Intelligence Beliefs as Predictor of Academic Engagement among Form Three Students in MERU County, Kenya

Munanu Ruth Ncororo[1]
Student, Kenyatta University,
Education Psychology Department,
P.O Box 43844-00100, Nairobi, Kenya,

Dr. WawireChrispus Koinange[2]
Education Psychology Department,
Kenyatta University,
P.O Box 43844-00100, Nairobi, Kenya,

Dr. Anthony Muriithi Ireri[3]
Education Psychology Department,
Kenyatta University,
P.O Box 43844-00100, Nairobi, Kenya,

ABSTRACT
Academic engagement is a major determinant of students' success in their academic pursuit. However most studentsin the world show low engagement in their academic tasks. Most of the reviewed studies on academic engagement were done mainly among university students outside Kenya. The current study aimed at establishing, prediction of academic engagement by intelligence beliefs among form three students in Meru County, Kenya. Characteristics among secondary school students in Meru County, that suggest low academic engagement included: strikes, destruction of school property, absenteeism and school dropout, low transition and completion rates, examination malpractices and academic under achievement. The study used implicit self-theories of intelligence. The research design was convergent parallel mixed methods. The sample was 813 students from 15 public secondary schools. Multistage sampling – purposive, cluster, and random sampling – were used. Quantitative data were collected using implicit self-theories scale, and Engagement versus Disaffection with Learning– Student Report. Qualitative data were collected using focus group interview guide. The researcher sought approval for data collection from Kenyatta University Graduate School and TheNational Commission for Science, Technology and Innovations. The researcher consulted with the respective principals, and class teachersfor data collection. Collecteddata were, coded, fed into the computer, and analyzed using SPSS version 25. Regression analysis was used to test the hypotheses. Intelligence beliefs had positive statistically significant prediction on academic engagement. Exploratory analysis revealed gender differences with regard to intelligence beliefsand academic engagement, in favour of the males. Qualitative data were analyzed thematically. The findings were presented in tables, interpreted, discussed and conclusions and recommendations made. The study findings led to the recommendation that, all the stakeholders in education should together aim at fostering positive intelligence beliefs to boost academic engagement which will in turn lead to academicsuccess.
Key words: Intelligence beliefs, incremental intelligence beliefs, fixed intelligence beliefs, academic engagement, form three students.

I. Background of the Study

Academic engagement is the effort and the energy the student is willing to expend on their academic tasks. Academic engagement captures many positive students' characteristics linked to learning, retention in school, school transition and completion, and the ultimate academic success (Alrashidi, et al., 2016; Hancock &Zubrik, 2015; Krause & Armitage, 2016). Academic engagement is a multidimensional or a meta-construct, encompassing behavioral, cognitive and affective dimensions (Krause & Armitage, 2016; Ming-Te& Eccles, 2013;Trowler, 2016).The behavioral dimension targets positive classroom behavior like: completion of

homework, presence in class, participation in class activities, and persistence especially in the face of challenges, and ultimate completion of school (Elmore & Huebner, 2010; Krause & Armitage, 2016;Trowler, 2016). The emotional component features connectedness with school and schoolwork (Alrashidi, et al., 2016;Blondal&Adalbjarnardoltir, 2012;Hancock &Zubrick, 2015). Students who are not academically engaged lack enthusiasm, enjoyment, eagerness to learn, and instead, display frustration, resignation, discouragement, apathy, sadness and dejection (Elmore & Huebner, 2010).

Low academic engagement is presentamong secondary school students in Meru County,in various ways. Rimbere (2012) noted very poor transition rates from primary to secondary school. Studies based in Meru also cite absenteeism, low transition, low completion rates, and high school dropout among both secondary and primary school students (Muthaa, et al., 2012; Mwingirwa, 2016).The county experienced occasional secondary school strikes in the year 2016. An article by Manyara (2016, July 18) in the '*Daily Nation*' newspaper, described schools in the county, where students were sent home for setting various school facilities on fire. Kenya Digital News (2018, July 2), reported that 35 secondary schools in Kenya experienced strikes and students' unrest in the month of July, 2018. Nine of the 35, that is 29%, were from Meru County. Examination cheating has also been reported in Meru County. Muchui (2016) reported that in 2013, Meru County had the highest number (471 students) of KCSE results cancellations. In 2015 KCSE, 218 students spread in 18 centres, were involved in examination malpractices and had their results cancelled.

The studies done in Meru County relate external factors such as: family backgrounds, parental involvement, economic factors, school structural environment and administrative factors among others, to academic engagement. These studies in Meru County have delved on factors outside the learner. The current study looked into intelligence beliefs, which is an intrapersonal and a developmental quality of the learner (Blackwell, et al. (2017).Dweck (2000) says that the intelligence beliefs that students hold affect the energy which they are willing to expend on their learning tasks. Therefore, the intelligence beliefs that the student holds influences their learning behaviour.

1.2 The purpose of the Study
The purpose of this study was to find out how intelligence beliefs predict academic engagement among form three students in Meru County, Kenya. This is important because academic engagement is a major factor for students' success in education and in their future career.

1.3 Objective of the Study
The objective of the study was to examine how intelligence beliefs predict academic engagement among form three students in Meru County.

1.3 Theoretical Framework
The implicit self-theories of intelligence were used. The theory were developed by Dweck (2000). Dweck came up with two opposing theories of intelligence among students: entity and incremental theories. The entity theorists, believe that intelligence is a predetermined, immutable, and a fixed/unchanging entity. Incremental theorists, on the other hand, regard intelligence as an increasable, malleable, modifiable and a controllable quality (Dweck, 2000). Schwinger (2021) agreed with Dweck's on the possibility that though people identify with one of the two theories as they grow, there is about 15% of the population who display mixed beliefs about the malleability of their ability. Kraker-Pauw (2020) had advanced the same idea of mixed intelligence beliefs when he classified intelligence beliefs into three levels namely: entity, intermediate and incremental. According to Dweck (2000), implicit intelligence theories guide students into creating a meaning system that guide them in learning. Other terms that Dweck used for theories of intelligence were: intelligence beliefs (Andreanne et al., 2015), intelligence views (Bame-Aldred, 2013), ability beliefs (Luo, et al., 2018), and, mindset (David, 2015; Mithila, et al., 2016; Mutua, et al., 2018)). The current study adapts the term intelligence beliefs.

According to Martin, et al. (2013), people who believe that their intelligence is incremental, are more likely to pursue the pathway of academic engagement. They display characteristics such as: adaptive and mastery learning strategies (Burnette, et al., 2013; Luo, et al., 2014), deeper learning strategies, problem-solving and self-regulatory behaviors (Molden& Dweck, 2006). On the other hand, those students who hold entity intelligence beliefs show: helplessness and self-handicapping tendencies, pessimism, procrastination, and other negative attitudes especially in the face of academic challenges (De Castella & Byrne, 2015;Wawire, 2010; Zhao and Li, 2016),). They report reduced practice prior to tests, poorer coping strategies when under stress, and give up easily on slight hardship (Howell &Buro, 2009). These characteristics describe students lacking in academic engagement. They don't expend energy and effort in their academic tasks. The end results are likely to be poor academic achievement.

II.   Review of Related Literature

Dupeyrat and Marine (2004) carried out a study among French students who had returned to school for a special one-year program giving them equivalence of the high school diploma necessary for enrolling in the university. They sought to find out the relationship between implicit intelligence beliefs and learning orientation goals. The sample consisted of 76 (45 females and 31 males) of ages ranging from 20-49 years. The path analysis results contradicted the hypothesized situation that, incremental beliefs would relate positively with learning goals and fixed beliefs with performance goals. Instead, incremental beliefs positively correlated with performance goals, and fixed intelligence beliefs with learning goals. The contradiction may have been due to the age factor. Costa and Faria (2018) brings in cultural differences in the outcomes of academic mindset where they describe the European community, where French belongs, as being an academically competitive society which encourages individual results. In such a circumstance, there is individual effort to outshine others irrespective of the intelligence beliefs they hold. Akpan and Umobong (2013) noted a significant influence of age on academic engagement, with older students scoring higher. However the question that remains unanswered is why the incremental theorists did not experience the same motivation with age? In addition, Dupeyrat and Marine's (2004) sample was small and from only one institution, hence limiting representativeness and generalizability of the results. The researcher of the current study was thus persuaded that a larger sample size drawn from different school types would probably yield different results.

Bame-Aldred (2013) conducted a quasi-experiment to find out the effects of implicit theories of intelligence on the time spent, effort and decision accuracy on a professional task of 81 working accounting and auditing students from six universities in the United States. The participants performed a series of three accounting tasks: an easy task, a difficult and another easy task. They had access to seven different resource documents to assist with the tasks. Software–Spector Pro v. 6.0 – recorded time, and the strokes on the resource materials to indicate the effort and task engagement. Bame-Aldred established that implicit intelligence beliefs of the participants had no effect on the amount of time, effort and decision accuracy in the first easy task. Fixed intelligence beliefs holders scored higher than incremental intelligence beliefs holders, in time, effort and decision accuracy in the difficult task. This was interpreted as high task engagement.

In Bame-Aldred's study, incremental intelligence beliefs holders were disengaged contradicting the hypothesis of implicit self-theories of intelligence which would predict that fixed beliefs persons, lag behind in decision making accuracy, effort and time spent on the task. Msimanga (2014) argues that, even fixed beliefs persons may be as endowed as incremental beliefs people and with practice and positive attitude, they can increase on their intelligence and task engagement. Diseth, et al (2014) also argue older persons may tend towards fixed beliefs but still record higher task engagement. Probably another cause of the contradicting results could be that the role of fixed intelligence beliefs was mitigated by expertise in the job-related tasks that they were performing. Quasi experiments lack in random assignment of participants hence the test groups are usually not equivalent, leading to limited generalizability and limited conclusions about the causality between the variables.

Zhao and Li (2016) studied the relationship between implicit theories of intelligence and perceived enjoyment in Physical Education (PE) in three high schools in Southern China. The sample was 252 (122 boys and 130 girls) grade 12students of ages 16–18 years. Participants' ability theories were assessed using Implicit Theories of Ability in Sports' while their perceived enjoyment in PE was tested using a 4-item scale. The correlational analysis indicated positive correlation between incremental theories of intelligence and perceived enjoyment in PE which for the purpose of the current study is equated to academic task engagement. Balog and Pribeanu (2010) argued that perceived enjoyment in a task translates to task engagement; the more the learners perceive a task as enjoyable the more they engage in it. There is need to test whether intelligence beliefs would lead to the same effects on academic tasks and in an African set up. Cocodia (2014) says the implicit theories of intelligence that people hold, may vary from one culture to another, and that the African notion of intelligence may differ with that of the Western countries. The current study comes in to test the prediction of intelligence beliefs on academic engagement among Kenyan secondary school students.

The reviewed literature has shown that some studies agreed with the hypothesized situation that those who score highly in intelligence beliefs also score highly in academic engagement. However, others contradicted the hypothesis of intelligence beliefs theory and instead incremental intelligence beliefs either predicted negative learning characteristics, or had no effect. This necessitated the current study either to confirm or disconfirm the findings.

III.   Research Methodology

The study used a convergent parallel mixed methods research design (Creswell, 2014). This design was focused on gathering both quantitative and qualitative data, at a single phase, analyzing the data separately, and comparing the results side by side. The results of qualitative data were useful in confirming the findings of quantitative data. The target population was all the form three students in Meru County. The accessible

population was the form three students from 15 schools selected into the study. Multistage sampling was used, that is, purposive sampling to select Meru County and form three students, cluster sampling to select the school types, and random sampling to select a stream in case a school had more than one. Questionnaires were filled by 813(383 boys and 430girls). Out of the 813, 29 respondents participated in guided focus group interview. The participants' ages ranged from 15-22 years, and average age of 17.8 years. Data analysis was done using regression analysis and the results were presented in in tables. Qualitative data were presented thematically. Consent form for data collection was filled by the principals of the schools that participated. The purpose of the study was explained to the principals, the class teachers and the students, in order to fulfill the ethical considerations.

IV. The Study Findings

This section has four areas: the descriptive statistics of intelligence beliefs and academic engagement and their domains, hypothesis testing, the findings, and the discussion of the findings.

4.1.1 Description of Participants' Intelligence Beliefs

Students' intelligence beliefs were measured using the 8-item implicit theories of intelligence scale by Dweck (2002). The intelligence beliefs' minimum score was (20.00), maximum score was (40.00), range of (20.00), and mean ($M = 30.02$, $SD = 3.71$). The Skewness was (-.04) while the Kurtosis was (-.16). The descriptive statistics of the domains of intelligence beliefs was also computed and the results presented in Table 1.

Table 1
Descriptive Statistics of the Domains of Intelligence Beliefs

Sub-Scale	Range	Min	Max	M	SD	Sk	Kur
FIB	16	4	20	14.95	.76	-.74	.28
IIB	16	4	20	15.07	.73	-.68	.20

Note:N=813; FIB=Fixed Intelligence Beliefs; IIB=Incremental Intelligence Beliefs; *Min* =Minimum, *Max*=Maximum, *SD* =Standard Deviation; *Sk* = Skewness, *Kur*= Kurtosis

The data in Table 1 shows that the incremental intelligence beliefs mean score was higher (M=15.07) than that of fixed intelligence beliefs (14.95). The distribution of both domains were negatively skewed implying that the respondents might have exaggerated their intelligence beliefs scores. The kurtosis values were less than three implying platykurtic, that is, widely spread out distribution. The descriptive statistics of academic engagement scores was done and the findings were: the maximum score was 132 and minimum of 71, giving rise to a range of 61. The mean of academic engagement was ($M = 101.08$, $SD = 12.60$). The descriptive statistics analysis of the domains of academic engagement was also done, to find out their descriptions. The results are in Table 2.

Table 2
Descriptive Statistics of Domains of Academic Engagement

Variable		Range	Min	Max	M	SD	Sk	Kur
BAE	30	34	64	48.79	6.40	-.05	- .49
EAE	31	37	68	52.29	6.24	.17	- .26

Note. *N*=813; BAE = Behavioural Academic Engagement; EAE = Emotional Academic Engagement.
The results in Table 2 show that emotional academic engagement had higher mean ($M = 52.29$, $SD = 6.24$) compared to behavioural academic engagement which had a mean of ($M = 48.79$, $SD = 6.40$).

4.2 Hypothesis Testing

The hypothesis was stated as follows:
H_{01}: There is no significant prediction equation of intelligence beliefs on academic engagement among form three students.
This hypothesis was tested using linear regression analysis. The results showed that intelligence beliefs was a significant positive predictor of academic engagement. According linear regression analysis, intelligence explained 38% ($R^2 = .38$, $p < .05$) of the variations of academic engagement. The null hypothesis was therefore rejected. Two supplementary hypotheses, following the domains of intelligence beliefs, were formulated from the main hypothesis, for in-depth analysis. They were stated as follows.

$H_{01.1}$: There is no significant prediction equation of incremental intelligence beliefs on academic engagement among form three students in Meru County

$H_{01.2}$: There is no significant prediction equation of fixed intelligence beliefs on academic engagement among form three students in Meru County

The two supplementary hypothesis were tested using multiple linear regression analysis. The findings were that the two domains combined accounted for 46% ($R^2 = .46$). Further analysis was done to find out the predictive weights of each domain on academic engagement. The results are in Table 3.

Table 3
Beta Coefficients of the Domains of Intelligence Beliefs on Academic Engagement

Variable	B	β
Constant	36.76	-
IIB	2.86	.67
FIB	1.42	.34

Note. *N*=813; IIB = Incremental Intelligence beliefs, FIB = Fixed Intelligence Beliefs,

The data in Table 3 indicates that the predictive weight of incremental intelligence on academic engagement was ($\beta = .67, p < .05$) while that of fixed intelligence beliefs was ($\beta = .34, p < .05$). The two supplementary null hypotheses were rejected. The prediction equation from the analysis was as follows:

$$\tilde{y} = 36.76 + .67 \text{ (IIB)} + .34 \text{ (FIB)} \ (R^2 = .46) \ p < .05.$$

Where: $\tilde{y}$ = Predicted academic engagement score, IIB = Incremental Intelligence Beliefs, FIB = Fixed Intelligence Beliefs. Incremental intelligence beliefs therefore is the best predictor of academic engagement, among the two domains of intelligence beliefs. The equation implies that for every increase in the standard deviation of Incremental Intelligence Beliefs and Fixed Intelligence Beliefs, Academic engagement increases by .67 and .34 points respectively.

4.3 Interaction of Intelligence Beliefs and Academic Engagement by Gender.

The descriptive statistics of intelligence beliefs academic engagement by gender and the tests of the interaction effects were presented in this section. The results are in Table 4.

Table 4
Description of Intelligence Beliefs and Academic Engagement by Gender

		N	M	SD	Max	Min	Sk	Kur
Intelligence Beliefs	Male 383	30.84	3.80	40.00	21.00	-.21	-.25	
	Female	430	29.29	3.44	40.00	20.00	-.02	.91
Academic Engagement	Male 383	104.19	13.07	132.00	72.00	-.16	-.49	
	Female	430	98.30	11.48	131.00	71.00	.13	-.08

Note. *N*=813; *M*=Mean; *SD*=Standard Deviation; *Max* = Maximum; *Min*=Minimum; *Sk*.= Skewness; *Kur*= Kurtosis

The findings in Table 4 show that the males had mean of (*M*=30.84, *SD* = 3.8) higher than females (*M*=29.29, *SD* = 3.44), in intelligence beliefs. Independent samples t-test was performed to find out whether there were statistically significant differences of both intelligence beliefs and academic engagement by gender. The results were presented in Table 5.

Table 5
Independent Samples t-test of Academic Engagement based on Gender

	F	Sig.	t	df	p	M	SE
Equal variance assumed	9.84	.00	6.85	811	.00	5.90	.86
Equal variance not assumed			6.80	765.5	.00	5.90	.87

Note. *N* = 813; *F* = critical value of F; *df* = degrees of freedom; *M* =mean; *SE* = Standard Error; *p*< .05

Table 4.5 shows result of the independent-samples t-test indicating statistically significant difference in intelligence beliefs means by gender ($t (811) = 6.80, p < .05$). Therefore equal variance was not assumed. There were statistically intelligence beliefs means difference by gender.

4.3 Qualitative Findings

From the interviews, most participants endorsed an incremental intelligence beliefs while a few embraced fixed intelligence beliefs. The respondents were asked to comment on the statement, "I cannot change my academic performance or my intelligence, it is the way I have been born. I have nothing I can do. No matter

my effort, my intelligence will remain the way it is now." A respondent said, "The reason I am in school is so that I can increase my intelligence." Another said, " There are some who no matter their effort, they cannot change their performance". This implies that some students may embrace incremental intelligence beliefs for themselves but fixed intelligence beliefs for others.

V.   Discussion of the Findings
The findings of the current study were consisted with those of Martin et al. (2013) who also found that the more malleable or dynamic the students' theories of intelligence were, the higher the levels of academic engagement. The same was echoed by Zhao and Li (2016) whose study among the Chinese high school students, reported that intelligence beliefs positively correlated with perceived enjoyment of physical education, equivalent to academic engagement in the current study. Other studies sought to correlate intelligence beliefs and task engagement related characteristics. All these studies agree with the findings of the current study that the higher the intelligence beliefs scores, the higher the academic engagement of learners. Once students believe in the malleability of their intelligence, they give energy to their academic tasks.

However, contradicting patterns were found in several other studies. Results of an earlier study by Dupeyrat and David (2004) among French college students showed incremental beliefs correlating negatively with learning goals, an ingredient of academic engagement. On a similar note, a study by Bame-Aldred (2013) among working auditing and accounting students in six universities in the United States, reported that both incremental and fixed intelligence beliefs correlated positively with time management, effort and decision making accuracy. This failed to bring out the difference in the influence of intelligence beliefs on engagement styles. The contradiction in these two studies may be due to the age of the respondents. Dupeyrat and David (2004) and Bame-Aldred (2013) respondents were adults. Other factors like experience at work might have added to their performance and not merely the intelligence beliefs they held. Diseth et al. (2014) alleged that age affects intelligence beliefs with the older folk tending toward fixed intelligence beliefs while still upholding high task engagement.

VI.   Conclusions and Recommendations
It is clearly apparent that intelligence beliefs is a strong positive predictor of academic engagement. Therefore the researcher recommends that the stake holders of education are careful to reward effort in students other than inborn ability so that the learners can put energy in their learning tasks.

Conflicts of Interest Statement
There is no conflict of interest at all.

Data Availability Statement
The raw data supporting the findings of this study will be made available by the author.

Ethics Statement
A written informed consent was signed by the principals of the participating schools. The researcher addressed the participant to assure them of confidentiality in handling their responses. The introductory part of the questionnaire requested members not to write any identification mark on the questionnaire.

References
[1].   Akpan, I. D., &Umobong, M. E. (2013). Analysis of achievement motivation and academic engagement of students in the Nigerian classroom. *Academic Journal of Interdisciplinary Studies, 2*(3),385. https//:doi.org/10. 5901/ajis. 2013.v2n3p385.
[2].   Alrashidi, O., Huy, P. P., & Bing, H. N. (2016). Academic engagement: An overview of its definitions, dimensions, and major conceptualizations. *International Education Studies*, *9* (12). http://doi.org/10.5539/ies.v9n12p41.
[3].   Andreanne, R., Frederic, G., Denis, T., Genevieve, T., & Richard, K. (2015). The relations between implicit intelligence beliefs, autonomous academic motivation, and school   persistence intentions:

a mediation model. *Social Psychology Education*, *18*, 255–272 https://doi.org/10.1007/s11218-014-9288-0.

[4]. Balog, A., &Pribeanu, C. (2010). The Role of perceived enjoyment in the students' acceptance of an augmented reality teaching platform: A structural equation modeling approach. *Studies in Informatics and Control*, *19*(3), 319-330. https://doi.org/ 10.24846/v19i3y201011.

[5]. Bame–Aldred, C. (2013). The impact of implicit theories on professional decision making. *Journal of Behavioural Studies in Business, 66*(3), 1-17 www.aabri.com/manuscript/11963.pdf.

[6]. Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent tradition: A longitudinal study and an intervention. *Child Development*, *78(1)*, 246-263. https://doi.org/ 009.3920/2007/7801-0014

[7]. Blondal, K.S., &Adalbjardottir, S. (2012). Student engagement in relation to expected and unexpected education pathways. *Scandinavian Journal of Educational Research*, *56*(1), 85-100. https://doi. org/10.1080/00313.2011-568607.

[8]. Burnette, J. L., O'Boyle E. H., VanEpps E. M., Pollack J. M., &Finkel E. J. (2013). Mind- sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychology Bulletin*. *139*, 655–701. https://doi.org/ 10.1037/a0029531.

[9]. Cocodia, E. A. (2014). Cultural perceptions of human intelligence. *Journal of Intelligence*, *2*, 180-196. https://doi.org/ 10.3390/jintelligence2040180.

[10]. Costa, A., &Faria, C. (2018). Implicit Theories of Intelligence and Academic Achievement: A Meta-Analytic Review. *Frontiers Psychology*, *9*, 829**.** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5996155.

[11]. Creswell, J. W. (2014, 4th.ed). *Research design: qualitative, quantitative and mixed methods approaches*. Washington DC: Sage Publications.

[12]. David, L. (2015). Mindset theory – fixed vs. growth mindset (Dweck), in learning theories,https://www.learning-theories.com/mindset-theory-fixed-vs-growth- mindset-dweck.html.

[13]. De Castella, K., & Byrne, D. (2015). My intelligence may be more malleable than yours: The revised implicit theories of intelligence (self -theory) scale is a better predictor of achievement, motivation, and student disengagement. *European Journal of Psychology of Education, 30*(3), 245-267. https://doi.org/10.1007/s10212-015-0244-y.

[14]. Diseth, A., Meland, E., &Breidablik, H. J. (2014). Self-beliefs among students: grade level and gender differences in self-esteem, self-efficacy and implicit theories of intelligence. *Learning Individual Differences, 35*, 1-8.: 10.1 https://doi.org/ 016/j.Lindif.2014.003.

[15]. Dupeyrat, C., & Marine, C. (2004). Implicit theories of intelligence, goal orientation, cognitive engagement and achievement: A test of Dweck's model with returning to school adults. *Contemporary Educational Psychology*, *30*, 43-59. http://doi.org/10.1016/j.cedpsych.2004.01.007.

[16]. Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Philadelphia, PA: The Psychology Press.

[17]. Elmore, G., & Huebner, S. (2010). Adolescents' satisfaction with school experiences: Relationships with demographics, attachment relationships, and school engagement behavior. *Psychology in the Schools, 47,* 525-537. http://dx.doi.org/10.1002/pits.20488.

[18]. Hancock, K. J., &Zubrick, S. R. (2015). *Children and young people at risk of disengagement from school*. Commissioner for Children and Young People.

[19]. Howell, A. J., &Buro, K. (2009). Implicit beliefs, achievement goals and procrastination: A meditational analysis. *Learning and Individual Differences*, *19*,151-154.

[20]. Kenya Digital News (2018, July 12). *Complete list of secondary schools affected by fire and students unrest*. Kenya Digital News. www.kenyadigitalnews.co.ke .

[21]. Kraker-Pauw, E., Wesel, F.V., Krabbendam, L. Attevelde, N. V. (2020). Students' beliefs about the nature of intelligence (mindset). *Journal of Adolescent Research.* https://www.researchgate.net/publication/346406318

[22]. Krause, K. L., & Armitage, L. (2016). *Australian student engagement, belonging, retention and success: A synthesis of the literature.*https://www.heacademy.ac.uk.

[23]. Luo, W., Liem, G. A. D., & Lee, K. (2018). Implicit beliefs of ability and maladaptive learning: Does self- efficacy matter? *An International Journal of Experimental Educational Psychology*. (Abstract). https://doi.org/10.1080/01443410.2018.1510115.

[24]. Manyara, D. (2016, July 18). 300 students spend night in cold as fire destroys dorm. *Nation Media Group.* www.nation.co.ke/countie/meru.1183302-3299592-xgvkvqz/index.html.

[25]. Martin A. J., Nejad H., Colmar S., &Liem G. A. D. (2013). Adaptability: How students' responses to uncertainty and novelty predict their academic and non-academic outcomes. *Journal of Educational Psychology*. *105,* 728–746. https//doi.org/10.1037/a0032794.

[26]. Ming-Te, W., & Eccles, S. J. (2013). School context, achievement motivation, and academic engagement; using multidimensional motivation. *Learning and Instruction, 28*, 12-23.

[27]. Mithila, J., Yaffa, M. V., &Martin, V. P. (2016). A survey of mindset theories of intelligence and medical error self-reporting among pediatric house staff and faculty. *Biomedical Education Journal, 16*, 58. https://doi.org/ 10.1186/s12909-016-0574-8.

[28]. Molden, D. C. & Dweck, C. S. (2006). Finding "meaning" in psychology: A lay theories approach to self-regulation, social perception, and social development. *American Psychologist*, *61*(3), 192-203.

[29]. Msimanga, A. S. (2014). *Talking science in South African high school: Case studies of grade 10-12 classes in Soweto*.www.http//hdl.handle.net10539/13341.

[30]. Muchui, D. (2016, March 05). KNEC blamed for failing to curb examination leakages. *The Daily Nation*, pp. 1A, 2A.

[31]. Muthaa, G. M., M'muyuri, M. M., Bururia, D., &Mwenda, E. E. (2013). Dropout among male pupils in primary schools of Igembe District, Kenya. *Creative Education*, *4*(3), 180-184. https://doi.org/10.4236/ce.2013.43026.

[32]. Mutua, J. N., Kinai, T., &Ndambuki, P. (2018) Academic mindset as predictors of academic achievement among public secondary school students in Nairobi County, Kenya. *International Journal of Education and Research, 6*(2), 183-198. www.ijern.com.

[33]. Mwingirwa, N. (2016). *The factors leading to high dropout rates in Kenyan secondary schools: A case study of secondary schools in Igembe North*, *Meru County*. (Unpublished masters' thesis). Kaimosi, Kenya: Friends University.

[34]. Ngunu, S. N. (2019). *Causal attributions and academics as correlates of academic achievement in secondary schools in Kiambu County, Kenya.*(Unpublished PhD thesis). Nairobi: Kenyatta University.

[35]. Rimbere, K. L. (2012). *Establishing barriers in transiting from primary to secondary education in MirigaMieru West Division, Meru County*. (Unpublished master's thesis). Nairobi: Kenyatta University.

[36]. Schwinger, M., Trautner, M., Nadine, P., Fabianek, S., Lemmer, G., Lauermann, F., &Wirthwein, L. (2021). Why do students use strategies that hurt their chances of academic success? A meta-analysis of antecedents of academic self-handicapping. *Journal of Educational Psychology*. 1-21. https://doi.org/10.1037/edu0000706

[37]. Trowler, V. (2016). *Student engagement literature review*. https://www.heacademy.ac.uk/system/files/studentengagementliteraturereview_1.pd.

[38]. Wawire, C. K. (2010). *Predictors and consequences of self- handicapping and defensive pessimism among students in selected high schools in Nairobi Province, Kenya.*(Unpublished doctoral thesis). Nairobi, Kenya: Kenyatta University.

[39]. Zhao, Q. M. S.,&Li, W. (2016). The relationship between Chinese high school students' implicit theories of ability in sports and perceived enjoyment in physical education. *Journal of Teaching, Research, and Media in Kinesiology, 3,* 1-7.