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# Practices in Parental Involvement in Type 1-6 of Epstein Typologies Significantly Predicting the Level of Parental Education Knowledge Base in Mathematics Curriculum Content

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***Abstract:*** *This descriptive-correlational study examined whether the level of parental involvement in type 1-6 of Epstein typologies influenced the level of parents' education knowledge base in Mathematics curriculum content. Data was collected from selected Seventh - day Adventist primary schools in Central Kenya Conference. Questionnaires were used to collect data from 291 parents. The study suggests that there is a significant relationship between the level of parental involvement in the parenting typology and the level of parents' education knowledge base in Mathematics curriculum content in grade group A, parenting typology was the best predictor for the level of parents' education knowledge base in Mathematics curriculum content in grade group A, learning at home typology was the best predictor for Mathematics curriculum content in grade group B and decision-making typology was the best predictor for mathematics curriculum content in grade group C. The study recommended that parents, teachers and communities manifest themselves into cultivating partnerships to enable all stakeholders to participate in decision making, which will empower the learner to sail through learning process.*

***Keywords:*** *Mathematics, Knowledge, Epstein, Typology, Content, Curriculum, Predictor*

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## 1. Introduction

As schools have pushed into the 21st century educational needs, researchers, educators, and parents, have championed the idea of a reciprocal relationship between schools and home alike (Knopf & Swick, 2007). Many researchers maintain that the more parents are involved in their children's education, the greater the effect on achievement. This spike in achievement is especially true in the early years (Cooper & Crosnoe, 2007; Cotton & Wikelund, 2001; Darch, Miao, & Shippen, 2004; and McWayne et al., 2004). Furthermore, Barton, Drake, Perez, St. Louis and George (2004) discovered that parents who spent time in school developed relationships with school staff and felt more comfortable to address teachers when their children were experiencing difficulties.

According to Mapp (2012), parents can support schools by knowing what changes are occurring in school practices and instruction. Parents who are not informed cannot participate fully in schools. Edwards (2009) noted that teachers have a list of things they tell parents to do: read to your child, be a good literate model, take your child to the library, check all the assignments among others. When asking the parents to do all these tasks, the teachers assume a level of understanding that

parents 'know' what they (the teachers) are asking them to do. However, sometimes, parents have other iterations of what they interpret teacher's words to be (Edwards, 2009).

Research conducted by The Graduate School; University of Wisconsin-Stout as presented in Horvatin & Lindsay (2011) described a range of barriers standing in the way of parent engagement. These include a lack of time among working parents; negative prior experiences with schools; an inability of parents to help children with their homework; limited funding to support parent engagement activities; teachers and administrators connecting to parents primarily when their children misbehave; and a lack of staff training in different strategies to engage parents (Horvatin & Lindsay, 2011).

Williams and Sanchez (2011) also looked at the obstacles that prohibit parental involvement in education, especially for inner-city African American parents. In their study, parents were not feeling empowered, capable or confident in their ability to help their children in academic work. The study suggested that educators develop tools to empower parents not only in certain subject areas, but also in unfamiliar or nontraditional curricula changes in the education system (Williams & Sanchez, 2011).

National Middle School Association, (NMSA) (2000) established that parent involvement by itself can lead to gains, but when paired with other types of school improvements and curriculum enrichments, its effects can be even greater. The outcomes will depend on many factors including the way parents are involved, the achievement measures used to measure academic outcomes (e.g., grades or test scores), the academic subjects that are being measured (e.g., math or languages), and the socioeconomic background of students (National Middle School Association, 2000).

While a significant relation between parent involvement and a child's academic performance is well established, studies have yet to examine whether the parents are knowledgeable with the curriculum taught to their children that they (parents) get involved with day in day out. The goal of the present study was to assess the level of parent involvement in education and the level of parents' knowledge base in curriculum content. The study also examined the six variables that may mediate, or explain if, the level of parent involvement in education predicted the level of parents' knowledge base in curriculum content. The parental involvement typologies formed the independent variables while the curriculum content formed the dependent variables.

The level of parental involvement was measured through the assessment of the mean ratings for parental involvement in the six typologies as theorized in Epstein model for viewing different levels of parent involvement. On the other hand, the level of parents' education knowledge base was measured through the assessment of the mean ratings for parents' confident level in curriculum content as mandated in the national curriculum guide (syllabus) in Kenya. The mean ratings for parents' education knowledge base in curriculum were then regressed on the Epstein's six parental involvement typologies.

In Kenya, the Kenya Institute of Curriculum Development (KICD), formerly known as, the Kenya Institute of Education (KIE) is the body mandated to develop curricular and curriculum support materials for all levels of education below the University. Curriculum support materials are in both Print and Digital formats. Kenya Institute of Curriculum Development is a State Corporation established by KICD Act. No. 4 of 2013 (Wango, 2011).

To study the eight grades (classes) in primary school level of education, the grades were clustered as follows: grade group A (lower primary school class 1-3), grade group B (lower upper primary school class 4 & 5) and grade group C (upper primary school class 6,7 & 8). The curriculum content was derived from mathematics as an examinable subject as shown in Table 1.

**Table 1: Classification of the Grade Levels and Grade Groups in the Primary School**

| Grade Levels (Classes) | Grade Groups |
|---|---|
| **1 – 3** | **A** |
| **4 – 5** | **B** |
| **6 – 8** | **C** |

The study focused on the parental involvement in curriculum issues as defined by Epstein et al. (2011) based on the school practices. This perspective is based on shared responsibilities, emphasizes the coordination and cooperation of schools and families and encourages communication and collaboration between the two institutions (Epstein, 2011). School-family partnership activities have been grouped into a typology consisting of six categories. Epstein (2010) offered a model that outlined six components of home-school partnerships as summarized in Figure 1.

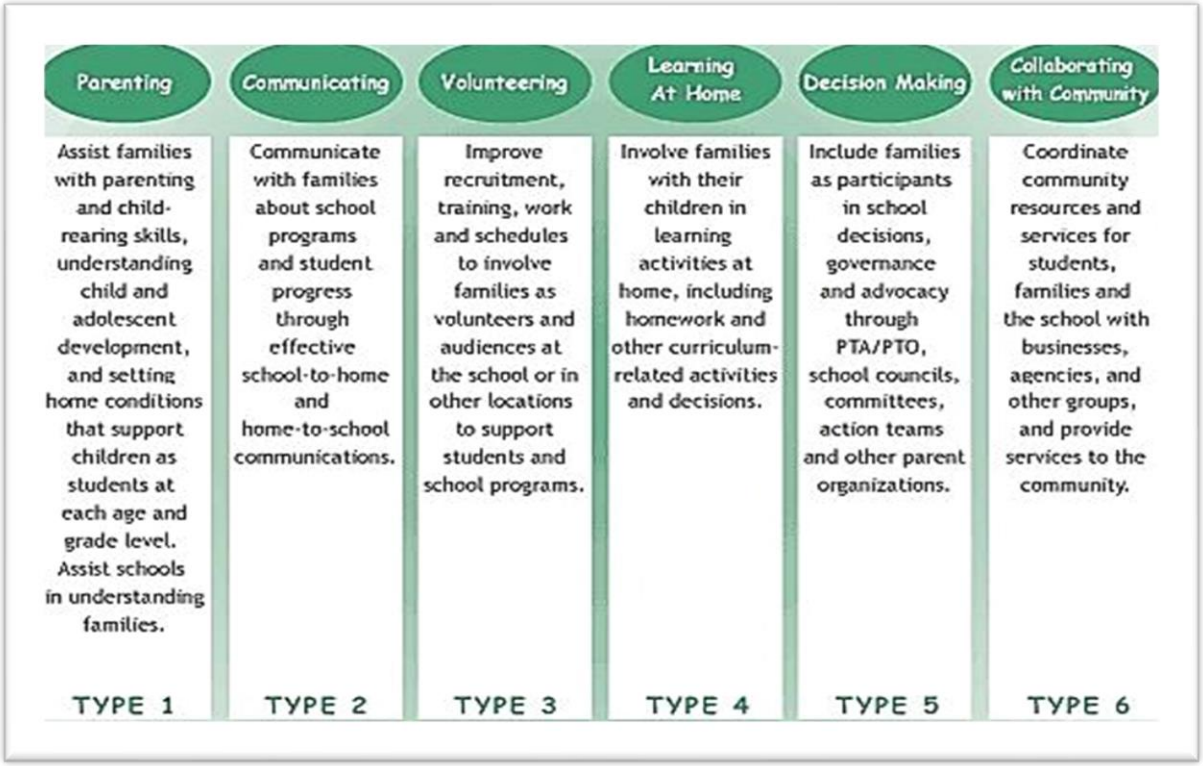


**Figure 1: Epstein's six types of parental involvement in education**
(Source: Epstein et. al. (2010), Partnership Center for the Social Organization of Schools)

# 2. Literature Review

## 2.1 An Overview of Parental Involvement in Education

Parental involvement in education has been a topic of interest for many years among those who are concerned with improving academic achievement for children (Hoover-Dempsey & Sandler, 1997). Traditionally, education has been viewed as the exclusive job for the experts in the education sector whereby the teachers are viewed as the sole educators of the child (Bridgemohan, Wyk & Staden, 2005). However, times have changed. Of late, schools have shifted from restricted professionalism to open a debate on actual parental involvement in school life, which has enabled the development of closer ties between the home and the school, translating into enhanced attendance and higher academic achievement.

Hoover-Dempsey, Battiato, Walker, Reed, DeJong, and Jones (2001) explained that the body of research by then consisted primarily of descriptive accounts of what parents do when they are involved, what teachers or schools do to invite parent involvement, and what student outcomes are related to parent involvement.
Early studies have reviewed literature on parent involvement in their children's homework. Many researchers recognize the important role, a strong positive bond between homes and schools play in the development and education of children (Sanders & Sheldon, 2009; Richardson, 2009; Sheldon, 2009; Edwards & Alldred, 2000; Kabarere, Makewa, Muchee, & Role, 2013).

Research has also shown that successful students have strong academic support from their involved parents (Sheldon, 2009). Furthermore, research on effective schools, those where students are learning and achieving, has consistently shown that these schools, despite often working in low social and economic neighbourhoods, have strong and positive school-home relationships (Sanders & Sheldon, 2009; Sheldon, 2009). More importantly, these effective schools have made a real effort in reaching out to their students' families in order to bring about liaison and cooperation (Sheldon, 2009).

Bryk and Schneider (in Sanders & Sheldon, 2009) maintained that schools become successful when a strong and positive relationship among students, parents, teachers and the community has been established. All students are more likely to experience academic success if their home environment is supportive (Sanders & Sheldon, 2009; Henderson & Berla, 1994). The benefit for students of a strong relationship between schools and homes is based on the development of trust between parents and teachers. According to Bryk and Schneider (in Muscott et al.,

2008), this trusting relationship occurs when teachers and parents respect one another and believe in the ability of the other person and his or her willingness to fulfil their responsibilities.

Research has regularly shown that with increasing parental participation in their children's education student success rate increases. According to the Department of Education (2004) in the United States, studies have shown that students with involved parents are more likely to earn higher grades, pass their class and be promoted, they are more likely to attend school regularly and graduate and go on to postsecondary education, irrespective of their socio-economic status. Jerry Trusty (in Henderson & Mapp, 2002) concurred with this statement and claimed that the level of parental involvement in high school influences the students' expectations to finish college. In addition, Obeidat and Al-Hassan (2009) maintain that not only do children with involved parents gain academically, but also, they are more likely to show improved behavior and to have better social skills.

Epstein et al. (2002) drew three key conclusions about parental involvement in the education of their children. First, parental involvement tends to decline across the grades unless schools make conscious efforts to develop and implement partnerships with parents. Reasons for this declining pattern include parents' lack of familiarity with curriculum at the higher grades; adolescents' preferences to have their parents stay involved in less visible ways; parents' decisions to return to the work force once their children gain more independence; and secondary teachers' lack of awareness of how to effectively involve parents at the higher levels.

Second, according to Epstein et al. (2002) affluent parents tend to be involved in school more often and in positive ways, whereas economically distressed parents have limited contact with schools, and usually in situations dealing with students' achievement or behavior. Schools that work on building relationships with all parents, however, can equalize the involvement of all socioeconomic groups. Finally, single parents, employed parents, fathers, and parents who live far from the school, on average, are less involved in the school unless the school organizes opportunities that consider these parents' needs and circumstances (Epstein et al. 2002).

# 3. Methodology

## 3.1 Research Design

This study adopted a descriptive- correlational research design. According to Jackson (2009), descriptive research design is a scientific method, which involves describing the behavior of a subject without influencing it in any way. Descriptive studies are usually the best methods for collecting information that will demonstrate relationships and describe the world as it exists.

Correlational research design, on the other hand, determines whether a relationship or association exists between two or more variables, but cannot determine if one variable causes another. Although correlational research cannot determine causality, it is useful for predicting the level of one variable based on knowledge of the other variable. In this study, parental involvement formed the independent variables while the parent education knowledge base in curriculum content formed the dependent variables.

## 3.2 Population and Sampling Techniques

This study was conducted in Adventist-owned schools in Central Kenya Conference (CKC) of the Seventh-day Adventist church. CKC covers sixteen political counties nationwide and eight stations according to the church geographical demarcation. There were 64 primary schools with a total enrollment of 9,643 pupils (statistical data presented in the CKC end year executive committee report on 24$^{th}$ – 25$^{th}$ November 2015 by the Education Director).

The study covered all the 8 grades (classes) in primary section. The grades were grouped into 3 categories. Grade group A comprised of the lower primary section class 1-3. Grade group B comprised of the middle primary section class 5 and 6. Grade and group C comprised of the upper primary section class 6, 7 and 8.

Purposive sampling was used to select only the Adventist owned primary schools with the complete primary section running from grade 1 through grade 8, under the same managerial and environmental setting. The purpose of this sampling was to minimize extraneous variables that could be influenced by the diversity of ecological factors in the in-complete level of the primary school section. The assumption here was that the parents under similar managerial and environmental settings were likely to generate data that was comparable within the grade levels. The day school setting enhanced a daily connection between the school and the home thus ensuring an active relationship between the school and home environment.

A total number of 22 primary schools was selected from different stations across the conference with a total number of 5630 primary school pupils.

Due to limitations in this research study, it was unrealistic to include all the parent population as the participants. Cluster sampling was used to classify schools according to their stations, only five stations were included in the study. Three stations did not have

any school that had a complete primary school section. Some had only pre-schools while others had grades up to class 6 or 7. Using random sampling, the researcher randomly picked one school from each cluster thus having a total number of five primary schools with the enrollment of 1200 pupils all together.

Finally, to get a sufficient and non-biased sample size, the sample size table was used to dictate the sample size of the participating parents regardless of their children's grades. According to the table (appendix K), the recommended minimum sample size of population of 1200, at a confidence level of 95%, and a margin of error (degree of accuracy) of 0.05 would be 291 children in primary schools. To have a balanced number of parents in each grade group, a ratio of 1:1:1 was used. Therefore, the total sum of participants N= 291 was divided by 3 to get N= 97. An equal number of parents from each grade group was therefore selected to participate in the study.

Purposive sampling was used to ensure that the expected sample size was realized by maximizing the school enrollments whereby the school(s) with more parents in specific grade group compensated for the schools with fewer parents in the respective grade groups.

## 3.3 Research Instruments

The research design adopted in this study necessitated the use of survey questionnaires for data collection. There was one type of questionnaire for parents with two sections. The questionnaire was researcher-developed. The researcher developed section 1 of the questionnaire based on the related studies and literature of parental involvement according to Epstein's six typologies while section 2 was developed based on the curriculum content as described in the syllabus documents of each grade.

Section 1 had 3 parts. The first part gathered demographic information about the parent. The second part had 6 sub-sections with 42 items of information on the level of parental involvement in the six typologies based on the school practices. These typologies included parenting, communication, volunteering, learning at home, decision-making, and collaboration. A four-point scale with the choices of Disagree (1), Tend to disagree (2), Tend to agree (3) and Agree (4) was used to tabulate the levels of parental involvement in their children's education. To define the levels of parents' involvement, the mean scores of the respondent groups were interpreted as follows: 1.00-1.49 = Disagree, 1.50-2.49 = tend to disagree, 2.50-3.49 = tend to agree and 3.50- 4.00 = agree.

Section two of the parent questionnaire gathered information on the parent familiarity on the curriculum content based on specific subjects in each grade group. Grade group A, B and C had 50 items from the 5 subjects namely English, Kiswahili, Mathematics, Science and Social studied in the primary school level of education.

A four-point scale with the choice of Not at all confident (1), Not very confident (2), somehow confident (3) and Very confident (4), was used to ascertain the level of parent knowledge base in education of their children. In order to define the levels of parent education knowledge base, the mean scores of the respondent groups were interpreted as follows: 1.00-1.49 = Not at all confident, 1.50-2.49 = Not very confident, 2.50-3.49 = Somehow confident and 3.50-4.00 = Very confident.

## 3.4 Validity of the Instrument

To ensure that the instruments measured the construct, content, and face validity, the researcher consulted the supervisors who were both specialists in curriculum studies and research methodologies who examined the content of the instruments and indicated the degree to which they gather the intended information. Suggestions made by the supervisors were used to improve the instruments. Peer review was also used to enhance content validity of the instruments.

## 3.5 Reliability of the Instrument

Joppe (2000) defined reliability as the extent to which results are consistent over time and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered reliable. To ensure reliability in this study, Cronbach's alpha coefficient was used to measure internal consistency of the instrument within each category studied. Cronbach's alpha coefficient is a measure of internal consistency showing the degree to which all items in the test measure the same attribute (Polit & Beck, 2008). A reliability coefficient of 0 .60 and above was acceptable.

The instruments were piloted in one school, which was not to be involved in the actual study. The survey data on which the reliability was established were based on results collected from 47 parents from grade 1-8 in primary school level of education. The reliability levels indicated by the surveys were effective for research purposes. The reliability coefficients for the parent surveys ranged from moderate ($\alpha$ = .70) to high ($\alpha$ = .95). This was a respectable level of reliability when considering that coefficients are most reliable as they approach 1.0 on a 0 to 1 continuum.

The piloted instruments were improved by excluding those statements that contributed to the increase of the reliability upon their deletion. The instruments were also improved by restructuring the words in some

statement to make them more relevant and positive. A few questionnaires were analyzed to check the appropriateness of the analyzing procedures. After the approval of the supervisor in charge of research methods, the improved version of the questionnaire was used to collect the data.

## 3.6 Data Gathering Procedures

Before the initiation of the study, the proposal and the research instruments were submitted to the supervisors and ethics committee of the University of Eastern Africa, Baraton for approval for data collection and for ethics clearance, respectively. A letter of introduction was obtained to seek for the research permit from Ministry of Education, Science and Technology department of the National Commission for Science, Technology and Innovation (NACOSTI). Permission was then obtained from the office of the Education Director at the conference and from the principals of the selected schools to use the parents from their schools for this study.

Using the contact information gathered from the schools prior to the data collection exercise, the researcher booked an appointment time with each one of them and arrange the mode of questionnaire delivery and the appropriate time and place when the two parties could meet to issue and fill the questionnaire. On the appointment day and time, the researcher introduced herself to the participant and issued the participant with the letter of informed consent and the questionnaire.

The researcher had initially planned to wait upon the participant to fill in the questionnaire and attended to any clarification needed. However, most parents requested to be left with the questionnaire overnight in order to study and fill the questionnaire keenly. The parents then sent the pupil with the questionnaire whereby the researcher received the questionnaire back through the school administration. Only a few parents were able to fill in and complete the questionnaire as the researcher waited upon him/her. Upon the completion of the filling of the questionnaires in whichever way, the researcher checked if all the parts of the instruments were filled as expected.

## 3.7 Statistical Treatment of Data

After the collection of data, questionnaires from the field were reviewed and coded to quantify the data. The questionnaire information was entered into the computer software- Statistical Package of the Social Sciences (SPSS) version 23. After entering the information in the variable view and verifying the accuracy in the data view, the analysis was done according to the research question. Descriptive and inferential statistics were used to analyze the data.

For research question 1, descriptive analysis was processed to provide summaries about percentages, means, and standard deviation as the statistical measure to determine the level of parental involvement in type 1-6 of Epstein typologies (parenting, communicating, volunteering, learning at home, decision-making, and collaborating with the community) in the current school practices based on grade groups A, B and C.

## 3.8 Ethical Considerations

Ethical aspects of this study were effectively addressed following the guidelines as proposed by (Bryman & Bell, 2007). First, respect for the dignity of research participants was prioritized in every aspect of interaction and communication. Second, full consent was obtained from the participants prior to the data collection exercise and the protection of the privacy of research participants was ensured. Third, adequate level of confidentiality of the research data was ensured by coding the managing and storing the data documents in restricted access only to be availed to the research team associated with this study. Anonymity of individuals and schools participating in the research was also ensured by unrevealing the names, identity, and any link of the individual participants and schools. Finally, any type of communication and reporting in relation to the research was done with honesty and transparency avoiding any type of misleading information, as well as representation of primary data findings in a biased way.

The research instruments were submitted to the supervisors and ethics committee of the University of Eastern Africa, Baraton for scrutiny, in order to ensure that the questionnaires did not contain any degrading, discriminating or any other unacceptable language that could be offensive to any member of the sample group. The committee also ensured that the questionnaire had been designed to collect information directly related to the research questions, and no private or personal questions were asked from respondents.

# 4. Results and Discussion

### 4.1 Predictors of Parental Knowledge of Mathematics Curriculum Content

**Grade A guiding question:** *Which school practices in parental involvement in type 1-6 of Epstein typologies significantly predict the level of parents' education knowledge base in Mathematics curriculum content in grade group A?*

Table 2 shows that parenting typology was the best predictor for the level of parents' education knowledge base in Mathematics curriculum content in grade group A. The adjusted R Squared shows that 10.4 % of the

variance in the Mathematics curriculum content in grade group A was accounted for by the parenting typology.

**Table 2: Model Summary for Mathematics Curriculum Content in Grade Group A**

| Model Summary | | | | |
|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** |
| **1** | .337[a] | .113 | .104 | .68718 |
| **a. Predictors: (Constant), Mean rating for parenting typology in grade group A (class 1-3).** | | | | |

According to Epstein (2009) schools have a role in helping parents to meet their obligations at every age level of a child in order to positively influence a child's development and growth. This can be done by organizing activities that increase parental skills and knowledge in bringing up their children. Epstein (2001) lists activities that can be useful in strengthening and sharpening families' parental skills as parental education workshops and family support programs. These activities are of importance when it comes to ensuring a home environment that supports learning by children (Epstein, 2001).

The coefficient Table 2 shows the stepwise multiple linear regression estimates including the intercept and the significance levels. The significance level of .001 ($p < .05$), indicates that we can reject the null hypothesis that X does not predict Y. We therefore accept that there is a significant relationship between the level of parental involvement in the parenting typology and the level of parents' education knowledge base in Mathematics curriculum content in grade group A.

**Table 3: The Coefficients for Mathematics Curriculum Content in Grade Group A**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | | **Unstandardized Coefficients** | | **Standardized Coefficients** | **T** | **Sig.** |
| | | B | Std. Error | Beta | | |
| **1** | (Constant) | 2.162 | .366 | | 5.909 | .000 |
| | Mean rating for parenting typology in grade group A (class 1-3). | .371 | .106 | .337 | 3.486 | .001 |
| **a. Dependent Variable: Mean rating for Mathematics curriculum content in grade group A (1-3).** | | | | | | |

Table 3 shows that the unstandardized coefficient constant is 2.162. In this case, the intercept is 2.162, so when X=0, Y will be equal to 2.162. The other coefficients are b variables, or the slope of the line. For each 1-unit change in X, Y will change by b units. In this model, the slope is .371.We can therefore equate the coefficients into the formula to predict Y using a value of X.

$Y = b0 + b1x1,$

$Y = 2.162 + .371 * X$

If X=1, then $Y = 2.162 + (.371*1) = 2.533$.

If X= 2, then $Y=2.162+ (.371*2) = 2.904$ etc.

**Grade B guiding question:** *Which school practices parental involvement in type 1-6 of Epstein typologies significantly predict the level of parents' education knowledge base in Mathematics curriculum content in grade group B?*

Table 4 shows the best predictor for the level of parents' education knowledge base in Mathematics curriculum content in grade group B was learning at home typology. The adjusted R Squared shows that 15.8 % (16%) of the variance in the Mathematics curriculum content in grade group B was accounted for by learning at home typology.

**Table 4: Model Summary for Mathematics Curriculum Content in Grade Group B**

| Model Summary | | | | |
|---|---|---|---|---|
| **Model** | R | R Square | Adjusted R Square | **Std. Error of the Estimate** |
| **1** | .408[a] | .166 | .158 | .61042 |
| **a. Predictors: (Constant), Mean rating for learning at home typology in grade group B (class 4 & 5).** | | | | |

Learning at home parental involvement typology involves providing ideas and information to the families on the different ways they can help the students to undertake the curriculum related activities such as

homework and decisions that may impact on their academic life. Learning at home as the best predictor for Mathematics implies that if parents will be actively engaged with their children' Mathematics homework, significant and meaningful improvements will be consistently observed for both standardized test scores and grades as noted by(Sheldon & Epstein, 2005; Harris & Goodall, 2008; Altschul, 2011).

The coefficient Table 5 shows the stepwise multiple linear regression estimates including the intercept and the significance levels. The significance level ($p < .05$), indicates that we can reject the null hypothesis that X does not predict Y. We therefore accept that there is a significant relationship between the level of parental involvement in the learning at home typology and the level of parents' education knowledge base in Mathematics curriculum content in grade group B.

**Table 5: The Coefficients for Mathematics Curriculum Content in Grade Group B**

| Coefficients[a] | | | | | |
|---|---|---|---|---|---|
| **Model** | | **Unstandardized Coefficients** | | **Standardized Coefficients** | **T** | **Sig.** |
| | | B | Std. Error | Beta | | |
| **1** | (Constant) | 2.215 | .269 | | 8.220 | .000 |
| | Mean rating for learning at home typology in grade group B (class 4 & 5). | .356 | .082 | .408 | 4.353 | .000 |

**a. Dependent Variable: Mean rating for Mathematics curriculum content in grade group B (class 4 & 5).**

Table 5 shows the unstandardized coefficient intercept (constant). In this case, the intercept is 2.215, so when X=0, Y will be equal to 2.215. The other coefficients are b variables, or the slope of the line. For each 1-unit change in X, Y will change by b units. In this model, the slope is. 356.We can therefore equate the coefficients into the formula to predict Y using a value of X.

Y = b0 + b1x1,
Y = 2.215+ .356* X.
If X=1, then Y= 2.215 + (.356*1) = 2.571.
If X= 2, then Y=2.215+ (.356*2) = 2.927 etc.

***Grade A guiding question:*** *Which school practices parental involvement in type 1-6 of Epstein typologies significantly predict the level of parents' education knowledge base in Mathematics curriculum content in grade group C?*

Table 6 shows the best predictor for the level of parents' education knowledge base in Mathematics curriculum content in grade group C was decision-making typology. The adjusted R Squared shows that 17.7 % (18%) of the variance in the mathematics curriculum content in grade group c was accounted for by the decision-making typology.

**Table 6 Model Summary for Mathematics Curriculum Content in Grade Group C**

| Model Summary | | | | |
|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** |
| **1** | .431[a] | .185 | .177 | **.84851** |

a. Predictors: (Constant), Mean rating for decision-making typology in grade group C (class 6-8).

The output in Table 6, we can see that the predictor variable of the decision-making is significant because the p-values is .000, less than the common alpha level of 0.05, which indicates that it is statistically significant. Table 49 shows that the unstandardized coefficients intercept $b_0$=1.479 and the slope $b_{1=}$ .488. We find that the multiple linear regression analysis estimates the linear regression function to be $Y= b_0 + b_1x1$. This shows that for every additional unit in the in the level of parental involvement in the decision-making typology, we would expect to see a positive additional unit in the level of parents' education knowledge base in Mathematics curriculum grade group C.

Therefore, for every unit increase in the level of parental involvement in the decision-making typology, we expect an appropriate b1 point increase in the level of parents' education knowledge base in Mathematics curriculum grade group C, holding all other variables constant. We can therefore equate the coefficients into the formula to predict Y using a value of X.

Y = b0 + b1x1,
Y = 1.479 + .488* X.
If X=1, then Y= 1.479 + (.488*1) = 1.967.
If X=2, then Y=1.479 + (.488*2) = 2.943 etc.

**Table 7: The Coefficients for Mathematics Curriculum Content in Grade Group C**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.479 | .351 | | 4.211 | .000 |
| | Mean rating for decision-making typology in grade group C (class 6-8). | .488 | .105 | .431 | 4.651 | .000 |
| a. Dependent Variable: Mean rating for Mathematics curriculum content in grade group C (class 6-8). | | | | | | |

The results for the regression analysis demonstrate a significant and a positive relationship between the mean rating for the decision-making typology and the mean rating for the Mathematics curriculum content in grade group C. This suggests that a higher level of involvement or positive perception of decision-making typology among parents in class 6-8 correlates with higher mean rating for Mathematics curriculum content.

# 5. Conclusion and Recommendation

## 5.1 Conclusion

The purpose of this study was to explore the relationship between parental involvements across type 1-6 of Epstein typologies and parents' knowledge base in Mathematics curriculum content in selected Seventh - day Adventist primary schools in Central Kenya Conference. Data from 291 parents collected using questionnaires revealed significant association between parental involvement across different typologies and parents' knowledge base in Mathematics curriculum content.

In grade group A (class 1-3) parenting typology emerged as the most influential predictor for the parents' knowledge base in Mathematics curriculum content. For grade group B (class 4-5) the learning at home typology was identified as the most significant predictor. Meanwhile, decision-making typology emerged as the leading predictor for parents' knowledge base in Mathematics curriculum content in grade group C (class 6-8).
These results underscore the importance of specific parental typologies in influencing parents' understanding of Mathematics curriculum content across different grade levels.

## 5.2 Recommendations

The study makes the following recommendations:

1. Teachers should create and implement continuous engagement programs tailored to parents' needs that can help enhance their understanding in Mathematics curriculum content and support for their children's education.
2. Schools should empower parents to contribute meaningfully to their children education by encouraging parents' participation in decision –making processes involving Mathematics curriculum content.
3. Teachers should provide accessible resources and guidance for parents to help enrich and update their understanding of the Mathematics curriculum content.
4. Parents should create conducive space and routines that support their children's learning experiences outside of school hours.
5. Schools should customize strategies to match the specific needs and characteristics of different grades and levels to enhance significant parental involvement in specific typologies.


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