihoods of nearly half the world‘s population are secured by cooperative enterprises. The world‘s 300 largest cooperative enterprises have collective revenues of USD 1.6 trillion, which is comparable to the GDP of the world‘s ninth largest economy (Spain).

In Ethiopia, Cooperation among people has existed since history has been record. Traditional forms of cooperation involved community members voluntarily pooling financial resources through "iqub", which was an association of people having the common objectives of mobilizing resources, especially finance, and distributing it to members on rotating basis. There were also initiatives for labor resource mobilization that were to overcome seasonal labour peaks, known as “Jigie, -Wonfel, among others. There also was the idir, which was an association for provision of social and economic insurance for the members in the events of death, accident, damages to property, among others. These informal associations continue to operate in Ethiopia (Bezabih, 2009).

However, the formation of modern cooperative societies was started soon after the Italian invasion. It was only in 1960s that a cooperative legally enacted. During the reign of Haile Selassie, the cooperative legislation No241/1966 has proclaimed and about 154 different types of cooperatives were organized. During the Derg regime, cooperatives that organized earlier deliberated unnecessary and discarded. The newly organized cooperatives under the regime have purposefully made instruments of political power. Their organizational procedures not based on internationally accepted co-operative principles. New era in cooperative development was then started in 1998 when new co-operative legislation No 147/1998 was enacted (FCA, 2009).

Recently, the number of cooperatives and their services delivery has shown improvement in Ethiopia. According to FCA (2014), cooperatives created approximately 802,752 job opportunities. Cooperatives also supply agricultural input since 2006/2007 up to 2014 approximately 3,504,194 ton DAP and UREA and since 2006/2007 up to 2014 approximately 3,693,219.88 quintal selected seed to members and non-members. In 2014, around 2496 consumers cooperative distributed 3,854,392,585 birr estimated consumption goods.

According to FCA (2015) annual report indicates, there are 56,355 primary and secondary cooperatives, both agricultural and non-agricultural sector, of which, 56,044 are primary and 311 secondary cooperatives. Throughout the country, the total member of primary cooperative reached to 9,393,201 of which, 7,177,525 are male and 2,215,678 are female members and holding a total capital of 11.3 billion birr. Much of this growth trend explained by expansion of cooperatives in Oromia, Addis Ababa, SNNP, Amhara, Tigray and Somali, where the number of cooperatives grew by 18431, 12132, 12002, 8843, 4813 and 1306 respectively. Furthermore, in Oromia regional state, where the study is to be conducted 18,431 primary and 120 secondary cooperatives found (FCA, 2014).

And in the study area, Gedeb Hasasa district which is found in west Arsi Zone of Oromia region, there are 66 cooperatives and out of these, 25 are agricultural cooperatives, 21 are saving and credit cooperatives, 11 are consumers cooperatives, 5 are mining cooperatives, 3 are seed multipliers and there is also one union (G HWCPO, 2015).

Even though, there are hopeful indicators of success in cooperative movement, growth and in their performance in Ethiopia as well in oromia region and in the study area, the sector has faced many challenges that hinder its optimum utilization. According to MOA, ATA and FCA, (2012), Admasu (1998), Belete (2008) and Adisu (2011) indicate that, cooperatives in Ethiopia have limited capacity to provide output-marketing services, have limited capacity and capability to improve the effectiveness and efficiency of their input procurement and distribution services. The output marketing infrastructure within which cooperatives operate is underdeveloped and cooperatives have limited access to financing invest in improving output marketing.

Therefore, the study aims to investigate the major factors that affect marketing performance of agricultural cooperative societies in Gedeb Hasasa district, Oromia Regional State.

LITERATURE REVIEW

Cooperative performance

According to Chamaru (2012), profitability and management efficiency indicators mostly used among those net profit, return on assets (ROA), return on

investment (ROI), and earning per share (EPS) are some common examples of the profitability indicators. Effective use of capital, management stability and efficiency of operations are other most popular measurements.

Moreover, as Divandari et al. (2010) identified four types of performance measures: Key result indicators (KRIs) tell you how you have done in a perspective or critical success factor; Result indicators (RIs) tell you what you have done; Performance indicators (PIs) tell you what to do to increase performance dramatically.

However, the problem is whether those are suitable to measure cooperative performance. Because cooperatives are different up to some extend from this profit printed organizations. That means, cooperatives almost not differ from other business organization. They are doing business, but their objectives have some unique differences from other organizations. They have to provide goods and services to its members and thus enable them to attain improved income and savings, investments, productivity, and purchasing power and promote among them equitable distribution of net surplus through maximum utilization of economics of scale, cost-sharing and risk-sharing without, however, conducting the affairs of the cooperative for eleemosynary or charitable purposes. Because of that background, they do not have a profit maximization objective (Chamaru, 2012).

In addition, Chamaru (2012) suggested two main indicators to measure cooperative performances. That is cooperative business performance and cooperative principle performance. In other words, anyway, they are doing business (without profit maximization objective), therefore their business performance should be measured to get an idea about the performance.

Moreover, according to Anderson and Vincze (2000), performance expectations are based on a company's strategic goals, the standards that met or exceeded by leading marketers. A firm establishes performance criteria consistent with its mission and objectives. Furthermore, Davis (1997) cooperative value performance can be measured through the actions and programs implemented by considering cooperative values practice in day-to-day operations.

Marketing performance

According to Neely (2007), assessing marketing performance is very challenging. Unlike purely internal measures of performance, such as defects per million, marketing performance based on external, largely uncontrollable actors, such as customers and competitors. Furthermore, Lamberti and Noci (2010) identify the following marketing performance indicators, such as financial output indicators, which compare the results of the marketing actions to the costs associated to implement the actions (for example, profits, sales, cash flow). Non-financial output indicators, such as market share, customer satisfaction and so on; input indicators, which reflect marketing performance in terms of effort (for example, marketing budget and marketing assets) and multiple, hybrid indicators that evaluate macro dimensions related to efficiency, effectiveness and interdependence of the multiple dimensions of the marketing performance management system. Hence, marketing performance measured on different techniques mentioned earlier, to make the study more manageable, the performance of agricultural cooperatives in Gedeb-Hasasa studied by giving strong emphasis on sales growth, marketing cost reduction, bargaining power and carrying for others (stabilizing the market) (GHCPO, 2014).

Key factors for cooperative performance

Several authors discuss factors that may affect the performance of cooperative societies. According to Mahazril et al. (2012), cooperatives' strategic planning and participation from their members are the identified factors that contribute to their overall achievement and performance of cooperatives.

Moreover, as Opata et al. (2014) highlighted, the following factors that determine the efficiency of the performance of the cooperatives such as experience of managers, amount of credit from donors and volume of savings generated from members. Besides, (Prakash, 2003), the following factors enhance the impact of agricultural cooperatives:

(1) Internal factors are viable and integrated cooperative trained professional and motivated staff
(2) Well-honed means to encourage members' involvement and participation
(3) Strong vertical structural support
(4) Dedicated, enlightened, and selfless leadership
(5) Inclusive programs for members' education and information.
(6) Value-added activities with advance technologies
(7) Provision for reasonable coverage of risk for loss of crops and deposits.
(8) External factors are positive support and helpful role of the government
(9) Availability of basic infrastructure
(10) Market reforms
(11) Reasonable rate of growth in agriculture
(12) Healthy relationships with regulatory and development institutions.

Theoretical framework

From the literature reviews the most important factors that affect ACMP selected for this study are presented in Figure 1.

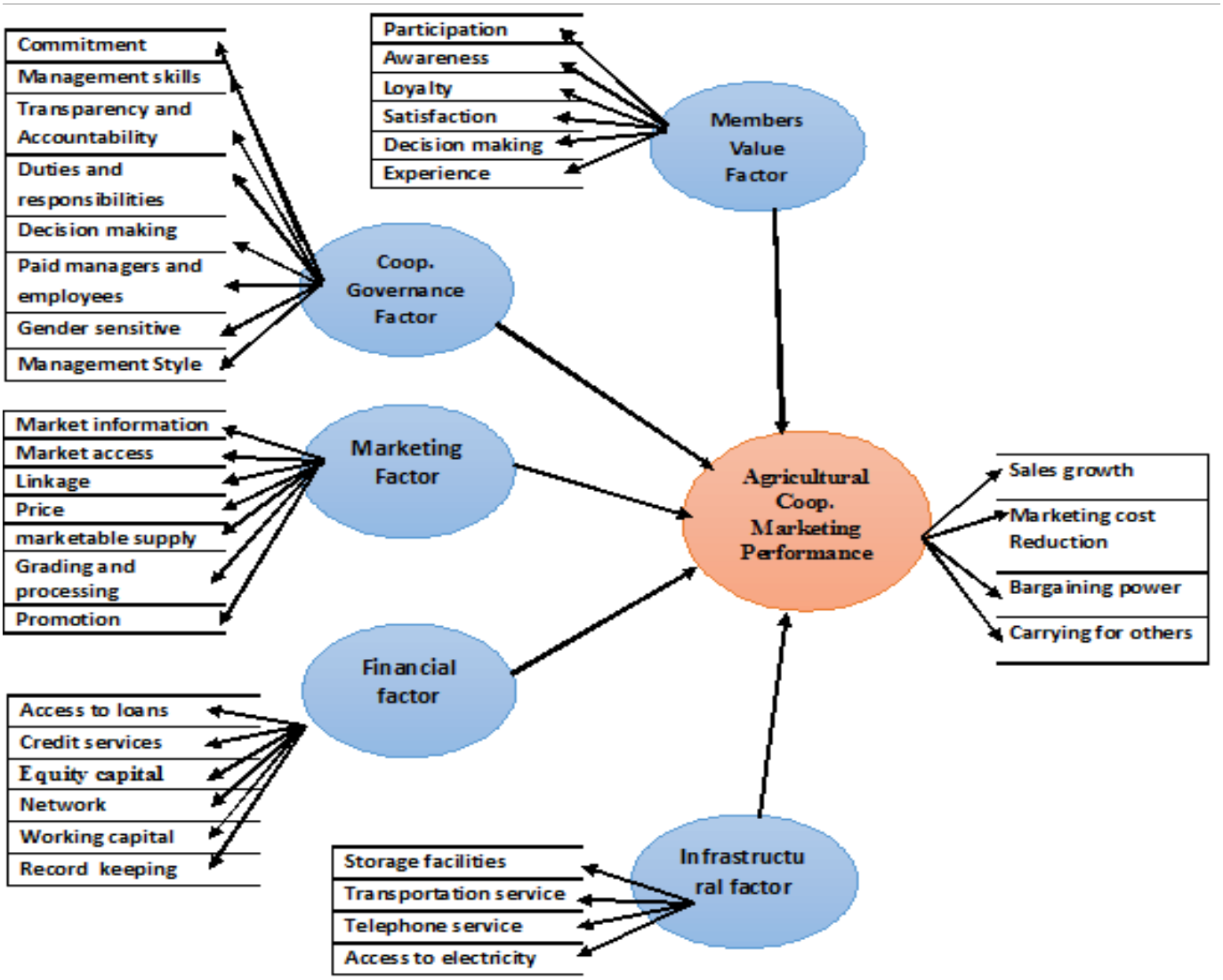

Figure 1. Conceptual framework (Source: Own drawing).

Relationship between exogenous factors with endogenous factor and exogenous variables with endogenous variables

Description of endogenous factors and associated variables

Endogenous latent factor influenced by exogenous factors in the structural model, either directly or indirectly. The model should explain variation in values of endogenous variables since all latent variables that influence them are included in the model specification (Byrne, 1998). In this study, ACMP is Endogenous factor and its predictor's manifested variables are sales growth, marketing cost reduction, bargaining power and carrying for others.

Description Of exogenous factors and associated variables

Exogenous latent factors are synonymous to independent variables which basis fluctuations in the values of other latent variables in the statistical model (Byrne, 1998). The set of exogenous latent factors and exogenous observed variables used in this study are;

(i) Members value factor shows the degree to which members of ACs exercise their right of ownerships, good understanding and general responsibilities towards their cooperative. This includes different predictors like members participation (MVF1), members awareness (MVF2), members loyalty (MVF3), member's satisfactions (MVF4), Members Decision making ability (MVF5) and Members Experience (MVF6).

(ii) Cooperative governance factor include different predictor or variables like: Committee Members Commitment (CGF1), Committee Members Awareness, Knowledge And Skills (CGF2), transparency and accountability (CGF3), division of activities, duties and responsibilities (CGF4), decision making techniques (CGF5), paid managers and employees (CGF6), gender sensitive (CGF7) and management styles (CGF8).
(iii) Marketing factor refers to market information (MF1), Market access (MF2), linkage with unions and other cooperatives (MF3), Clear and competitive price for members' supply (MF4), surplus marketable supply (MF5), Grading and processing (MF6) and promotion (MF7)
(iv) Financial factor include: Access to loans (FF1), credit services (FF2), equity capital (FF3), network (FF4), working capital (FF5), record keeping (FF6) and cash flow analysis (FIF7).
(v) Infrastructural factor include storage facilities (IF1), transportation service (IF2), access to communication service (IF3) and electricity (IF4).

METHODOLOGY

Research design

The research design is a conceptual structure with which research was conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2004). The descriptive and explanatory research design adopted in the study aims to assess factors affecting agricultural cooperative marketing performance. Descriptive research design is that the researcher has no control over the variables; he can only report what has happened or what is happening (Kothari, 2004). Explanatory research attempts to simplify why and how there is a relationship between two or more aspects of a condition or phenomenon. Explanatory research tries to find out explanations of observed phenomena, problems, or behaviors. It attempts to "connect the dots" in research, by identifying causal factors and outcomes of the target phenomenon (Anol, 2012). Based on time horizon, the research design is cross sectional. According to Michael (2014), a cross-sectional research design (also called a one-time correlational study) is a research in which, each person participates on one occasion, and all variables are measure at that time.

Data collection method and instrument

Primary and secondary data collected from appropriate sources of data. Primary data collected from respondents of five sample primary cooperatives through a structured questionnaire in order to assess the factors that influence Agricultural cooperatives marketing performance in the study area. A structured questionnaire with five point Likert - Scale was used to collect the opinions of respondents. Self-administered questionnaires were distributed randomly to the members of primary agriculture cooperatives in Hasasa District, oromia, Ethiopia. Out of the 324 questionnaires distributed for this research, 305 questionnaires filled and returned giving a response rate of 94%. According to Mugenda and Mugenda (2003), 50% response rate is adequate, 60% good, above 70% rate is very good. Therefore, in this study there was a very good response on the return of the questionnaires.

Target population

A population can be defined as all people or items (unit of analysis) with the characteristics that one wishes to study (Anol, 2012). The population in this study are all primary agricultural cooperatives which operate in the study area.

Sampling procedure and size determination

To select the respondents, multistage sampling method used. In stage one, by considering Mugenda and Mugenda (2003), a sample of 10 to 30% is good enough to define the sample frame of the target population, the available resource and time as well as homogenous nature of the population, five agricultural cooperatives (32%) of the population defined as target sample.

In stage two, from the target sample of five agricultural cooperatives (which have 1686 members), 324 sample respondents have drawn using the mathematical equation developed by **(**Yamane, 1967). The researcher used the following formula to define the required sample size at 95% confidence level, degree of variability of= 0.5 and with desired level of precision required = 0.5%.

$$\mathbf{n} = \frac{\mathbf{N}}{\mathbf{1} + \mathbf{N(e)^2}}$$

(Yamane, 1967)

Where:

n = the sample size,
N = the population size, and
e = is the level of precision.

$$\boldsymbol{n} = \frac{\mathbf{1686}}{\mathbf{1} + \mathbf{1686(0.05)^2}}$$

$$\boldsymbol{n} = \mathbf{324}$$

In stage three, the determined sample size distributed to each cooperative on the basis of probability proportional to size (PPS).It is the quotient between the size of the population and the size of the sample (MaMaEuSch, 2001). Probability proportional allocation formula adopted according to (Kotari, 2004) as follow:

$$\mathbf{n_1} = \frac{\mathbf{nN_1}}{\mathbf{N}}$$

Where:

n= determined sample size
N= target population
N_1= total number of population in each cooperatives
n_1= number of samples in each cooperatives (Table 1)

In stage four, to select the specific individual respondent member from five agricultural cooperative societies, Convenience sampling technique is applied. This is for the reason that, convenience sampling is a generic term that covers a wide variety of ad hoc procedures for selecting respondents. Convenience sampling means that the sampling units are reachable, easy to measure and cooperative (Scott and Gerald, 2010).

Methods of data analysis

Descriptive date analyzed by investigating the distribution of

Table 1. Randomly selected ACs and probability proportionate to size.

S/N	Name of primary agricultural cooperatives	Membership in number			Probability proportionate to size for each cooperative (PPS)
		Male	Female	Total	
1	Ibsa Gudena	210	67	277	53
2	Urje Waqintera	297	59	356	68
3	Walte debra	355	104	459	89
4	Abdi Boru	297	72	369	71
5	Burka Ala	160	65	225	43
Total		-	-	1686	324

Source: GHCPO (2015) and Computed by the Author.

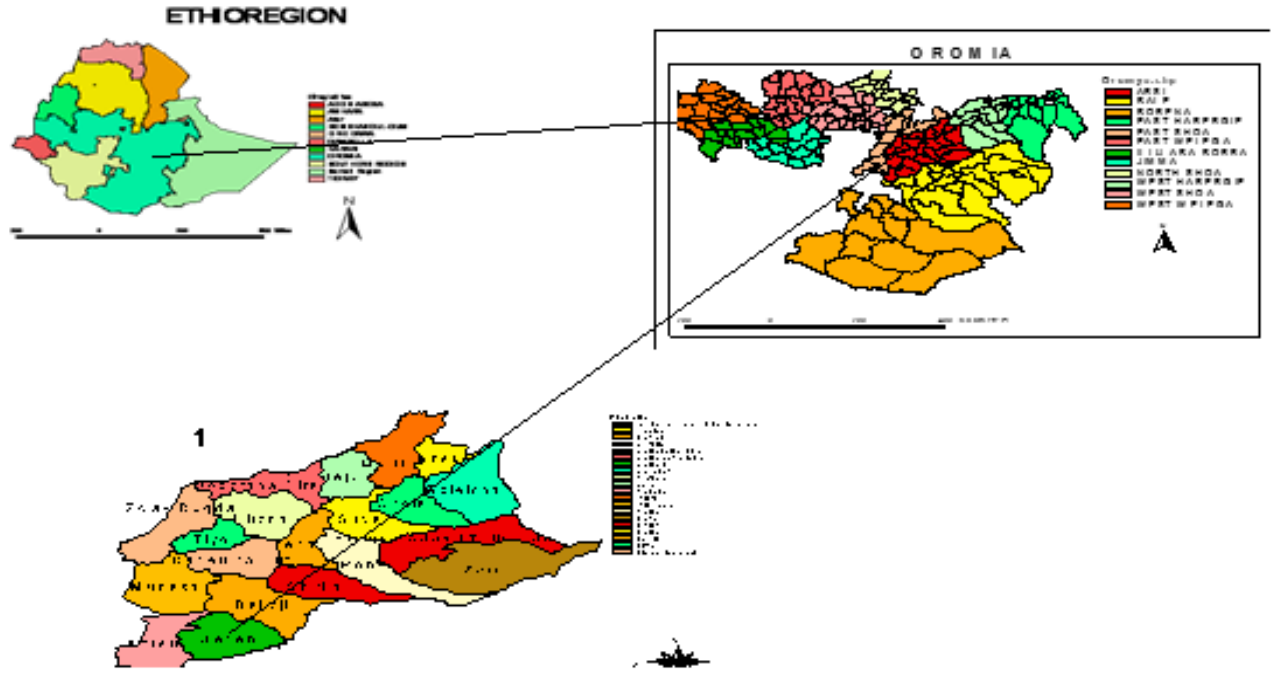

Figure 2. Maps of Ethiopia, Orimiya and Location of the study area *(*Source: GHWAO, 2015).

responses based on frequencies and percentages through statistical package for social sciences (SPSS). Correlation analysis, factor analysis, measurement and structural model analysis was applied by using SPSS Version 20, AMOS 21 and Smart Partial Least Squares (Smart PLS 3) computer software.

Description of the study area

Gedeb-Hasasa district is located in west Arsi Zone of Oromia Regional State in Ethiopia. It is located at about 286 km away from the capital city, Addis Ababa in the southeast and 86 km away from Shashamane, the capital city of the west Arsi zone. It covers an estimated land area of 1135 square kilometers. Geographically, shares boundaries with Kore and Kersa in the north, Onkolo in the east, Dodola and Laga-Wabe in the south, and Kofale and Kore in the west bordered the district. The administrative center of the Woreda is Hasasa Town. It is subdivided into 32 kebele administrations, among these 25 of them are rural based administrative and seven of them are under the town administration (GHWAO, 2014). The district population estimated to be 187,799, of whom 92,912 were men and 94,887were women; 20,667 or 11.06% of its population were urban dwellers. The majority of the inhabitants were Muslim, with 80.68% of the population reporting they observed this belief, while 17.89% of the population said they practiced Ethiopian Orthodox Christianity, and 1.31% of the population were Protestant (CSA, 2008) (Figure 2).

RESULTS AND DISCUSSION

The co-linearity issues

Tolerance and variance inflation factor (VFI) help to explore presence of multicollinearity. Tolerance is the degree where by one construct varies from other

Table 2. Variance inflation factor (VIF Values) results of factors or constructs.

Factors	Tolerance	VIF
CGF	0.67	1.5
FF	0.71	1.4
MF	0.70	1.7
MVF	0.56	1.5
IF	0.59	1.8

Source: Survey data (2015).

Table 3. Variance inflation factor (VIF Values) results of indicators.

ACMP		CGF		FF		MF		MVF		IF	
Indicators	VIF	Indicators	VIF	Indicators	VIF	Indicators	VIF	Indicators	VIF	Indicators	VIF
ACMP1	1.28	CGF1	1.82	FF1	2.51	MF1	2.80	MVF1	1.65	IF1	2.10
ACMP2	2.31	CGF2	2.18	FF2	2.19	MF2	2.03	MVF2	1.80	IF2	2.08
ACMP3	1.92	CGF3	1.72	FF3	2.10	MF3	2.15	MVF3	1.62	IF3	1.39
ACMP4	1.63	CGF5	1.46	FF4	2.11	MF4	1.85	MVF4	1.46	IF4	1.39
		CGF6	1.78	FF5	2.09	MF5	1.89	MVF5	1.95		
-		-	-	-		MF6	1.69	-		-	

Notation used :- CGF-Cooperative Governance Factors; MF-Marketing Related Factors; FF-Financial Factors; IF-Infrastructural Factors; MVF-Members Value Factors and ACMP-Agricultural Cooperatives' Marketing Performance (Source: Survey data (2015)).

constructs and presence of tolerance value less or equal to 0.1 indicates existence of multicollinearity. On the other hand, VFI is the opposite of tolerance and existence of its value greater or equal to 10 reveals presence of multicollinearity (Pallant, 2011). For this study, both VIF of constructs and VIF of indicators are assed as indicated in Table 2. Table 2 shows that all tolerance value greater than 0.1 and all VIF values for all factors are under 10, which demonstrated that the data set is free from multi-co linearity problems. The statistics of collinearity results presented in Table 3 shows VIF values for all indicators were under 10, which demonstrated that the there was no serious multi-co linearity problems in the survey data.

Results of descriptive analysis

Before conducting reliability, validation and further analysis for collected data, descriptive statistics must be conducted in advance (Pallant, 2011).

In this study, predictors of socio - demographic factors such as sex of participants, age of participants, marital status, educational status, duration of membership and reasons for membership were not considered as indicator variables. However, this is used to describe only the socio-demographic profile of respondents. Therefore, to give clear picture about the sample respondents, simple statistics such as frequencies, percentage and mean are used to describe the socio-demographic characteristics of respondents (Table 4).

Regarding gender of participants, the majority of the respondents who participated in the study are male 243 or (79.7%), while 62 or (20.3%) are female. Therefore, this could be because male and female membership number disparity in cooperatives. In all selected ACs, numbers of male are greater than number of female. The age distribution of the sampled ranges from 25 to 65 minimum and maximum, respectively. The average age of sampled members is 40.69 years. This shows the majority of respondents are between ages of 25 and 45 years in which implies that the sample farmers are at an economically productive age.

In terms of marital status, respondents were categorized into four categories namely, single, married, divorced and widowed. Table 4 shows 84.92 percent of them were found to be married; While 1.6, 2.3 and 2.6% were single, divorced and widowed sequentially. This indicates the majority of the respondents are married and more they could be stable.

Regarding educational qualification, 74 (24.26%)% of the respondents' are Illiterate, 45 (14.75%) of them could read and write, 131 (42.95%) attend elementary education, 61 (18.03%) percent respondents completed High School. This indicates that almost the majority of the respondent could read and write. This is a good opportunity for the cooperatives to inculcate and train the members to produce better leaders for betterment of its

Table 4. Results of descriptive analysis.

Indicators	Category	Frequency	Percentage
Sex	Male	243	79.70
	Female	62	20.30
	Total	305	100
Age	Minimum = 25	-	-
	Maximum = 65	-	-
	Mean = 40.6951	-	-
	Std. Deviation = 9.0431	-	-
	N = 305	-	-
Marital Status	Single	5	1.60
	Married	285	93.40
	Divorced	7	2.30
	Widow	8	2.60
	Total	305	100
Education	Illiterate	74	24.26
	Read and write	45	14.75
	Elementary education	131	43
	High School	61	18.03
	Total	305	100

Source: Survey data (2015).

marketing role in the area.

Reliability and validity assessment

Cronbach's Alpha

Cronbach's Alpha is a measurement of reliability that assumes equal indicator loadings (Hair et al., 2014). The value of Cronbach Alpha is classified based on the reliability index classification where 0.90 to 1.00 is very high, 0.70 to 0.89 is high, 0.30 to 0.69 is moderate, and 0.00 to 0.30 is low (Babbie, 1992) (Table 5). As Table 5 indicates, alpha values range from 0.792 to 0.888. Therefore, the analysis showed that the Cronbach Alpha value falls into the classification of high. This means all the reliability values of each construct are greater than the benchmark of 0.70 which recommended by (Hair et al., 2014). Since all the alpha coefficients were greater than 0.7, the conclusion is drawn that the instrument had a good internal consistency of the items in the scale and were appropriated for the study. For more clarification, see Table 4).

Composite reliability

The composite reliability varies between 0 and 1, with higher values indicating higher levels of reliability. It is generally interpret in the same way as Cronbach's alpha. Specifically, composite reliability values of 0.60 to 0.70 are acceptable in exploratory research, while in more advanced stages of research, values between 0.70 and 0.90 can be regarded as satisfactory (Nunally and Bernstein, 1994). Therefore, composite reliability values below 0.60 indicate a lack of reliability (Table 6). As Tables 6 depicts, coefficients values of composite reliability range from 0.866 to 0.918, this means all the composite reliability values of each construct are greater than 0.70 recommended by Nunally and Bernstein (1994). This indicates there is high levels of internal consistency of the items in the scale and are appropriated for the study (For more clarification, see Table 6).

Convergent validity

An AVE of less than 0.50 indicates that, on average, more error remains in the items than the variance explained by the construct (Hair et al., 2014). The convergent validity was considered satisfactory because all latent variables have high loading above 0.5 (Black et al., 2010; Hair et al., 2014). As shown in Tables 7, AVE values range from 0.580 to 0.690, representing high levels of internal consistency and validity. This indicates it

Table 5. Cronbach's Alpha.

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
ACMP	0.80	0.80	0.03	32.39	0.000
CGF	0.82	0.82	0.02	44.72	0.000
FF	0.89	0.89	0.01	71.77	0.000
IF	0.79	0.79	0.02	36.76	0.000
MF	0.88	0.88	0.01	70.76	0.000
MVF	0.82	0.82	0.02	45.09	0.000

Cronbach's Alpha, Mean, STDEV, T-Values, P-Values (P<0.05) (Source: Survey data (2015)).

Table 6. The summarized results of the composite reliability scores.

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (|O/STDEV|)	P values
ACMP	0.87	0.87	0.01	64.33	0.000
CGF	0.87	0.87	0.01	78.09	0.000
FF	0.92	0.92	0.01	109.82	0.000
IF	0.87	0.87	0.01	72.05	0.000
MF	0.91	0.91	0.01	103.45	0.000
MVF	0.87	0.87	0.01	74.91	0.000

CR, Mean, STDEV, T-Values, -Values (P<0.05) (Source: Survey data (2015)).

Table 7. The Summarized results of average variance extracted (AVE).

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (|O/STDEV|)	P values
ACMP	0.63	0.63	0.03	23.29	0.000
CGF	0.58	0.58	0.02	23.86	0.000
FF	0.69	0.69	0.02	29.48	0.000
IF	0.62	0.62	0.02	26.12	0.000
MF	0.62	0.62	0.02	26.03	0.000
MVF	0.58	0.58	0.03	23.49	0.000

AVE, mean, STDEV, T-values and P-values (P<0.05) (Source: Survey data (2015)).

explains more than half of the variance indicators (For more information (Table 7).

Correlation analysis

In this study to see connection between exogenous factors (independent variables) and endogamous factor (dependent variable) pearson correlation analysis is employed. Therefore, the following pearson correlation allows us to estimate the strength of connection between exogenous factors (independent variables) and endogamous factor (dependent variable). As Table 8 depicts, Pearson Correlation indicated that there is a positive significant relationship (r =0.62, p = 0.000) of Members Value Factors (MVF) with Agricultural Cooperatives Marketing performance (ACMP). There is a positive significant relationship (r = 0**.57**, p = .000) of Cooperative Governance Factor (CGF) with Agricultural Cooperatives Marketing performance (ACMP). In the same manner positive significant correlation is seen between Infrastructural Factors (IF), Marketing Related Factors (MF) and Financial Related Factors(FF) with Agricultural Cooperatives' Marketing Performance(ACMP) respectively, whose values are (r = 0.54, p = 0.000), (r = 0.53, p = 0.000) and (r = 0.50, p = 0.000).

Exploratory factor analysis (EFA)

EFA is a statistical technique that used to conduct two main results, such as data summarizing and data reduction (Tabachnick and Fidell, 2001). In this study,

Table 8. Pearson correlation analysis.

Variable		CGF	MF	FF	MVF	IF	ACMP
CGF	Pearson correlation	1	-	-	-	-	-
	Sig. (2-tailed)	-	-	-	-	-	-
	N	305	-	-	-	-	-
MF	Pearson correlation	0.448**	1	-	-	-	-
	Sig. (2-tailed)	0.000	-	-	-	-	-
	N	305	305	-	-	-	-
FF	Pearson correlation	0.446**	0.448**	1	-	-	-
	Sig. (2-tailed)	0.000	0.000	-	-	-	-
	N	305	305	305	-	-	-
MVF	Pearson correlation	0.394**	0.310**	0.314**	1	-	-
	Sig. (2-tailed)	0.000	0.000	0.000	-	-	-
	N	305	305	305	305	-	-
IF	Pearson correlation	0.309**	0.288**	0.265**	0.623**	1	-
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	-	-
	N	305	305	305	305	-	-
ACMP	Pearson correlation	0.571**	0.526**	0.497**	0.618**	0.536**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	-
	N	305	305	305	305	305	305

**. Correlation is significant at the 0.05 level (2-tailed) (Source: Survey Data (2015).

Table 9. Values of Kaiser-Meyer-Olkin criteria and Bartlett's test of sphericity.

KMO and Bartlett's test		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.897
Bartlett's test of Sphericity	Approx. Chi-square	3765.60
	df	300
	Sig.	0.000

Source: Own computations, 2015.

EFA was conducted through principal component analysis with promax rotation. The purpose of using EFA with principal component analysis is to derive a linear combination of items such that maximum variance extracted from the construct. EFA analysis includes the testing of correlations using KMO and Barlett's test of sphericity.

Kaiser-Meyer-Olkin (KMO) and Bartlett's test

As seen in Table 9, KMO measure of sampling adequacy result is approximately 0.90 which indicates the data are great and suitable for factor analysis (Table 9). The strength of the relationship among variables was measures by Bartlett test of Sphericity. It provides a chi-square output that must be significant. It indicates the matrix is not an identity matrix and accordingly it should be significant ($p<0.05$) for factor analysis to be suitable (Anderson et al., 1995). The Bartlett test for these data is 0.000 less than 0.05. This shows the significance of the factor analysis. In general, The KMO of 0.90 and Bartlett test of 0.00 shows that factor analysis is appropriate (See the KMO and Bartlett Test in Table 9).

Table 10 shows, the communalities chart that indicates the proportion of variance of each item that explained by the factors. Communalities calculated of the initial solution and then after extraction. This is described in the

Table 10. Review of communalities.

Communalities	Initial	Extraction
CGF1	1.000	0.636
CGF2	1.000	0.715
CGF3	1.000	0.625
CGF5	1.000	0.506
CGF6	1.000	0.610
MVF1	1.000	0.643
MVF2	1.000	0.607
MVF3	1.000	0.536
MVF4	1.000	0.598
MVF5	1.000	0.623
MF1	1.000	0.759
MF2	1.000	0.614
MF3	1.000	0.650
MF4	1.000	0.648
MF5	1.000	0.628
MF6	1.000	0.568
FF1	1.000	0.737
FF2	1.000	0.705
FF3	1.000	0.667
FF4	1.000	0.682
FF5	1.000	0.685
IF1	1.000	0.685
IF2	1.000	0.711
IF3	1.000	0.486
IF4	1.000	0.613

Extraction method: Principal component analysis (Source: Survey data (2015).

initial and extraction. Under the extraction heading, we want values equal to or greater than 0.50. According to Hair et al. (2010) variables which communalities less than 0.50 are not having sufficient explanation and excluded from the analysis.

Moreover, Comrey and Lee (1992) suggest that communalities values of 0.45 are considered fair. Therefore, in this research out of 31 indicators 5 predictors which communalities less than the required level have excluded from exploratory analysis. Therefore, only 25 predictors meet acceptable level of explanation and retain for interpretation and further analysis.

Table 11 shows all the factors extractable from the analysis related with each linear component (factor) before extraction, after extraction and after rotation. According to the K1 - Kaiser's (Kaiser, 1960) method, only constructs which has the eigenvalues greater than one are retained for interpretation. Therefore, as seen earlier, the total variance explained the table, the first five factors are statistically significant which have Eigenvalues > 1 retained for interpretation and further analysis.

The first factors account for 32.11% of the variance, the second accounts for 11.92% of the variance, the third factor illustrate 8.08% of the variance, the fourth factor explained 7.07% of the variance and, the fifth factor explained 4.56% of the variance all factors with eigenvalues greater than 1. These five extracted factors/ components explained 63.75% of the variance. It should be clear that the first few factors explain relatively larger amounts of variance whereas subsequent factors explain small amounts of variance. The Extraction Sums of Squared Loadings provides similar information based only on the extracted factors and Rotation Sums of Squared Loadings results have showed more evenly distributed across the factors (Figure 3). A scree plot was drawn based on the variables to determine how many factors the model should have (Cattell, 1966).

According to the aforementioned scree plot result, we have retained five components that the model should keep. Retain factors that are above the 'bend' – the point at which the curve of decreasing eigenvalues change from a steep line to a flat gradual slope. The cutoff point of in the eigenvalue of one in the scree plot clearly showed that there are five relatively high and statistically significant (factors 1, 2, 3, 4 and 5) eigenvalues (Table 12).

Table 12 shows the factor loadings for the rotated

Table 11. Factors extracting and their participation in variance.

Total variance explained							
Component	Initial Eigen values			Extraction sums of squared loadings			Rotation sums of squared loadings'
	Total	Percentage of Variance	Cumulative percentage	Total	Percentage of variance	Cumulative percentage	Total
1	8.026	32.105	32.105	8.026	32.105	32.105	5.663
2	2.981	11.922	44.028	2.981	11.922	44.028	5.360
3	2.021	8.084	52.112	2.021	8.084	52.112	4.528
4	1.768	7.073	59.185	1.768	7.073	59.185	4.916
5	1.140	4.561	63.746	1.140	4.561	63.746	4.469
6	0.805	3.220	66.967	-	-	-	-
7	0.776	3.105	70.072	-	-	-	-
8	0.703	2.812	72.884	-	-	-	-
9	0.644	2.576	75.460	-	-	-	-
10	0.598	2.391	77.851	-	-	-	-
11	0.578	2.312	80.163	-	-	-	-
12	0.536	2.145	82.308	-	-	-	-
13	0.484	1.936	84.244	-	-	-	-
14	0.460	1.841	86.085	-	-	-	-
15	0.428	1.714	87.799	-	-	-	-
16	0.391	1.563	89.362	-	-	-	-
17	0.362	1.449	90.811	-	-	-	-
18	0.355	1.419	92.230	-	-	-	-
19	0.341	1.365	93.595	-	-	-	-
20	0.328	1.311	94.906	-	-	-	-
21	0.300	1.199	96.105	-	-	-	-
22	0.278	1.113	97.218	-	-	-	-
23	0.246	0.986	98.203	-	-	-	-
24	0.227	0.907	99.110	-	-	-	-
25	0.222	0.890	100.000	-	-	-	-

Extraction Method: Principal component analysis; a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance (Source: Survey data (2015)).

solution. The Pattern matrix comprises the loadings of each variable into each factor. Factor loadings are similar to regression weights (or slopes) and indicate the strength of the association between the variables and the factors. The Pattern Matrix shows the values of the retained factors and the associated variables. The Pattern Matrix was rotated to achieve an interpretable structure. Factors were construed

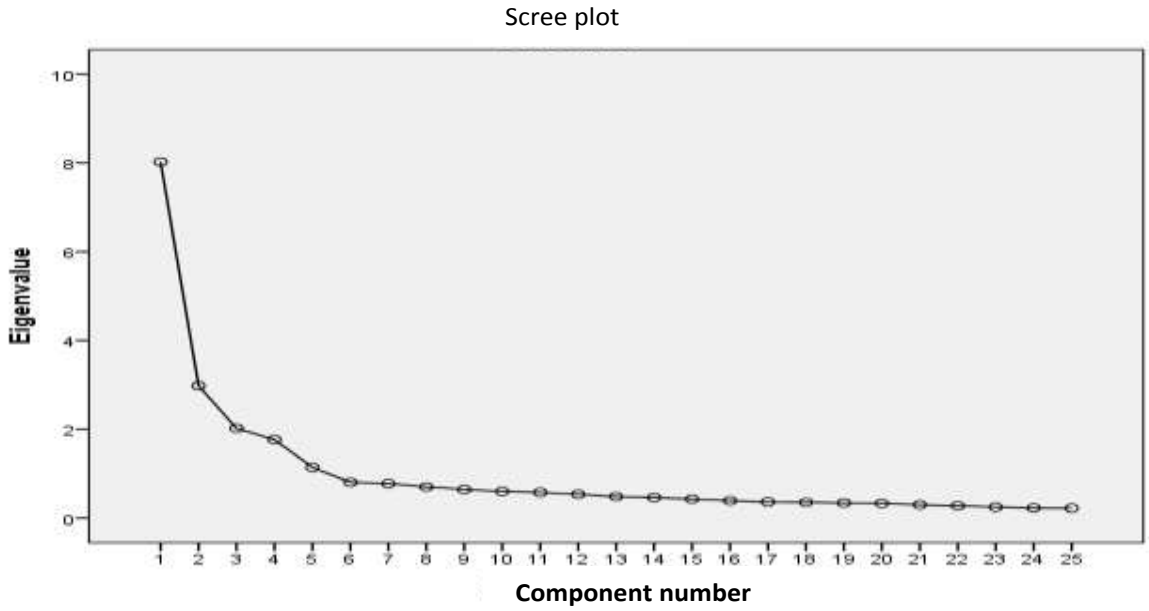

Figure 3. Scree-plot **(**Source: Survey data (2015)).

Table 12. Rotated pattern matrix.

Pattern matrix	Component				
	1	2	3	4	5
MF1	0.891	-	-	-	-
MF4	0.871	-	-	-	-
MF3	0.760	-	-	-	-
MF5	0.755	-	-	-	-
MF6	0.719	-	-	-	-
MF2	0.719	-	-	-	-
FF2	-	0.880	-	-	-
FF1	-	0.855	-	-	-
FF4	-	0.820	-	-	-
FF3	-	0.819	-	-	-
FF5	-	0.792	-	-	-
MVF1	-	-	0.802	-	-
MVF4	-	-	0.799	-	-
MVF3	-	-	0.649	-	-
MVF5	-	-	0.595	-	-
MVF2	-	-	0.569	-	-
CGF3	-	-	-	0.860	-
CGF2	-	-	-	0.789	-
CGF1	-	-	-	0.786	-
CGF6	-	-	-	0.710	-
CGF5	-	-	-	0.475	-
IF4	-	-	-	-	0.832
IF2	-	-	-	-	0.825
IF1	-	-	-	-	0.656
IF3	-	-	-	-	0.575

Extraction method: Principal component analysis. Rotation Method: Promax with Kaiser Normalization. a. Rotation converged in 6 iterations (Source: Survey data (2015)).

through their loadings. The greater the loading, the more the variable is a pure measure of the factor. According to Hair et al. (2010) in a sample of 250 respondents, factor loading of 0.35 and above are significant. Therefore, the aforementioned-rotated factors loading results are statistically significant because all indicators loading values are greater than the required level.

Summary of exploratory factor analysis

Based on the earlier mentioned analysis, there are five statistically significant factors or influential factors, which have Eigenvalues > 1, and explain 63.75 % of studied phenomenon. Namely:

(1) Component 1 is Marketing factor (MF). This factor consists of five variables explaining 32.11 % of the total variance. Highest contribution to the factor is made by the MF1 (factor weight: 0.89) variable stating that "Market information." Variables contributing to the factor are as follows: MF4 (factor weight: 0.87) "price.", MF3 (factor weight: 0.76) "linkage." MF5 (factor weight: 0.76) "surplus marketable supply." MF2 (factor weight: 0.72) "Market access" and MF6 (factor weight: 0.72) "Grading and processing members' products." Moreover, the factor had an eigenvalue of 8.15.

(2) Component 2 refers to the Financial Factor (FF).This factor consists of five variables explaining 11.92 % of the total variance. The highest contribution to the factor are made by FF2 (factor weight: 0.88) "Equity capital" and FF1 (Factor weight: 0.86) "Access to loans". The other variable contributing to the factor are as follows: FF4 (factor weight: 0.82) "Network with Financial institutions", FF3 (factor weight: 0.82) "Credit services to its members" and FF5 (factor weight: 0.79) "working capital management." Moreover, this factor had an eigenvalue of 2.99.

(3) Component 3 is Members Value Factor (MVF). This factor consists of five variables explaining 8.08 % of the total variance. Highest contribution to the factor is made by MVF1 (factor weight: 0.80) variable stating that "Members participation." The others Variables contributing to the factor are as follows: MVF4 (factor weight: 0.80) "Member's satisfactions." MVF3 (factor weight 0.65) "Members loyalty to their Cooperatives" MVF5 (factor weight: 0.60) "Decision making ability" MVF2 (factor weight: 0.57) "Members Awareness". Moreover, the factor had an eigenvalue of 2.04.

(4) Component 4 is Cooperative Governance Factor (CGF). This factor consists of six variables explaining 7.07 %, of the total variance. Highest contribution to the factor are made by CGF3 (factor weight: 0.86) "Transparency and Accountability." The other variables contributing to the factor are CGF2 (factor weight: 0.79) "Management committee awareness, knowledge and skills." CGF1 (factor weight: 0.79) "Management committee commitment (CGF1)." CGF6 (factor weight: 0.71) "Paid managers and employees." CGF5 (factor weight: 0.48) "participatory approach decision making techniques." Moreover, the fourth factor had an eigenvalue of 1.87.

(5) Component 5 is Infrastructural Factor (IF): This factor consists of four variables explaining 4.56 % of the total variance. Highest contribution to the factor is made by IF4 (factor weight: 0.83) "Access to electricity." Variables contributing to the factor are as follow: IF2 (factor weight: 0.83) "Transportation service IF1 (factor weight: 0.66) "Storage facilities," IF3 (factor weight: 0.58) "Communication service. Moreover, the factor had an eigenvalue of 1.16.

Confirmatory factor analysis

Confirmatory factor analysis (CFA) is a much more sophisticated method usually used in the advanced stages of the research process to test a theory about latent processes (Tabachnick and Fidell, 2007). Structural Equation Modeling (SEM) encompasses two components: a measurement model connecting a set of observed variables to a usually smaller set of latent variables and a structural model linking the latent variables through a series of recursive and non-recursive relationships. CFA analysis includes the testing of goodness of fit indices consisting on Chi-square, degree of freedom, level of significance, CFI, GFI and AGFI, IFI, NFI, RMR and RMSEA (Naveed et al., 2014).

Measurement mode

To test the measurement model, validate the research model fitness and to explain how measured variables logically and systematically represent latent variables involved in a theoretical model a measurement model was conducted using Amos version 21 statistical software program.

According to Hair et al. (2006), acceptable model fit is indicated by chi-square value over degree of freedom ($\chi 2/df$) of value between 1 and 3, the values of goodness-of-fit index (GFI) equal to or greater than 0.90, incremental fit index (IFI) equal to or greater than 0.90, comparative fit index (CFI) equal to or greater than 0.90.

In addition, the Normed fit index (NFI) equal to or greater than 0.90, the root mean square error of approximation (RMSEA) value to be equal to or less than0.08 while root mean square residual (RMR) values to be less than 0.08. Moreover, Bagozzi and Yi (1988) suggested that AGFI and GFI are reasonably good if

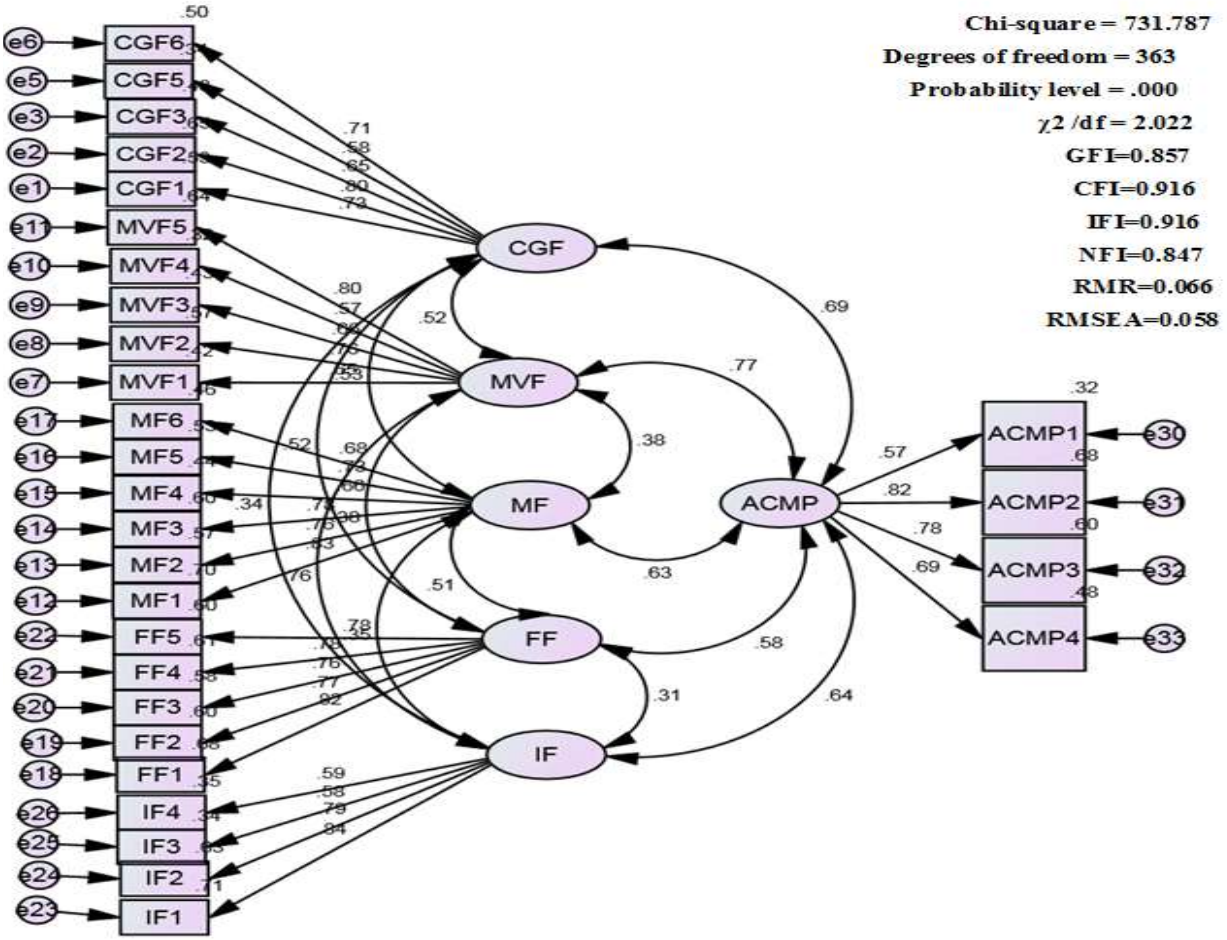

Figure 4. Measurement Model of Factors Influencing ACMP (Notation used :- CGF-Cooperative Governance Factors, MF-Marketing Related Factors, FF-Financial Factors, IF-Infrastructural Factors, MVF-Members Value Factors and ACMP-Agricultural Cooperatives' Marketing Performance; Source: Survey data (2015)).

they are more than 0.90 and 0.89, however 0.80 should be acceptable. Because, the assessment values associated with acceptable models vary from condition to condition and depend significantly on the number of measured variables, the sample size, and the communalities of the factors (Black et al., 2010) (Figure 4).

In the analysis of agricultural cooperatives marketing performance measurement model, the results showed that the model was fitted with the empirical data with the following values; Chi-square = 731.787, Degrees of freedom = 362, Probability level = .000, χ2 /df = 2.022, GFI=0.857, CFI=0.916, IFI=0.916, NFI= 0.847, RMR= 0.066 and RMSEA= 0.058.

These results indicate that the models are acceptable. Significance level of 0.000 shows as measurement model is good fit to the data. Measurement indices χ2 /df, GFI, CFI, IFI, NFI, RMR and RMSEA were within the expected range of values. This is presented in Tables 13 to 15.

Tables 13, 14 and 15 shows the sample of the regression weight, standardize regression weight, correlations and covariances of six latent factors and observed variables. As we have seen from the unstandardized regression weights, all the critical ratios are greater than 1.96 and all factors loading are statistically significance. The standard regressions weight also weighting ranging from 0.565 to 0.844. This means that all the indicators weight estimates above 0.50 which is suggested by (Hair et al., 2006). This indicates that all the indicator variables have strong influences on the variation of their respective latent variables or it indicates that all variables significantly related to their specific constructs.

The sample correlations ranged from 0.308 to 0.774. According to Pallant (2010), the value of correlations among variables should be greater than 0.3. This means all the correlations value indicating that there is reasonably statistically significance correlation among latent factors.

Table 13. Model fit summary of re-specified measurement model of factors influencing ACMP.

CMIN					
Model	***NPAR***	***CMIN***	***DF***	***P***	***CMIN/DF***
Default model	73	731.787	362	0.000	2.022
Saturated model	435	0.000	0		
Independence model	29	4787.872	406	0.000	11.793

RMR, GFI				
Model	***RMR***	***GFI***	***AGFI***	***PGFI***
Default model	0.066	0.857	0.828	0.713
Saturated model	0.000	1.000		
Independence model	0.368	0.243	0.189	0.227

Baseline comparisons					
Model	***NFI Delta1***	***RFI rho1***	***IFI Delta2***	***TLI rho2***	***CFI***
Default model	0.847	0.829	0.916	0.905	0.916
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Parsimony-adjusted measures			
Model	***PRatio***	***PNFI***	***PCFI***
Default model	0.892	0.755	0.816
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

RMSEA				
Model	***RMSEA***	***LO 90***	***HI 90***	***PClose***
Default model	0.058	0.052	0.064	0.016
Independence model	0.188	0.184	0.193	0.000

Source: Survey data (2015).

Structural model

To asses a set of relationship between independents and a dependent variable the SEM method was used. Once an acceptable measurement model is available, the structural model estimation should be able to start (Bentler and Hu, 1999).

A structural equation model uses equations of a covariance structure, and its been use to access causality between an observed and theoretical model. Structural equation models are able to describe potential factors without measurement errors using confirmatory factor analysis and a method that links the potential factors via regression analysis.

Furthermore, the SEM appropriately pools with factor and regression analysis to examine causal relationships (Jung et al., 2015). In order to test the relationships between the exogenous latent factors with endogenous latent factors in the structural model or to test the effects of different Factors on ACMP, a SEM was undertaken using Smart PLS 3 statistical software (Figure 5).

Path coefficients are the relationships between the latent variables in the structural model. The path coefficients have standardized values between -1 and + 1. Estimated path coefficients close to +1 represent strong positive rela-tionships (and vice versa for negative values) that are almost always statistically significant (that is, different from zero in the population). The closer the estimated coefficients are to 0, the weaker the relationships. Very low values close to 0 are usually non-significant. Path coefficients with standardized values below 0.10 are usually not significant (Hair et al., 2014) (Figure 6).

As we have seen in Table 16, all paths are statistically significant considering significance value is above 1.96. Because, according to Hair et al. (2014), this is to deter-mine critical t-values (or theoretical t-values) for significance testing. Therefore, when the size of the resulting empirical t-value is above 1.96, we can assume

Table 14. Coefficients of regression of measurement model for factors influencing ACMP.

(a) Scalar Estimates (Group number 1 - Default model) Maximum Likelihood Estimates							
Regression Weights: (Group number 1 - Default model)							
Groups			**Estimate**	**S.E.**	**C.R.**	**P**	**Label**
CGF1	<---	CGF	1.000				
CGF2	<---	CGF	1.033	0.079	13.070	***	par_1
CGF3	<---	CGF	0.927	0.090	10.342	***	par_2
CGF5	<---	CGF	0.683	0.074	9.191	***	par_3
CGF6	<---	CGF	0.834	0.077	10.810	***	par_4
MVF1	<---	MVF	1.000				
MVF2	<---	MVF	1.281	0.116	11.055	***	par_5
MVF3	<---	MVF	1.124	0.116	9.654	***	par_6
MVF4	<---	MVF	0.993	0.113	8.772	***	par_7
MVF5	<---	MVF	1.455	0.132	11.038	***	par_8
MF1	<---	MF	1.000				
MF2	<---	MF	0.855	0.060	14.277	***	par_9
MF3	<---	MF	0.894	0.061	14.693	***	par_10
MF4	<---	MF	0.840	0.066	12.645	***	par_11
MF5	<---	MF	0.769	0.055	14.018	***	par_12
MF6	<---	MF	0.833	0.066	12.566	***	par_13
FF1	<---	FF	1.000				
FF2	<---	FF	0.936	0.063	14.784	***	par_14
FF3	<---	FF	0.919	0.062	14.907	***	par_15
FF4	<---	FF	0.998	0.067	14.948	***	par_16
FF5	<---	FF	0.943	0.064	14.737	***	par_17
IF1	<---	IF	1.000				
IF2	<---	IF	0.897	0.061	14.793	***	par_18
IF3	<---	IF	0.620	0.061	10.087	***	par_19
IF4	<---	IF	0.558	0.056	9.921	***	par_20
ACMP1	<---	ACMP	1.000				
ACMP2	<---	ACMP	1.221	0.127	9.653	***	par_21
ACMP3	<---	ACMP	1.143	0.121	9.431	***	par_22
ACMP4	<---	ACMP	0.880	0.099	8.930	***	par_23
(b) Standardized Regression Weights: (Group number 1 - Default model)							
CGF1	<---	CGF	0.726				
CGF2	<---	CGF	0.804				
CGF3	<---	CGF	0.652				
CGF5	<---	CGF	0.584				
CGF6	<---	CGF	0.705				
MVF1	<---	MVF	0.651				
MVF2	<---	MVF	0.757				
MVF3	<---	MVF	0.658				
MVF4	<---	MVF	0.565				
MVF5	<---	MVF	0.797				
MF1	<---	MF	0.835				
MF2	<---	MF	0.756				
MF3	<---	MF	0.775				
MF4	<---	MF	0.661				
MF5	<---	MF	0.731				
MF6	<---	MF	0.678				
FF1	<---	FF	0.825				

Table 14. Cont'd.

FF2	<---	FF	0.775
FF3	<---	FF	0.762
FF4	<---	FF	0.779
FF5	<---	FF	0.777
IF1	<---	IF	0.844
IF2	<---	IF	0.793
IF3	<---	IF	0.582
IF4	<---	IF	0.588
ACMP1	<---	ACMP	0.567
ACMP2	<---	ACMP	0.823
ACMP3	<---	ACMP	0.778
ACMP4	<---	ACMP	0.691

Note: β = standardized beta coefficients; S.E. = standard error; C.R. = critical ratio; *p< 0.05 (Source: Survey Data (2015)).

Table 15. Covariances and correlations for Group number 1 - Default model.

Covariances							
Groups			**Estimate**	**S.E.**	**C.R.**	**P**	**Label**
CGF	<-->	MVF	0.267	0.045	5.922	***	par_24
CGF	<-->	MF	0.425	0.065	6.574	***	par_25
CGF	<-->	FF	0.404	0.062	6.488	***	par_26
CGF	<-->	IF	0.324	0.070	4.621	***	par_27
CGF	<-->	ACMP	0.351	0.055	6.380	***	par_28
MVF	<-->	MF	0.216	0.042	5.097	***	par_29
MVF	<-->	FF	0.205	0.041	5.016	***	par_30
MVF	<-->	IF	0.498	0.066	7.580	***	par_31
MVF	<-->	ACMP	0.275	0.042	6.582	***	par_32
MF	<-->	FF	0.435	0.064	6.779	***	par_33
MF	<-->	IF	0.362	0.073	4.938	***	par_34
MF	<-->	ACMP	0.349	0.054	6.427	***	par_35
FF	<-->	IF	0.304	0.070	4.377	***	par_36
FF	<-->	ACMP	0.309	0.051	6.058	***	par_37
IF	<-->	ACMP	0.417	0.064	6.515	***	par_38
Correlations							
CGF	<-->	MVF	0.518				
CGF	<-->	MF	0.525				
CGF	<-->	FF	0.519				
CGF	<-->	IF	0.344				
CGF	<-->	ACMP	0.687				
MVF	<-->	MF	0.384				
MVF	<-->	FF	0.378				
MVF	<-->	IF	0.761				
MVF	<-->	ACMP	0.774				
MF	<-->	FF	0.512				
MF	<-->	IF	0.352				
MF	<-->	ACMP	0.626				
FF	<-->	IF	0.308				
FF	<-->	ACMP	0.577				
IF	<-->	ACMP	0.643				

Note: β = standardized beta coefficients; S.E. = standard error; C.R. = critical ratio; *p< 0.05 (Source: Survey data (2015)).

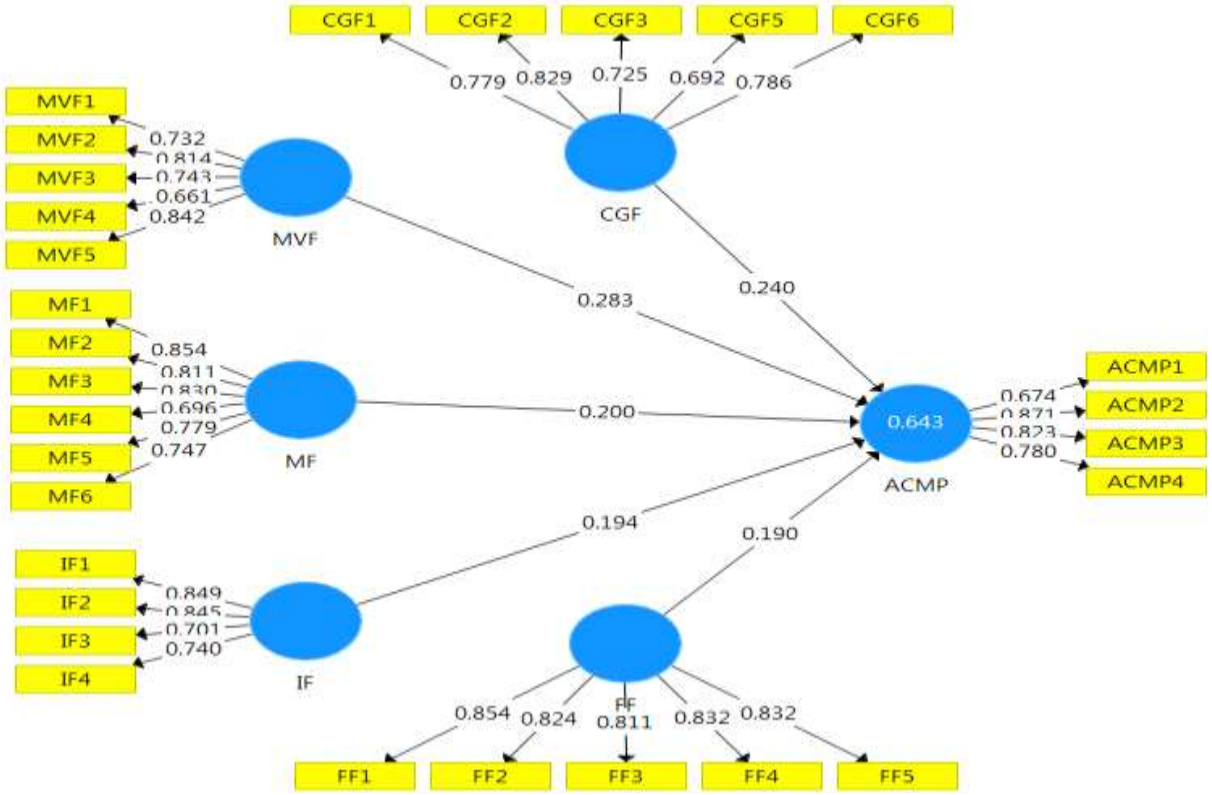

Figure 5. Structural equation modeling for different factors and ACMP algorithm results (Source: Survey data (2015)).

that the path coefficient is significantly different from zero at a significance level of 5% (α= 0.05) (Table 16).

The path coefficient between Members Value Factor and ACMP is (Path Coefficients = 0.28, T Statistics **=** 5.01) with a high significance P-value (P=0.000). This highly significant (P =0.000) path coefficient indicates that members value factor has a positive direct effect on ACMP. This means that Marketing performance of Agricultural Cooperatives positively and directly influenced by members' value factors.

This finding is supported by Mahazril et al. (2012) and Azmah and Fatimah (2008), which stated that Members Value Factor have a significant effect on Agricultural Cooperatives. The path coefficient between Cooperative Governance Factor (CGF) and ACMP is Path Coefficients = 0.24, T Statistics **=** 5.24 with a high significance P-value (P=0.000). This highly significant (P=0.000) path coefficient indicates that CGF has a positive direct effect on ACMP. This indicates that ACMP positively and significantly influenced by CGF.

The result of the study supported by Kifle (2015), Taine (1997), Katar and Pundir (2000) and (Prakash, 2003), which showed that the Cooperative Governance Factor have a significant effect on Agricultural Cooperatives Marketing performance. Moreover, the path coefficient between Marketing Factor and ACMP was (Path Coefficients = 0.20, T Statistics **=** 4.35) with a strong significance P-value (P=0.00). This highly significant (P =0.00) path coefficient indicates that MF has a positive direct effect on ACMP.

The results of the study are consistent with the research by Admasu (1998) and Vigneshwara (2003), which stated that marketing factors have a significant effect on Agricultural Cooperatives. Furthermore, There is a positive significant path coefficient between infrastructural factor and ACMP (Path Coefficients = 0.19, T Statistics **=** 4.35 and P=0.000) with a strong significance P-value (P = 0.00). This significant P value indicates that there is positive significant effect of infrastructural factors and ACMP.

The results are consistent with the research by Muthyalu (2013) and Vigneshwara (2003) which showed that Agricultural Cooperatives is significantly influenced by infrastructural factors. Additionally, the path coefficient between Financial Factor and ACMP was (Path Coefficients = 0.19, T Statistics **=** 4.51) with a strong significance P-value (P=0.00). This significant (P = 0.00) path coefficient indicates that MF has a positive direct effect on ACMP. The result of the study supports the previous research by Muthyalu (2013) and Almaz (2008) which stated that Financial Factors have a significant effect on ACS.

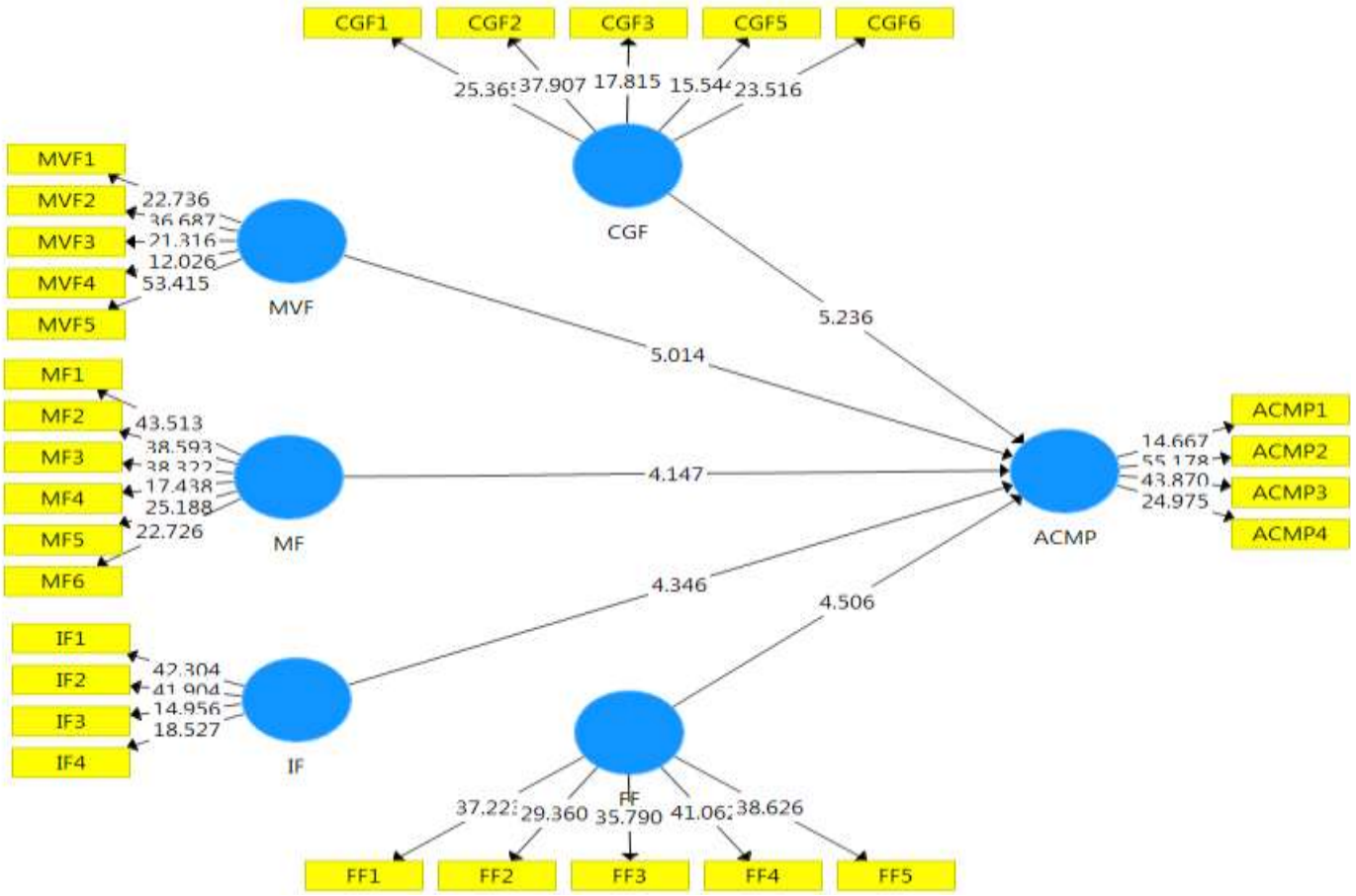

Figure 6. Structural equation modeling for different factors and ACMP bootstrap results *(*Source: Survey data (2015)).

Table 16. Path summary structural equation modeling.

Paths	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (|O/STDEV|)	P values
CGF -> ACMP	0.24	0.24	0.05	5.24	0.000
FF -> ACMP	0.19	0.19	0.04	4.51	0.000
IF -> ACMP	0.19	0.19	0.05	4.35	0.000
MF -> ACMP	0.20	0.20	0.05	4.15	0.000
MVF -> ACMP	0.28	0.29	0.06	5.01	0.000

Path coefficients, mean, STDEV, T-Values, P-Values (P<0.05) (Source: Survey data (2015)).

Conclusions

The present research employed correlation analysis, exploratory and confirmatory factor analysis and presented positive and significant relationship between exogenous factors (members value factor, cooperative governance factor, marketing factor, financial factor, and infrastructural factor) and endogenous factor (agricultural cooperatives marketing performance). According to the result of correlation analysis, exploratory factor analysis and measurement model, MVF, CGF, MF, FF, and IF were found to have a very strong and significant relationship with ACMP. Moreover, structural model results confirmed that, MVF, CGF, MF, FF, and IF have positive and significant effect on ACMP.

Agricultural cooperative marketing performance requires effective members' participation, members' decision-making abilities and members' loyalty; financial

strength, management and technical skills of committees, infrastructural access and adequate and onetime market information. Members are the most important assets of cooperatives. They are owners, users of the services available and responsible to control the overall activities. Cooperative success depends on effective members' participation, members' decision-making abilities and members' loyalty. To improve members' participation, members awareness, and members decision making abilities. Cooperative promotion office, primary cooperatives themselves, unions and other concerned stakeholders should give attention to empower cooperative members awareness and members decision making abilities through open discussion and through short term and long-term well programmed trainings and educations.

Management committees are the responsible bodies to lead the overall activities of cooperatives. They monitor the day-to-day activities of cooperatives, hire and fire employees, approve transactions and evaluate performances of employees. Unless they are well equipped with the principles and values of cooperatives and technical and managerial skills of management, it is too difficult to them to have meaningful role in managing activities and giving the right directions.

However, Most of the Management committees' members of cooperatives have no awareness on conceptual, technical and managerial skills to manage their cooperatives. And lack of transparency and accountability, low commitment and unwillingness of committee members were also another observed problems. Therefore, Cooperative Promotion office, non-governmental organisations (NGOs), secondary cooperatives (unions) and primary cooperatives themselves should give attention to upgrade the conceptual, technical and managerial skills of management committees, control committee, others sub-committee members and employees through short term and long term training program.

Agricultural cooperatives in the study area need to involve effectively in marketing of farmers output by offering competitive prices to farmers produce. To search market and to marketing the farmers produce at better price, cooperatives should create linkage with unions, other primary cooperatives and privet and government organization.

Moreover, cooperative promotion office, NGOs and secondary cooperatives (unions) should give due attention to give technical and material support to strengthen their capacity that help to engage for further value addition activities. The main aim of organizing ACs in the rural part of the country is to enhance farmers" access to information, market, agricultural inputs, credit services and to improve negotiation power of farmers, attain economies of scale and market farmers output. In the study area ACs were relatively better in the supply of farm inputs. But they lag behind to collect members' products well during harvesting season with fair price and dawn payment market farmers produce. Therefore, cooperatives, cooperative promotion office and other stakeholders need to give due attention to improve the services of the cooperatives in this regard through technical and material support.

The poor finance of the cooperative societies should be solved by increasing equity capital through designing a mechanism of promote members' saving and to buy additional shares. Moreover, governments and other financial institutions should arrange for long-term financial credit. Working capital management, record keeping and documentation system weakness can be improved by giving training and education to employees and management committees and control committee members'.

Furthermore, agricultural cooperatives marketing performance should be influenced by marketing infrastructures. Therefore, government and others stakeholders should provide support to improve marketing infrastructures such as transportation facility, storage facility, communication facilities and electricity services.

DIRECTIONS FOR FUTURE RESEARCH

This study attempted to investigate factors influencing ACMP. However, this study is limited to one district only which makes it difficult to generalize and make inference to the whole region. Thus, future research may make an in-depth study in this regard by considering other district of the region or the country to clearly factors influencing agricultural cooperatives marketing performance. Future research could also be consider for the embeddedness of other factors like legal and political factors, technological factors, organizational linkage factors, and cultural factors as construct factors and as predictors' variables.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Factors associated with young Taiwanese people's preference of green tea

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The purpose of this study is to identify Japanese's green tea consumption preferences among young people in Taiwan between the age of 18-30 and assess the possible tea market opportunities for Japanese's green tea in Taiwan, among young people. Questionnaire was used to collect data which were spread to 200 university students, aged between 18-30 years. Firstly, the tea product tasting survey provided four kinds of Japanese green tea. Next, the questionnaire was divided into four parts. Findings of this study show Taiwanese young people prefer taste attribute as the main factor to selecting their tea preference, to others who choose Minamisayaka mostly as their tea preference, with Benifuuki in second place. This study also aggregates the evaluation of Japanese green tea after tea tasting.

Keywords: Green tea, Taiwanese, Japanese, preference.

INTRODUCTION

Background

Tea is an aromatic beverage which is a hot water infusion of processed leaves of *Camellia sinensis* (Pinto, 2013). Tea is the most widely consumed beverage in the world next to water. China and India are respectively the largest and second largest producer and consumer of tea and together account for half of world's tea production (Singh and Anita, 2012). Global tea production has been increased in the last decade, reaching 4.1 million tonnes in 2010 (Food and Agriculture Organisation of the United Nations (FAO, 2012; Zou et al., 2015; Engelhardt et al., 2016). It is the only beverage commonly served hot or cold, anytime, anywhere and for any occasion (Su and Arab, 2002; Chang, 2015).

Taiwan is famous for three main types of tea; oolong tea, black tea and green tea. The earliest record of tea trees found in Taiwan can be traced back to 1717 in Shui Sha Lian, present-day Yuchih and Puli, Nantou County. Oolongs grown in Taiwan account for about 20% of world

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production (Drabova et al., 2012). Tea drinking is a long and well- established part of the local culture in Taiwan (Huang et al., 2006; Engelhardt et al., 2016); as an important beverage, it has been cultivated successfully for more than 120 years (Makiuchi et al., 2016). Tea production in Taiwan is decreasing, but tea consumption per capita in Taiwan is steadily increasing (Mu-Lien, 2014; International Tea Committee, 2014) because drinking green tea has been associated with many health benefits to the human body. Taiwan does not produce high volumes of tea, but its teas are well-represented in specialty tea stores and are well-known among tea connoisseur (Sharma et al., 2007; Pirina, 2004; Oze et al., 2014; Persistence Market Research Corp, 2015)

The vast majority of tea produced in Taiwan is consumed in Taiwan. Taiwan has a strong tea culture, and the Taiwanese tea market is considered highly demanding; Taiwan imports some of the highest-quality oolong teas from other countries.

Recently, the Japanese government created the policy to expand green tea export to other countries and according to Takagi (2015) and Makiuchi et al. (2016) Taiwan is one of target countries for the export of green tea. Based on the preceding information, Taiwanese culture provides an increasing trend for tea consumption and a high opportunity for Japanese green tea in the Taiwan market. However, this is not substantial information regarding the consumer preference of Japanese tea among young Taiwanese consumers. For the Japanese companies to understand the consumer preference in Taiwan, this survey helps to give a clearer picture of consumer preference.

Problem statement

Objection and research questions

Objective 1 is to identify Japanese's green tea consumption preferences among young people in Taiwan between the ages of 18-30 years old. The research questions are given as follows:

1. What kind of Japanese green tea do young people in Taiwan like most among others, Minami-sayaki, Beni-fuuki, Matcha and Tea bags?
2. What is the most sensory attribute that contributes to Taiwanese young people's preference?
3. What is the sensory attribute that Taiwanese young people dislike?
4. How is the best way they prefer to consume Japanese green tea?

Objective 2 is to assess the possible tea market opportunities for Japanese green tea in Taiwan, among young people. See the research questions:

1. What is the average frequency of Taiwanese young people drinking green tea?
2. How well did Japanese green tea samples in this survey meet expectations?
3. How will they feel, if in future, they see Japanese green tea products available in the shops?

Hypothesis

According to several references, there are two expected outcomes from this research, these are:

1.Young Taiwanese people choose tea by the taste of the tea.
2.Young Taiwanese people prefer the Minamisayaka Japanese Green Tea sample, to other samples.

Purpose and significance of study

The purpose of this study is to provide some consumer preference information about Japanese green tea among young Taiwanese people. The proposed study was of value to various stakeholders that include the government, policy makers, communities, private companies, NGOs and academics alike. This is because the study provided data that reflected young Taiwanese consumer's preference regarding Japanese green tea and also helped to evaluate market value of the marketing of Japanese green tea in Taiwan.

METHODOLOGY

Research design

This research was experimented by product test to target groups, performing data collection and by surveying with questionnaires, to conduct a statistical analysis to interpret results.

Sampling design

Target area is the university's students. The survey was conducted in several places within the university, such as the cafeteria, library, gymnasium, and main gate, on a time scale of around 10 days.

Instrumentation

This research was conducted using a questionnaire. The questionnaire was divided into 4 parts as follows; 1) personal information: gender, age, student major 2) beverage habits and preferences: how they consume tea, reason to consume tea, what kind of tea products they most like, the way to drink tea, 3) green tea consuming: how do they like green tea, image of Japanese green tea 4) Evaluation of Japanese green tea after tea tasting: which Japanese green tea sample do they like, preferable sensation, how do they like each kind of Japanese green tea (Likert scales). 4 types of Japanese Green Tea were provided by Shizuoka Prefecture University, Japan.

Data collection method

The tea sample used 4 kinds of Japanese's green tea, namely Minami-sayaka, Beni-fuuki, Matcha and Tea bags for testing, provided by

Shizuoka Prefecture University, Japan. The tea preparation procedure is as follows:

1. Minamisayaka: Use 4 grams of loose tea leaf then pour 150 ml hot water, 70-80˚C and wait for 90 s.
2. Benifuuki: Use the same method used for Minami-sayaka
3. Matcha: Use 1 gram of Matcha powder then, pour on a little hot water,70-80˚C and stir to dissolve it. Then pour on more hot/cold water to fill cup. Total amount was 150 ml.
4. Tea Bag: Use 500 ml of PET bottle water (room temperature) then, put a tea bag into PET bottle. Move the tea bag 10 times with up-and-down motion during infusion. Wait until the color become light green in approximately 5 min.

The tea is approximately 30 ml of brewed green tea poured into a paper cup. It was served by Tea bag, Minami-sayaka, Beni-fuuki and Matcha, respectively. Finally, the conducting survey procedure is to provide the 4 kinds of tea in a stand-booth, located in a particular place, being the defined research area. Then, the respondents tried the 4 kinds of tea in that tea tasting event. Thereafter, they filled out the research questionnaire.

Statistical analysis

The statistics and analytical tools that were used for analysing the data is SPSS software by Chi-Square.

RESEARCH RESULTS

Descriptive statistics

Figure 1 shows that the respondents' gender distribution consisted of 51% females and 49% males. It means that 102 females and 98 males participated in the survey.

In Figure 2, 60 respondents were 18-22 years old, 110 respondents were between 23-26 years old, and 30 respondents were between 27-30 years old. It means that more than a half of respondents were in the second age category, which was between 23-26 years old.

Figure 3 shows that the education distribution of the respondents, concentrated on the Bachelor Degree. This means more than a half of respondents (115 people) had Bachelor Degree and were taking a Master Program in NCHU. In addition, respondents who had Senior High School Certificate, Master Degree and Doctoral Degree accounted for 29.5% (59 people); 11.5% (23 people); and 1.5% (3 people) respectively.

Table 1 shows the city or county of the respondents' origin. Fortunately, almost all cities or counties in Taiwan were represented by the respondents, so the differences were only from their distribution. From Table 1, it can be seen obviously that most of the respondents came from Kaohsiung (21 people). Then, there were four cities as the origin of the respondents, which had the lowest frequency. These are Hsinchu, Hualien, Touyuan and Yilan.

Crosstabulation and chi-square test

Figure 4 shows the main reasons why the respondents consume tea generally. It shows that the main reason which controlled their choice was the taste of the tea. It proved the previous study that consumers would choose the green tea because of the flavor (Lee and Chambers, 2007; Lee et al., 2008b in Lee and Chambers, 2010). Actually, this research provided five attributes as the main reason, such as taste, aroma, health , trend and habit. However, no one chose aroma or trend as their main reason to decide the green tea preference.

In Table 2, it could be found that both male and female chose tea by taste preference, which were 53% (52/98*100) and 59% (60/102*100), respectively. It also proved the previous study as mentioned above. In addition, this research speculated that young people were still concerned about their food consumption based on the taste preference, to others. Following the above analysis, it could be found that there was not a significant relationship between gender and taste preference factor (Pearson Value=0.714), as can be seen in Table 3.

From the table above, taste only had significance to hometown variable which means the place of origin where

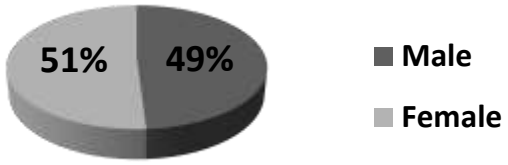

Figure 1. Respondent's gender distribution.

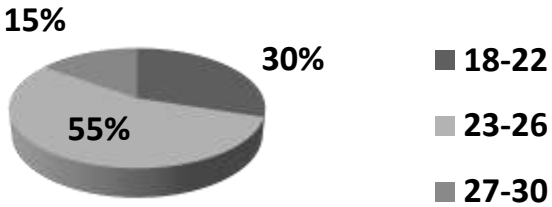

Figure 2. Categorised respondent's age distribution.

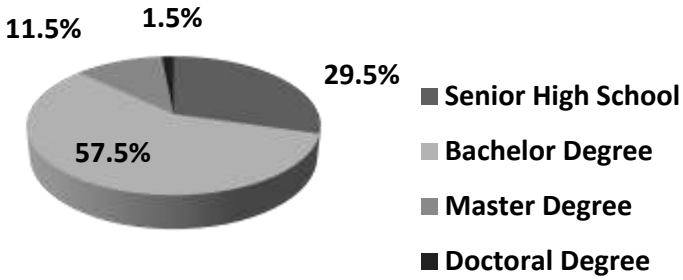

Figure 3. Respondent's education level distribution.

Table 1. The city of respondent's hometown.

City	Frequency	%
Chiayi	17	8.5
Hsinchu	4	2.0
Hualien	18	9.0
Kaohsiung	21	10.5
Keelung	4	20.0
Miaoli	14	7.0
Nantou	18	9.0
Pingtung	7	3.5
Taichung	17	8.5
Tainan	15	7.5
Taipei	17	8.5
Taitung	7	3.5
Touyuan	4	2.0
Yilan	4	2.0
Yunlin	17	8.5
Zanghua	16	8.0
Total	200	100

Source: compiled from this study.

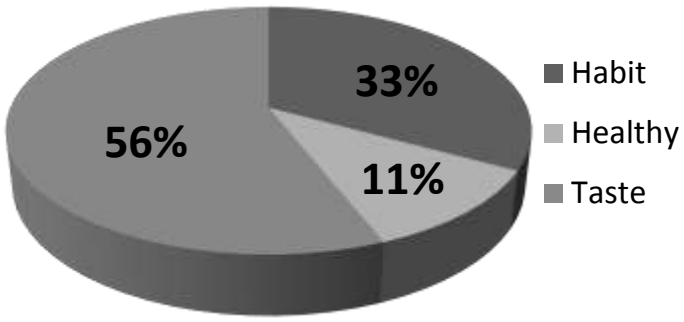

Figure 4. Main reason why young Taiwanese people's prefer Japanese green tea.

Table 2. Crosstabulation: Reason-gender.

		Reason			Total
		Habit	Healthy	Taste	
Gender	Male	31 (32%)	15 (15%)	52 (53%)	98 (100%)
	Female	35 (34%)	7 (7%)	60 (59%)	102 (100%)
Total		66 (33%)	22 (11%)	112 (56%)	200 (100%)

Note: $P_{value} \geq 0.05$. Source: compiled from this study.

the respondents come from could afftect their preference for tea. But it had negative relationship with gender, categorised age, and education level. It means that there was no significant correlation between taste preference to gender, categorised age, and education level. On the other hand, the origin of the respondents could affect the tea preference factor, particularly taste preference.

In addition, all respondents in all age ranges also chose tea by taste preference. These were 18-22 years, 23-26 years, and 27-30 years and they chose as 48% (20/60*100),

Table 3. Pearson value between demographic variables and tea preference factors.

Variables	Habit	Healthy	Taste
Gender	0.216	0.196	0.714
Categorised age	0.037	0.126	0.416
Education level	0.032	0.297	0.212
H metown	0.000	0.000	0.000

Source: compiled from this study.

Table 4. Crosstabulation: Reason-categorised age.

		Reason			Total
		Habit	Healthy	Taste	
Age Categorisation	18-22	22 (37%)	9 (15%)	29 (48%)	60 (100%)
	23-26	36 (33%)	10 (9%)	64 (58%)	110 (100%)
	27-30	8 (27%)	3 (10%)	19 (63%)	30 (100%)
Total		66 (33%)	22 (11%)	112 (56%)	200 (100%)

Note: $P_{value} \geq 0.05$. Source: compiled from this study.

Table 5. Crosstabulation: Reason-level of education.

		Reason			Total
		Habit	Healthy	Taste	
Education Level	Senior High School	21 (36%)	9 (15%)	29 (49%)	59 (100%)
	Bachelor	34 (30%)	11 (10%)	70 (61%)	115 (100%)
	Master	11 (48%)	2 (9%)	10 (43%)	23 (100%)
	Doctoral	0 (0%)	0 (0%)	3 (100%)	3 (100%)
Total		66 (33%)	22 (11%)	112 (56%)	200 (100%)

Note: $P_{value} \geq 0.05$. Source: compiled from this study.

58% (64/110*100), 63% (19/30*100), respectively. This can be seen in Table 4.

Futhermore, the result of crosstabulation between reason and level of education variable as in the Table 5 shows a few uniqueness for master level respondents, who chose habit as their preference more than other factors which was 48% (11/23*100), better than healthy and taste which were 9% (2/23*100) and 43% (10/23*100), respectively.

From Table 6, the taste preference depended on the hometown or origin of the respondents. For example, most of respondents from Miaoli chose tea because of their habit - as many as 79% (11/14*100), compared to the respondents from Kaohsiung who chose tea for healthy reasons - as many as 52% (11/21*100), or the respondents from Tainan who prefered taste to all the others - (14/15*100). The previous study held in U.S said that U.S. consumers liked green tea samples with lower flavor intensity and lower bitterness intensity (Lee and Chambers, 2010). It also describes the background of residence or hometown influence on the preference of food, as well. Table 6, indeed, shows that the origin of the people had a positive relationship with food (including tea) preference factors.

Moreover, the research also did a pilot-test before the real survey for this study. Based on the result of the pilot-test, Taiwanese young people prefered Minamisayaka to other teas after tasting , so this study also hypothesized that they would choose Minamisayaka more than the others too. Fortunately, the result of the real survey was as the pilot-test for this part (Figure 5).

Unfortunately, from four kinds of tea which were provided, no one chose Matcha as the best preference for them. Based on the obtaining data, the respondents only put Matcha out in the second grade as the highest rank of this category. It also could be known from a short interview which was done in the survey that the taste of Matcha was too bitter if consumed without any additional flavour. Also, some of the respondents said that they usually consumed Matcha as an additional taste in other

Table 6. Crosstabulation: Reason-Hometown.

		Reason			Total
		Habit	Healthy	Taste	
Hometown	Chiayi	4 (23%)	3 (18%)	10 (59%)	17 (100%)
	Hsinchu	2 (50%)	0 (0%)	2 (50%)	4 (100%)
	Hualien	2 (11%)	0 (00%)	16 (89%)	18 (100%)
	Kaohsiung	5 (24%)	11 (52%)	5 (24%)	21 (100%)
	Keelung	2 (50%)	0 (0%)	2 (50%)	4 (100%)
	Miaoli	11 (79%)	1 (7%)	2 (14%)	14 (100%)
	Nantou	5 (28%)	0 (0%)	13 (72%)	18 (100%)

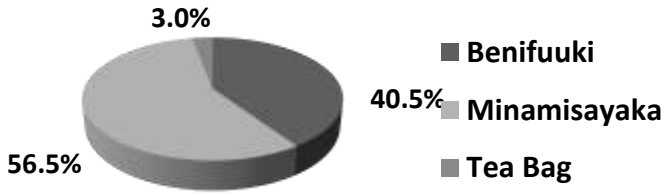

Figure 5. Kind of tea preferences after tasting event.

forms, such as in cake or in some cosmetics. This situation is also the same as the previous study which chose U.S green tea consumers as the sample target for the study that U.S. consumers liked green tea samples with lower flavor intensity and lower bitterness intensity (Lee and Chambers, 2010).

From the study process, some additional information was obtained by the participants, from their feedback. At first, some of them said Minamisayaka and Benifuuki favors were quite similar to Oolong tea. Some people felt excited with Tea bags and Macha because they were different from their familiar tea taste, but some people who often drank tea said that Tea bags were tasteless for them. Some participants said if they discussed about Japanese green tea, Matcha was previously the most familiar of Japanese green tea in their perception.

Validating the research methodology

The study population consists of university students, among whom almost half drink tea beverages regularly (Ministry of Foreign Affairs, 2010). Thus, using university students as the study population conforms to the main target market of tea beverages and mirrors their economic approach.

With regard to the sample, because of budgetary constraints, representative sampling is impossible, so undergraduate students provide a reasonably matched sample (Lee and Liao, 2009). Therefore, the participants were selected by convenient sampling that is, any participant willing to participate in the survey. The sample size is 200 students, age between 18-30 for NCHU Taiwanese students.The population sample was used because the participants were practiced in drinking tea beverages regularly and they were representative.

The social implications

This study enhances the understanding of tea markets and marketing in the future. The practical implications of this study identified Japanese's green tea consumption preference and the possible market for young people in Taiwan. The social implications of this study show the new trendency of increasing tea consumption per capita in Taiwan. This study also has academic value and value to strategy makers when it comes to green tea marketing stratagey problems, such as originality and value.

DISCUSSION

Limitation of study

Since every study is unique, this research on Japanese green tea may not be exceptional. There are limitations and risks relating to the undertaking of a research of this nature, both from the operational and methodological points of view. Some young people did not always cooperate during the study and give correct information. Also another limitation might be the survey was carried in one area, Taichung City, and NCHU particularly, while it would have been good to carry it out in different areas of Taiwan and obtain other opinions from young consumers.

In addition, the limitation of time also influenced the quality of this study, such as the number of respondents who were only 200 people, so it was insufficiently representative to generalise the real situation, especially for a study case in NCHU; a few number of research team who could not be quite intensive to spread the concentration for each respondent; and the limitation of variables to measure in this study as well. Therefore, it can be elaborated for example, by adding several descriptive variables, such as ethnicity, their interest in increased mental or physical awareness or capacity, modifying bodyweight, and/or promoting good health.

Conclusion

This study aimed to identify Japanese green tea consumption preferences among young people in Taiwan between the age of 18-30 years old with the study case in National Chung Hsing University (NCHU), Taiwan. This research provided five attributes as the main reasons, such as taste, aroma, healthy, trend, and habit. In addition, it also used four kinds of Japanese green tea, such as two kinds of leaf tea (Benifuuki and Minamisayaka), a kind of tea bag and tea powder (Matcha).

Then based on the research process, it found that Taiwanese young people prefer taste attribute as the main factor to selecting their tea preferences, to others. Futhermore, the survey participants chose Minamisayaka most as their tea preference, and Benifuuki in the second place. It could be because some respondents informed that the flavors of Minamisayaka and Benifuuki were quite similar to Oolong Tea which is very famous for Taiwanese. On the other side, some people felt excited with Tea bags and Matcha because they had different flavors from their familiar tea, but there were some people who often drank tea who said that tea bags were tasteless for them. Some participants informed if they talked about Japanese green tea, Matcha had previously been the most familiar of Japanese green tea in their perception.

It is obvious this survey has several limitations, such as the undertaking of a research of this nature, both from the operational and the methodological point of view. The young people were not always fully cooperative during the study in giving correct information, and because the survey was only carried out in the area of NCHU with only 200 respondents as the sample, it was insufficiently representative to generalise. Other factors were the small number forming the research team who worked on this study, especially in the survey process and the limited number of variables.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Appendix 1. English Version Questionnaire

QUESTIONNAIRE FOR JAPANESE GREEN TEA PREFERENCE BY TEA TASTING

Introduction

Hello! My name is ----. I am conducting survey to understand consumer preference on tea beverage, especially on Japanese green tea. Moreover, it is also to understand a tea market in future. This study will identify Japanese's green tea consumption preference and possible market among young people in Taiwan.

This survey would like to ask you a few questions and take time around 5 min. I am not selling anything; I am only interested in your opinions. In addition, your answers will be held in the strictest confidence and added to the answers from others who are participating in this survey. No one's answers will be looked at individually.

Japanese Green Tea

I would like to introduce four kinds of Japanese green tea that you would try, such as green tea instant bag, Matcha, Benefuuki, and Minamisayaka. There are more information for them:

1. Green Tea Instant Bag

Narrow shaped tea bag is ideal for 500 ml-plastic bottles. It is designed for customers who want to enjoy fleshly brewed authentic green tea outside. Customers only need to shake it well before drinking in the bottle.

2. Matcha

Matcha is a type of powdered Japanese green tea. It is increasing the chlorophyll content and creating a gorgeous green color. The green tea powder is not strained out before consuming, so costumers are consuming the entire leaf. It is only 1/2 tsp needed to brew a traditional cup of Matcha.

3. Benefuuki

Benifuuki is a kind of Japanese green tea leaf. It should be brewed hotter (80–90°C) and can be steeped longer to let its flavor fully unfold.

4. Minamisayaka

Minami Sayaka is also kind of Japanese green tea leaf. It can be good to slightly warm down water temperature, about 85° C.

****

Part 1: Personal Information

1. Gender : ❒ Male ❒ Female
2. Age (western year): .....
3. Level of education: .....
4. Hometown : ……..……
5. Major : ……..……....

Part 2: Beverage Habits and Preference

1. Could you provide ranking for your preferred beverage? *(Please fill number to rank, 1 for the best answer respectively)*

Tea	Water	Coffee	Fruit juice	Soda drink	Alcohol

2. How often do you drink tea?

❒ Every meal ❒ Everyday ❒ Few times per week

❒ Few times per months ❒ Few times per year ❒ Never

3. What are the reasons you choose tea as your beverage? *(Please fill number to rank, 1 for the best answer respectively)*

❒ Taste ❒ Aroma ❒Healthy ❒ Trend ❒ Habit

4. What kind of tea you usually drink? (Multiple choosing)

❒No addition ❒ Add sugar/sweetener ❒Add milk

❒Add favor/juice ❒ Add honey ❒Other,_____

5. What is your the most important criteria to buy tea?

❒Price ❒ Taste ❒ Aroma ❒ Brand ❒ Packaging

6. How do you usually get your tea for drink?

❒ Brew by yourself ❒ Tea Cafe ❒ Bottle tea from a shop ❒ Others:

*If brewed by yourself, what kind of tea product will you use:

❒ Tea leaf ❒ Tea bag ❒ Powder/Instant tea

7. Please provide ranking of tea type you prefer. *(Please fill number to rank, 1 for the best answer respectively)*

Green tea	Black tea	Oolong tea	White tea

Part 3: Consumption of Japanese Green Tea

1. Do you ever drink Japanese green tea?
❒ Yes ❒ No (If no, skip no. 2)
2. What kind of Japanese green tea you ever drink? (Multiple choosing)
❒Benefukii ❒Matcha ❒Tea bag ❒Minamisayaka
❒ Others (please specify.……)
3. What do you expect from consuming Japanese green tea? (Multiple choosing)
❒Flavor ❒High quality ❒Healthy benefits ❒Cultural thing
❒Others (please specify.……)

Part 4: Evaluation of Japanese Green Tea after Tea Tasting.

1. What kinds of Japanese green tea you prefer most after tasting? *(Please fill number to rank, no.1 for the best).*

Minamisayaka	Benifukii	Matcha	Tea bag

2. How do you like **Benifukii** Japanese green tea? Please, rate your opinion on the following criteria.

	Poor (1)	Fair (2)	Good (3)	Very good (4)	Excellent (5)
Taste					
Aroma					
Color					

3. How do you like Minamisayaka Japanese green tea? Please, rate your opinion on the following criteria.

	Poor (1)	Fair (2)	Good (3)	Very good (4)	Excellent (5)
Taste					
Aroma					
Color					

4. How do you like Matcha Japanese green tea? Please, rate your opinion on the following criteria.

	Poor (1)	Fair (2)	Good (3)	Very good (4)	Excellent (5)
Taste					
Aroma					
Color					

5. How do you like Tea bag? Please, rate your opinion on the following criteria.

	Poor (1)	Fair (2)	Good (3)	Very good (4)	Excellent (5)
Taste					
Aroma					
Color					

6. Which statement best describe how well Japanese green tea tasting met your expectation?
7.

❒ Better than you expected
❒ About the same as you expected
❒ Not as good as you expected

8. If you see Japanese green tea product available on the store/shop, which statement describe how you feel about buying?

❒Definitely would buy
❒Probably would buy
❒Might or might not would buy
❒Probably would not buy
❒Definitely would not buy

9. What kinds of Japanese green tea product you would like to buy most?

❒Tea bag ❒ Tea leaf ❒ Tea powder ❒Bottle ❒ a cup from tea cafe

10. Which type of Japanese green tea that is the most convinience for you if you have to serve tea by yourself?

❒Tea bag ❒ Benefukii ❒ Minamisayaka ❒ Matcha

Reason:

.....
.....

11. What kind of store would you expect the Japanese green tea products to be sold?

❒ Supermarket/Hypermarket ❒ Tea cafe ❒ Traditional market
❒Others (please specify……..)

12. How often do you think you would buy Japanese green tea products in the future?

❒ Once a week or more often ❒ Once every 2 - 3 weeks
❒ Once a month ❒Once every 2 or 3 months
❒ Once every 4 - 6 months ❒ Once or twice a year
❒ Never

**********Thank you for your cooperation **********

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