Home Science Teacher Education in Universities in Kenya: A Structural Equation Model of Antecedents of Quality Training Output

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***Abstract*: - Trainee quality, training environment, curriculum design and instructional process play a critical role in determining quality outcome in Home Science teacher education at university level. In Kenya, the challenge of Home Science teacher education has been noted to revolve around a bloated curriculum, scarcity of resources and instructional process which by extension has brought about the question on the quality of trainees channeled out of Universities offering the program. This study employed the Structural Equation Model to analyze trainee quality, training environment, curriculum design and instructional process as antecedents of quality outcome in Home Science teacher education. The study adopted the confirmatory research design that is covariance based to examine the measurement and structural models. A self administered questionnaire was used to collect data from a sample of 126 Home Science teacher trainees drawn from two universities offering Home Science teacher education. Data was analyzed using Structural Equation Model (SEM) as it allows for simultaneous analysis of the latent variables in the model. The study revealed that training environment and instructional process were significant antecedents to quality outcome in Home Science teacher education in universities in Kenya. The study further established that contrary to expectations, trainee quality and curriculum design were not significant antecedents to quality outcome in Home Science teacher education. The study concludes that quality outcomes in Home Science teacher education require the enabling environment in terms of physical facilities, psychological well being and appropriate instructional atmosphere. We recommend that universities offering Home Science teacher education program in Kenya should not only seek to provide the enabling environment for training but should also enhance appropriate instructional processes.**

Keywords: **Trainee quality, Training environment, Curriculum design, Instructional process, Quality outcome**

I. INTRODUCTION

Home Science, also referred to as Home Economics remains critical to Kenya's realization of a newly industrialized middle income status as articulated in vision 2030. Various scholars have recognized the utility of Home Science education in among other contributions; imparting skills that guarantee a better living among individuals (Dubey, 2016); empowering individuals with functional skills and knowledge required to cope with family life (Chibuzor, 2014); developing skills that individuals can apply in their familial and communal responsibilities (Tupac as cited in Chibuzor, 2014); and enabling individuals to realize health and happiness (McCloat & Caraher, 2018).

In Kenya, Home Science education has been practiced since 1904 when it was first introduced by wives of British Missionaries as an informal domestic education focusing on, imparting practical skills among women housekeepers (Wahome, 2005). The scope of the discipline has however expanded significantly to include content that focuses on homes, families and resources (Vyas & Shastvi, 2011); imparts life skills in students (Gadam, 2015); prepares the youth for handling household chores (Iregi, 2015); and prepares man for successful handling of family and communal life (Khaleel, 2015).

The utility of Home Science education has been experienced across the world in various ways. In the United States, Home Science which is recognized more as Home Economics has been used to expose families to alternative solutions to household and community issues (Dubey, 2016); Home science has been used to create awareness on societal issues in Europe and Asia; and to improve families quality of living in Ireland (McCloat & Caraher, 2018). In Australia, Canada, Malta and Scotland Home Science has been used in sustainable of development (Dewhurst & Pendergast, 2011); while in Finland, it has been integrated in other disciplines (Haapaniemi, 2019). The important role that Home Science education plays has also permeated the African continent where it has been used to raise the living standards of families and societies (Nyangara et al., 2010); and to address poverty (Arkhurst, 2005).

According to Smith and de Zwart (2010), Home Science as a discipline has been recognized and included in educational systems in almost all continents. Consequently, Home Science is a subject that requires teachers with the relevant skills and experience required to empower individuals with requisite functional skills. It is however noted that, Home Science teacher education continues to be faced with challenges in most nations which includes Scotland (Schofield, 2005); Canada (Smith & Dryden, 2005); the US (Wehan & Way,

2006); and Botswana (Bennel & Molwane, 2007) among others.

In Kenya, the challenge of Home Science teacher education revolves around a bloated curriculum and scarcity of resources. Evidence shows that the Home Science teacher education curriculum for primary teacher training colleges is overloaded and does not allow for mastery of concepts (Telewa, 2008). Moreover, the integration of Home Science with science and Agriculture as is done in the first year of training, opens the door for tutors without experience in Home Science to handle the subject; which then raises the question of quality of training (Iregi, 2015). The question of the quality of training is further brought in by the challenge of resources. According to Telewa (2008), Home Science teacher trainees are denied the required opportunity for hands on training due to lack of equipped training rooms that are needed for such training.

Ngware and Nafukho (as cited by Iregi, 2015) point out that materials and equipment used in Home Science are often very expensive and most teacher training colleges are not able to afford them (as cited in Iregi, 2015). The question of teacher competence is also highlighted among challenges facing Home Science teacher education in Kenya. It is noted that most tutors handing Home Science in teacher training colleges have no prior training in the subject and usually rely on the experience they gain while teaching it (Levira as cited in Iregi, 2015).

Although some universities in Kenya still offer the Home Science teacher education, concerns have persisted on their capability to impart quality training (Abwao, 2017; Appelton, 2016). Questions have arisen as to why interest in the subject is waning among students and why the number of universities offering Home Science teacher education has also decreased (Abwao, 2017; Iregi 2015). Considering that Home Science remains a critical discipline in family and community life, it becomes necessary to examine factors which determine quality outcome in Home Science teacher education in universities in Kenya. Such factors if known could be used to restore interest in the discipline and sustain development.

II. EMPIRICAL REVIEW AND HYPOTHESIS FORMULATION

2.1 Trainee Quality and Quality Output

The extant literature shows that learner quality measured in terms of conceptual knowledge (Ary et al., 2014; Osparuva, 2018); prior knowledge (Akareem & Hossain, 2016; Siswa et al., 2018); learner commitment (Okioma, 2012); metacognition (Fouche & Lamport, 2011; Jaleel & Premachandran, 2016); and motivation (Nahid & Mohammad, 2017) acts as a basis upon which the direction, content and assessment of learning is made (Santiago et al., 2012a; Dandy & Bendersky, 2014). The quality of students joining the home science teacher education program offered in universities in Kenya is however being questioned (Kafu, 2011; Wabwoba and Mwakondo, 2011). According to Wabwoba and Mwakondo (2011), the Joint Admission Board (JAB), a body mandated to conduct a joint admission of students into universities has at times placed students in courses they did not choose. When this happens, questions emerge as to whether such students have the motivation, commitment, prior knowledge and meta-cognitive potential required for the course. We therefore postulate that:-

$H_0$1: Trainee quality is not a significant antecedent of quality outcome in Home Science teacher education.

2.2 Training Environment and Quality Outcome

Learning environment has been recognized as the physical, psychological and instructional atmosphere that supports the learning process (Choi, Van Merrienboer & Paas, 2014). Evidence has shown that the physical environment that relates to facilities is critical to performance excellence (Putch, 2015). Moreover, the psychological environment that encompasses personality, morals and behaviour has been associated with positive learning outcomes among students (Lapsley & Woodbury, 2016). Instructional atmosphere on the other hand, is linked to class organization, mutual respect, and class control and has been associated with quality training (Salimi & Ramzani, 2014).

Despite the importance of the learning environment in quality outcome, the training environment in universities in Kenya especially the physical environment is not sufficient for effective training in Home Science. Evidence shows that most of the universities are constrained in terms of space (Ireri, 2015); and lack workrooms required for practical training (Nyangara et al., 2019). We therefore question the impact that the training environment is having on quality outcomes in Home Science teacher education. We posit thus:

$H_0$2: Training Environment is not a significant antecedent of quality outcome in Home Science teacher education.

2.3 Curriculum Design and Quality Outcome

The curriculum design has gained recognition as being critical to the direction that instruction takes (UNESCO, 2019). The international Bureau of Education (IBE, 2013) points out that achievement of quality education is a function of the calibration of the intended implemented and attained curricular. In Kenya, the Home Science Curriculum provides direction in domains such as health education, textiles, clothing, consumer education, and nutrition. The Home Science curriculum for teacher education aims at empowering teachers to be innovative and creative in finding and improvising materials and equipment for teaching the subject (Sempele et al., 2017).

Observations have however been made to the effect that, the Home Science teacher education curriculum as currently constituted has failed to meet the expectations of enhancing learner competencies (Sempele et al., 2017). Sempele and colleagues argue that societal needs and goals of development

are not adequately addressed by this curriculum. In view of these discrepancies, the fundamental question is what role the curriculum design plays in quality outcome in Home Science teacher education. Our postulation then is that:-

$H_0$3: Curriculum design is not a significant antecedent of quality outcome in Home Science teacher education

2.4 Instructional Process and Quality Outcome

Instructional process that takes cognizance of the impact of the auditory, visual and kinesthetic styles of learning on teaching has been well documented (Arbuthnott & Kratzig, 2015; Syofyan & Siwi, 2018). Ample evidence exists that show that individuals have diversity in preferences, capacities, and habits of processing new information (Kozhenvnikov, Evans & Kosslyn, 2014). According to Scott (2010), sensory modalities such as visual, auditory and kinesthetic vary across individuals necessitating instruction that recognizes them particularly in professional contexts such as Home Science education. It is however noted that teachers and educational departments are not able to design instructional methods that address these styles (Stahl, 1999).

Previous studies have however focused more on quality process (Longchamp, 2017); instructional quality (Brown & Kurzweil, 2018); quality assurance (Adamson et al., 2010); and effective teaching strategies (Jalbani, 2014) as indicators of instructional process. No study examines instructional process from the learning style perspective even when courses like Home Science teacher education require a variation of the training approaches. We therefore question the role of the instructional process that take recognition of teaching styles in quality outcome in Home Science teacher education. We posit that:-

$H_0$4: Instructional Process is not a significant antecedent of quality Home Science training outcome.

III. METHODOLOGY

The study adopted the confirmatory research design that is covariance based. Choice of this design was informed by the post positivist position that advocated for the cause–effect relationships involved in the prediction of antecedents of quality outcomes in Home Science teacher education. The study population comprised of 187 Home Science teacher trainees drawn from universities in Kenya. A sample of 126 Home Science teacher trainees was constituted by first stratifying across universities and then stratifying across the year of study. Simple random sampling was used to identify the required trainees from each university and year of study.

A self administered questionnaire with five sections was developed in line with the five latent variables under study and was used to collect data. Data was analyzed using Structural Equation Model (SEM) which is considered as a second generation regression analysis that allows for a simultaneous analysis of variables in a model (Chin, 1998). Choice of SEM was based on the latent nature of the variables under study and on the knowledge that SEM has previously been used for causal modeling involving latent variables (Amir, Mehdi, & Anuar, 2012). Variable definition and measurement is shown in Table 1.

Table 1 Variable Definition and Measurement

Variable	**Nature**	**Indicator**	**Measurement**
Quality outcome(**QO**)	Endogenous (latent)	✓ Acquisition of intended values (**QO1**) ✓ Acquisition of intended Skills (**QO2**) ✓ Acquisition of knowledge (**QO3**)	Ordinal scale
Trainee Quality (**TQ**)	Exogenous (Latent)	✓ Prior Knowledge (**TQ1**) ✓ Meta-cognition (**TQ2**) ✓ Motivation (**TQ3**)	Ordinal scale
Training Environment (**TE**)	Exogenous (Latent)	✓ Physical (**TE1**) ✓ Psychological (**TE2**) ✓ Instructional (**TE3**)	Ordinal scale
Curriculum Design (**CD**)	Exogenous (Latent)	✓ Curriculum goals (**CD1**) ✓ Curriculum constraints (**CD2**)	Ordinal scale
Instructional Process (**IP**)	Exogenous (Latent)	✓ Visual (**IP1**) ✓ Aural (**IP2**) ✓ Kinesthetic (**IP3**)	Ordinal scale

3.1 Measurement Model

The proposed measurement model (Fig. 1) had five latent variables consistent with the constructs under study. Three indicators were each regressed on trainee quality, training environment, instructional process and quality outcome. Curriculum design had only two indicators regressed on it. Random errors that are a result of variable measurement were depicted using associated error terms.

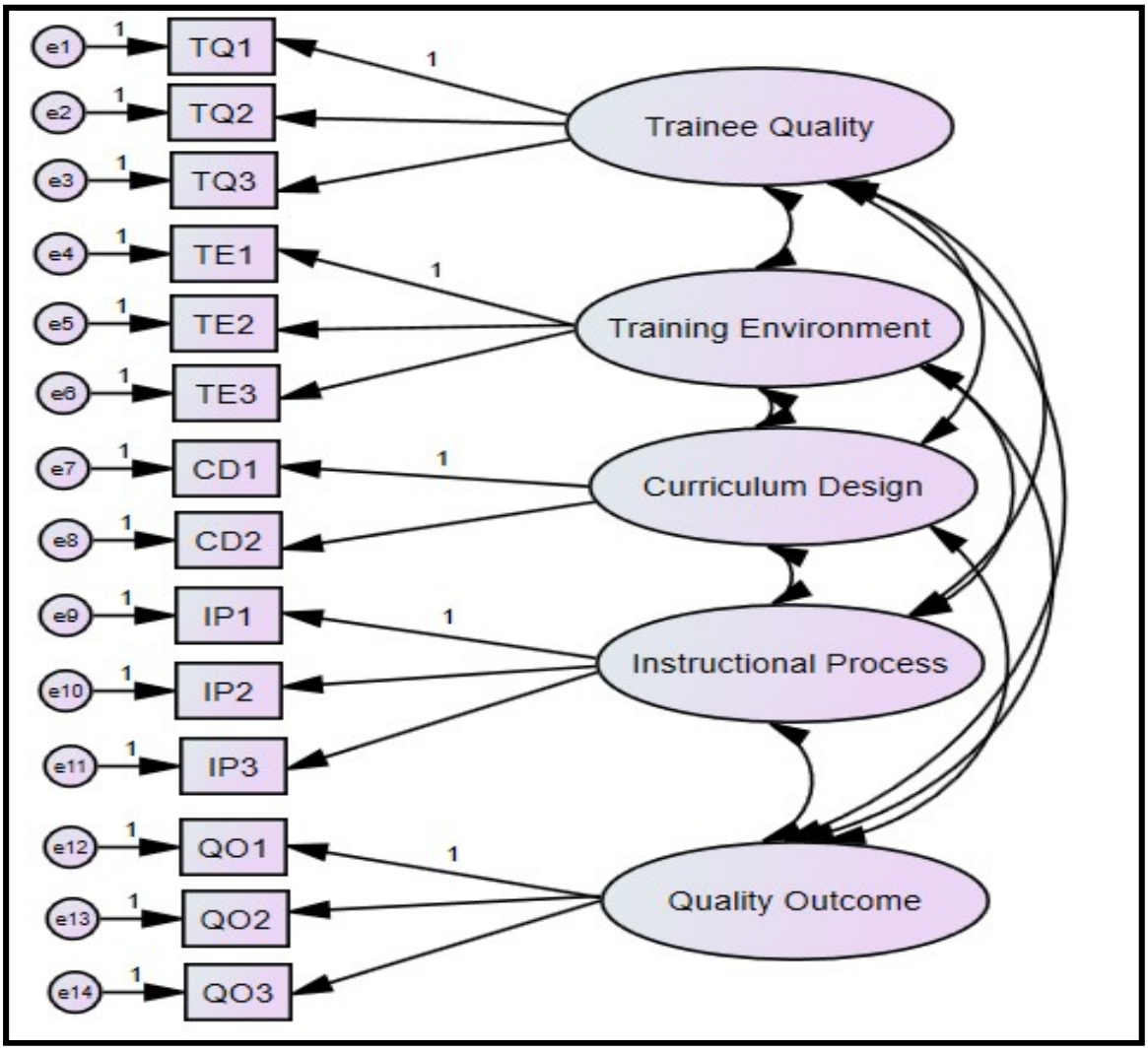

Fig. 1 Measurement model

Validation of the measurement model was conducted through the Analysis of Moment Structures (AMOS) version 18 previously used in covariance based structural equation models (Butler, 2014). Model evaluation was done using the 'goodness of fit' criterion that sought to find out how the conceptualized measurement model fitted the sample data. Three categories of fit indices which included absolute, incremental and parsimony indexes were employed in testing the model fit. The following indices recommended by Cheung and Rensvold (2009) were used to validate the default indices (Table 2).

Table 2

$\chi^2 sig.$	χ^2/df	GFI	$AGFI$	NFI	RFI	CFI	$RMSEA$
$p \leq 0.05$	< 5.0	$\geqslant 0.90$	$\geqslant 0.90$	$\geqslant 0.90$	$\geqslant 0.90$	> 0.90	< 0.05

Source: Cheung & Rensvold (2009)

3.2 The Structural Model

The proposed structural model indicated the SEM path model showing the direct effects of the suggested antecedents and quality output in Home Science teacher education (Fig 2). Trainee quality, training environment, curriculum design and instructional process were exogenous variables being regressed on quality outcome which was the endogenous variable.

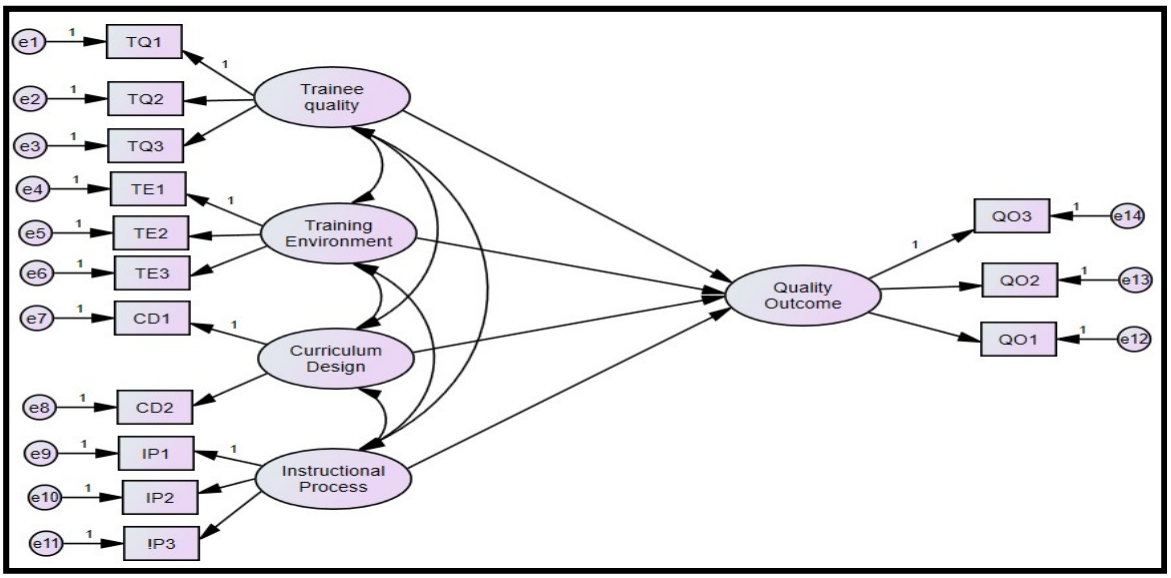

Figure 2 Structural Model

The structural model was validated following similar guidelines to those used in the measurement model. Consequently, the default model fit indices were compared to those suggested by Cheung and Rensvold (2009). If it was necessary to modify the model as suggested by modification indices, the modifications were done until a fitting model was achieved. The path estimates (Standardized regression weights) and the variance explained (R^2 value) were used to test for causation and power.

IV. RESULTS

The reported results relate to validation of both the measurement and structural models, as well as, on the path diagram showing the regression weights of the postulated relationships between the exogenous variables and the endogenous variable.

4.1 Validation of the measurement model

Unidimensionality was achieved for trainee quality, training environment, curriculum design, and quality outcome. All factor loadings for these constructs were above o.5, and were positive (Awang, 2015). In the case of instructional process, the indicator IP2 (Aural learning style) had a factor loading of 0.42 which was less than 0.5 (Fig 3).

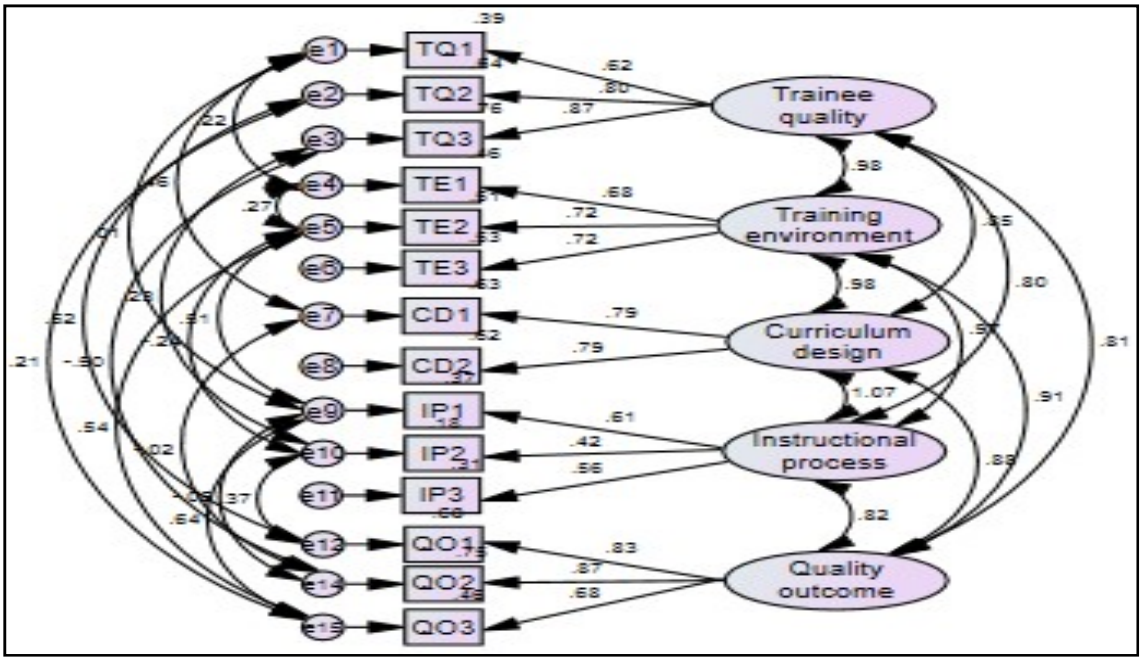

Fig.3 Modified Measurement Model

Discriminant validity was achieved by deleting the aural learning style indicator which was redundant. A comparison of default measurement indices with those suggested by Cheung and Rensvold (2009) revealed that the default indices were largely within the acceptable limits (Table 3), an indication that construct validity had been achieved.

Table 3 Fit Indexes for Measurement and Structural Models

Fit Category	Name of Index	Level of Acceptance	Default measurement model	Default Structural model
Absolute fit	Chi-square	$p - value < 0.05$	0.044	0.034
	RMSEA	$\text{RMSEA} < 0.08$	0.056	0.037
	GFI	$\text{GFI} > 0.90$	0.925	0.964
Incremental fit	AGFI	$\text{AGFI} > 0.90$	0.848	0.911
	CFI	$\text{CFI} > 0.90$	0.982	0.996
	TLI	$\text{TLI} > 0.90$	0.968	0.991
	NFI	$\text{NFI} > 0.90$	0.936	0.979
Parsimonious fit	Chisq/df	Chisq/df< 3.0	1.358	1.256

4.2 Validation of the Structural Model

The goodness fit test of the initial default structural model revealed a not too good fit. This necessitated modification using the modification indices. The modified structural model was now found to fit the data well (Table 3). It comprised of correlated error terms as suggested by modification indices (Fig 4).

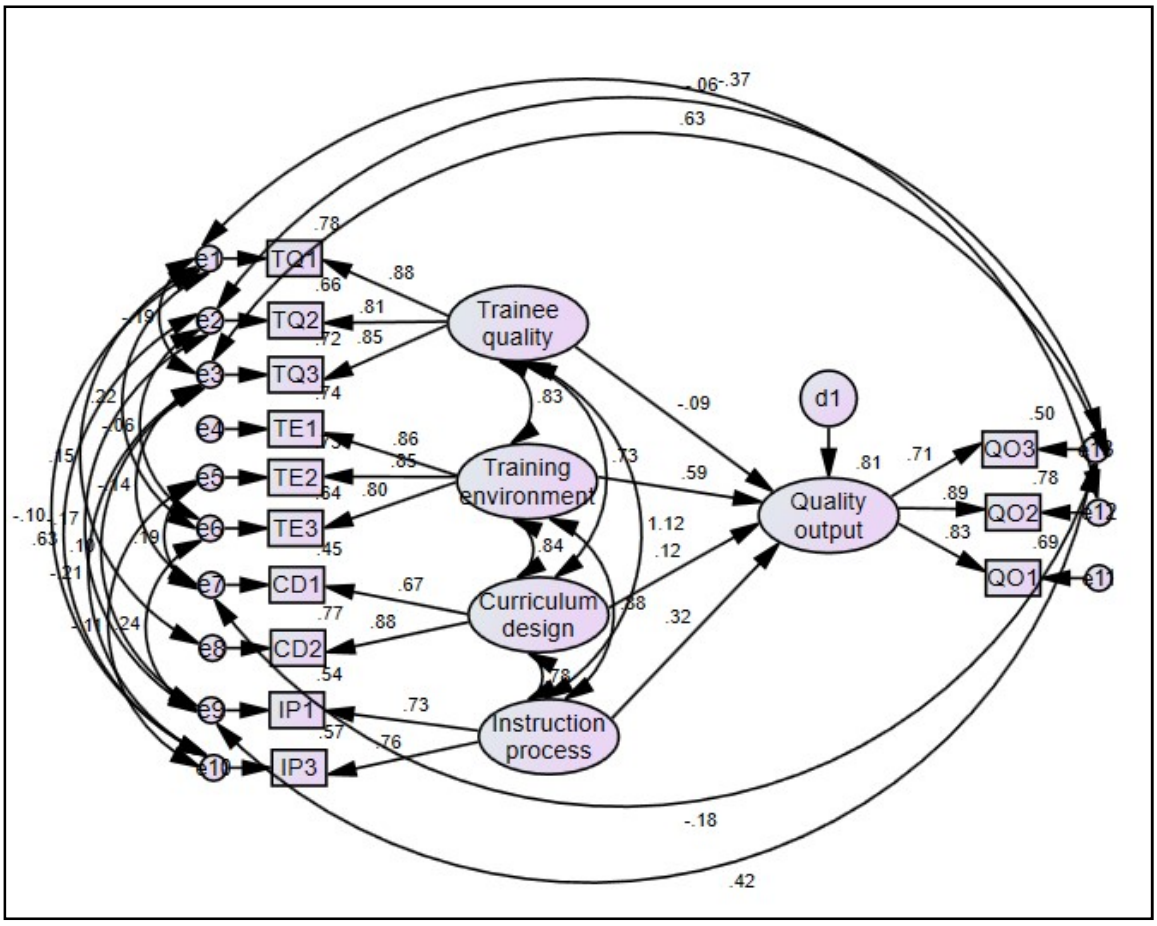

Figure 4 Modified Structural Model

4.3 Hypotheses Test Results

The resultant path diagram presented in Fig 5 confirmed the following hypothesis test results. Hypothesis $H_0$1 was supported, an implication that trainee quality was not a significant antecedent of quality outcome in Home Science teacher education in the context of universities in Kenya (β=-0.09, p=0.527); Hypothesis $H_0$2 was not supported. Training environment was a positive and significant antecedent of quality outcome in Home Science teacher education in the context of universities in Kenya (β=0.538, p<0.005); Hypothesis $H_0$3 was supported. Curriculum design was not a significant antecedent of quality outcome in Home Science teacher education in the context of universities in Kenya (β=0.142, p=0.339); Hypothesis $H_0$4 was not supported. Instructional process was a positive and significant antecedent of quality outcome in Home Science teacher education in the context of universities in Kenya (β=0.315, p<0.026).

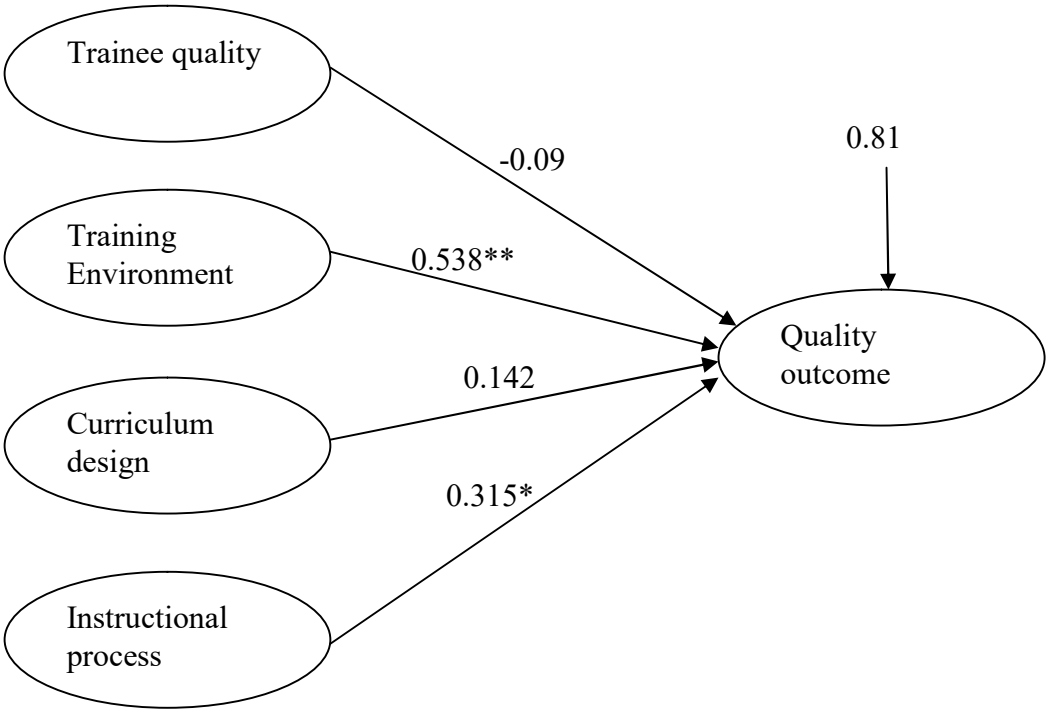

Figure 5 Path diagram

V. DISCUSSIONS

Findings in this study revealed that training environment and instructional process were significant antecedents to quality outcome in Home Science teacher education in universities in Kenya. However, contrary to expectations, trainee quality and curriculum design were not significant antecedents to quality outcome in Home Science teacher education in this context. The implication of these findings is that training environment and instruction process account for most of the quality expected in Home Science teacher education in Kenyan Universities. Indeed the importance of the learning environment and instructional process in teaching and learning has been well documented (Kidron, 1999; Paas et al., 2015; Putch, 2015).

According to Putch (2015), the physical learning environment that relates to facilities is very critical in practical oriented disciplines like Home Science. In fact, Paas et al., (2015) contend that the Home Science class is special in the sense that it requires unique furniture and equipment. The finding that the training environment determines quality of training outcome in Home Science teacher education in Kenyan universities is therefore consistent with findings which argue that well functioning environments, have the flexibility to simplify the learning process. This then explains why it was likely that the instructional process could be a significant antecedent of quality training output. Kidron (1999) avers that the instructional process works in tandem with the environment through quality interaction that increases student's concentration.

The finding that trainee quality was not a significant antecedent to quality outcome was rather surprising, but goes on to vindicate the decision by the joint admissions board (JAB) to place students in courses which they did not select or have interest in (Wabwoba & Mwakondo, 2011). In an article titled 'Help! This is not the course I wanted to study'

appearing in the Daily Nation dated May 19, 2017, Victor who had hoped to study pharmacy but was picked to study microprocessor technology stated that "I do not believe that what you study is what you must eventually do. I have found out that it is important to keep your options open. It helps to adjust quickly when the door closes on your choice". The implication in Victor's thoughts is that, besides trainee quality in terms of prior knowledge and meta-cognitive potential being necessary, remaining positive could be a factor in quality outcome.

The finding showing that the curriculum is not a significant antecedent of quality output in home science teacher education though surprising, mirrors concerns that have been raised with regards to whether or not, the curriculum as constituted in universities plays any role to the existential situation (Ntabo, 2015). According to Ntabo in a paper presented at the 7th Annual Ethics conference, the model of education in Kenya's institutions of higher learning lacks practical skills, character formation and relevant training for survival in the society. Ntabo (2010) contents that the education in these institutions fails to prepare individuals adequately in required skills making most graduates to be unable to sustain themselves in society. These assertions by Ntabo, points to inability of the curriculum to guarantee quality outcomes and corroborates the finding of this study with regards to the curriculum design.

VI. CONCLUSION

Quality outcomes in Home Science teacher education translates to capability of trainees' to acquire intended knowledge, intended skills, intended values, and to connect theory to practice. This no doubt requires the enabling environment in terms of the physical facilities, psychological well being and instructional atmosphere. The instructional process that takes cognizance of the various learning styles complements quality output in this important discipline. The curriculum design should however be keener on practical skills and relevant training that can enable survival in the society. Besides, although placement of students in courses they had not selected does not hinder quality outcomes, it would be prudent to allow students to pursue courses of their interests.

REFERENCES

[1]. Abwao, L.K. (2017). Influence of Classroom Practice of Home Science on Employability among the Youth in Kakamega County, Kenya. *Journal of Education and Practice*, 8(13).

[2]. Adamson, L. (2010). Teaching for Quality in the Knowledge Triangle –how do we do it? European Institute of Innovation and Technology, EIT, Education Conference, '*The role of the EIT in the Education Landscape*', Leuven -2 & 3 December 2010.

[3]. Akareem, H. S., & Hossain, S. S. (2016). Perception of education quality in private universities of Bangladesh: A study from students' perspective. *Journal of Marketing for Higher Education, 22*(1), 11–33. doi: 10.1080/08841241.2012.705792

[4]. Amir,M.K. Mehdi & Anuar M.K. (2012). Structural equation modeling VS multiple regression the first and second generation of multivariate techniques. *Eng Sci Technol An International Journal*

[5]. Appleton, K. (2016). Elementary science teaching. *Handbook of research on science education. Mahwah, NJ: Lawrence Erlbaum Associates.*

[6]. Arbuthnott, Katherine & Kratzig, Gregory. (2015). Effective teaching: Sensory learning styles versus general memory processes 1. Innovative Teaching. 4. Article 2. 10.2466/06.IT.4.2.

[7]. Arkhurst, A. E. (2005). Addressing Poverty in Ghana: The Role of Home Economics Education. *African Journal of Educational Studies in Mathematics and Sciences* Vol. 3; University of Education, Winneba, Ghana.

[8]. Ary, D., Jacobs, L. C., & Razavieh, A. (2014). *Introduction to research in education*, 10th edition. USA: Wards Worth.

[9]. Awang, Z. (2015). *SEM made simple: A gentle approach to learning Structural Equation Modeling*. MPWS Rich Publication.

[10]. Bennell P. & Molwane, A.B. (2007). *Teacher Supply And Demand For Botswana Primary And Secondary Schools:* 2006—2016.

[11]. Brown, J. & Kurzweil, M. (2018). Instructional Quality, Students Outcomes and Institutional Finances. *American Council on Education One.* Dupont Circle NW Washington, DC 20036.

[12]. Butler, M.J.R. (2014), "Operationalizing interdisciplinary research – a model of co-production in organizational cognitive neuroscience", Frontiers in Human Neuroscience, 7:720. doi: 10.3389/fnhum.2013.00720.

[13]. Cheung C.W and Rensvold,R.B (2009). Evaluating goodness-of-fit indexes for testing MI Structural Equation Modeling, 9 (2002), pp. 235-255

[14]. Chibuzor, A. N. (2014). Enhancing Creativity in Entrepreneurship through Home Economics Education in Nigeria. *American International Journal of Contemporary Research* 4(6):104-107.

[15]. Chin, W.W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295-336). Mahwah, NJ: Lawrence Erlbaum Associates.

[16]. Choi, H., & Van Merrienboer, J. G. & Paas, F. (2014). Effects of the Physical Environment on Cognitive Load and Learning: Towards a New Model of Cognitive Load. *Educational Psychology Review*. 26. 225-244. 10.1007/s10648-014-9262-6

[17]. Dandy K., Bendersky K. (2014). Student and faculty beliefs about learning in higher education: implications for teaching. *Int. J. Teach. Learn. High. Educ.* 26 358–380.

[18]. Dewhurst, Y. & Pendergast, D. (2011). Teacher perceptions of the contribution of Home Economics to sustainable development education: A cross-cultural view. *International Journal of Consumer Studies*. 35. 569 - 577. 10.1111/j.1470-6431.2011.01029.x.

[19]. Dubey S. (2016). Analyzing the Home Science Curriculum and its Perceptions Amongst its Stakeholders, *International Journal of Advanced Research in Education & Technology* (IJARET). University of Delhi, New Delhi, India.

[20]. Fouché, Jaunine and Lamport, Ph.D., Mark A. (2011) "Do Metacognitive Strategies Improve Student Achievement in Secondary Science Classrooms?," *Christian Perspectives in Education*, 4(2). Available at: http://digitalcommons .liberty.edu/cpe/vol4/iss2/4

[21]. Gadam, S. (2015). *Home science provides many career opportunities*, article in the Hindu, on 6th January, 2015. Retrieved fromhttp://www.thehindu.com.

[22]. Haapaniemi, J., (2019). Home economics education: exploring integrative learning, *Educational Research*, 61:1, 87-104, DOI: 10.1080/00131881.2018.1564626.

[23]. Iregi, I.M. (2015). Challenges Faced in Teaching of Home Science in Primary Teacher Training Colleges in Embu and Meru Counties, Kenya. *Masters' Thesis* submitted to Kenyatta University.

[24]. Jaleel, S., & Premachandran., P. (2016). A Study on the Metacognitive Awareness of Secondary School Students.

[25]. Laraib Nasir Jalbani (2014), The Impact of Effective Teaching Strategies on the Students' Academic Performance and Learning Outcome, Munich, GRIN Verlag, https://www.grin.com/document/300046.

[26]. Kafu, P. A. (2011). Teacher education in Kenya: emerging issues. *International journal of Curriculum and Instruction*, *1*(1), 43-52.
[27]. Khaleel M.A. (2012). Strategizing to Strengthen the Economy: The Position of Vocational and Technical Education (*Home Economics Education*). A Paper Presented to the School of Vocational and Technical Education F.C.E, Zaria 6th March, 2012.
[28]. Kidron A. (1999). 122 õpetamistarkust. (122 Teaching Wisdoms). Tallinn, Andra ja Mondo.(In Estonian).
[29]. Kozhevnikov, M. & Evans, C. & Kosslyn, S. (2014). Cognitive Style as Environmentally Sensitive Individual Differences in Cognition: A Modern Synthesis and Applications in Education, Business, and Management. *Psychological Science in the Public Interest.* 15. 3-33. 10.1177/ 1529100614525555.
[30]. Lapsley, D. & Woodbury, R. (2016) Moral-Character Development for Teacher Education, Action in Teacher Education, 38:3, 194-206, DOI: 10.1080/01626620.2016.1194785
[31]. Longchamp, J.C. (2017). "The Effect of Student Learning Objectives on Teachers and Teaching as Part of the Teacher Evaluation Process: *A Grounded Theory Study*". Graduate College Dissertations and Theses. 734
[32]. McCloat A. & Caraher M.(2018). The evolution of Home Economics as a subject in Irish primary and post-primary education from the 1800s to the twenty-first century. *Journal of Irish Educational Studies* Volume 38, 2019 - Issue 3.
[33]. Nahid M. T., & Mohammad R. A. (2017). The Effect of Learners' Motivation on Their Reading Comprehension Skill: A Literature Review. *International Journal of English Education,* 2(3): 10-21.
[34]. Nyangara, K. N, Indoshi F. C. & Othuon L. O., (2010)**.** Impact of educational policy changes on Home Science education in secondary schools in Kenya: 1981 to 2005. *International Journal of Vocational and Technical Education.* Vol. 2(5), pp. 82-88, September 2010 Available online at http://www.academicjournals.org /IJVTE ©2010 Academic Journals.
[35]. Okioma, M. L. (2012). *A study of the preparation of regular primary school teacher trainees to handle exceptional children* (Doctoral dissertation).
[36]. Ospanova, N. (2018). The Influence of Concept-Based Teaching on High School Students' Research Skills. *HAMK Unlimited Journal* 14.8.2018. Retrieved [date] from https://unlimited.hamk.fi/ammatillinen-osaaminen-ja-opetus/concept-based-teaching-and research-skills.
[37]. Paas, K.; Taar J.; Merike M.; KaringM. (2015). The physical Learning Environment of Home Economics Classes –Estonian Teachers' and Pupils' Opinions. Rural environment. Education. Personality ISSN 2255-808; jelgava, 15 .-16.0 5 2015.
[38]. Puteh, Marzita & Che Ahmad, Che Nidzam & Noh, Noraini & Adnan, Mazlini & Ibrahim, Mohd Hairy. (2015). The Classroom Physical Environment and Its Relation to Teaching and Learning Comfort Level. *International Journal of Social Science and Humanity*. 5. 237-240. 10.7763/IJSSH.2015.V5.460.
[39]. Salimi, J., & Ramzani, G. (2014). Identifying Effective Teaching Factor and Evaluating Teaching Status (Case Study at University of Applied Sciences in Kordestan). *Journal of Measurement and Evaluation of Training*.
[40]. Santiago, P., Donaldson, G., Looney, A. & Nusche, D. (2012a), OECD Reviews of Evaluation and Assessment in Education: Portugal, OECD Publishing, Paris, www.oecd.org/edu/evaluationpolicy.
[41]. Schofield, P. (2005). A Companion to Qualitative Research. https://doi.org/10.1111/j. 1365-2648.2005.03486
[42]. Scott, D., & Usher, R. (2010). Researching education: Data, methods and theory in educational enquiry. *Bloomsbury Publishing*.
[43]. Sempele, C., Otunga R., Natade J. (2017). Relationship between curriculum content and course objectives: A case of Home Science education in Kenya. *International Journal of Advanced Education and Research.* ISSN: 2455-5746, Impact Factor: RJIF 5.34 www.alleducationjournal.com Volume 2; Issue 4; July 2017; Page No. 04-11.
[44]. Siswa A. N. van Riesen, Hannie Gijlers, Anjo Anjewierden & Ton de Jong (2018). The influence of prior knowledge on experiment design guidance in a science inquiry context, *International Journal of Science Education*, 40:11, 1327-1344, DOI: 10.1080/09500693.2018.1477263
[45]. Smith G. & Dryden A. (2005). The changing nature of students entering home economics / family studies. B.Ed Programme. Canadian Association in Home Economics research. *Annual Meeting with the Congress of the Social Services and Humanities*, London, ON.
[46]. Stahl, S.A. (1999). Vocabulary development. Newton Upper Falls, MA: Brookline Books.
[47]. Syofyan, R. & Siwi, K. M. (2018). The Impact of Visual, Auditory, and Kinesthetic Learning Styles on Economics Education Teaching. 10.2991/piceeba-18.2018.17.
[48]. Telewa (2008), Implementing English Curriculum: Final Report of a seminar held in NewDelhi.
[49]. Vyas and Shastri, (2011). Home science consists of home and science AJHS. Employment opportunities in home science education. A Case Study.
[50]. Wabwoba, F. & Mwakondo, F. (2011). Students Selection for University Course Admission at the Joint Admissions Board (Kenya) Using Trained Neural Networks. *Journal of Information Technology Education* Volume. 10. 10.28945/1529.
[51]. Wahome G. O (2005). Secondary School perception of Home Science Subject in Nairobi Province.
[52]. Werhan, C.,& Way, W.L.(2006). ―Family and consumer sciences programs in secondary schools: Results of a national survey. Journal of Family and Consumer Science,98(1), 19–25.