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By Esther Gacicio, Christopher Gakuu & Harriet J. Kidombo

University of Nairobi

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Keywords: *teacher self-efficacy, transformational leadership style, ICT integration in teaching and learning.*

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The Moderating Role of Teacher Self-Efficacy in Technology on the Relationship between Transformational Leadership Style and ICT Integration in Teaching and Learning

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Abstract- In spite of the trainings mounted by the government and other stakeholders in Education to capacity build the teachers in using technology the uptake has been low. Previous studies report that the integration of Information, Communication and Technology (ICT) into the curriculum remains problematic in the school context. Some of the problems encountered in the process of integrating ICT into the curriculum are school leaders' perceptions of ICT. It is against this backdrop that the present study sought to investigate how transformational leadership style predicts ICT integration in teaching and learning in public primary schools in Nairobi County and the moderating role of teachers' self-efficacy on technology and school environment respectively. The target population for this study comprised of 6150 teachers drawn from public primary schools in Nairobi County. The study was conducted in a sample of the public primary schools in the eleven sub-counties of Nairobi County namely; Embakasi, Makadara, Kamukunji, Starehe, Njiru, Kasarani, Westlands, Langata, Kibra, Mathare and Dagoretti. Simple random sampling from the target was employed in the study. Teachers responded to a structured questionnaire while the head teachers had an in-depth interview. An observation checklist was also used to assess resources used by the teachers for ICT integration. Both descriptive and inferential analysis were employed. Findings indicate that teacher self-efficacy in technology exhibits a significant moderating effect of the relationship between transformational leadership style and ICT integration ($F(2, 282) = 58.721$, p-value < 0.001). The study recommends that school administrations as well as teacher management under the Teachers Service Commission develops and executes programs to reinforce teachers' efficacy in the adoption, use and innovation in technology.

Keywords: teacher self-efficacy, transformational leadership style, ICT integration in teaching and learning.

I. Introduction

The demand for a well-educated workforce has driven many countries to reengineer their education systems. An education system has to be suited to the demands of the technological age so that a competitive edge can be maintained. Accordingly, the digital age has not simply changed the nature of resources and information; it has transformed several basic social and economic enterprises. Contemporary society-the settings where we live, work, and learn-has likewise changed dramatically. Both the amount of information and access to it has grown exponentially; a significant potential for using varied resources in numerous ways for instruction and learning has emerged (Hill, 2011).

The effective use of the wide range of facilities offered by ICT opens up unprecedented opportunities for invigorating learning and teaching in our schools and improving pupils' attainment in coursework across the whole curriculum. Indeed, the thinking on the nature of the curriculum itself is likely to be challenged as the use of ICT becomes more effective and widespread. The reformed curriculum that Kenya is experiencing at the moment is edged on the nurturing every child's potential. Central to the competencies that it addresses is the digital literacy that is entrenched in every learning area (Basic Curriculum Framework, 2016). Besides, the government's initiative of deploying digital devices to all standard one pupils in Primary schools in Kenya is another indicator of how fast ICT is invigorating teaching and learning process in Kenya.

Both the school leadership and teachers are at the centre of this teaching and learning process. School leadership plays a key role in improving school's outcomes by influencing the motivation and capacities of teachers as well as the school environment and environment (Bush, 2015). The head teacher must employ inclusive kind of leadership where they will involve other people as a team. This team gets a deliberate opportunity to contribute to the vision, culture and climate of the school and thus the head teacher has a duty to create the opportunities to make this happen and teachers partly determine the leadership styles of the head teacher (Mutula, 2016). As a leader, the head teacher has the power to influence job satisfaction among the teachers under them. Leadership styles or traits are the characteristic way in which a leader uses power, makes decision, and interacts with others. The transformational headteachers has been particularly found to favor innovative teaching and learning practices ((Kouzes, 2009; Bush, 2015; Kunwar, 2011; Farah, 2011).

Like headteachers, teachers are also pertinent in the successful integration of ICT into teaching and learning. With the advent of technology in teaching and learning, it has become imperative that the teachers embrace the use of ICT to boost their efficacy. With the dynamism in technology, it is possible that teachers face difficulties in adopting technology in their work. Previous studies have identified several reasons for this

Author α σ ρ: School of Continuing and Distance Education, University of Nairobi, Kenya. e-mails: egacicio@gmail.com, cmgakuu@uonbi.ac.ke, hkidombo@uonbi.ac.ke

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underutilization of technology including but not limited to lack of resources, lack of training, philosophical beliefs about technology, and lack of time to experiment with technology tools (Compeau & Higgins, 1995; Kellenberger & Hendricks, 2013; Littrell, et al., 2015; Teo, 2009; Wang, Ertmer, & Newby, 2014). Further, many researchers attribute underutilized technology to teachers' lack of self-efficacy in incorporating such resources into their classrooms (Kellenberger, & Hendricks, 2013). Against this background, we set out to investigate the association among the transformational leadership style, teacher self-efficacy in technology and ICT integration in teaching and learning.

a) Transformational Leadership Style and ICT Integration in Teaching and Learning

Literature reveals that in its current form, the full range leadership has shown leaders as having five transformational leadership attributes, three transactional leadership attributes, and one non transactional laissez-faire leadership. Transformational leadership is a model of leadership where the leaders inspire members to go beyond their task requirements. Burns (1978) defined a transforming leader as one who: '(1) raises the followers' level of consciousness about the importance and value of designated outcomes and ways of reaching them; (2) gets the followers to transcend their own self-interest for the sake of the team; (3) raises the followers' level of need on Maslow's (1954) hierarchy of needs, from lower-level concerns for safety and security to higher level needs for achievement and self-actualization' (Bass, 2008). A transformational leader on the other hand is capable of delivering performance beyond expectations (Bass, 1985) by (1) raising followers level of awareness of the importance of achieving valued outcomes and the strategies for reaching them, (2) encouraging followers to transcend their self-interest for the sake of the team, organization, or a larger cause and (3) developing associates' needs to higher levels in such areas as achievement, autonomy, and affiliation, which can be both work related or outside work related.

In the school context, transformational leadership (Kouzes, 2009) refers to leadership skills in those head teachers who can pioneer the school to a new level at the hinge of school development. Of all leadership styles, transformational leadership is found to have the strongest positive impact on school environment. This is because the head teacher's motive is to empower the teachers as partners and both the head teacher and teachers are guided by a shared vision. Staff members depend on one another and work together as a team. While technology infrastructure is important, ICT leadership is even more necessary for effective ICT implementation. Head teachers are aware of the fact that creating a positive and supportive climate is one of the important aspects of their responsibilities. Moreover, they believe that the climate among and between teachers is one of the factors with which to measure school success (National Association of Secondary School Head teachers (NASSP) 2001: 51-52). Therefore, it can be suggested that head teachers should embrace a transformational style of leadership. It is assumed that this style of leadership would be effective in creating a goal-oriented atmosphere in the school.

b) Teachers Self Efficacy in Technology

Holden and Rada (2011) suggested that by increasing teachers' technology self-efficacy, they might directly increase their acceptance of technology and also indirectly increase their usage of technology. In which case therefore there will be more teachers enrolled in online courses since they will be confident in using ICTs. Furthermore, Brown, Holcomb and Lima (2010) asserted that technology self-efficacy has come to play a crucial role in the preparation and implementation of educators who can successfully use educational technology to enhance learner learning. How would teachers increase technology efficacy in order to adopt ICT in Teaching and learning? In her study, Farah (2011), gathered that professional development opportunities are critical to teachers adopting use of technology. This entails more targeted and specialized teacher training on instructional technology and increased knowledge of and access to instructional technology tools and resources. Further increased teacher collaboration with a focus on instructional technology and creating opportunities for teacher observations and demonstrations would enhance adoption of technology. In my opinion, teachers prefer to work together as teams. They gain a lot in sharing their experiences as well as challenges that they face as they execute their duties. This aspect of sharing is backed Farah's (2011) research.

Through increased teacher collaboration with a focus on instructional technology, teachers would have the opportunity to share, discuss, and explore ways to integrate instructional technology in their instructional practice. This agrees with Duncan's (2010) view where he identified the need to connect teachers and leverage technology to enable us to build the capacity of teachers. He also discussed the benefit of online learning communities which would create opportunities for teachers to collaborate with peers, as well as reach out to experts all over the world. Elimika course is one such platform offered by the Kenya Institute of Curriculum development (KICD) where teachers can interact.

c) ICT Integration in Teaching and Learning

Kenya has realized the importance of embracing technology in learning and has made tremendous steps towards integrating it in education. The government of Kenya is devoted to the utilization of

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ICT which includes digital information technologies, and other resources to enhance access to learning for all Kenyans as indicated in its strategic plan (GOK, 2016). The government has developed a National policy that led to the development of National ICT strategy for education and training (2016). This strategy outlines the implementation of use of ICT in teaching and learning process. It further reinforces the government desire to use ICT to facilitate education.

Consequently, there has been continuous deployment of ICT infrastructure to schools and learning institutions. Some of the initiatives along this line include the NEPAD e-schools (2015); the e-schools initiative; the Multi-media lab project (TELEVIC); the ESP-ICT Computer for schools project (2010 -2012); the Accelerating 21st Century Education (ACE) project (2010-2012); Tafakari Project in TTCs; the Badiliko Project (British Council) and the Holistic Model project (2011-2012). The most recent of these initiatives is the Digital Literacy program (DLP) where learning devices have been deployed in all the primary schools in Kenya for the standard one pupils. This deployment is coordinated by ICT authority and is one of the flagship projects of the Government of Kenya.

Further, to provide coordination and harmonization of initiatives in education, the State Department of Education established ICT4E unit and Team. This has provided continued guidance on public-private partnerships to mobilize resources for ICT in education. Besides, the government through Kenya Institute of Curriculum development has developed digital content for Primary and Secondary Schools for use by the learners in the ICT integration in Education. Accordingly, there is a wide range of ICT initiatives and projects ongoing in Kenya focused on e-infrastructure with the aim of boosting the adoption of ICT in public primary schools not only in Nairobi County, but across the country. Key among these include the Digital Learning Programme (DLP) initiated by the Government of Kenya in 2013. The programme targets learners in all public primary schools and is aimed at integrating the use of digital technologies in learning. Under the programme, 75,000 public primary school teachers have been trained as at October 2018 in readiness for the project implementation (GoK, 2019).

However, given the milestones achieved so far in ICT integration in education in Kenya, and also the efforts put in place to ensure that technology is in use in the Kenyan schools, teachers have been slow in adopting use of ICTs in teaching and learning indicated by low uptake levels (MOE, 2012). The British Educational Communications and Technology Agency (2014) reported that only few teachers succeed in integrating ICT into subject teaching in a fruitful and constructive way that can promote learners' conceptual understandings and can stimulate higher-level thinking and reasoning. The report further states that in most of the cases, teachers just use technology to do what they have always done, although in fact they often claim to have changed their teaching practice. Further, a number of teachers report that they do not feel comfortable with the ICT integration in subject teaching, since their role was predetermined and designed by educational authorities and teachers feel that they face a lack of professional autonomy (Olson, 2010). Although the government has provided a national roadmap ICT policy, financial plan for ICT use in schools that requires its relevant extraction and implementation by key school leaders including the deployment of digital devices in all the Primary schools in Kenya through DLP. Despite these road maps developed by the government to implement ICT-based curriculum and instruction in schools, the situation in many schools in Kenya is that many of these schools are not effectively implementing ICT in curriculum and management as intended.

Previous studies (Keiyoro, 2011; Manduku et al., 2012; Ling, 2013) report that the ICT integration into the curriculum remains problematic in the school context. Some of the problems encountered in the process of integrating ICT into the curriculum are school leaders' perceptions of ICT and teacher competency. Further, extant studies with respect to ICT integration in teaching and learning have been narrow in their conceptualization, focusing on among others, factors influencing effective use of ICT in teaching and learning (Keiyoro, 2011); Adoption and use of ICT in enhancing management of public secondary schools (Manduku et al., 2012); Constrains in the use of ICT in teaching and learning (Gikonyo, 2012); and the relationship between head teachers' access to ICT and school performance (Mutula, 2016).

It is against this backdrop that the present study sought to establish the extent to which transformational leadership style influences ICT integration in teaching and learning in public primary schools; to establish the extent to which teacher efficacy in technology influences integration ICT in teaching and learning in public primary schools; and to examine the moderating influence of teacher self-efficacy in technology on the relationship between transformational leadership style and integration of in teaching and learning in public primary schools.

II. Literature Review

a) ICT Integration in Teaching and Learning

For technology to be seamlessly integrated in teaching and learning, it is important that teachers are well versed with technology to the extent that they have confidence to use it in the classroom. Holden and Rada (2011) suggested that by increasing teachers' technology self-efficacy, they might directly increase their acceptance of technology and also indirectly increase their usage of technology. Furthermore, Brown,

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Holcomb and Lima (2010) asserted that—technology self-efficacy has come to play a crucial role in the preparation and implementation of educators who can successfully use educational technology to enhance learner learning. How would teachers increase technology efficacy in order to adopt ICT in Teaching and learning? Exposure to technology as well as interest in using it would help boost the teachers' self-efficacy in technology. Constant use of the same would give them the confidence they require in its usage. In her study, Farah (2011), gathered that professional development opportunities, more targeted and specialized teacher training on instructional technology and increased knowledge of and access to instructional technology tools and resources are key to teachers adopting use of technology. She further noted that increased teacher collaboration with a focus on instructional technology and creating opportunities for teacher observations and demonstrations.

Through increased teacher collaboration with a focus on instructional technology, teachers would have the opportunity to share, discuss, and explore ways to integrate instructional technology in their instructional practice. This agrees with Duncan's (2010) view where he identified the need to connect teachers and leverage technology to enable us to build the capacity of teachers. He also discussed the benefit of online learning communities which would create opportunities for teachers to collaborate with peers, as well as reach out to experts all over the world. Because teachers are in the trenches teaching learners, they can easily relate to other teachers and provide significant support to their colleagues to help promote effective uses of instructional technology. These ideas are consistent with one of the goals presented in Georgia's technology plan, which states the need to increase teachers' proficiency to use technology effectively in order to enhance learner learning (Georgia Department of Education, 2013).

Different categories have been used by researchers and educators to classify factors that influence teacher use of ICT in teaching. Sherrr and Gibson (2012) claims that technological, individual, organizational and institutional factors should be considered when examining ICT adoption and integration. Rogers identified five technological characteristics or attributes that influence the decision to adopt an innovation namely Relative Advantage, Compatibility, Simplicity, Triability and Observability (Rogers, 2013). Stockdill and Morehouse (2012) also identified user characteristics, content characteristics, technological considerations, and organizational capacity as factors influencing ICT adoption and integration into teaching. Balanskat, Blamire & Kefalla (2012) identified the factors as teacher-level, school-level and system-level. Neyland (2011), identified factors such as institutional support, as well as micro factors such as teacher capability influencing the use of online learning in high schools in Sidney.

A study done by Lau and Sim, (2008) in Malaysia on "exploring the extent of ICT adoption among secondary school teachers in Malaysia" showed that despite the apparent benefits of the use of ICT for educational purpose, the potential of learning is deprived as many teachers are still not fully ICT literate and do not use it in their teaching. Studies on teacher's readiness for ICT suggest that there is still a long way to go before schools in developing countries are able to take full advantage of the opportunities provided by 21st century technology (So and Paula, 2016). Gobbo and Girardi (2011), Ritz (2012), and Sang et al (2013) all indicate that teachers' ICT literacy levels influenced how learners used ICT in schools.

b) Transformational Leadership Style and ICT integration

Success of any institution is pegged on the leadership. Continuous success and prosperity of any institution is directed by the ever-changing situations that impact on leadership. School leaders should take cognizance of this aspect. In the world that we live in today, school leaders' roles have changed from practicing teachers with added responsibilities to full-time professional managers of human, financial and other resources accountable for their results (Bolam, McMahon, Pocklington & Weindling 2010). This has meant that more and more tasks have been added to the job description: instructional leadership, staff evaluation, budget management, performance assessment, accountability, and community relations, to name some of the most prominent ones. In light of the foregoing, this section reviews the concept of transformational leadership style, hailed as the most effective in school management in general and ICT integration in particular (Bush, 2015; Kunwar, 2011; Farah, 2011).

Transformational leaders are proactive, raise awareness levels of followers and help the followers to achieve high performance outcomes. This has been affirmed by Bass, 1990. Transformational leaders pay particular attention to each individual's needs for achievement and growth. Hamidifar (2009) found that employees are more satisfied with transformational leadership than any other style. He also revealed that this type of leadership was not being exercised by the managers. The study concluded that transformational leadership led to better satisfied employees. Nguni, Sleegers, and Denessen (2016) also studied the effects of transformational leadership on teachers' job satisfaction, organizational commitment, and organizational citizenship in schools in Tanzania. They observed that the leadership style was distinguished by the different ways' leaders motivate their followers and appeal to the emotions and values of their followers. The

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teachers rated their head teachers particularly high on the transformational leadership traits of charismatic leadership, individualized consideration, and intellectual stimulation.

A study by Nthuni (2012) on leadership style factors that influence motivation of pre-school teachers in public pre-schools in Embu North District, revealed that there was need to adopt a transformational leadership style in order to enhance motivation of pre-school teachers in public pre-schools and improve their working environment by involving them in decision making and in policy formulation in their schools. Kibue (2008) study on transformational leadership style on public secondary schools in Kirinyaga County revealed that majority of head teachers and teachers did not understand nor use the transformational leadership style in schools. This style is still a new concept to many. The researcher concluded that there was need for teachers to be trained and properly inducted on leadership in order to properly manage both human and material resources. Against this backdrop, we hypothesized that transformational leadership style does not have a significant influence on the ICT integration in teaching and learning (H_{01}).

c) Teacher Efficacy in Technology and ICT Integration

With the advent of technology in teaching and learning, it is imperative that the teachers embrace the use of ICT to boost their efficacy. It is evident that teachers have not embraced technology. Previous studies have identified several reasons for this underutilized of technology including but not limited to lack of resources, lack of training, philosophical beliefs about technology, and lack of time to experiment with technology tools (Compeau & Higgins, 1995; Kellenberger & Hendricks, 2013; Littrell, et al., 2015; Teo, 2009; Wang, Ertmer, & Newby, 2014). Further, many researchers attribute underutilized technology to teachers' lack of self-efficacy in incorporating such resources into their classrooms (Kellenberger, & Hendricks, 2013). Previous studies have identified several factors that may contribute in teachers' decisions to integrate technology into their classrooms. Self-efficacy is one of those factors (Compeau & Higgins, 1995; Kellenberger & Hendricks; Littrell, et al., 2015; Teo, 2009; Wang, Ertmer, & Newby, 2014). Therefore, teachers' efficacy in digital technology becomes very crucial in the ICT integration in Teaching and learning.

In a qualitative multiple case-study research on teachers' competence and confidence level regarding the use of ICT in teaching practiced conducted in five European countries, Peralta and Costa (2014) found that technical competence influenced Italian teacher's use of ICT in teaching. However, the teachers cited pedagogical and didactic competences as significant factors if effective and efficient educational interventions are likely to be implemented. In Syria, for example, teachers' lack of technological competences has been cited as the main barrier (Albirini, 2014). In Australian research, Newhouse (2012) found that many teachers lacked the knowledge and skills to use computers and were not enthusiastic about the changes and integration of supplementary learning associated with bringing computers into their teaching practices.

A study by Ayere et al, (2010) on E-learning in secondary schools in Kenya reported that a number of teachers in secondary schools had not received any training in ICT use during their formative years at teacher training institutions before joining the profession. 55% of the sampled teachers stated that they did not receive any ICT training at all. However, 51% of the teachers had taken self-initiative to undertake ICT training during the last three years they had been employed. A report by the Ministry of Higher education, Science and Technology (GOK, 2010) on secondary school teachers' adoption and use of ICT indicated that the number of teachers skilled in ICT in secondary schools was low. The study revealed that out of the number available, few had ICT training effective in adoption and use of the technology in the classroom. Out of 232 teachers in the sample, majority (57%) were reported to have trained at certificate level on basic computer skills, 73% were reported to have acquired ICT training through in-service courses and 43% were trained by private computer college.

Similarly, a study by Mingaine (2013) that carried out in Meru County involved a sample of 315 respondents and investigated the skill challenges in ICT integration in public secondary schools. The study which employed a descriptive survey design found that, there is limited supply of qualified ICT teachers and that majority of secondary school teachers in Meru County were not competent to facilitate use of ICT in schools. It also concluded that the level of training of majority of the teachers is far from being satisfactory due to lack of exposure during formative training in initial teacher training institutions. A study by Ayere et al (2010) compared e-learning in NEPAD and non-NEPAD schools that were offering computer studies and found that teachers in NEPAD schools integrated ICT in the learning in all subjects, whereas little or no integration took place in the non-NEPAD schools. This finding could be explained by the fact that more teachers from NEPAD schools were computer literate (60%) as compared to their non-NEPAD counterparts (31%). At the same time, NEPAD schools had more ICT graduate teachers (53%) than the non-NEPAD schools (33%) (Ayere et al 2010). These figures cannot be taken to be representative of the situation in the entire country, though, because the study included just a few selected schools all of which were already utilizing computers. There is a need to establish the situation in other parts of the country.

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Teachers' motivation towards their efficacy is hedged on their self-worth which is directly linked to their perception on who they are. The theory on Self-worth asserts that a person's ability to achieve is directly linked to their perceptions of themselves. Martin Covington, the pioneer in the psychology field of self-worth and self-efficacy, states that most people will go to extraordinary lengths to "protect their sense of worth or self-value," even if it infringes on the ultimate outcome of their achievement (Covington, 1984, p. 4). Recent work on teacher motivation within the framework of expectancy-value theory (Richardson & Watt, 2006; Watt & Richardson, 2007) provides evidence for links between teachers' motivation and their engagement, commitment and persistence in teaching and their inclination to become involved in professional development. There is considerable agreement that teachers' motivation and scepticism about affecting learners is associated with enthusiasm, job commitment, and instructional behaviour (Tschannen-Moran & Woolfolk Hoy, 2001). Furthermore, research has identified a link between teacher efficacy and learner efficacy and achievement as well (Feldhaufer et al., 1988; Ross &Cousins, 1993).

A growing number of studies have been conducted on teachers' confidence in their use of computers, either for personal work or in their teaching practice. Several studies (Lynch, 2013; Macmillan, Timmons and Liu, 2011; Sandholtz, Ringstaff and Dwyer, 2012) reported that teachers were reluctant to reveal their level of computer knowledge to learners and were unwilling to use computers in regular teaching practice until they felt comfortable and competent in using the technology. Teachers with more computer experience had greater confidence in their ability to use computers effectively (Galloway, 2013; Nash and Moroz, 2015).

Against this backdrop, we hypothesized that state that teacher self-efficacy in technology does not have a significant influence on ICT integration in teaching and learning (H_{02}); and that teacher self-efficacy in technology does not have a significant moderating influence on the relationship between transformational leadership style and ICT integration in teaching and learning (H_{03}). Accordingly, the hypothesized relationships are conceptualized and as illustrated in Appendix I.

III. Methodology

This study was approached from a pragmatism point of view, which was deemed best in underpinning the present study as it allowed for flexibility in approach including the collection of different data types, use of various data collection methods as well as data analysis techniques. The philosophy is further justified as the study involves ICT which is dynamic, involvements of different persons with divergent views and with varied leadership styles.

The study also adopted a mix of cross-sectional survey, correlational and mixed methods design. The study used a cross-sectional survey design since the object of the study was to document the situation as it is at the present time. The survey involved field visits to sampled schools so as to get first hand observation data and views from respondents. The study also employed a correlational study design which is a quantitative method of research in which there are two or more quantitative variables from the same group of participants, and one is trying to determine if there is a relationship (or covariation) between the two variables (that is, a similarity in pattern of scores between the two variables, not a difference between their means). Qualitative methods, particularly content analysis was also employed in the study as interview schedules were used that provided qualitative data hence mixed methods design.

The target population for this study comprised of public primary schools' teachers drawn from Nairobi County. Nairobi City County was selected as a suitable site for the study because it is a cosmopolitan area with pupils and teachers drawn from different social cultural backgrounds. The study targeted teachers from the 205 public primary schools in Nairobi County (NCEO, 2016). Respondents were drawn from the population of 205 head teachers and 6150 teachers in Nairobi county. Only head teachers and teachers were reached owing to the nature of the study objectives which only required their input. While head teachers were crucial in examining the head teachers' leadership roles in the implementation of ICT in primary school administration, teacher responses were required to determine the moderating role of teacher self-efficacy on the ICT integration in teaching and learning.

The study was conducted in a sample of the public primary schools in the eleven sub-counties of Nairobi County namely; Embakasi, Makadara, Kamukunji, Starehe, Njiru, Kasarani, Westlands, Langata, Mathare, Kibra and Dagoretti. The sample population was 205 head teachers from 205 Public Primary Schools in Nairobi County with 6150 teachers. Owing to the anticipated large number of respondents that included 6150 teachers and 205 head teachers, the study employed a combination of two formulae. For teachers the study used the Fisher et al. (1983) formula for determining sample sizes in large populations; while for head teachers, the study referred to Mugenda and Mugenda (2003) who proposes a 30% proportion in extremely small population sizes and 10% for larger populations. The 10% proportion will be used in the present study giving a sample of 21 head teachers. The Fisher et al. (1983) formula is as shown below:

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

Where;
N= population size
e= Tolerance at desired level of confidence, take 0.05 at 95% confidence level
n= sample size.

For teachers, the sample size will be arrived at as follows:

n=6150/(1+(6150*0.05*0.05))
n=375.57

As such, the study was to reach a total of 376 teachers

A combination of cluster sampling and random sampling procedures was employed in the study. Whereas the sub counties formed the clusters random sampling was used to reach the head teachers from 21 primary schools in Nairobi County. The 11 sub-counties formed the cluster from where the sample size (376) of teachers were proportionately drawn.

The instruments used for data collection were structured questionnaires for teachers while the head teachers were taken through an in-depth interview using an interview guide. An observation checklist was further used to assess resources used by the teacher for ICT integration in teaching and learning. Different sets of questionnaires were developed for the teachers.

Both linear and moderation regression analyses were performed to assess the strength and direction of the relationships between the specified variables as well as the statistical significance. To this end, various statistics were extracted and interpreted with respect to the various models. Linear multiple regression analysis was employed in testing null hypothesis 1 (H_{01}) as illustrated in equation I and hypothesis 2 (H_{02}) as illustrated in equation II. Moderation regression was on the other hand employed in testing null hypotheses 3 (H_{03}) as illustrated in equation III.

$Y = \alpha + \beta X + \varepsilon$ (H_{01}).. I

Whereby:
Y = ICT integration
α is the y-intercept or model coefficient;
β are the coefficients of the independent variables;
X = Transformational leadership style
ε is the error term established from heteroskedasticity test;

$Y = \alpha + \beta M + \varepsilon$ (H_{02})..II

Whereby:
Y = ICT integration
α is the y-intercept or model coefficient;
β are the coefficients of the independent variables;
M = Teacher efficacy
ε is the error term established from heteroskedasticity test;

$Y = \alpha + \beta_1 (X*M) + \varepsilon$($H_{03}$)..III

Whereby:
Y = ICT integration
α is the y-intercept or model coefficient;
β_1 are the coefficients of the independent variables;
X = Transformational leadership style
M = Teacher efficacy (Moderator)
ε = the error term established from heteroscedasticity test;

IV. Results

a) *Transformational Leadership Style and ICT Integration: Model Summary*

The statistical model $Y = \alpha + \beta_1 X_1 + \varepsilon$ where: Y = ICT Integration, α =constant, β_1 = Coefficient of X_1, X_1 = Transformational leadership, ε = Error term was used to establish the extent to which transformational leadership style influences ICT integration in teaching and learning in public primary schools. Accordingly, H_{01} stating that transformational leadership style does not

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have a significant influence on the ICT integration in teaching and learning was tested.

From Appendix II, there was correlation between transformational leadership and ICT integration indicated by R which was 0.207. The value of R Square = 0.043 meaning that transformational leadership style explains the variance of ICT integration by 4.3% the variance of ICT integration. From the ANOVA results in Appendix II, the model was found to be statistically significant (F (1,293) = 13.124, p-value<0.001) and implies that there was a goodness of fit of the model. This also indicates that transformation leadership is a good predictor of ICT integration.

Given the statistical model $Y = \alpha + \beta_1 X_1 + \varepsilon$, the beta coefficients of transformational leadership in Table show that $\beta_1 = 0.207$, $t = 3.623$, p-value < 0.001 indicating that a unit improvement in the transformational leadership style contributes to a 0.207 improvement in ICT integration. This further affirms that transformational leadership style is significant predictor of ICT Integration in teaching and learning. The criterion for acceptance or rejection was to reject if p-value less than 0.05 otherwise H_{01} is accepted. The results indicate a p-value < 0.001. This is also supported by a t-statistic of 3.623 which is larger than the critical t-statistic of 1.96. There was, therefore, sufficient evidence to reject the null hypothesis, H_{01}, that transformational leadership style does not have a significant influence on the ICT integration in teaching and learning. The study therefore concluded that transformational leadership style has a significant influence on the ICT integration in teaching and learning.

The finding is in agreement with Nguni, Sleegers, and Denessen (2016) who studied the effects of transformational leadership on teachers' job satisfaction, organizational commitment, and organizational citizenship in schools in Tanzania. They observed that the leadership style was distinguished by the different ways' leaders motivate their followers and appeal to the emotions and values of their followers. The finding is also consistent with Nthuni (2012) in whose study on leadership style factors that influence motivation of pre-school teachers in public pre-schools in Embu North District, revealed that there was need to adopt a transformational leadership style in order to enhance motivation of pre-school teachers in public pre-schools and improve their working environment by involving them in decision making and in policy formulation in their schools.

b) Teacher Self-Efficacy in Technology and ICT Integration

The statistical model $Y = \alpha + \beta_3 X_3 + \varepsilon$ where: Y = ICT Integration, α = constant, β_3 = Coefficient of X_3, X_3 = Transformational leadership, ε =Error term was used to explore the extent to which teacher efficacy in technology influences integration ICT in teaching and learning in public primary schools. Accordingly, $H_{03,}$ stating that teacher self-efficacy in technology does not have a significant influence on ICT integration in teaching and learning was tested.

As seen in Appendix III, the value of R Square = 0.285 meaning 28.5 per cent of the variation in ICT integration can be explained by teacher self-efficacy in technology. The correlation is very high. Teacher self-efficacy in technology influence ICT Integration in teaching and learning in Nairobi Primary schools. ICT Integration in teaching and learning is a function of teachers' self-efficacy in technology. From the ANOVA results in Appendix II, the model was found to be statistically significant (F (1,284) = 112.69, p-value<0.001) and implies that there was a goodness of fit of the model. This also indicates that teacher self-efficacy in technology is a good predictor of ICT integration.

Given the statistical model $Y = \alpha + \beta_3 X_3 + \varepsilon$, the beta coefficients of transformational leadership in Table show that $\beta_3 = 0.534$, $t = 10.616$, p-value < 0.001 indicating that a unit improvement in the teacher self-efficacy in technology contributes to a 0.534 improvement in ICT integration. $H_{03,}$ Teachers self-efficacy in technology does not have a significant influence on ICT integration in teaching and learning, was tested using the results in Appendix III. The criterion for acceptance or rejection was to reject if p-value less than 0.05 otherwise H_{03} is accepted. The results indicate a p-value < 0.001. This is also supported by a t-statistic of 10.616 which is larger than the critical t-statistic of 1.96. There was, therefore, sufficient evidence to reject the null hypothesis, H_{02}, that teachers' self-efficacy in technology does not have a significant influence on ICT integration in teaching and learning. The study therefore concluded that teachers' self-efficacy in technology does have a significant influence on ICT integration in teaching and learning.

This consistent with Ayere et al (2010) whose study compared e-learning in NEPAD and non-NEPAD schools that were offering computer studies and found that teachers in NEPAD schools integrated ICT in the learning in all subjects, whereas little or no integration took place in the non-NEPAD schools. The finding was explained by the fact that more teachers from NEPAD schools were computer literate (60%) as compared to their non-NEPAD counterparts (31%).

c) Moderating Effect of Teacher Self-Efficacy

The statistical model $Y = \alpha + \beta_1 X_1 * X_3 + \varepsilon$ where: Y = ICT Integration, α =constant, β_1 = Coefficient of X_1, X_1 = Transformational leadership, X_3 = Teacher Self-Efficacy in Technology, ε = Error term was used to examine the moderating influence of teachers' self-efficacy in technology on the relationship between transformational leadership style and integration of in

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teaching and learning in public primary schools. The model was also used to test H_{03}, which states that teacher self-efficacy in technology does not have a significant moderating influence on the relationship between transformational leadership style and ICT integration in teaching and learning. Both the transformational leadership style and teacher self-efficacy in technology were confirmed to be significant predictors of ICT integration. This was the first important step before testing the moderating effect (Aiken & West, 1991).

As shown in Appendix III, the model without the interaction term, teacher self-efficacy in technology, is significant with $F(1, 283) = 14.311$, p-value < 0.001. The model with the interaction term is also significant with $F(2, 282) = 58.721$, p-value < 0.001. From Appendix IV, we note that R Square change without the interaction term $= 0.048$, p-value < 0.001 while with the interaction term R Square change $= 0.294$, p-value < 0.001. This indicates a significant moderation effect between transformation leadership style and teacher self-efficacy in technology. Transformational leadership style alone contributes 4.8 per cent on the state of ICT integration. When the moderating variable, teacher self-efficacy in technology, is introduced the contribution rises more than six-fold to 29.4 per cent. $H_{03,}$ teacher self-efficacy in technology does not have a significant moderating influence on the relationship between transformational leadership style and ICT integration in teaching and learning, was tested using the results in Appendix III.

The criterion for acceptance or rejection was to reject if p-value less than 0.05 otherwise H_{04} is accepted. The results indicate a significant increase in the R Square change from 0.048 to 0.294 at p-value $<$ 0.001. This is also supported by the significant F-statistic with $F(1, 283) = 14.311$, p-value < 0.001 without the interacting term and significant $F(2, 282) = 58.721$, p-value < 0.001 with the interacting term. The null hypothesis, H_{04}, teachers' self-efficacy in technology does not have a significant moderating influence on the relationship between transformational leadership style and ICT integration in teaching and learning was rejected. The study concluded that teachers' self-efficacy in technology does have a significant moderating influence on the relationship between transformational leadership style and ICT integration in teaching and learning.

V. Conclusions and Recommendations

The study concludes that transformational leadership style significantly and positively the ICT integration in teaching and learning. This can be attributed to the supportive, accommodative and change-oriented role played by head teachers across a majority of the schools reached, that inspires and motivates teachers to develop themselves part of which including improving their grasp of the concept of ICT and its implication for and application in teaching and learning. Head teachers were observed to practice the transformational leadership style largely to a moderate extent. This is exhibited in a majority of the head teachers' ability to make people they interact with feel proud, good and have complete faith in him or her. Head teachers were also found to help others find meaning in their work, expresses with a few simple words what we could and should do and help teachers develop themselves.

The study also concludes that teacher self-efficacy in technology has a significant influence on ICT integration in teaching and learning. As expected, the more conversance, confidence and motivation a teacher exhibits in the use of ICT in teaching and learning, the more inclined they are to integrating ICT in their teaching and learning profession. A majority of the respondent teachers reached were found to exhibit only moderate levels of self-efficacy in using technology in their teaching profession. This was manifested in the teachers' moderate competences in selecting and using various media to support teaching and learning, in the evaluation of software to support teaching and learning, ability to integrate technology across the curriculum as well as the moderate capability to determine why, when, and how to use technology in education.

The study further concludes that teacher self-efficacy in technology has a significant moderating influence on the relationship between transformational leadership style and ICT integration in teaching and learning. This can be attributed to the ability of a well-versed teacher in the application of ICT in teaching, to leverage the supportive and accommodative role of the head teacher to harness the available ICT infrastructure and integrate the same in their teaching profession, as compared to a teacher with low self-efficacy in technology.

It is recommended based on the study findings and conclusions that school administrations take a keen review of the leadership style given that transformational leadership style is seen to have a significant influence on ICT integration in primary schools. The study recommends that head teachers adopt the transformational leadership style and offer support, motivation and encouragement to their teacher geared towards enabling teachers train and develop their teaching practice especially towards horning their skills in their application of ICT in teaching.

It was further established that teachers' self-efficacy in technology has a significant influence on ICT integration in teaching and learning. As such, teacher self-efficacy in technology emerges as a very core plank in ICT integration when juxtaposed with the school environment and transformational leadership. It is therefore recommended that school administrations as

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well as teacher management under the Teachers Service Commission develops and executes programs to reinforce teachers' efficacy in the adoption, use and innovation in technology. The study further asserts based on the findings that the onus is squarely on teachers to develop their teaching careers and practice through leveraging such avenues as training programmes and seminars with a view to improve their knowledge, confidence, experience and therefore self-efficacy in the use of ICT and its integration in their teaching practice.

It is further recommended that the policy governing teacher training, establishment, improvement, support and maintenance of school environments be reinforced with a view to impart digital skills in trainee teachers, invest in the right infrastructure and reinforce the right school environment. It is also recommended that the Ministry of Education and the related co-actors take measures to improve the school environment, especially in setting up the right infrastructure, and operative policy environment given that the school environment is seen to exert a significant influence on ICT integration.

Policy makers and regulators are also urged, as informed by the study findings to formulate polices and regulations that ensure that as technological innovations progress and advance rapidly, their application in the education sector in general and in teaching and learning in particular is leveraged to the utmost benefit and safety of the consumers of these innovative products and services, which includes learners and teachers.

References Références Referencias

1. Ayere, A.M; Odera, F.Y. & Ayak, J.O. (2010). E-learning in Secondary Schools in Kenya: A Case of the NEPAD e-schools. *Educational Research and Reviews* Vol.5 (5), pp 218-223, May, 2010.
2. Bolam, Y., McMahon, R., Pocklington, F. & Weindling, L. (2010). *Appreciative Leadership.* McGraw Hill, New York
3. Bush,J. B.(2015). The relationship between evaluate culture, Teacher efficacy, and learner efficacy (Doctoral dissertation, The University of New Orleans, 1997). Dissertation Abstract International, 56-8A, 2926.
4. Compeau, H. & Higgins, D. (1995). Adding contextual specificity to the technology acceptance model. Computers in Human Behavior, 22(3), 427-447.
5. Covington, O. (1984). *Teacher self-efficacy: Substantive implication and measurement dilammas*. Paper presented at the Annual Meeting of the Educational Research Exchange, Texas.
6. Duncan, R. (2010). *The* Use of ICT to Support Education *in* Disadvantaged Schools and Communities: A review of Literature*: Ed Qual RPC. (Rwanda*).
7. Farah, A, (2001). Information Technology in Educational Management: *Synthesis of Experience, Research and Future Perspectives on Computer Assisted Computer Information System*. Kluwer Academic Publishers, Nertherlands.
8. Farrell, G., Isaacs, S., & Trucano, M. (2012). *The NEPAD e-Schools Demonstration Project: a work in progress*. Washington, DC: infoDev/The World Bank.
9. Feldhaufer, T., Olejnik, S.F. & Parkey,F.W. (1988). Relationship between four teacher efficacy belief patterns and selected teacher characteristics. *Journal of research and development in Education, 23,*102-106.
10. Galloway, J. (2013). How teachers use and learn to use computers. In J. Price, K. Rosa, S. McNeal and J. Willis (Eds), *Technology and Teacher Education Annual*, (pp.857-859). Charlottesville, VA: Association for the Advancement of Computing in Education.
11. Gikonyo, G. K. (2012) Constrains in the use of ICT in Teaching–Learning process in Secondary Schools in Nyandarua South District, Nyandarua county *Unpublished thesis.*
12. Hill, M. W (2011). *Guide to e-learning: Building Interactive, Fun and Effective Learning Program for any Company.* New Jersey: John Wiley and Sons.
13. Holden, R. & Rada, T. (2011). *Teacher self-efficacy: Substantive implications and measurement dilemmas*. Paper presented at the Annual meeting of Educational Research Exchange.
14. Keiyoro, P. (2011). Factors affecting the use of ICT in Teaching and Learning in Secondary Schools in teaching and learning in secondary schools in Kangema, Muranga county. *unpublished masters thesis.*
15. Kellenberger, G. & Hendricks, D. (2013). The Impact of Information Communication Technology on the Work of School Head teachers. Learning and Managing, 6(1), 63-67
16. Kunwar, H. S. (2010). Leadership Reconsidered: engaging higher education in social change. Battle Creek: W.K. Kellogg Foundation
17. Lau, B.T. & Sim, C.H. (2008) Exploring the extent of ICT Adoption among Secondary School Teachers in Malasyia. *International Journal of Computing and ICT Research II (II) pp 19-36.*
18. Littrell, B., Christensen, R. & Knezek, G. (2015). Pathway for preparing tomorrow's teacher to infuse technology. *Computers in the schools,* vol. 23, no. 3/4, pp. 1-21.
19. Lynch, J. (2013). Introducing internet technologies: A study in four Victorian state secondary schools.

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AARE Annual Conference Proceedings [Online] http://www.aare.edu.au/99pap/lyn99492.htm Accessed on 14th May 2017

20. Macmillan, R.B., Timmons, V. & Liu, X. (2011). Teachers, computers, and the internet: The first stage of a community-initiated project for the integration of technology into the curriculum. *Alberta Journal of Educational Research*, 43 (4), 222-234.
21. Manduku, J, Kosgey, A. & Sang, H. (2012) Adoption and use of ICT in enhancing management of public secondary schools: A survey of Kesses zone secondary schools in Wareng District of Wasin Gishu County, Kenya.
22. Mingaine, L. (2013). Skill Challenges in Adoption and Use of ICT in Public Secondary Schools, Kenya *International Journal of Humanities and social Sciences. Vol.3 no.13 61-72; july 2013.www. ijhssnet.com*
23. Mugenda, O., & Mugenda, A. (2003). *Research Methods: Qualitative and Quantitative Approaches.* Nairobi. Africa Center for Technology Studies.
24. Mutula, G. (2016). The relationship between head teachers' access to Information and Communication Technology (ICT) and school performance in Kenya, *Education and General Studies*1 (1) 38-47.
25. Nash, J.B. and Moroz, P.A. (2015). An examination of the factor structures of the Computer Attitude Scale. *Journal of Educational Computing Research*, 17(4), 341-356.
26. Pelgrum, W.J. and Plomp, T. (2011). *The Use of Computers in Education Worldwide: Results From The IEA 'Computers in Education' Survey in 19 Educational Systems*. Oxford: Pergamon Press.
27. Peralta, H. & Costa, F.A. (2014). Teachers' competence and confidence regarding the use of ICT. *Educational Sciences Journal, Vol.3*, pp.75-84.
28. Peralta, J. & Costa, Z. (2014). Collective teacher efficacy: Its meaning, measure, and impact on academic achievement. *American Educational Research Journal, 37,* 479–507.
29. Richardson, S. & Watt, E. (2006). *The organizational context of personal teaching efficacy*. Paper presented at the Annual Meeting of the Educational Research Association. San Francisco.
30. Ritz, J.M (2012). A New Generation of Goals for Technology education. *Journal of Technology Education. 20(2)*
31. Rogers, E. M. (2013) *Diffusion of innovations (5th ed*). New York: Free Press.
32. Rosenberg, D. (2011). Teacher efficacy: Toward the understanding of a multifaceted construct. Teaching and Teacher Education, 12, 401-411.
33. Ross, J.A., Hogaboam-Gray, A. and Hannay, L. (2014). Predictors of teachers' confidence in their ability to implement computer-based instruction. *Journal of Educational Computing Research,* 21 (1), 75-97.
34. Sandholtz, J.H., Ringstaff, C. and Dwyer, D.C. (2012). *Teaching with Technology: Creating Learner Centred Classrooms.* New York: Teachers College Press.
35. Sang, G; Valcke, M; Braak, J.V; and Tondeur F. (2013*).* Learner teachers' thinking process and: Predictors of Prospective Teaching Behaviour with Educational Technology. *Computers and Educational Journal, 54 (1) pp 103-112.*
36. Sangrà, A. & González-Sanmamed, M. (2016): The role of information and communication technologies in improving teaching and learning processes in primary and secondary schools, *ALT-J*, 18(3): p 207-220.
37. Schiller, J. (2015) 'Interventions by school leaders in effective implementation of information and communications technology: perceptions of Australian principals', *Technology, Pedagogy and Education*, 11(3): p 289 - 301
38. Schiller, S. (2013). Factors affecting teachers' use of Information and Communication Technology. *International Journal of Instruction*, vol. 2(1)1, 78-98.
39. Teo, T. (2009). *Taxonomy for the technology domain. USA*: Information Science Publishing.
40. Tschannen-Moran, C. & Woolfolk Hoy, E. (2011). Teacher and head teacher perceptions of personal efficacy. *The High School Journal.76,* 60-66.
41. Wang, G., Ertmer, L. & Newby, R. (2014). Convergence of ICT with Education: World Academy of Science, Engineering and Technology, pp 567 – 558
42. Watt, E. & Richardson, S. (2007) Collective teacher efficacy: Its meaning, measure, and impact on academic achievement. *American Educational Research Journal, 37,* 479–507.

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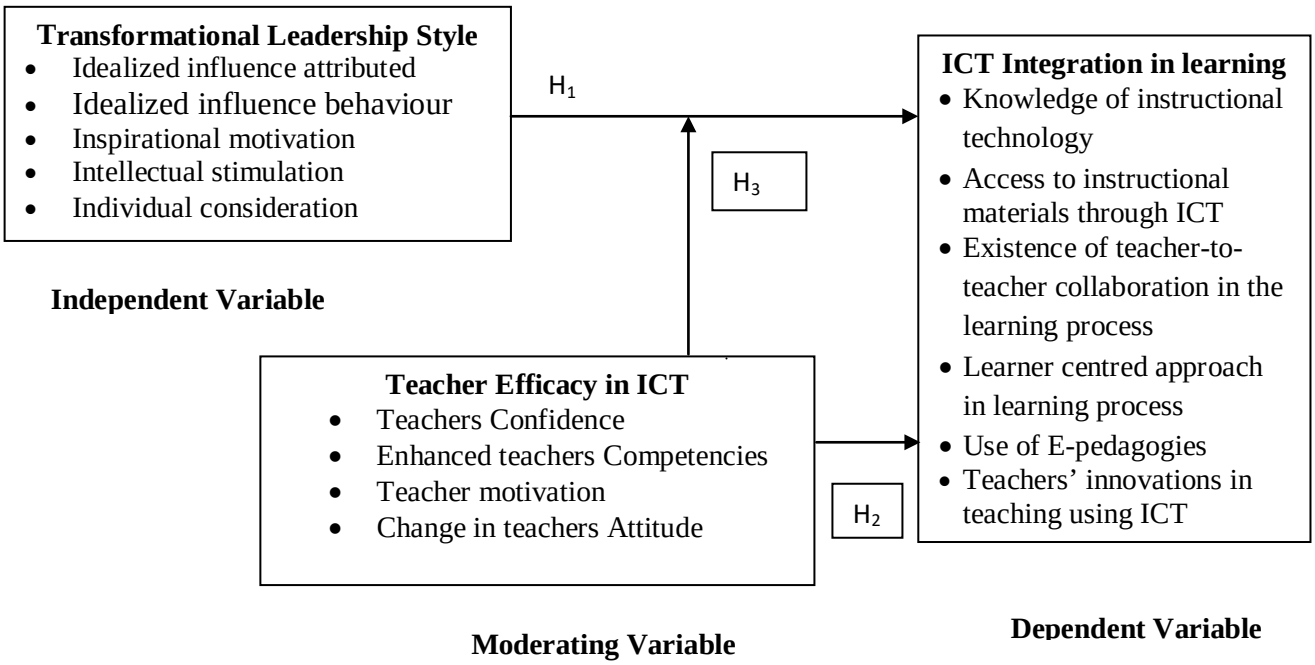
Appendices

Appendix I: Conceptual Framework



Appendix II: Transformational Leadership Style and ICT Integration

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	.207[a]	.043	.040	.78554	.043	13.124	1	293	.000

a. *Predictors: (Constant), Transformational Leadership Style*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.098	1	8.098	13.124	.000[b]
	Residual	180.800	293	.617		
	Total	188.898	294			

a. *Dependent Variable: ICT Integration*

b. *Predictors: (Constant), Transformational Leadership Style*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.941	.185		10.476	.000
	Transformational Leadership Style	.192	.053	.207	3.623	.000

a. *Dependent Variable: ICT Integration*

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Appendix III: Teacher Self-Efficacy in Technology and ICT Integration

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	.534[a]	.285	.282	.68248	.285	112.690	1	283	.000

a. *Predictors: (Constant), Teacher Self-Efficacy in Technology*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.488	1	52.488	112.690	.000[b]
	Residual	131.815	283	.466		
	Total	184.303	284			

a. *Dependent Variable: ICT Integration*

b. *Predictors: (Constant), Teacher Self-Efficacy in Technology*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.974	.158		6.152	.000
	Teacher Self-Efficacy in Technology	.539	.051	.534	10.616	.000

a. *Dependent Variable: ICT Integration*

Appendix IV: Moderating Effect of Teacher Self-Efficacy

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.871	1	8.871	14.311	.000[b]
	Residual	175.432	283	.620		
	Total	184.303	284			
2	Regression	54.188	2	27.094	58.721	.000[c]
	Residual	130.115	282	.461		
	Total	184.303	284			

a. *Dependent Variable: ICT Integration*

b. *Predictors: (Constant), Transformational Leadership Style*

c. *Predictors: (Constant), Transformational Leadership Style, Teacher Self-Efficacy in Technology*

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	.219[a]	.048	.045	.78734	.048	14.311	1	283	.000
2	.542[b]	.294	.289	.67927	.246	98.214	1	282	.000

a. *Predictors: (Constant), Transformational Leadership Style*

b. *Predictors: (Constant), Transformational Leadership Style, Teacher Self-Efficacy in Technology*

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