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**INTERRELATION BETWEEN COGNITIVE
DEVELOPMENT AND PERSONALITY TRAITS
AMONG ADOLESCENT BOYS: A STUDY IN PUBLIC
DAY SECONDARY SCHOOLS IN KIRINYAGA
EAST SUB-COUNTY, KENYA**

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Abstract

Background. Personality traits among adolescents significantly shape their academic achievement, learning approaches, and goal orientation. Cognitive development plays a central role in personality traits formation during adolescence—a critical period of emotional and intellectual growth. However, limited research has examined this relationship in public day secondary schools in Kirinyaga East Sub-County, Kenya.

Purpose. This study assessed the influence of adolescents' cognitive development on personality traits development among boys in public day secondary schools in Kirinyaga East Sub-County.

Materials and methods. Guided by the Adolescence Development Dimension Theory, the study adopted a mixed-method approach. The target population comprised 2,524 respondents, including teachers and Form 2 and Form 3 boys across 34 schools. A sample of 345 participants was selected using purposive and simple random sampling. Data collection tools included questionnaires and interview guides. Quantitative data were analyzed using descriptive and inferential statistics, including correlation and regression analysis, with SPSS version 25.

Results. Findings indicated a statistically significant relationship between cognitive development and personality traits ($\beta = 0.130$, $p = .037$). Many boys struggled with independent decision-making and often relied on peers. Impulsive behaviors and peer-influenced creativity

were also noted, contributing to both positive and problematic personality outcomes.

Conclusion. Cognitive development significantly influences personality traits among adolescent boys. Challenges in cognitive independence impact how they make decisions and relate socially.

Recommendations. Schools should promote cognitive growth through structured guidance and decision-making training. Further research is recommended on adolescent girls to explore gender-based differences.

Keywords: adolescents' cognitive development; personality traits formation; developmental tasks; executive functioning; social influence

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Introduction

Personal Traits such as ambition, conscientiousness, and resilience emerge as they navigate the academic landscape, influencing their approach to learning and achievement. Cognitive development plays a pivotal role in academic achievement and goal orientation, key components of adolescent development in public day secondary schools [1]. As cognitive abilities expand, boys become better equipped to tackle academic challenges, set meaningful goals, and persevere in the face of obstacles. Cognitive development influences the way adolescences understand a particular event or circumstance, which will in turn influence their moral judgments and emotional responses to it. The ages between 10-19 is a transitional period characterized by rapid cognitive, physical and emotional changes, which significantly impact on the personality traits of the boy child. As the adolescent cognitive abilities develop, they become more self-aware and regularly introspects; key ingredients in shaping personality formation [1]. Cognitive development enables the adolescent boy to handle complex social interactions in a more skillful manner, contributing to personality traits such as empathy, assertiveness

and sociability. These personality traits are further enhanced by positive peer interactions and moral reasoning. This demonstrates an intercourse of cognitive development and personality traits development. This was the main thrust or motivation of the study.

The term personality traits was used way back in the twentieth century, to describe a person who had difficulties adapting to a given behavior in a certain social setting [18]. Towards the end of 1920's the concept of children who could not adjust well was established in Britain. This led to, '*the child guidance movement*' which emergence was from 1927 onwards in Britain. Children in this category gathered attention of the concerned agents including educationalists from different professionals. In the mid of 19th century, a scientific study was conducted concerning how human beings behave. As a result of this study new knowledge was acquired on the need on adjusting internally and the risks that are associated with poor adjustment. According to psychologists, internal environment of an organism was very crucial; this is the organism's personality.

Patterns of behavior, thoughts, emotional and cognitive that are unique in any given individual is what constitutes to a personality [19]. The patterns emerge from nature and nurture, that is, from environment and genetic characteristics. A study that was carried done by [4], Mexico in North America concerning the characteristics that play a role on developing personality traits among mid and late adolescents. From the study's findings, individuals at adolescence stages experience various personality challenges as their personality develops. Those challenges are contributed largely by their unpleasant external and internal social environment. When this is not addressed early enough it can result to disorders in behavioral patterns among mid and late adolescents. According to the study, influence from peers, poor parenting styles and failure to acquire guidance and counseling services from professionals contributed greatly to poor personality traits [16].

In Europe, Belgium at University of Leuven a study was carried out with an aim of assessing the relationship between personality traits and emotional disturbance among learners. From the findings of the study, learners who had notable emotional disturbance with were filled with anx-

iety, appeared depressed and had mood swing. Most of the learners who showed emotional disturbance had problematic personality traits. Emotional disturbance was commonly noted among learners who had signs of problematic personality traits. Learners with personality development problems portrayed signs of low self-esteem and they appeared depressed [25].

A study conducted in Liberia in 2014 investigated the relationship between personality traits and academic achievement among adolescents [5]. The research focused on how learners' personality adjustment, particularly in terms of depressed mood, academic anxiety, and stress, affected their academic performance. The study findings showed that learners who exhibit high level of academic anxiety and stress have a tendency to perform poorly in school. For healthy personality traits development, the study recommended that guidance and counseling for adolescents be done by adults.

Another study by [12], assessed the relationship between personality traits and social factors among boys in adolescence stage in South Africa. The study was anchored on the social learning theory guided. The theory postulates that people develop interactions within their social environments. The study revealed that people interact amongst themselves to form social environment, which may have a positive or a negative influence on a person's personality development. In addition, when a person is placed in the right social environment, they tend to develop a personality that is stable and as a result they become successfully achieved. The study concluded that adult-led guidance and counseling during early adolescence is essential, as it helps learners understand their personality development and the role of social influences. Such support was found to contribute to better social adjustment and more balanced personality growth among adolescents.

In Kenya, Kisii County a research was carried out by [16] on the relationship between personality type and behavior traits from the University of Science & Technology Bondo. The study intended to assess the relationship between behavioral traits and personality type among students in day secondary schools in Kisii County. From the study's findings, it was clear that learners who were extroverted had a challenge in devel-

oping faced positive personality traits experienced behavioral problems. In contrary to that, learners who were introverts were more stable and rarely portrayed problematic behavior. Many researchers omit the aspect of personality traits and adolescence development dimensions aspects. No research of this sort has been carried out concerning the influence of adolescent developmental aspects on personality traits in Kenya specifically in Kirinyaga East Sub-County in Kenya.

This study was guided by *Adolescence Developmental Tasks Theory* as proposed by [16], and the *Developmental Dimensions Theory*, which outlines the physical, cognitive, emotional, and social domains of adolescent development. According to [16], a developmental task is explained as a given role that an individual is required to achieve at a certain time during development. This achievement assists them to go to a higher level of development. If an individual fails to achieve these aspects at a given level of development, they may have trouble adjusting and solving other higher aspects. According to the theory, these aspects include; having healthy social relationships, accepting a masculine or a feminine roles for boys and girls respectively, cognitive development and being independent emotionally [17].

The study was anchored on the Theory of Developmental Dimensions, which emphasizes key aspects of human growth rooted in biological, social, and psychological domains. According to [16], a *developmental task* refers to a *specific challenge or responsibility that an individual is expected to accomplish at a particular stage of life*. Successful completion of such tasks facilitates progression to more advanced stages of development, whereas failure to meet these tasks may hinder an individual's ability to adjust and navigate future developmental challenges.

The theory identifies essential developmental aspects during adolescence, including the formation of healthy social relationships, the adoption of socially appropriate gender roles (e.g., masculine roles for boys and feminine roles for girls), emotional independence, and cognitive development [17]. These aspects collectively shape the adolescent's personality and adjustment to society. The Adolescence Developmental Dimensions Theory underscores that these developmental tasks are crit-

ical during the transition from childhood to adulthood. [26] posits that adolescents who successfully circumnavigate these essential development dimensions tend to display well-adjusted personalities and better poised to face developmental tasks. A key component of the development process is cognitive development; the ability to independently think and perceive things differently. When adolescents achieve cognition development, they expand their brains to function in an executive way. This includes; the ability to make decisions, solving problems, and thinking in a creative way. When adolescents achieve cognitive development, they are able to reason and think like adults. [27] poses that adolescent can make independent decisions, are accountable for their own decisions and are ready for any outcome that may arise from the decisions they make. Adolescents develop different problem-solving skills when faced with any difficult situation in life, they apply these skills to enable them to solve any problem facing them such as coping with peers' pressure, accepting their new roles in the society and choosing the right friends. Adolescents develop advanced reasoning skills that enable them to think logically and hypothetically.

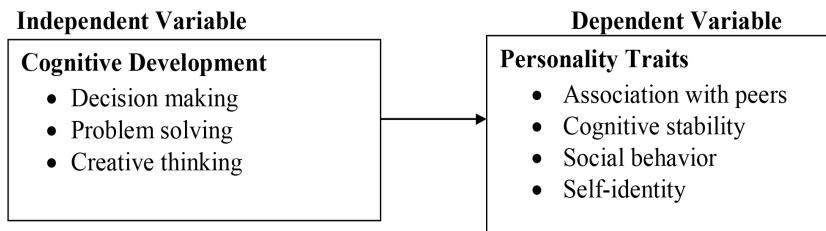


Fig. 1. Conceptual Framework

Furthermore, cognitively developed adolescents are capable of creative thinking, enabling them to generate novel ideas and implement them in meaningful ways both at home and in school settings [2]. In contrast, adolescents with cognitive development difficulties often struggle with independent thinking, decision-making, creativity, and problem-solving in everyday situations. This impairs their ability to adapt to life's demands and may negatively impact their academic and social outcomes.

The study conceived cognitive development as the independent variable and personality traits as the dependent variable. These variables are conceptually tied together as in Figure 1.

Problem statement

Personality traits development remains a significant concern among boys in public day secondary schools in Kirinyaga East Sub-County, Kirinyaga County. This challenge is evidenced by increasing instances of social withdrawal, inability to sustain stable interpersonal relationships, and signs of cognitive difficulties, such as challenges in independent thinking. Moreover, reports of inappropriate social behavior in school settings and the lack of a well-formed personal identity are clear indicators of underdeveloped personality traits.

A study conducted by [22] in Kirinyaga County revealed that 37.5% of adolescent boys exhibited personality adjustment-related difficulties. The study recommended the urgent need for structured guidance and counseling interventions to address various dimensions of adolescent development. Similarly, Rather (2010) posits that adolescents who successfully achieve personality adjustment are more likely to attain cognitive maturity, experience emotional stability, and are better positioned to realize personal life goals. If the current situation remains unaddressed, adolescents in Kirinyaga East Sub-County may be at risk of developing severe personality and psychological disorders. These may manifest as rebellious behavior, defiance toward authority, disregard for rules and regulations, violent conduct, and school dropout tendencies. Such outcomes pose not only individual developmental setbacks but also broader social consequences, potentially contributing to increased insecurity and compromising the wellbeing of future generations in the county.

Research objectives

To assess the influence of adolescents' cognitive development on personality traits formation among boys in public day secondary schools in Kirinyaga East Sub County

Research hypothesis

H0₁: *Adolescents' cognitive development has no significant influence on personality traits development among boys in public day secondary schools in Kirinyaga East Sub County.*

HA₁: *Adolescents' cognitive development has no significant influence on personality traits development among boys in public day secondary schools in Kirinyaga East Sub County.*

Materials and methods

The study adopted a mixed methods approach that combined both qualitative and quantitative research techniques. This design enabled a more comprehensive and deeper understanding of the research problem than the use of a single method [9]. Qualitative data consisted of open-ended information collected through interview schedules, which was categorized and interpreted to extract meaningful insights. Quantitative data were gathered using structured questionnaires and subjected to statistical analysis.

The study population comprised 2,524 individuals from 34 public day secondary schools in Kirinyaga East Sub-County. This included 136 form masters or mistresses, 136 class teachers, 68 Heads of Departments in Guidance and Counseling, 1,173 Form Two students, and 1,011 Form Three students. The focus was on boys aged 15 to 17 years, considered the peak of adolescent cognitive and personality development. Form One students were excluded because most were still in early adolescence, while Form Four students, typically aged 18 to 24, were also excluded since they had likely achieved most developmental milestones. This selection ensured that the study targeted the age group most relevant to the study.

The sample size for the study was determined using Yamane's formula:

$$n = N / 1 + N (e)^2,$$

where:

n – represented the sample size;

N – represented the target population = 2524;

e – represents the precision error.

Therefore, the study sample size was calculated as follows

$$n=2524/1+2524(0.05)^2$$

$$n=345$$

Thus, a sample of 345 respondents was selected. Purposive sampling was used to select 19 form masters/mistresses, 19 class teachers, and 9 Heads of Departments for Guidance and Counseling. Simple random sampling was used to select 160 Form Two and 138 Form Three students.

Data collection involved the use of both questionnaires and interview schedules. Questionnaires were administered to the Heads of Guidance and Counseling and to the sampled Form Two and Three students. Interviews were conducted with form teachers and form masters/mistresses to gather qualitative data on adolescents' cognitive and personality development.

After data collection, both qualitative and quantitative data were analyzed in line with the study objectives. Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the data. To examine the relationship between cognitive development and personality traits, multiple linear regression analysis was employed. The regression model used was:

$$Y = \beta_0 + \beta_1 x_1 + \varepsilon_i$$

where, Y – represented personality traits;

β_0 – Intercept;

β_1 – Slope coefficient;

x_1 – cognitive development;

ε_i – Error term.

The findings were presented in the form of model summaries, ANOVA tables, and coefficient tables. Qualitative data were analyzed thematically and described narratively. Tables and figures were used where appropriate to aid in presenting the findings clearly and concisely.

Results and discussion

The objective of the study was to examine the influence adolescents' cognitive development on personality traits. A 5-point Likert scale was

used where SD symbolized strongly disagree, D symbolized disagree, UD symbolized undecided, A symbolized agree and SA symbolized strongly agree. The results were as presented in Table 1.

Table 1.
Students Response on Cognitive Development

Statements		SA	A	UD	D	SD	Mean	Sd
1. Currently am making decision immediately without thinking basing on friend's opinion	f	62	161	9	10	9	4.02	0.87
	%	24.7	64.1	3.6	3.9	3.6		
2. It is hard to solve a problem alone because I always want to hear what my friends think of the problem	f	65	154	11	11	10	4	0.91
	%	25.8	61.3	4.4	4.4	3.9		
3. I always come with new ideas to impress my friends	f	62	162	8	7	12	4.02	0.91
	%	24.7	64.5	3.2	2.8	4.8		
4. I always feel independent	f	65	154	11	11	10	4.03	0.97
	%	25.8	61.3	4.4	4.4	3.9		
5. I always want to do own decision making	f	62	162	8	7	12	4.1	0.91
	%	24.7	64.5	3.2	2.8	4.8		
6. People tells me I have become complicated in thinking	f	70	79	36	36	30	4.08	0.71
	%	27.8	31.3	14.4	14.4	12.1		
7. I have tried some risky behavior	f	62	162	8	7	12	4	0.91
	%	24.7	64.5	3.2	2.8	4.8		
8. My friends complain that I have mood swings	f	70	79	36	36	30	4.02	0.91
	%	27.8	31.3	14.4	14.4	12.1		
9. Sometimes I react on issues in a volatile manner	f	62	162	8	7	12	4.03	0.97
	%	24.7	64.5	3.2	2.8	4.8		
10. My seniors Judgement lapses	f	52	160	10	17	12	4.1	0.91
	%	20.7	63.7	4.0	6.8	4.8		
11. My family members say that I have changed my interactions	f	70	79	36	36	30	4.02	0.91
	%	27.8	31.3	14.4	14.4	12.1		

Table 1 showed that 223(88.8%) of the respondents agreed and 19(7.6%) of the respondents disagreed that currently they are making decision immediately without thinking basing on friend's opinion. Further the study findings showed in terms of means and standard deviation that currently they are making decision immediately without thinking basing on friend's opinion (Mean, =4.02, SD = .87). This agrees with the

studies done by [23; 24] that indicated that adolescents are making decision immediately without thinking, basing on friend's opinion. Teacher 10 a male noted that:

Different individuals at adolescence stage develop the ability to think in different diversities at different rates. With time, they are able to think independently without considering other people's opinions. They start applying logic in academics and in their personal lives [Tr 10, Male, 43 years].

Also, 219(87.3%) of the respondents agreed and 21(8.4%) of the respondents disagreed with the statement that it is hard to solve a problem alone because they always want to hear what my friends think of the problem. Further the study findings showed in terms of means and standard deviation that It is hard to solve a problem alone because they always want to hear what my friends think of the problem (Mean, =4.00, SD = .91). This agrees with the study done by [17], that noted that it is hard to solve a problem alone because they always want to hear what my friends think of the problem. Teacher from school 11 said that:

Adolescence is a stage where individuals develop thinking processes that are complex. They start thinking about abstract things and thinking creatively [Tr 1, Male, 43 years]

Table 2 shows that 224(89.2%) of the respondents agreed and 19(7.6%) of the respondents disagreed that they always come with new ideas to impress my friends. Further the study findings showed in terms of means and standard deviation that they always come with new ideas to impress my friends (Mean, =4.02, SD=0.91). Findings agree with those found by [10]; [11] that stated that adolescents always come with new ideas to impress their friends. Teacher 4, a female from school 10 noted that:

Teenagers have the ability to think about social healthy relationship without concentrating so much on what their friends and peers have to say. They go through a great transition of their thinking [Tr 10, Female, 38 years].

Comparison to the other cognitive development of the boys, the majority of them agreed with the statements which depict an influence of the development on personality traits. The same objective was assessed through the data collected from the head of departments. The results are presented in Table 2.

Table 2.

HODs Response on Cognitive Development

Statements		SA	A	UD	D	SD	Mean	Sd
1. The boys make rash decision without thinking which sometimes lead them to troubles	f	3	2	1	2	1	3.44	0.89
	%	33.3	22.2	11.1	22.2	11.1		
2. The boys cannot solve simple problems on their own and always come for advice	f	2	3	2	1	1	3.44	0.98
	%	22.2	33.3	22.2	11.1	11.1		
3. The boys always try to come up with new ideas to impress their friends	f	1	1	3	2	2	2.67	0.9
	%	11.1	11.1	33.3	22.2	22.2		
4. The boys tend to make independent decisions without consulting	f	3	2	1	2	1	3.44	0.89
	%	33.3	22.2	11.1	22.2	11.1		
5. The boys want to do own decision making	f	2	3	2	1	1	3.44	0.98
	%	22.2	33.4	22.2	11.1	3.9		
6. Boys have become complicated in thinking	f	1	1	3	2	2	2.67	0.9
	%	11.1	11.1	33.3	22.2	22.2		
7. The boys have reported some risky behaviour	f	3	2	2	1	1	3.44	0.89
	%	33.3	22.2	22.2	11.1	11.1		
8. The boys' peers complain that some have mood swings	f	2	3	2	1	1	3.44	0.98
	%	22.2	33.4	22.2	11.1	3.9		
9. Some boys react on issues in a volatile manner	f	1	1	3	2	2	2.67	0.9
	%	11.1	11.1	33.3	22.2	22.2		
10. The boys have judgment lapses over issues	f	2	3	2	2	0	3.44	0.98
	%	22.2	33.3	22.2	22.2	0.0		
11. The boys' family members complain that they have mood swings	f	2	3	2	1	1	3.44	0.98
	%	22.2	33.4	22.2	11.1	3.9		

Table 2 shows that 3(33.3%) of the respondents strongly agreed and 3(22.2%) of the respondents disagreed that boys make rash decision without thinking which sometimes led them to troubles. Further the study findings showed in terms of means and standard deviation that currently they are making decision immediately without thinking basing on friend's opinion (Mean =3.44, S.D = 0.89). Findings tally with the study by [3] that noted that boys make rash decision without thinking which sometimes led them to troubles.

Also, 5(55.6%) of the respondents agreed and 2(22.2%) of the respondents disagreed with the statement that boys cannot solve simple problems

on their own and always come for advice. Further the study findings showed in terms of means and standard deviation that boys cannot solve simple problems on their own and always come for advice (Mean =3.44, S. D= 0.98). These findings concurs with those done by [7]; [8], that boys cannot solve simple problems on their own and always seek advice mainly from peers.

Table 3 also shows that 2 (22.2%) of the respondents agreed and 4(44.4%) of the respondents disagreed that boys always try to come up with new ideas to impress their friends. Further the study findings showed in terms of means and standard deviation that they always not come with new ideas to impress my friends (Mean =4.02, S.D =.91). These findings concurs with the study done by [13]; [14] that noted that boys always try to come up with new ideas to impress their friends. Similarly, trends are shown in the statements regarding making independent decisions, becoming complicated in thinking, reporting some risky behavior, incidences of mood swings, reacting on issues in a volatile manner and having judgment lapses over issues.

Correlation analysis was used to assess the relationship between the cognitive development and personality traits formation. Correlation analysis results are presented in Table 3.

Table 3.
Correlation Analysis Results

		Personality traits	Cognitive adjustment
Personality traits	Pearson Correlation	1	
	Sig. (2-tailed)		
Cognitive development	Pearson Correlation	.548**	1
	Sig. (2-tailed)	.000	

** Correlation is significant at the 0.01 level (2-tailed).

As shown in Table 3, the study revealed a strong positive correlation between cognitive development and personality traits, $r = .548$, $p < .01$. According to [6], a correlation coefficient (r) ranging from .10 to .29 is considered weak, .30 to .49 is considered moderate, and .50 to 1.0 is considered strong. Regression analysis was subsequently conducted to examine and explore the spatial relationships between variables, providing insight into the factors underlying the observed patterns. Regression

analysis is also used to as an extrapolative to assess the value of one variable given the value of one variable. The study performed a regression analysis and the model summary is presented in Table 4.

Table 4.

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.652	.425	.416	.34607

Table 4 shows that the regression analysis yielded an R value of .652, $R^2 = .425$ and adjust $R^2 = .416$. This means that about 42.55 of the variation in personality traits among the adolescent boys can be accounted by cognitive development. ANOVA was performed to ascertain the model fitness. This is summarized in Table 5.

Table 5.

Model Fitness Results (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	21.795	4	5.449	45.496	.000 ^b
Residual	29.463	246	.120		
Total	51.258	250			

The results in Table 5 shows that overall model fit was statistically significant, $F(4, 246) = 45.496$, $p < .001$, $\alpha = .05$ significance level. Therefore, the model provided a reliable basis for predicting personality traits formation based on cognitive development variables.

In order to develop the regression model, the regression coefficients were determined and are presented in Table 6.

Table 6.

Regression Analysis Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.712	.209		8.185	.000
Cognitive development	.130	.062	.170	2.093	.037

The findings in Table 6 indicate that cognitive development have a positive and statistically significant influence on personality traits, $\beta = .130$, $p < .05$. This implies that, holding other variables constant, a one-

unit increase in cognitive development would result in a .130 increase in the predicted score for personality traits.

Therefore, the final regression model is:

$$y = 0.712 + 0.130x + \varepsilon,$$

where y represents personality traits, and x denotes cognitive development.

The model is statistically significant confirming the predictive power of cognitive development on personality traits at the .05 significance level.

The research hypothesis stated: HO_1 : *Adolescents' cognitive development has no significant influence on personality traits among boys in public day secondary schools in Kirinyaga East Sub-County*. However, based on the regression results, the null hypothesis was rejected. The findings revealed a *statistically significant relationship between cognitive development and personality traits among boys in public day secondary schools in Kirinyaga East Sub-County*, with a standardized beta coefficient of $\beta = 0.130$ and a significance level of $\rho = .037$.

The study findings showed that currently Adolescents boys are making decision immediately without thinking basing on friend's opinion. Boys making rash decision without thinking sometimes led them to troubles. The study findings agree with [26], who asserts that adolescents go through cognitive development to be able to make decisions on their own without necessarily getting views from their teachers, parents and peers. They are responsible of decisions they make in their day to day life and ready to face any outcome of their decisions. Adolescents develop different problem-solving skills when faced with any difficult situation in life, they apply these skills to enable them to solve any problem facing them such as coping with peers' pressure, accepting their new roles in the society and choosing the right friends. Adolescents develop advanced reasoning skills.

Adolescents' boys experience to be hard to solve a problem alone because they always want to hear what my friends think of the problem. Boys cannot solve simple problems on their own and always come for advice. The study results agree with [2] who asserts that Adolescents develop the ability to think creatively. They can come up with new ideas that did not exist previously and apply them in beneficial way. They in-

vent new ways to do things in their lives at home and schools. Adolescent boys always come with new ideas to impress their friends. The study results agree with [2] who assert that adolescents who have a problem with their cognitive development find it difficult to think independently, make decision on their own, think creatively and solve the problems they encounter in day-to-day life.

The application of Adolescence Development Dimension Theory can help in comprehending dimensions of adolescent development and this knowledge promotes positive youth development. Understanding these key concepts can help to put in place positive attitude that benefit the social and economic prosperity of communities. In terms of educational implications, adolescence is considered to be one of the most dynamic, intense, and influential periods of human development. Therefore, educators should be aware of the cognitive development and personality traits of adolescents and design educational programs that meet their developmental needs. For example, adolescents are more capable of abstract thinking and reasoning, so educators can design programs that challenge their thinking and encourage exploration and risk-taking. Adolescents also have a strong desire to contribute to others, so educators can design programs that provide opportunities for them to engage in community service and leadership activities. Finally, adolescents are developing a positive sense of self and belonging, so educators can design programs that promote positive self-esteem and a sense of belonging to a community or group.

Conclusions

1. There is a strong positive correlation between cognitive development and personality traits for adolescent boys
2. There is a statistically significant relationship between cognitive development and personality traits among adolescent boys.
3. The study concluded that adolescent boys make decisions based on peer influence.
4. There is need to equip the boy girl with problem solving skills to aid in good decision making.

5. The study recommends future study to focus on influence of cognitive development on personality traits formation among adolescents girls.

Ethics Committee Conclusion. This is to inform you that Mount Kenya University has reviewed and approved your research proposal.

Informed consent. Participants were informed that their data would remain strictly confidential and would be used solely for research purposes. They confirmed that the study was clearly explained, they understood their involvement, and they could withdraw at any time without giving a reason. They also acknowledged that their information would be kept private. Finally, they provided their signature and date to confirm voluntary consent and receipt of the form.

Conflict of interest information. We, Kezzy Wawira Wanjira and Benson Njoroge Wanjiru, affirm that we have no financial, personal, or professional interests that could be perceived to influence the outcomes or interpretation of this study.

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