# TOLERANCE AND RELATIONSHIP SKILLS AS KEYS TO SECONDARY SCHOOL STUDENTS' IMPROVED PERFORMANCE IN MATHEMATICS IN ENUGU STATE: THE TEACHER' PERCEPTION

BY

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**Abstract**

The main purpose of this study was to determine teachers' perception of Tolerance and Relationship Skills as Keys to Secondary School Students' Improved Performance in Mathematics in Enugu State. Design adopted for the study was descriptive survey design. Two research questions and two hypotheses guided the study. Area of the study was Enugu state of Nigeria. Sample for the study consisted of 311 mathematics teachers in Enugu state. This sample was made up of 202 male and 109 female mathematics teachers. A 29-item structured questionnaire titled Teachers' Perception of Tolerance and Relationship Skills as Keys to Secondary School Students' Improved Performance in Mathematics (QUTREP) was used for data collection. The questionnaire was validated by three research experts. The overall reliability coefficient value for the instrument was .83 obtained through Cronbach's Alpha Method. Mean and standard deviation were used to answer the research questions while z-test statistic was used to test the hypotheses at .05 significant level. From the findings made in this study, it was concluded that secondary school students in Enugu state need tolerance and relationship skills to improve their performance in mathematics. Based on the findings, it was recommended that mathematics teachers should be trained by their employers regularly on the importance of tolerance and relationship skills among learners. Also, both male and female secondary school students should be encouraged to value tolerance and relationship skills since they are not gender biased.

**Introduction**

According to Kayto (2016), tolerance or toleration is the state of tolerating, or putting up with, conditionally. Zadan (2018) added that although tolerance may refer to the capacity to endure continued subjection to something such as a drug or environmental conditions without adverse reaction as well as an allowable amount of variation of specified quantity, especially in the dimensions of a machine or part, in psychology, tolerance is the ability or willingness to tolerate the existence of opinions or behaviour that one dislikes or disagrees with. Generally, tolerance skills are concerned with one's ability to co-exist with people from different culture, tribe, religion, background and class. This co-existence maybe at school, work, market, etc.

Tolerance skills involve ability to co-exist very well with a person of different tribe, religion, ethnicity, socio-status, race and even different manners from that of the adolescent, (Adams, 2016). Moreso, it requires competences to work closely with anyone irrespective of his religious affiliation, tribe, class, status, background, etc. Tolerance skills according to Vasco (2019) form a very vital component of social development competences. This, Cherry explained is because development does not occur in isolation. Development of the total being involves other people either as contributors or beneficiaries of the development. To involve other people, one needs to tolerate them. Secondary school students hardly work alone. Since companions and friends disagree to agree, quarrel and settle, fight and reconcile, tolerance is indispensable, (Enyi, 2017). An adolescents' ability to tolerate his peers, companions and friends may be determined by his home background. It is important to note that parenting style is the foundation upon which home backgrounds are built, (Charles, 2019).

Relationship skills according to Pedro (2018) are those skills that help the adolescent maintain good connection or association with other people. Pedro argued that an adolescent with good relationship skills will avoid making other people feel bad. Thus, he (the adolescent) will

always seek the good, happiness and total wellbeing of other people around him. Becky (2019) suggested that a better strategy for maintain good relationship is one trying to contribute his fair share when relating with other people or when working in a group. Becky averred that a selfish person will naturally lack good relationship skills. Such persons do not value teamwork. In this age of networking, co-existence, co-habitation and interdependence it is vital that secondary school students be groomed to value good relationship, (Al-Jaradeen, 2016). Chieze (2016) hinted that relationship skills entail listening to other people's ideas. Chieze adviced secondary school students to always speak their truth and listen to others, for even the doll and ignorant have their stories to tell. To Pedro (2018) relationship skills address one's competences in relating with other people, not hurting them deliberately and valuing relationship with others. Pedro stated that an adolescent is most likely to protect and preserve relationships which he values.

When one values his relationship with another person, he can hardly willingly hurt such a person. Also when one hurts another person, a way to maintain or restore the relationship between them is to apologies and show reasonable remorse. Al-Jaradeen (2016) listed three attributes of good relationship skills. First is self control or specifically ability to control ones' self when angry. Al-Jaradeen explained that good relationship skills will help an adolescent to control his anger when he has a disagreement with a friend. Another attribute is openness. In openness Lee warned that the adolescent must aim at solving problems that is, proffering solutions to problems that may likely affect relationship negatively, (Cherry, 2015). Secondary school students with this attribute can discuss a problem with a friend without making things worse. The third attribute in Cherry's list is respect for other people's points of view. This Cherry explained, should happen even when the individual has cause to disagree with such views. It should therefore be noted that disagreement with a persons' view does not necessarily mean disrespect for such views especially when such

views are not treated with contempt. Teachers' perception may help in molding good relationship skills. However, there is no definitive conclusion on how teachers' perception influence relationship skills as an index of social development among secondary school students.

Unarguably, secondary school students in Nigeria generally and Enugu state in particular are yet to show the much-desired satisfactory performance in mathematics. A situation where secondary school students continue to show less than fifty percent (50%) credit pass level in mathematics in external examinations such as the West African Senior Secondary School Certificate Examination (WASSCE), National Examination Council (NECO), and National Business and Technical Examinations Board (NABTEB) is most undesirable and unsatisfactory, (Akan, 2017). This low mathematics performance level has been attributed to many factors by research experts. Prominent among the factors are; inadequate teaching methods, non-use of suitable instructional media, learners' poor interest in mathematics, teacher qualifications, poor study habit and lack of useful social development skills required for improved performance in secondary mathematics, (Damte, 2019).

Over the years, mathematics educators and researchers, especially in Enugu State, have paid considerable attention to inadequate teaching methods, non-use of suitable instructional media, learners' poor interest in mathematics, teacher qualifications and poor study habits while tolerance and relationship skills required for improved performance in secondary mathematics seem to have received less attention or almost neglected. Through these skills, the student learns discipline, patience, resilience, perseverance among others, (Amusan, 2015). Strikingly, Mathematics educators have enumerated these skills as keys to improved performance in secondary mathematics. It is therefore worrisome that secondary school mathematics teachers perceive tolerance and relationship skill needed for improved performance differently as shown

by research findings on gender influence over mathematics teachers' perception in this vital construct. This study therefore aimed at bridging these gaps.

**Purpose of the Study**

The main purpose of this study was to determine Teachers' Perception of Tolerance and Relationship Skills as Keys to Secondary School Students' Improved Performance in Mathematics in Enugu State. In specific terms, the study sought to;

i. Investigate the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need tolerance skills for improved performance in mathematics
ii. examine the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need relationship skills for improved performance in mathematics

**Research Questions**

The following research questions guided the study;

1. To what extent do male and female mathematics teachers in Enugu state perceive that secondary school students need tolerance skills for improved performance in mathematics?
2. What is the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need relationship skills for improved performance in mathematics?

**Hypotheses**

The following hypotheses were tested at .05 significant level;

1. There is no significant difference between the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need tolerance skills for improved performance in mathematics

2. The extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need relationships skills for improved performance in mathematics do not differ significantly

**Methodology**

Design adopted for the study was descriptive survey design. Two research questions and two hypotheses guided the study. Area of the study was Enugu state of Nigeria. Sample for the study consisted of 311 mathematics teachers in Enugu state. This sample was made up of 202 male and 109 female mathematics teachers. A 29-item structured questionnaire titled Teachers' Perception of Tolerance and Relationship Skills as Keys to Secondary School Students' Improved Performance in Mathematics (QUTREP) was used for data collection. The questionnaire was validated by three research experts. The overall reliability coefficient value for the instrument was .83 obtained through Cronbach's Alpha Method. Mean and standard deviation were used to answer the research questions while z-test statistic was used to test the hypotheses at .05 significant level.

**Result**

**Research Question 1**

To what extent do male and female mathematics teachers in Enugu state perceive that secondary school students need tolerance skills for improved performance in mathematics?

**Table 1:** mean and standard deviation on research question 4 items

| **Item** | **To what extent do secondary school students need the underlisted tolerance skills for improved performance in mathematics;** | **Male** | | | **Female** | | | **Aggregate** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **SD** | **Decision** | **Mean** | **SD** | **Decision** | **Mean** | **SD** | **Decision** |
| 1 | Co-existing very well with persons of different tribe from theirs. | 2.73 | 0.21 | GE | 2.65 | 0.25 | GE | 2.69 | 0.13 | GE |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Co-existing very well with persons of different religious affiliation from theirs. | 2.60 | 0.91 | GE | 2.60 | 0.15 | GE | 2.60 | 0.44 | GE |
| 3 | Co-existing very well with persons who have very different manners from theirs. | 2.55 | 0.44 | GE | 2.51 | 0.45 | GE | 2.53 | 0.14 | GE |
| 4 | Co-existing very well with persons from the opposite gender | 2.82 | 0.14 | GE | 2.80 | 0.29 | GE | 2.81 | 0.43 | GE |
| 5 | Not minding working closely on jobs with persons of different tribe from theirs | 2.74 | 0.06 | GE | 2.76 | 0.11 | GE | 2.75 | 0.12 | GE |
| 6 | Not minding working closely on jobs with persons of different religious affiliation from theirs | 2.50 | 0.06 | GE | 2.50 | 0.15 | GE | 2.50 | 0.05 | GE |
| 7 | Not minding working closely on jobs with persons of different character from theirs | 2.75 | 0.09 | GE | 2.71 | 0.05 | GE | 2.73 | 0.15 | GE |
| 8 | Not minding working closely on jobs with persons from the opposite gender | 2.61 | 0.43 | GE | 2.63 | 0.11 | GE | 2.62 | 0.98 | GE |
| 9 | Co-existing very well with people who are not approved of, even if they think they are really alright | 2.80 | 0.25 | GE | 2.82 | 0.19 | GE | 2.81 | 0.85 | GE |
| 10 | Being patient with their peers | 2.70 | 0.13 | GE | 2.71 | 0.15 | GE | 2.71 | 0.13 | GE |
| 11 | Not minding being in the same class with persons of different tribe from theirs | 2.75 | 0.95 | GE | 2.75 | 0.21 | GE | 2.75 | 0.12 | GE |
| 12 | Not minding being in the same class with persons of different religious affiliation from theirs | 2.62 | 0.01 | GE | 2.64 | 0.20 | GE | 2.64 | 0.14 | GE |
| 13 | Not minding being in the same class with persons of different character from theirs | 2.59 | 0.21 | GE | 2.61 | 0.15 | GE | 2.60 | 0.75 | GE |
| 14 | Not minding being in the same class with persons from the opposite gender | 2.71 | 0.11 | GE | 2.73 | 0.25 | GE | 2.72 | 0.13 | GE |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 15 | Not minding studying together with persons of different tribe from theirs | 2.60 | 0.04 | GE | 2.58 | 0.55 | GE | 2.59 | 0.13 | GE |
| 16 | Not minding studying together with persons of different religious affiliation from theirs | 2.95 | 0.44 | GE | 2.91 | 0.15 | GE | 2.93 | 0.14 | GE |
| 17 | Not minding studying together with persons of different character from theirs | 2.58 | 0.06 | GE | 2.60 | 0.29 | GE | 2.59 | 0.95 | GE |
| 18 | Not minding studying together with persons from the opposite gender | 2.75 | 0.16 | GE | 2.69 | 0.21 | GE | 2.72 | 0.15 | GE |
| **GRAND** | | **2.68** | **0.26** | **GE** | **2.67** | **0.21** | **GE** | **2.68** | **0.32** | **GE** |

From table 1, the grand mean for male teachers was 2.68 and that of female teachers was 2.67 while the aggregate grand mean was 2.68. These results indicate that both male and female mathematics teachers in Enugu state perceived that tolerance skills are needed by secondary school students for improved performance in mathematics to a great extent. In support of this result, the standard deviation values, (0.26 for male teachers, 0.21 for female teachers, and 0.32 for aggregate) were very little, indicating that there were little or no extreme values. Hence, the mean values so obtained represent the actual perceptions of each group as their individual response scores clustered around the mean.

**Research Question 2**

What is the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need relationship skills for improved performance in mathematics?

**Table 2:** mean and standard deviation on research question 5 items

| Item | To what extent do secondary school students need the underlisted relationship skills for improved performance in mathematics; | Male | | | Female | | | Aggregate | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **SD** | **Decision** | **Mean** | **SD** | **Decision** | **Mean** | **SD** | **Decision** |
| 19 | Avoiding making other people feel bad | 3.61 | 0.35 | VGE | 2.53 | 0.25 | GE | 3.07 | 0.25 | GE |
| 20 | Doing their fair share when they work in groups | 3.66 | 0.25 | VGE | 2.58 | 0.06 | GE | 3.12 | 0.06 | GE |
| 21 | Listening to other people's ideas | 3.72 | 0.25 | VGE | 2.60 | 0.15 | GE | 3.16 | 0.15 | GE |
| 22 | Controlling their anger when they have disagreement with friends | 3.55 | 0.15 | VGE | 2.51 | 0.12 | GE | 3.03 | 0.12 | GE |
| 23 | Ability to discuss problems with friends without making things worse | 3.61 | 0.05 | VGE | 3.01 | 0.13 | GE | 3.31 | 0.15 | GE |
| 24 | Respecting other people points of view | 3.62 | 0.29 | VGE | 2.50 | 0.25 | GE | 3.06 | 0.98 | GE |
| 25 | Avoiding tribal bias in relationships | 3.65 | 0.11 | VGE | 2.75 | 0.23 | GE | 3.20 | 0.85 | GE |
| 26 | Avoiding religious bias in relationships | 3.62 | 0.21 | VGE | 2.60 | 0.11 | GE | 3.11 | 0.99 | GE |
| 27 | Avoiding gender bias in relationships | 3.58 | **0.17** | VGE | 2.50 | 0.25 | GE | 3.04 | 0.26 | GE |
| 28 | Ability to relate well with people they perceive more intelligent than them | 3.70 | 0.35 | VGE | 2.66 | 0.25 | GE | 3.18 | 0.25 | GE |
| 29 | Ability to relate well with people they perceive less intelligent than them | 3.54 | 0.25 | VGE | 2.60 | 0.06 | GE | 3.07 | 0.06 | GE |
| **GRAND** | | **3.62** | **0.22** | **VGE** | **2.62** | **0.16** | **GE** | **3.12** | **0.37** | **GE** |

From the results in table 2, with a grand mean of 3.62, male mathematics teachers in Enugu state perceived that secondary school students need relationship skills for improved performance in mathematics to a very great extent. But their female counterparts, with a grand mean of 2.62, perceived that secondary school students need relationship skills for improved performance in mathematics to a great extent. When analyzed together (aggregate), their responses gave a grand

mean of 3.12, indicating that male and female mathematics teachers in Enugu state jointly perceived that secondary school students need relationship skills for improved performance in mathematics to a great extent.

In each case, the standard deviation values, (0.22 for male teachers, 0.16 for female teachers, and 0.37 for aggregate) were very little, indicating that there were little or no extreme values. Hence, the mean values so obtained represent the actual perceptions of each group as their individual response scores clustered around the mean.

**Hypothesis 2**

There is no significant difference between the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need tolerance skills for improved performance in mathematics

**Table 3: z-test analyses for hypothesis 1**

| Group | n | ẋ | SD | z-calculated | z-critical | Remark |
|---|---|---|---|---|---|---|
| **Male** | 202 | 2.68 | 0.26 | 0.32 | 1.96 | Not significant (Do not reject hypothesis) |
| **Female** | 109 | 2.67 | 0.21 | | | |

From table 3, z-calculated (0.32) is less than z-critical (1.96). Hence, at .05 significant level, the mean ratings of the two groups (male and female) did not differ significantly. Therefore, hypothesis 1 is not rejected as stated, indicating that there is no significant difference between the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need tolerance skills for improved performance in mathematics

**Hypothesis 2**

The extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need relationships skills for improved performance in mathematics do not differ significantly

**Table 4: z-test analyses for hypothesis 2**

| Group | n | ẋ | SD | z-calculated | z-critical | Remark |
|---|---|---|---|---|---|---|
| **Male** | 202 | 3.62 | 0.22 | 2.33 | 1.96 | significant (reject hypothesis) |
| **Female** | 109 | 2.62 | 0.16 | | | |

From table 4, z-calculated (2.33) is greater than z-critical (1.96). Hence, at .05 significant level, the mean ratings of the two groups (male and female) differed significantly. Consequently, hypothesis 2 is rejected as stated, implying that the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need relationships skills for improved performance in mathematics differ significantly in favor of the male teachers.

**Summary of Findings**

Findings made in this study can be summarized thus;

1. Both male and female mathematics teachers in Enugu state perceived that tolerance skills are needed by secondary school students for improved performance in mathematics to a great extent.
2. Male mathematics teachers in Enugu state perceived that secondary school students need relationship skills for improved performance in mathematics to a very great extent while

their female counterparts perceived that secondary school students need relationship skills for improved performance in mathematics to a great extent.

3. The extent to which male and female mathematics teachers in Enugu state perceived that secondary school students need tolerance skills for improved performance in mathematics did not differ significantly
4. The extent to which male and female mathematics teachers in Enugu state perceived that secondary school students need relationship skills for improved performance in mathematics differed significantly.

**Discussion**

Extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need tolerance skills for improved performance in mathematics was the target of research question one. Finding of the study in this regard reviewed that both male and female mathematics teachers in Enugu state perceived that tolerance skills are needed by secondary school students for improved performance in mathematics to a great extent. This finding further validates those of Kayto (2016), Enyi (2017), Charles (2019) and Vasco (2019). These researchers in their independent studies found that secondary school students needed tolerance skills for improved performance in mathematics. On the other hand, Zadan (2018) reported that tolerance skills did not significantly influence secondary school students' performance in mathematics.

Tolerance skills deemed necessary for secondary school students where articulated in this study to include; co-existing very well with persons of different tribe from theirs, co-existing very well with persons of different religious affiliation from theirs, co-existing very well with persons who have very different manners from theirs, co-existing very well with persons from the opposite gender, not minding working closely on jobs with persons of different tribe from theirs, not

minding working closely on jobs with persons of different religious affiliation from theirs, not minding working closely on jobs with persons of different character from theirs, not minding working closely on jobs with persons from the opposite gender, co-existing very well with people who are not approved of, even if they think they are really alright, being patient with their peers and not minding being in the same class with persons of different tribe from theirs, (Jida, 2017).

Other useful attributes that may be grouped under tolerance skills include; not minding being in the same class with persons of different religious affiliation from theirs, not minding being in the same class with persons of different character from theirs, not minding being in the same class with persons from the opposite gender, not minding studying together with persons of different tribe from theirs, not minding studying together with persons of different religious affiliation from theirs, not minding studying together with persons of different character from theirs and not minding studying together with persons from the opposite gender, (Dickson, 2016). From the foregoing, it is heartwarming finding in this study that both male and female mathematics teachers in Enugu state perceived that tolerance skills are needed by secondary school students for improved performance in mathematics. By implication, those teachers will seriously work towards inculcating tolerance skills into their students. These skills will consequently elicit the desired improved performance in mathematics among the students.

Research question two sought to determine the extent to which male and female mathematics teachers in Enugu state perceive that secondary school students need relationship skills for improved performance in mathematics. In answering this, both male and female mathematics teachers in Enugu state perceived that relationship skills are needed by secondary school students for improved performance in mathematics to a very great extent. Gladly, the finding of this study in this regard is very consistent with those of Al-Jaradeen (2016), Chieze

(2016), Pedro (2018) and Becky (2019) who, in their separate studies, reported that relationship skills aided secondary school students' performance in mathematics. Interestingly, non of the reviewed studies reported the contrary. Relationship skills belong to the group of social development skills that are in line with some teaching and learning strategies such as group discussion, game teams, cooperative learning, etc.

For secondary school students, the desirable relationship skills include; avoiding making other people feel bad, doing their fair share when they work in groups, listening to other people's ideas, controlling their anger when they have disagreement with friends, ability to discuss problems with friends without making things worse, respecting other people points of view, avoiding tribal bias in relationships, avoiding religious bias in relationships, avoiding gender bias in relationships, ability to relate well with people they perceive more intelligent than them and ability to relate well with people they perceive less intelligent than them. These skills no doubt are useful tools in the hands of any mathematics learner especially at secondary school level.

**Conclusions**

From the findings made in this study, it is hereby concluded that secondary school students in Enugu state need tolerance and relationship skills to improve their performance in mathematics.

**Recommendations**

Based on the findings of this study, the following recommendations were deemed adequate.

1. Mathematics teachers should be trained by their employers regularly on the importance of tolerance and relationship skills among learners.
2. Mathematics teachers should teach to inculcate tolerance and relationships skills in to their secondary school students for improved performance in mathematics.

3. Both male and female secondary school students should be encouraged to value tolerance and relationship skills since they are not gender biased.

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