European Journal of Education Studies
ISSN: 2501 - 1111
ISSN-L: 2501 - 1111
Available on-line at: www.oapub.org/edu

doi: 10.5281/zenodo.3747804 Volume 7 | Issue 2 | 2020

EMPIRICAL ANALYSIS OF AGE, GENDER AND LENGTH IN PUBLIC SERVICE AS PREDICTORS OF PERFORMANCE IN SENIOR MANAGEMENT EXAMINATION AMONG ADULT LEARNERS

Chirchir Matthew Kimeli[i],
Onkundi Charles,
Nyaboga M. Douglas
Kenya School of Government,
Baringo, Kenya

Abstract:
Kenyan Government is committed to continuous training of public officers, while age, gender and employees length in public service are universal phenomena, both have been highlighted as vital predictors of success in academics, however with ambivalent and controversial empirical reports on the relationship between age, gender, length in public service and performance in Senior Management Course (SMC) examinations, it remains unclear whether this predictors are associated with performance in SMC examinations among adult learners. The study utilized data from 394 Kenyan public officers senior management course examination results obtained with approval from Kenya School of Government; computed examination results and records showing trainees age, gender, employee length in service and final cumulative examination scores was used. Regression analysis was utilized to establish the relationship between variables and develop predictive model, while Moderated Multiple Regression was utilized to determine the moderating effect of the predictors. One-way Analysis of Variance (ANOVA) was used to determine statistical significance between groups mean; two way ANOVA was used to determine if there were interactions between predictors and performance in SMC examinations. while F-test was used to determine variance within the samples as well as testing the hypothesis for population mean and t-test was used to test significance of difference. Results indicate that age and length in public service independently have significant influence on performance in SMC examinations among adult learners (P-value .000 = 0.05, 95% CI). Result also indicate that age, length in public service but gender has significant moderating effect on performance in SMC examinations The study concluded that Trainees' age and length in public service influence performance in SMC examination among adult learners; there is no significant

[i] Correspondence: email mathew.chirchir@ksg.ac.ke

difference in performance of SMC examination between males and female trainees. It is also concluded that age and length in public service, but gender has a significant moderating and interactive effect on performance in SMC examination among adult learners. It is recommended that different public agencies continue to make it mandatory for officers entering senior management in the civil service take SMC programme, appointment for such course should be based of employees/trainees age. Further as agencies project their staff for training as per the Human Resource Management and Development policies, attention should be given to trainees' age and length in public service, committees' in their meeting to approve training schedules should take into account trainees age and length in public service. Public Service Commission in liaison with its stakeholders need to develop or incorporate into the existing policies the element of trainees' age and length of service as a parameters in making decisions concerning training of public servants and subsequent approval of training schedules in different government agencies.

Keywords: SMC examination, predictors, adult learners

1. Introduction

Administration of tests and examinations is considered useful tool in evaluating learners understanding and ability to retain skills and knowledge imparted through training. Research conducted previously has dwelled on the school-aged childhood (7-11) and adolescents (12 to 18 years). Empirical synthesis on predictors of performance in examination among adult learners is scanty (Imlach *et* al. 2017). This study sought to assess trainees' age, gender and employees' length in public service as predictors of examination performance among adult learners undertaking Senior Management Course (SMC) at the Kenya School of Government in Kenya. The course is designed for senior managers in the public sector organization that are in charge of the day to day running of their units. Thus, this programme attracts officers who are mature and have already been exposed to work environment. SMC is a one month course in which trainees are subjected to examinations in order to evaluate effectiveness of the course in transferring learning.

A review of the literature revealed scarce studies with ambivalent results conducted on this category of learners. It is against this backdrop that the researchers were motivated to pursue this study in an effort to unearth the influences age, gender and length in public service have on performance in SMC examination among public officers so as to inform policy on public service officers training.

The study sought to meet the following objectives: evaluate the influence of trainees age on performance in SMC examination among adult learners; evaluate the influence of trainees gender on performance in SMC examination among adult learners; evaluate the influence of trainees length in public service on performance in SMC examination among adult learners; determine the moderating effect of age on

performance in SMC examination and Trainees gender among adult learners and determine the moderating effect of gender on performance in SMC examination and Trainees age among adult learners and determine the moderating effect of length in public service on performance in SMC examination and Trainees gender among adult learners. The study was also guided by the following hypotheses:

H_{01}: Trainees age does not influence performance in SMC examination among adult learners;

H_{02}: Trainees gender does not influence performance in SMC examination among adult learners;

H_{03}: Trainees length in public service does not influence performance in SMC examination among adult learners;

H_{04}: Trainee age has no significant moderating effect on performance in SMC examination and Trainees gender among adult learners;

H_{05}: Trainee gender has no significant moderating effect on performance in SMC examination and Trainees Age among adult learners, and

H_{06}: Trainee length in public service has no significant moderating effect on performance in SMC examination and Trainees Age among adult learners

This study sought to provide necessary knowledge on whether there is need to cap the period (age) under which public officers should be sent for training. With this need, conclusions regarding influences of age, gender and length in public service on performance in SMC examination among adult learners is critical. This study sought to fill this gap by assessing the influence of age, gender and length in public service on performance in SMC examination among adult learners attending Senior Management Course at the Kenya School of Government.

2. Literature Review

Search of empirical literature on the influence of trainees' age, gender and length in public service on performance in examination performance among adult learners yielded a number of studies with mixed and rather ambivalent findings.

2.1 Trainees' Age and Performance in Examination

Imlach *et* al. (2017) in their study on age barrier on academic success among older learners was not able to establish any influence of age on academic performance nor a cognitive stimulating engagements. (P-value 0.2507>0.05). This study's sample shares many characteristics with the sample in this study; hence the need to establish any relationship if any, through the study on the hypothetical influence of age on older learners in Kenyan set up.

While understanding a study on association of subjective age with estimated age among older adults using both voxel-based morphometry and age predication modeling approach, Kwak *et* al. (2018) established a significant difference in chronological age (same < older; P- value = 0.043) versus (younger <older; P-value=0.013). This finding is

therefore inconsistent with Imlach *et* al. (2017) findings, signifying quite ambivalent results and hence need for further conclusive study on this matter. Studies on the influence of age on exam performance among secondary school students, who are at middle lower age, yield mixed results. Momanyi *et* al. (2015) on their study on the effects of students' age on academic performance among secondary school students in Kenyan education system did not establish significant relationship ($F_{2, 486}$ = 2.99, P value 3.91 > 0.05); between age and academic performance.

A further study on post-secondary students undertaking primary teacher training in Kenya who supposedly are older than secondary school students did not establish significant relationship on the two constructs of age and examination performance (F = 0.11, P value 0.897>0.05). This study however, found out that, students between the age of 30-39 performed slightly better than those aged between 23 and 25 years, and those between 19 and 21 years, results that were however not statistically significant (Mutuku & Kiilu, 2016).

2.2 Trainees' Gender and Performance in Examination

A study by Aransi (2018) on the Impact of Gender on Student Academic Performance among High School Students on a sample of 656 respondents established significant influence of gender on academic performance. F (1,653)= 27.8, P.000<0.05. Further T-test analysis indicated significant relationship between gender and examination performance t656 (2.174 > 1.960). Mutuku & Kiilu (2016) in their study found out that, groups of male students scored lower than groups of female students on primary teacher trainee end term examination. This reflects notwithstanding, the study did not establish statistically significant relationship between gender and exam performance (r= 0.168, P>0.05). Together with their findings on age, it could not be argued that there exists no empirical argument in favor of contributions of age and gender on examination performance.

Elsewhere in Anambra State in Nigeria, Ezenwafor & Obidile (2016) undertaking study based on financial accounting in technical colleges utilizing quasi experimental design on National Business Certificate (NBC) year II, did not establish statistically significant influence of gender on financial accounting examination ($F_{1,67}$ = 3.407; p-value 0.069) among technical college students. In New Bussa in Niger, Adigun *et* al. (2015) in their study focusing on gender and performance in computer studies found mixed results. From 275 students, they established that despite male performing better than females; the result was statistically insignificant based on performance of entire students (p=0.08) a result that was not repeated in private schools (p=0.01) but public schools (p=0.07).

Oppong (2013) in his study on gender influence on history performance at senior high school in Cape Coast, Ghana, despite finding that male students perform better than female students in multiple choice examination did not find significant difference between males and females performance in examination (F=0.274, p= .642). Ojediran & Oludipe (2016) on their study on Impact of Test Anxiety and Gender on Examination Performance among Nigerian pre-service science teachers established that females

exhibited lower test anxiety than males. However, despite established significant differences on anxiety levels, the study did not establish significant interaction effect of gender and text anxiety on academic performance ($F_{2,449} = 3.044$; p=0.49).

2.3 Trainees Length of Public Service and Performance in Examination

Imlach, *et* al. (2017) their study in Australia shows lifetime engagement in cognitively stimulating activities contribute cumulatively towards academic performance. That ageing up to the eighth decade (0-80 years) of life is not an impediment to academic performance but rather has positive influence on academic attainment. This implies that job experience which is associated with aging significantly affects academic attainment among adult learners. Their results produced a significant relationship ($F_{19, 161} = 3.254$, p-value 0.001<0.05, adjusted $R^2 = 0.192$) with four primary predictors significantly associated with GPA (episodic memory, working memory, LEQ (Lifetime of Experiences Questionnaire) midlife non-specific activities.

Elsewhere in United States, a study on impact of aging among workers on computer skills acquisition revealed a significant negative relationship between age and learning outcomes (Reed, Doty & May, 2005). In the study, Reed *et* al. (2005) conducted objective and subjective measures of the dependent variable, computer skills acquisition whose outcome showed that chronological age alone offers a poor computer skills learning capacity with 15% ($\Delta R^2 = .15$, $F_{1, 91} = 14.54$, p <..05).

Truxillo *et* al. (2015) reviewed literature on aging at work focusing on age related changes such as physical, cognitive, personality, and motivation that affect performance of employees revealing a rather mixed findings showing a negative relationship between ageing and a variety of cognitive functions (grouped under fluid intelligence (Gf)) such as processing speed, memory and attention. Their research revealed that perceptual speed starts to decline at age 25 and considerably declines after age 60. More significantly, in relation to the present study, knowledge, skills, and wisdom were found to peak at about age 60 and subsequently decline in later age. In another study, results of a sample of 102 students show that cognitive ability influences exam performance (Reevea, Bonaccio, & Winforda, 2014).

2.4 Trainees Age, Gender, Length in Public Service and Performance in Examination

Quite interesting relationship has however been established on the relationship of age and gender on children's reading performance. Vlachos & Papadimitriou (2015) established that, older children had better reading scores than younger ones; implying the significance of age on reading which probably has a bearing on academic performance ($F_{1,285}$= 11.289, P value .001<0.05). This study however did not establish significant relationship between gender and reading performance. A study by Eze *et* al. (2015) among Vocational and Technical Education students in Nigeria did not yield any relationship between age and academic performance. Neither was their independent nor combined contribution was significant (Age P value 0.475; gender 0.125 and combined

0.266). However, combining age and gender yielded a weak contribution to academic performance (r^2= 0.006).

Ezenwafor & Amobi (2016) combining gender and age constructs among other student demographic factors influence on exam performance in business subjects in secondary schools in Awka established significant differences in respondents' ratings based on gender (Z-value 9.7> value 1.960). Further findings albeit controversial are those from Abubakar & Oguguo (2011) who on their study focusing on age and gender on mathematics and science achievements established a weak positive correlation for age (r=0.030) and gender (r=0.111). Further, the two constituents combined together led to 1.3% variance; though, these findings were not statistically significant $F_{2,329}$ = 2.221; p-value=0.110> 0.05, Z- cal -1.76 < Z-cal 1.96) including no significant difference between females and males in mathematics and sciences. Similar findings were established in a study involving 754 secondary school students pursuing agriculture in Kenya by Ogweno *et* al. (2014). They observed that students' gender and age positively influenced student performance in agriculture subject in secondary schools, however, test for statistical significance failed to confirm these findings. Age ($F_{1, 252}$ = 1.335; p-value 0.249); gender ($F_{1, 252}$ = 1.262, p-value 0.262); therefore, neither was age nor gender significant predictor of performance in agriculture subject among secondary school in Kenya.

A rather deviating findings are those of Jabor *et* al. (2011) undertaken in USA utilizing 2005 Grade Point Average (GPA), for mathematics involving 2,600 students from the National Assessment of Education Progress (NAEP). This study established albeit low effects, statistically significant differences between gender and age groups; gender (Cohen's d=0.24) and age (Cohen's d=0.41) revealed effect by both constructs albeit small on mathematics performance. Ezenwafor & Amobi (2016) in their study on the influence of student related factors on student academic performance in business subjects utilizing survey design on a sample of 316 principals and secondary school teachers established that, student related factor affected examination performance to a high extent. Particularly, students' age had little influence (mean 2.07, SD1.18); however, the null hypothesis test that there is no significant difference in the mean ratings of respondents on the extent to which student related factors (based on gender) affect examination performance was rejected at 95% confidence interval.

Chirchir *et* al. (2019) in their study on antecedents of trainee satisfaction with senior management training among adult public officers who undertook training in Kenya School of Government between 1st July 2017 and 30th September 2017 utilizing post-training survey data established that age has a significant moderating effect on trainee satisfaction {t(197) = -2.07, R^2 = .54, ΔR^2 = .01, $F_{1, 190}$ = 4.27, p-value .040<0.05, 95% CI [-.13, -.003]} while gender has no significant moderating effect on trainee satisfaction with SMC{t(197) = 1.00, R^2 = .51, ΔR^2 = .00, $F_{1, 190}$ = 1.01, p-value .316>0.05, 95% CI [-.06, .18]}. Crede & Kunce (2008) in their research on study habits, skills and attitudes reviewed inter alia; dissertations abstracts of previous studies done 1980 to 2005, with zero-order correlations between relevant criteria and Study Habit, Skill and Attitude (SHSA) as

predictors of academic performance among adult learners. Their results revealed low relationships between SHSA and college performance.

3. Materials and Methods

This study is a follow up and revision of a study undertakes by the authors in 2019 by incorporating an additional predictor and increasing the sample size of the previous study. The study is based on data from 394 public officers obtained from examination records at Kenya School of Government. Multivariate Linear Regression was utilized to establish the relationship between one dependent variable and independent variables, while Moderated Multiple Regression was utilized to determine whether the association between the dependent and the independent variables is moderated by age, gender and length in public service independently as moderator variables (Aguinis, 2004).

One-way Analysis of Variance (ANOVA) was used to determine whether there were any statistically significant differences between the means of groups. F-test was used to find out whether there was any variance within the samples as well as testing the hypothesis for population mean while t-test was used to test significance of difference. Two way ANOVA was used to determine if there were interactions between predictors and performance in SMC examinations. The study adopted multiple regression analysis to estimate relationships among variables and to understand which among the independent variables are related to the dependent variable, as well as to explore the forms of such relationships. Data was presented by the use of tables.

Regression Analysis (RA) was also utilized to enable the study to develop predictive model. R was used to determine the strength and direction of the relationship, while R^2 change was used to determine the percentage increase in variation explained by variables. The results coefficient of determination; adjusted R^2 was used to indicate the variance in examination performance as explained by the predictors. The rejection rule was: Reject H_0 if p-value $\leq$ a or if $F > F_a$, where F_a is founded on an F distribution. The principal regression model that was proposed was presented as:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \varepsilon$$

4. Results and Discussion

4.1 Diagnostic Tests: Normality and Multicollinearity

To ensure data was fit for regression analysis, normality and Multicollinearity diagnostic tests were done. The Shapiro-Wilk test statistics on performance in SMC examination, trainees age, gender and length in public service resulted on a p-value of .000<.05, this test was used since the dataset was smaller than 2000 elements, hence it was concluded that the data comes from a normal distribution (Tabachnick & Fidell, 2013).

The data set was also tested for multicollinearity. Taking examination performance as the dependent variable, Trainees Gender, Trainees Age and Length in

Public Service yielded a Tolerance values of .689, .988, and .692 with their corresponding VIF of 1.452, 1.012, and 1.445 respectively indicating that data did not suffer from multicollinearity and hence suitable for regression analysis; since a tolerance statistic below .20 is generally considered cause for concern while a Variance Inflation Factor (VIF) of greater than 5 is generally considered evidence of multicollinearity (Tabachnick & Fidell, 2013).

4.2 Model on Predictors of Performance in SMC Examination among Adult Learners

Regression Analysis (RA) was used to develop a predictive model on performance in SMC examination performance among adult learners. The regression analysis on performance in SMC Examination among adult learners and the three predictor demographic factors age, gender and length in public service was performed. The results of the Regression Analysis model in Table 1 indicate that the model is significantly predictive of the relationship.

Table 1: Regression Model for Predictors of Performance in SMC Examination

Model Summary									
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	.437[a]	.191	.184	5.85509	.191	30.609	3	390	.000
2	.420[b]	.177	.175	5.88998	.177	84.136	1	392	.000
3	.328[c]	.107	.105	6.13272	.107	47.190	1	392	.000
4	.002[d]	.000	-.003	6.49136	.000	.001	1	392	.975

a. Predictors: (Constant), Participants Length of Public Service, Gender of Participants, Age of Participants
b. Predictors: (Constant), Trainee's Age
c. Predictors: (Constant), Length in Public service
c. Predictors: (Constant), Gender

The result's coefficient of determination (R^2 = .191, ΔR^2 = 0.191) indicate that approximately 19% of the variance in performance in SMC examination among adult learners can be explained by the predictors age, gender and length in public service. However independent influence of trainees age (R^2 = .177, ΔR^2 = 0.177) and length in public service (R^2 = .107, ΔR^2 = 0.107) indicate that approximately 17.7% and 10.7% of variance in performance in SMC examination among adult learners can be explained by age and Length of service respectively. However, gender did not influence performance in SMC examinations significantly. Analysis of variance between performance in SMC examination among adult learners and predictor variables age, gender and length in public service is summarized in Table 2.

Table 2: Analyses of Variance between Performance in SMC Examination and Predictor Variables

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	3148.027	3	1049.342	30.609	.000[a]
	Residual	13370.023	390	34.282		
	Total	16518.050	393			
2	Regression	2918.834	1	2918.834	84.136	.000[b]
	Residual	13599.216	392	34.692		
	Total	16518.050	393			
3	Regression	1774.831	1	1774.831	47.190	.000[c]
	Residual	14743.219	392	37.610		
	Total	16518.050	393			
4	Regression	.041	1	.041	.001	.975[d]
	Residual	16518.010	392	42.138		
	Total	16518.050	393			

1. Predictors: (Constant), Participants Length of Public Service, Gender of Participants, Age of Participants
2. Predictors: (Constant), Trainee's Age
3. Predictors: (Constant), Length in Public service
4. Predictors: (Constant), Gender

The result on ANOVA indicate Regression model is predictive of Performance in SMC Examination thorough SMC training intervention {$F_{2, 393}$ = 30.61>3.84, p-value .000<0.05, 95% CI}. This suggest that the age and length in public service have simultaneous and significant effect on performance in SMC examination among adult learners. This imply that combined age and length in public service parameters influence performance in SMC examination among adult learners. Its further noted that models on age and length in public service independently are also predictive; age {$F_{1, 393}$ = 84.136.1>3.84, p-value .000<0.05, 95%} and length in public service {$F_{1, 393}$ = 47.190>3.84, p-value .000<0.05, 95%} while gender is not predictive respectively.

A two way ANOVA was further conducted that examined the interactive effect of predictors on performance in SMC examination on ungrouped data; simple main effect analysis showed that, there was statistically significant interactions between age and performance in SMC examination ($F_{1, 393}$ =2.863, p-value .000< 0.05), age and gender ($F_{1, 393}$ =1.714, p-value .038< 0.05)and age and length of service ($F_{1, 393}$ =1.577, p-value .010< 0.05) as shown in Table 3.

Table 3: Tests of Between-Subjects Effects in Ungrouped Data

Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	14770.240[a]	308	47.955	2.332	.000
Intercept	984398.376	1	984398.376	47873.522	.000
Gender	86.857	1	86.857	4.224	.043
Length in public service	1897.681	36	52.713	2.564	.000
Age	1942.903	33	58.876	2.863	.000
Gender * Length in service	918.869	23	39.951	1.943	.015

Gender * Age	846.075	24	35.253	1.714	.038
Length in service * Age	5188.484	160	32.428	1.577	.010
Gndr * Lengser * Age	248.721	14	17.766	.864	.599
Error	1747.811	85	20.562		
Total	1850967.579	394			
Corrected Total	16518.050	393			
Dependent Variable: Trainees average academic performance a. R Squared = .894 (Adjusted R Squared = .511)					

Multiple grouped data analysis of variance in two way ANOVA on age indicated that those trainees aged between 50-59 years old were significantly different in SMC examination than the rest of the age groups. Those between the ages of 20-29 years old did not perform significantly different from those between 30-49 years as shown in Table 4.

Table 4: Multiple Comparisons on Grouped Age of Trainees

Multiple Comparisons						
(I) Age of Trainees	**(J) Age of Trainees**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Between 20-29	Between 30-39	-1.1120	1.46020	.872	-4.8807	2.6568
	Between 40-49	1.2407	1.45348	.829	-2.5106	4.9921
	Between 50-59	6.2688*	1.46978	.000	2.4754	10.0623
Between 30-39	Between 20-29	1.1120	1.46020	.872	-2.6568	4.8807
	Between 40-49	2.3527*	.71655	.006	.5033	4.2021
	Between 50-59	7.3808*	.74907	.000	5.4475	9.3141
Between 40-49	Between 20-29	-1.2407	1.45348	.829	-4.9921	2.5106
	Between 30-39	-2.3527*	.71655	.006	-4.2021	-.5033
	Between 50-59	5.0281*	.73587	.000	3.1288	6.9273
Between 50-59	Between 20-29	-6.2688*	1.46978	.000	-10.0623	-2.4754
	Between 30-39	-7.3808*	.74907	.000	-9.3141	-5.4475
	Between 40-49	-5.0281*	.73587	.000	-6.9273	-3.1288
Dependent Variable: Trainees Performance in SMC Examination; Tukey HSD Based on observed means. The error term is Mean Square (Error) = 33.582.						
*. The mean difference is significant at the .05 level.						

A two way ANOVA was conducted on grouped data that examined the effect of length in public service (job experience) on performance in SMC examination. Simple main effects analysis showed there was significant interactions ($F_{1, 393}$ =2.564, p-value .010< 0.05), further multiple grouped comparison indicated those who had served longer in public service (31-40 years) performed significantly better than the rest. Those who had served between 1-10 years were greatly disadvantaged as shown in Table 5.

Table 5: Multiple Comparisons on Trainees Length in Public Service

(I) Trainees Length of Public Service	(J) Trainees Length of Public Service	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
From 1-10 Years	From 11-20 Years	-.0272	.83678	1.000	-2.1868	2.1325
	From 21-30 Years	3.4523*	.75074	.000	1.5147	5.3899
	From 31-40 Years	5.4030*	.82998	.000	3.2608	7.5451
From 11-20 Years	From 1-10 Years	.0272	.83678	1.000	-2.1325	2.1868
	From 21-30 Years	3.4795*	.86438	.000	1.2485	5.7104
	From 31-40 Years	5.4301*	.93403	.000	3.0194	7.8408
From 21-30 Years	From 1-10 Years	-3.4523*	.75074	.000	-5.3899	-1.5147
	From 11-20 Years	-3.4795*	.86438	.000	-5.7104	-1.2485
	From 31-40 Years	1.9507	.85781	.106	-.2633	4.1646
From 31-40 Years	From 1-10 Years	-5.4030*	.82998	.000	-7.5451	-3.2608
	From 11-20 Years	-5.4301*	.93403	.000	-7.8408	-3.0194
	From 21-30 Years	-1.9507	.85781	.106	-4.1646	.2633

Dependent Variable: Trainees Performance in SMC Examination; Tukey HSD Based on observed means. The error term is Mean Square (Error) = 33.582.

*. The mean difference is significant at the .05 level.

However, a further two way ANOVA analysis on interactions between grouped data did not establish statistically significant effect of gender on performance in SMC examinations among adult learners ($F_{1, 393}$ =0.004, p-value .9487> 0.05), inferring that there was no statistically significant difference in performance of SMC examination between males and females in grouped data. Moreover, there was no statistically significant interactions between length in public service, gender and age on performance in SMC examination ($F_{1, 393}$ =.864, p-value .599> 0.05).

An analysis of variance coefficient was done to develop a predictive regression equation on Performance in SMC Examination among adult learners. Table 6 shows the standardized coefficients for predictors of Performance in SMC Examination proxied through Senior Management Course (SMC).

This result suggests age and length in public service have partial significant effect on performance in SMC examination among adult learners through SMC, therefore enrolling older trainee participants' increases the ability of an adult participant to produce better results in SMC examination; while difference in length of service will also influence performance in SMC examinations positively.

Table 6: Standardized Coefficients for Predictors of Performance in SMC Examination

Coefficients[a]									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	**77.861**	1.384		56.274	**.000**	75.140	80.581		
	Age of Trainees	-2.551	.403	**-.347**	-6.327	**.000**	-3.344	-1.758	.689	1.452
	Gender of Trainees	-.311	.594	**-.024**	-.524	**.600**	-1.479	.856	.988	1.012
	Trainees Length of Public Service	-.777	.313	**-.136**	-2.481	**.014**	-1.393	-.161	.692	1.445
a. Dependent Variable: Trainee Performance in SMC Examination										

The regression equation is presented as:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \varepsilon$$

Where

y: Predicted score on Performance in SMC Examination

x_1: Trainees Age

x_2: Trainees Length in Public service

The following equation illustrates the results of RA procedure.

y = 77.861 - 0 .347 x_1 - 0.136 x_2 + 1.384(Error term)

4.3 Test of Significance

t- test was used to determine significance of predictor influence, result indicate that trainee age independently has significant influence on performance in SMC examination among adult learners t(394) -6.327, p-value .000 = 0, 95% CI [-3.344, -1.758]. Similarly length in public service independently has significant influence on performance in SMC examination among adult learners t(394) -2.481, p-value .014<0.05, 95% CI [-1.393, -.161]. It is however established that gender has no significant influence of performance in SMC examination among adult learners t(394) -.024, p-value . .600=0.05, 95% CI [-1.393, -.161].

4.3.1 Hypothesis Testing

The study sought to test the hypothesis H_{01} Trainees age does not influence performance in SMC examination among adult learners; from the result on Table 2, it is observed that {$F_{1, 393}$ = 30.61>3.84, p-value .000<0.05, 95% CI[-3.344, -1.758].}. Therefore, the null hypothesis H_{01} was rejected. H_{02} Trainees gender does not influence performance in SMC examination among adult learners; from the result on Table 2, it is observed that {$F_{1, 393}$ =

.001<3.84, p-value .975[d]>0.05, 95% CI [-1.479, .856]. Therefore, the null hypothesis H_{02} was not rejected. H_{03} Trainees length in public service does not influence performance in SMC examination among adult learners; it is observed that {$F_{1, 393}$ = 47.190>3.84, p-value .000<0.05, 95% CI [-1.393, -.161].}. Therefore, the null hypothesis H_{03} was rejected.

The above results on trainees age are consistent with those of Kwak *et* al., 2018; Ezenwafor & Amobi, 2016; Vlachos & Papaddimitriius, 2015 & Jabor *et* al., 2011 who in their studies established significant influence of age on examination performance, however the findings are inconsistent with those of Imlach, *et* al., 2017; Mutuku & Kiilu, 2016; Momanyi *et* al., 2015; Eze *et* al., 2015 & Ogwano *et* al., 2014. The above results on trainees' gender inconsistent with those of Aransi, 2018; Ezenwafor & Amobi, 2016 & Jabor *et* al., 2011; but however consistent with those of Ojediran & Oludipe, 2016; Adigun *et* al., 2015; Ogwano *et* al., 2014 & Abubakar & Oguguo, 2011. . Findings on length of service are also consistent with those of Imlach, *et* al., 2017; Reevea, Bonaccio, & Winforda, 2014; Crede & Kunce, 2008 and Reed, Doty & May, 2005.

4.4 Moderating Effect of Trainee Age on Performance in SMC Examination and Gender

The study sought to establish the influence of participants' age as a moderator between performance in SMC examination and participants' Gender. Moderated regression analysis was done to determine whether the relationship between performance in SMC examination and Gender was moderated by age as moderator variable independently. Moderated multiple regression (Aguinis, 2004) was carried out. Table 7 shows Variation explained by the addition of the moderating variables.

Table 7: Variation Explained by the Addition of the Moderating Variables

Model Summary									
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	.002[a]	.000	-.003	6.49136	.000	.001	1	392	.975
2	.422[b]	.178	.174	5.89358	.178	84.553	1	391	.000
a. Predictors: (Constant), Gender of Trainee									
b. Predictors: (Constant), Gender of Trainee, Age of Trainees									

Model 2 indicate the increase in variation explained by the addition of trainee age as a moderator term from the change in R^2. It is observed that R^2 and change in R^2 is reported as (R^2 = .178, ΔR^2 = .178); 17.8%, which is a proportion. It is observed then that the change in R^2 is 17.8% which shows the percentage increase in the variation explained by the addition of participants Age as a moderator variable; it is further observed that this increase is statistically significant {$F_{1, 391}$ = 84.553>3.84, p-value .000<0.05, 95% CI}. It is therefore established that participants' age does moderate relationship between Performance in SMC examination among adult learners and participants' gender.

4.5 Moderating Effect of Trainee Length of Service on Performance in SMC Examination and Age

The study sought to establish the influence of trainee length in public service as a moderator between performance in SMC examination and participants' age. Moderated regression analysis was done to determine whether the relationship between Performance in SMC Examination and participants' age was moderated by length in public service as moderator variable independently. Moderated multiple regression (Aguinis, 2004) was carried out. Table 8 shows Variation explained by the addition of the moderating variables.

Table 8: Variation Explained by the Addition of the Moderating Variables

Model Summary									
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	.420[a]	.177	.175	5.88998	.177	84.136	1	392	.000
2	.436[b]	.190	.186	5.84966	.013	6.423	1	391	.012
a. Predictors: (Constant), Age of Trainees									
b. Predictors: (Constant), Age of Trainees, Trainees length of Public Service									

Model 2 indicate a variation explained by the addition of trainees' length in public service as a moderator term from the change in R^2. It is observed that R^2 and change in R^2 is reported as ($R^2 = .190$, $\Delta R^2 = .013$); 1.3%, which is a proportion. It is observed then that the change in R^2 is 1.3% which shows the percentage increase in the variation explained by the addition of trainee length in public service as a moderator variable; it is further observed that this increase is statistically significant {$F_{1, 391} = 6.423 > 3.84$, p-value .012<0.05, 95% CI}.

It is therefore concluded that trainee length in public service significantly moderate relationship between trainee performance in SMC examination among adult learners and age. The result on ANOVA displayed a probability level of significance value of 0.000 which is much smaller than 0.05, this therefore indicate that the moderated Regression model is predictive of the moderating effect of trainee length in public service as a moderator.

4.5.1 Hypothesis Testing

The study sought to test the hypothesis H_{04} Trainee age has no significant moderating effect on performance in SMC examination and Trainees gender among adult learners; H_{05} Trainee gender has no significant moderating effect on performance in SMC examination and Trainees Age among adult learners; and H_{06} Trainee length in public service has no significant moderating effect on performance in SMC examination and Trainees Age among adult learners.

From the result in Table 4, the following decision were therefore made regarding study hypothesis; H_{04} Trainee age has no significant moderating effect on performance in

SMC examination and Trainees gender among adult learners {$F_{1, 391}$ = 84.553>3.84, p-value .000<0.05, 95% CI]} Therefore the null hypothesis H_{04} was rejected.

H_{05} Trainee gender has no significant moderating effect on performance in SMC examination and Trainees Age among adult learners; from the result in table 2 {$F_{1, 393}$ = .001<3.84, p-value .975[d]>0.05, 95% CI. Therefore the null hypothesis H_{05} was not rejected; and H_{06} Trainee length in public service has no significant moderating effect on performance in SMC examination and Trainees Age among adult learners from the result in table 5 {$F_{1, 391}$ = 6.423>3.84, p-value .012<0.05, 95% CI]} Therefore the null hypothesis H_{04} was rejected.

This result is consistent with findings of Sanjeevekumar & Yanan (2012) and those of Saad & Mat (2013) who pointed out relationships between trainees' demographics such as age. They are also consistent with the findings of Chirchir *et* al. (2019) findings on age but not on gender among other demographic factors as moderators in trainees' satisfaction. However it is inconsistent with those of Ngure & Njiru (2013) who while assessing the reactions of employees who had undergone SMC course, established a negative correlation between such constructs and participants experience, job group and age and hence poised that influence of trainee demographic factors needs to be evaluated.

5. Recommendations

It is recommended that as the ministry of Public Service, County Public Service Boards and County Assembly Public Service Boards and other departments in charge of Human Resource Development in other Government Departments, Autonomous Government Agencies, State Corporations Advisory Committee (SCAC) and Semi-Autonomous Agencies and other public agencies in all arms of Government, continue to make it mandatory for officers entering senior management in the civil service to take SMC programme, appointment for such course should be based of employees/trainees age preferable as indicated in PSC 2(a).

It is also recommended that as all Ministries, Departments and Agencies project their staff for training as per the HRM&D policies, attention should be given to trainees' age and length in public service; this could go a long way in helping realize gains in public service capacity building. MHRMAC and CHRMAC in their meeting to approve training schedules should take into account trainees age and length in public service.

Public Service Commission (PSC) in liaison with its stakeholders need to develop or incorporate into the existing policies the element of trainees' age and length of service as a parameters in making decisions concerning training of public servants and subsequent approval of training schedules in different government agencies.

6. Conclusion

Based on the foregoing; it is concluded that: Trainees' age influences performance in SMC examination among adult learners. Trainees in different age groups performs differently

in SMC examinations. Trainees' length in public service influence performance in SMC examination indicating positive contribution of job experience in performance in SMC examinations. Trainees who have different levels of job experience performs differently in SMC examinations. There is no significant difference in performance of SMC examination between males and female trainees.

It is also concluded that age and length in public service has a significant moderating effect on performance in SMC examination among adult learners, but gender has no significant moderating effect on performance in SMC examination of adult learners and age.

Age and employees' length in public service has interactive influence on performance in SMC examination among learners undertaking studies at Kenya School of Government. It is further concluded that the older a trainee is the lesser the chance that he/she performs well relative to other in performance in SMC examination.

References

Abubakar, R. B., & Oguguo, O. D. (2011). Age and gender as predictors of academic achievement of college mathematics and science students. *Proceedings of the 2011 International Conference on Teaching, Learning and Change.*

Adigun, J., Onihunwa, J., Irunokhai, E., Sada, Y. & Adesina, O. (2015). Effect of Gender on Students' Academic Performance in Computer Studies in Secondary Schools in New Bussa, Borgu Local Government of Niger State. *Journal of Education and Practice*, *6*(33), 1-7.

Aransi, W. O. (2018). Impact of age and gender on high school students' academic performance in economics: a case study analysis. *International journal for innovative research multidisciplinary field*, 4(1); 8-15

Ayodele, I. O., & Idowu, D. O. (2016). Impact of test Anxiety and Gender on Academic Performance of Nigerian Pre-Service Science Teachers. *Journal of Emerging Trends in Educational Research and Policy Studies, 7*(3): 247-254.

Chirchir, M. K., Theuri, M. M. & Sang, A. W. (2019). Antecedents of Trainee Satisfaction with Senior Management Training. *International Journal of Economics, Commerce and Management, 7*(2), 692-709.

Crede, M., & Kuncel, N. R. (2008). Study Habits, Skills, and Attitudes: The Third Pillar Supporting Collegiate Academic Performance. *Association for Psychological Science,* 425-453.

Eze, T. I., Ezenwafor, J. I. & Obi, M. N. (2015). Effects of Age and Gender on Academic Achievement of Vocational and Technical Education (VTE) Students of a Nigerian University. *Journal of Emerging Trends in Educational Research and Policy Studies, 6*(1), 96-101.

Eze, T. I., Ezenwafor, J. I. & Obidile, J. I. (2016). Effect of Gender on Students' Academic Performance and Retention in Financial Accounting in Technical Colleges. *British Journal of Education, Society & Behavioural Science, 18*(4): 1-9.

Ezenwafor, J. I., & Amobi, S. C. (2016). Extent parental and student-related factors affect students' academic performance in business subjects in secondary schools in Awka education zone. *European Journal of Education Studies, 2*(4), 43-54.

Imlach, A., Ward, D., Stuart, K., Summers, M., Valenzuela, M., King, A., Saunders, N., Summers, J., Srikanth, V., Robinson, A. & Vickers, J. (2017). Age is no barrier: predictors of academic success in older learners. *Science of Learning, 2*(13). 10.1038/s41539-017-0014-5.

Jabor, K., Machtmes, K., Kungu, K., Buntat, Y. & Nordin, M. (2011). The Influence of Age and Gender on the Students' Achievement in Mathematics. *International Conference on Social Science and Humanity,* 5, 304-308.

Kwak, S., Kim, H., Chey, J. & Youm, Y. (2018). Feeling How Old I Am: Subjective Age Is Associated with Estimated Brain Age. *Frontiers in Aging Neuroscience, 10*(168), 1-11.

Momanyi, J., Too, J. & Simiyu, C. (2015). Effect of Students' Age on Academic Motivation and Academic Performance among High School Students in Kenya. *Asian Journal of Education and e-Learning, 3*(5), 338-342.

Mutuku, S., & Kiilu, M. (2016). Influence of Demographic Factors on Academic Performance among Primary Teacher Trainees - A Case Study of Machakos Teachers College. *International Journal of Educational Studies, 3*(01), 7-11.

Ngure, S., & Njiru, E. (2013). Capacity Building in the Public Service in Kenya: An Evaluation of Senior Management Course. *International Review of Management and Business Research*, 2(4), 878-892.

Ogweno, P. O., Kathuri, N. N. & Obara, J. (2014). Influence of Students Characteristics on Academic Performance in Secondary Agriculture, in Rachuonyo North Sub County, Kenya. *International Journal of Education and Research, 2*(3), 1-12.

Ojediran, I. A., & Oludipe, D. I. (2016). Impact of test Anxiety and Gender on Academic Performance of Nigerian Pre-Service Science Teachers. *Journal of Emerging Trends in Educational Research and Policy Studies, 7*(3), 247-254.

Oppong, C. A. (2013). Gender differences in students' performance in history at senior high schools in cape coast. *Journal of Arts and Humanities, 2*(1), 34-39.

Reed, K., Doty, H., & May, D. R. (2005). The Impact of Aging on Self-efficacy and Computer Skill Acquisition. *Journal of Managerial Issues*, 212-228.

Reevea, C. L., Bonaccio, S., & C. Winforda, E. (2014). Cognitive ability, exam-related emotions and exam performance: A field study in a college setting. *Contemporary Educational Psychology*, 124-133.

Saad, M., & Mat, N. (2013). Evaluation of Effectiveness of Training and Development: The Kirkpatrick Model, *Asian Journal of Business and Management Sciences*, 2(11), 14-24.

Sanjeevekumar, V., & Yanan, H. (2012). A Study of Determinants of Training Effectiveness in Kedah State Development Corporation. *Review of Management*. 2(2), 18-34.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics*, 6th Ed. Pearson's Education, Inc., New Jersey.

Truxillo, D. M., Cadiz, D. M., & Hammer, L. B. (2015). Supporting the Aging Workforce: A Review and Recommendations for Workplace Intervention Research. *Annual Reviews*, 51-81.

Vlachos, F., & Papadimitriou, A. (2015). Effect of age and gender on children's reading performance: The possible neural underpinnings. *Cogent Psychology, 2*, 1-10.