

Article

Cognitive engagement and mastery goal orientation: The efficacy of Multidimensional Intervention among students in communities plagued by violence in Nigeria

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Abstract: The study examines the effects of Multidimensional Intervention (MI) on cognitive engagement and mastery goal orientation among secondary school students in the context of community violence in Nigeria. The study specifically tested the effectiveness of MI in enhancing cognitive engagement and mastery goal orientation of secondary school students. A quasi-experimental (non-equivalent pre-test-post-test control group) research design was used on 56 of the 465 junior secondary three students from Government Secondary Schools in Mangu Local Government Area, Plateau State Nigeria (male = 45.5%; female = 54.5%; mean age = 16.7 years). The selection was done using multistage sampling technique. Cognitive Engagement and Mastery Goal Orientation Questionnaire (CEMGOQ, $\alpha = 0.88$) was used to gather data. Analysis was done using descriptive statistics (percentage, mean, and standard deviation) and analysis of covariance (ANCOVA). The findings indicated that students had low level of cognitive engagement (very small effect size of $\eta^2 = 0.000$) and mastery goal orientation (very small effect size of $\eta^2 = 0.005$) at baseline and both cognitive engagement and mastery goal orientation significantly enhanced due to MI, especially when the pre-test effect was controlled [$F(1, 53) = 1084.76, p = 0.000$ and $F(1, 53) = 818.09, p = 0.000$ respectively]. The study concluded that MI is an effective intervention for promoting cognitive engagement and mastery goal orientation among secondary school students. The study recommended that students, teachers, school administrators, and the government should focus on improving cognitive engagement and mastery goal orientation among secondary school students through the use and practice of MI.

Keywords: Multidimensional Intervention; cognitive engagement; mastery goal orientation; secondary school students; community violence

1. Introduction

Community violence undermines the well-being and academic learning among the millions of young people in low- and middle-income countries who are exposed to armed conflict, terrorism, harassment, kidnapping, and other forms of communal violence [1]. Exposure to insecurity also reduces students' participation in schooling and their academic learning when they are in school [2]. The community's violent threats are recently taking the dimension of armed bandit groups and mass abduction of students to seek ransom payments. The most unique form of violence is directed toward schools in Nigeria, particularly in northern parts, where the kidnapping of students and ceasing of schools for terrorism occur. Although some raids have targeted boys, most have targeted girls, where over 100 of the girls remain in their custody [3]. Such abductions continue across Northern Nigeria. In 2021, there were 25 attacks on

Nigerian schools: 1440 children were kidnapped, and 16 children were killed [4].

Plateau State is a state in Nigeria where schools have been burned, students abducted, and teachers have been murdered [5]. Clashes between herders and farmers were reported in some of the communities (International Organization for Migration [6]). The clashes affected 1535 individuals and displaced 1125 people. As a result of the clashes, over 500 fatalities and over 200 injuries were reported [6]. Due to the prevailing conflict situation in Plateau State, many secondary school students who attend schools hardly engage in cognitive activities in the classrooms, develop and master goals oriented towards academic success. These students from conflict situations are at greater risk of having lower cognitive engagement and mastery goal orientation, attributable to fear of another attack and likely to posttraumatic conditions which could affect mental participations. Consequently, multidimensional classroom intervention is required to address the dimensionality of the academic tasks like cognitive engagement and mastery goal orientation. According to Bahago et al. [7], 62.5% of students were highly disengaged cognitively, whereas 63.07% of secondary school students were highly disengaged behaviorally. Likewise, 61.93% of secondary school students were highly disengaged socio-emotionally in the Plateau North Senatorial Zone.

The term cognitive engagement refers to a student's investment in their education and includes elements like challenge preference, self-regulation, the use of appropriate learning strategies (such as students' use of elaboration rather than memorization), willingness and consideration to expend the effort necessary to understand and master difficult tasks [8]. According to Li et al. [9], the indicators of cognitive engagement include asking questions to clarify concepts, perseverance in challenging tasks, flexibility in problem-solving, the use of learning strategies (such as relating new information to prior knowledge), and the use of self-regulation to facilitate learning. Secondary school students would be cognitively engaged only when they show outright willingness and thoughtfulness to spend energy and effort to understand and master difficult academic tasks.

The invaluable place of goal setting both as an individual and as an institution is pivotal. Goal orientations are a general approach or focus that, students have for their academic work. Mastery goal orientations refer to the desire to learn and develop. It occurs when so much desire and passion to learn manifest among secondary school students. This may occur where there is a willingness on the part of secondary school students to develop themselves wholesomely—physically, cognitively, socially, emotionally, economically, and otherwise. Mastery learning goals focus students' attention on developing competence, mastering the task to gain a broader and deeper knowledge of the task, thoroughly understanding what they learn, and being deeply engaged, to perform the task to reach competence [10]. Secondary school students are expected to invest time and effort towards increasing competence, paying much attention to the task to have a deeper grasp of the academic content presented to them. Students are more likely to persevere through challenging learning tasks and frequently find the learning process more rewarding when they set their own learning goals and discover internal motivation to move towards those goals [11].

Mastery goals generally cultivate a self-based (or task-based) evaluation of one's competence. This portrays that mastery goals are associated with higher intrinsic

motivation, and are more desirable for long-term persistency and engagement of students in academic activities. Research on goal orientation theory showed that students who feel in control of their education are more proficient and motivated [12]. Secondary school students with mastery orientation may devote more time to the task with the intent to improve competence and develop themselves. Those who claim to possess ability without effort-making may remain unmotivated and disengaged in most academic activities like discussion, group work, and reading among many others. Attending school in the community violence context can be meaningful when students apply the use of appropriate learning strategies, ask questions for clarification of ideas, persist in difficult mental activities, as well as showcase flexibility in problem-solving and decision-making during the learning process.

Students who follow the mastery approach to learning, prioritize learning, and have high self-efficacy reported higher levels of cognitive engagement [13]. However, by encouraging student autonomy both within and outside of the classroom, educators and parents can help children become more cognitively engaged [14]. This signifies that those individuals around the secondary school students such as teachers, parents, or peers can influence their level of cognitive engagement. More specifically, motivating tasks, self-regulation of learning, autonomy support, and mastery evaluation are potential factors that can promote cognitive engagement among students [12]. Additionally, research by Martin et al. [15] found that perceived instrumentality was predicted by motivating tasks, whereas the cognitive technique used was indirectly predicted by autonomy support. In other words, teachers who assign meaningful activities, give students choices and encourage self-control increase the likelihood that their pupils will be intellectually engaged. That is, students are more likely to be cognitively engaged if their teachers provide meaningful tasks, offer choices, and promote self-regulation.

Existing studies have focused on interventions that enhanced cognitive engagement [16–23]. For instance, using a quasi-experimental research design, Tang and Hew [16] reported significant effects of using mobile instant messaging (MIM) on student cognitive engagement. According to Johnson and Johnson's study [19] on cooperative intervention as a powerful motivator and engagement factor, learners' cooperative efforts produce a wide range of cognitive achievement. The study found that enhanced social contact brought about by multimodal learning promoted cognitive engagement [22]. According to the study's findings, cooperative learning can boost students' intellectual, behavioral, and social well-being. The focus of Ferguson-Patrick's [23] study on multidimensional learning is that it can be used to effectively serve all students and is a culturally responsive, inclusive method of instruction. Additionally, according to Kostoulas-Makrakis and Makrakis [20], genuine care, hope, happiness, and love are the most effective ways to engage students cognitively. Costley's [18] study found that students participating in collaborative study groups in online classes demonstrated high cognitive responses. In addition, Sulaiman and Thakur [24] found that the overall cognitive engagement levels of the students were low at baseline and there were significant differences between the mean scores of cognitive engagement responses of students taught with cooperative learning and those who were taught in a normal setting. The above review suggests a dearth of evidence-based studies about testing the efficacy of Multidimensional Intervention on

cognitive engagement of secondary school students in a community violence context. The use of collaborative support, motivation and autonomy support interventions, and mastery evaluation strategies on cognitive engagement assumes that MI could significantly influence the cognitive engagement of secondary school students. This is because the content of the MI and the process reflect activities that emphasize autonomy support and mastery learning.

In addition, a review of empirical studies showed the efficacy of some strategies in promoting goals [25–29], but there are dismal outcomes on interventions to improve mastery goal orientation and particularly among students in community violence settings in Nigeria. Pintrich [29] has proposed a multidimensional approach and found it effective in enhancing self-efficacy, attributions, valuing, control, self-regulation, purposeful learning, the need for progress, and self-valuing. A study appears to concentrate on the connection between learning strategies and achievement goals. For instance, Clark and Moses [30] claim that both achievement goals and learning approaches include some types of motivation. While learning approaches reflect internal motivation (deep approach) as opposed to fear of failure and external motivation (surface approach), achievement goals emphasize improving competencies (mastery goals) as opposed to showcasing competencies (performance goals). From this perspective, a Multidimensional Intervention that may emphasize achievement goals and external motivation may enhance mastery goal orientation among secondary school students.

Considering the significant contributions of cognitive engagement and mastery goal orientation among the secondary school students in the context characterized by community violence, application of Multidimensional Intervention may be more effective. Multidimensional Intervention (MI) is an academic intervention developed by Andrew James Martin in 2005. In the intervention, Martins [31] postulated that students complete the modules in small tutorial groups (separate from regular class), which is normally led by specialized teachers. Students were free to ask questions as they worked through the modules. Teachers are expected to conduct discussions revolving around the modules that focused on practical ways the lessons learned could be applied in students' academic lives. The central aim of MI is to assess the extent to which a targeted and multidimensional workbook program could bring about gains in high school students' motivation and engagement [32,33].

Specifically, the intervention is structured around a systematic 'Prepare-Generate-Reflect-Closure' procedure that is aimed at providing an advance organizer for the module and its key activities; enabling the participant to generate and construct key learnings relevant to their motivation and engagement; providing an opportunity for the participant to reflect on key messages developed through these learnings; attaining closure on the target module through having mentors sign off on the module for that week. The structure demonstrates that using MI will prepare secondary school students in advance for the academic tasks which are primarily learning. Multidimensional Intervention will enable the students to generate and construct ideas, as well as reflect on key indicators relative to cognitive engagement and mastering goals.

The findings about the efficacy of MI on cognitive engagement and mastery goal orientation would help identify potential gaps in the research areas. This would help

in adopting multidimensional approaches and mainstreaming them into the curriculum. It can equally guide the education policy formulation and implementation regarding students' learning in a context dominated by community violence. Consequently, allowing this research problem to continue may lead to unsuccessful academics among secondary school students. Students may not engage in a cognitive task and master their goals. As such, this study examined the effect of MI on cognitive engagement and mastery goal orientation among secondary school students in community violence locations of Plateau State in Nigeria.

2. Aim and objectives of the study

This study aims to examine the efficacy of MI on cognitive engagement and mastery goal orientation among secondary school students in community violence areas of Plateau State, Nigeria. The specific objectives of the study are to:

- 1) Determine the level of cognitive engagement of secondary school students in the community violence areas and how it could be influenced by MI.
- 2) Examine the mastery goal orientation level of secondary school students in the community violence areas and how MI can influence it.

2.1. Research questions

- 1) What is the cognitive engagement level of secondary school students in the experimental and control groups before and after MI?
- 2) What is the mastery goal orientation level of secondary school students assigned to experimental and control groups before and after MI?

2.2. Hypotheses

- 1) There is a significant effect of MI on cognitive engagement of secondary school students in community violence areas.
- 2) There is a significant effect of MI on mastery goal orientation of secondary school students in community violence areas.

3. Method and procedure

3.1. Design and participants

The study used a quasi-experimental (non-equivalent pre-test-post-test control group) research design. A total of 56 out of 465 Government Secondary Schools three students in Mangu LGA, Plateau State Nigeria (male = 45.5%; female = 54.5%; mean age = 16.7 years) were recruited. This sample size was the intact class available and located in an area characterized by insecurity, including kidnapping, banditry, and attacks. Multi-stage sampling technique was used. Firstly, a simple random sampling technique (selection of a school) was employed, then stratified sampling (strata of male and female), and then back to simple random sampling (selection of students).

3.2. Measure and procedure

Students' perceptions of cognitive engagement and mastery goal orientation were measured using the Cognitive Engagement and Mastery Goal Orientation

Questionnaire (CEMGOQ, $\alpha = 0.88$) [34]. The CEMGOQ is a 13-item scale that assessed students' Cognitive Engagement (7 items such as "When I read a textbook, I mostly pay attention to the factual information" and "When I get my test/assignment's feedback, I go over my mistakes to correct it"). and Mastery Goal Orientation (6-items such as "It's important to me that I learn a lot of new concepts this year", "One of my goals is to master a lot of new skills this year". Participants rated their agreement with items on a 5-point scale: "strongly disagree" = 1, to "strongly agree" = 5).

Permission to conduct the research was granted by the Plateau State Zonal Ministries of Education, and ethics approval was obtained from the University of Jos. After briefing the principals of each school, the researchers were granted permission to hire two teachers as study assistants and recruit student volunteers as participants. Because students may become anxious when unknown persons arrive at schools, only teachers who are familiar with the students were used to provide participant information sheets and to distribute and collect surveys before and after intervention. During the intervention phase, students were randomly assigned to either the experimental or the control group. Students in the control group received ordinary classwork assignments concurrently with the MI that the experimental group received. The CEMGOQ was given to all participants both in the first and in the last session. During the first and last sessions of the intervention package, students were requested to fill out the surveys and submit them within a day. A consent form was used to ask parents or guardians for permission. Every parent or guardian who filled out the questionnaire gave their consent for their child to take part in the research.

3.3. Administering Multidimensional Intervention

The researcher and a research assistant conducted the MI on the experimental group. The two-week-long events were spread among five sessions. The short duration of two weeks would avoid external interferences such as experimental mortality and the influence of interruption of the school calendar due to possible violence. An hour and twenty minutes (80 min) were the duration of each session. Participants were expected to meet once after school, particularly during the time allotted for extracurricular activities. One of the sampling school's accessible classrooms served as the meeting location. To reduce participant interaction, the MI group's classroom was located 3–4 m from the control group. The CEMGOQ was given to the experimental group before and after, at the same time as the control group. Participants were taught to become more aware of personal goals (PB) and learn to achieve the goals. They learned to develop active learning strategies such as communicating the goals, setting their own goals, and self-evaluating the goals to ascertain success or failure. They were made to recognize academic improvements made as well as not to focus on shortcomings. For example, activities that they perceive as enjoyable or interesting can foster mastery goals and engagement. The intervention enabled participants to come to a conclusion, which included a recap of the prior sessions as well as an opportunity for debate. For cognitive engagement, participants become more aware of negative cognition they may have about themselves or events in academic life. They were asked to take time to look for evidence that challenges their negative cognition, and advance more positive ways to cognitively engage in school.

They learned to recognize thoughts that can help improve negative cognition in and outside school. They learn to recognize cognitive strategies or skills that can help them commit to or get involved in academic pursuits. Students were given a general workbook sheet as well as time to finish the workbook program. In the workbook sheet, they made the point to have clear and specific goals that are challenging but manageable, which would enhance the positive effect on their performance.

3.4. Administration of control group placebo

The control group was also engaged with a different placebo other than MI. This was to provide a basis for comparison and to keep the participants to the end of the study, even though they benefitted from the teaching. During the first meeting session, two research assistants administered the pre-test and then administered the control group placebo. The activity in the placebo was centered on standard social studies instruction. Only three subjects were covered in social studies instruction. This instruction differed from MI. The tasks, which were organized into five sessions, were finished in two weeks. Each session lasted one hour and twenty minutes (equivalent to an 80-minute double lesson period). The participants' meetings were scheduled to take place every day of the week during the extracurricular activities, at the same location as the experimental group, although the classroom was three to four meters away from the intervention class.

3.5. Data analysis

Descriptive statistics (mean and percentage) and analysis of covariance (ANCOVA) were used in the analysis. By eliminating the impact of the covariate component, the ANCOVA was utilized to investigate the effect of the independent variable (MI) and a dependent variable (cognitive engagement and mastery goal orientation). The experimental and control groups' posttest results on cognitive engagement and mastery goal orientation were compared in this study after the pretest's influence on the posttest results was eliminated. The SPSS software, version 26, was used to answer the research questions and test each hypothesis at the 0.05 level of significance.

4. Results

Results are organized and presented in tables according to the research questions and hypothesis.

Table 1. Level of cognitive engagement of secondary school students in the experimental and control groups.

Group	Test	<i>n</i>	$\bar{\chi}$	SD	Level	Effect Size
Experimental	Pre-test	28	12.00	2.71	Very Low	
Control	Pre-test	28	12.04	2.55	Very Low	0.000
Experimental	Post-test	28	33.18	2.72	Very High	
Control	Post-test	28	14.68	1.21	Low	0.952

Note: *n* = 56, $\bar{\chi}$ score 7.0–13.9 = very low, 14.0–20.9 = low, 21.0–27.9 = high, and 28.0–35.0 = very high engagement on 5-point scale for 7-items.

Table 1 shows that the pre-test mean scores of the experimental and control groups are very low ($M = 12.00$ and $M = 12.04$ respectively) with a standard deviation of 2.71 and 2.55 respectively, and a very small effect size of $\eta^2 = 0.000$. Also, the experimental group has post-test mean and standard deviation scores of 33.18 and 2.72 respectively. Whereas, the control group has a mean and standard deviation of 14.68 and 1.21 respectively, with a very large effect size of $\eta^2 = 0.952$ (95.2%). It signifies that secondary school students initially had very low levels of cognitive engagement mean scores before the intervention and highly improved as a result of MI.

Based on data in **Table 2**, the pre-test mean scores for the experimental and control groups were very low ($M = 9.07$ and $M = 8.79$, respectively), with standard deviations of 2.26 and 2.01 which correspond to a very small effect size of $\eta^2 = 0.005$ (0.5%). In contrast, the experimental group's post-test means and standard deviation scores are 24.82 and 2.09, respectively, whereas the control group's scores are 11.07 and 1.46 respectively. This resulted in a very large effect size of $\eta^2 = 0.938$ (93.8%). This indicates that secondary school students' mastery goal orientation was extremely low at baseline but highly improved as a result of exposure to MI.

Table 2. Level of mastery goal orientation among secondary school students in the experimental and control groups.

Group	Test	<i>n</i>	\bar{X}	SD	Level	Effect Size
Experimental	Pre-test	28	9.07	2.26	Very Low	
Control	Pre-test	28	8.79	2.01	Very Low	0.005
Experimental	Post-test	28	24.82	2.09	Very High	
Control	Post-test	28	11.07	1.46	Very Low	0.938

Note: $n = 56$, \bar{X} score 6.0–11.9 = very low, 12.0–17.9 = low, 18.0–23.9 = high, and 24.0–30.0 = very high mastery goal orientation on 5-point scale for 6-items.

Table 3. ANCOVA result on pre-test post-test cognitive engagement of secondary school students in the experimental and control group.

Source	Type III Sum of Squares	df	Mean Square	<i>F</i>	<i>p</i>	Effect Size
Corrected Model	4797.50 ^a	2	2398.75	542.82	0.000	0.953
Intercept	1239.01	1	1239.01	280.38	0.000	0.841
Pre-test	6.00	1	6.00	1.36	0.249	0.025
Post-test (Treatment)	4793.62	1	4793.62	1084.76	0.000	0.953
Error	234.21	53	4.42			
Total	37,096.00	56				
Corrected Total	5031.71	55				

Descriptive Statistics

Group	\bar{X}	SD
Experimental	33.18	2.72
Control	14.68	1.22

Note: $P < 0.05$. a. *R* Squared = 0.953 (Adjusted *R* Squared = 0.952).

The result in **Table 3** indicated that the post-test mean difference between the experimental ($M = 33.18$, $SD = 2.72$) and control group ($M = 14.68$, $SD = 1.22$) had a

p -value = 0.000, which is less than the 0.05 level of significance with a very large effect size of 95.3%. Whereas, the pre-test score is not significant [$F(1, 53) = 1.36, p = 0.249$] very small effect size of 2.5%. Therefore, there is a significant difference between the cognitive engagement post-test mean scores of students in the experimental and control groups when the pre-test score was covariate, $F(1, 53) = 1084.76, p = 0.000$. Consequently, MI accounted for 95.3% of the change in cognitive engagement of secondary school students. This implies that MI significantly enhanced cognitive engagement of secondary school students.

Information in **Table 4** showed that the p -value = 0.162 for the pre-test is higher than the 0.05 level of significance, whereas the p -value of 0.000 for the post-test mean difference between the experimental and control groups is not higher than the 0.05 level of significance with a very large effect size, $\eta = 0.955$ (95.5%). Consequently, there is a significant difference in mastery goal orientation post-test mean scores between the students in the experimental ($M = 24.82, SD = 2.09$) and control groups ($M = 11.07, SD = 1.46$) after controlling for pretest effects, $F(1, 53) = 818.09, p = 0.000$. In sum, MI was responsible for 95.5% of the variance in mastery goal orientation among secondary school students. It suggested that MI significantly improved the mastery goal orientation of secondary school students.

Table 4. ANCOVA result on pre-test and post-test mastery goal orientation among secondary school students in the experimental and control group.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Effect Size
Corrected Model	2653.30 ^a	2	1326.65	414.71	0.000	0.940
Intercept	798.55	1	798.55	249.63	0.000	0.825
Pretest	6.42	1	6.42	2.01	0.162	0.036
Posttest (Treatment)	2617.03	1	2617.0	818.09	0.000	0.939
Error	169.55	53	3.20			
Total	20,859.00	56				
Corrected Total	2822.84	55				
Descriptive Statistics						
Group	\bar{X}	SD				
Experimental	24.82	2.09				
Control	11.07	1.46				

NB: a. R Squared = 0.955 (Adjusted R Squared = 0.953).

5. Discussion

The study investigated the effect of MI on cognitive engagement and mastery goal orientation among secondary school students in the context of community violence. A finding revealed that secondary school students initially had very low levels of cognitive engagement before the intervention. Sulaiman and Thakur [24] found that the overall cognitive engagement levels of the students were low at baseline. The students in both groups admitted that when they read a textbook, they mostly pay less attention to the important information, cannot use examples to explain new information, and are less likely to relate new topics to something that they have already learned about. However, students assigned to the intervention group demonstrated

positive engagement after the MI. Their level of cognitive engagement highly improved as a result of Multidimensional Intervention. Multidimensional Intervention exposed them to a variety of activities where they generate rules that help them identify negative cognition and reflect on the ways that promote thinking and cognition.

Likewise, Tang and Hew [16] found students exposed to mobile instant messaging intervention were more cognitively engaged in producing more words, task completion and interaction than those in the control group. Students who followed the mastery approach to learning (prioritize learning), scored highly on exams and those who had high self-efficacy reported higher levels of cognitive engagement [10]. Moreover, domains of intervention that encourage student autonomy both within and outside of the classroom have helped students become more cognitively engaged [11]. Because of the various dimensions of approaches, students attested that when they read an interesting topic, they ask questions about it. When they listen to a lesson, they regularly think about it. When these students got feedback from assessments, they checked mistakes to correct them. The students always think about applying the ideas they got from reading textbooks in other areas. In addition, the current findings tend to agree with Larson et al. [21], who observed that teacher use of positive behavior supports was positively and significantly associated with student reports of cognitive engagement in the same classroom. Secondary school students placed in the intervention group were trained on cognitive strategies and were guided to generate rules that would improve their cognitive participation in the classroom which placed them at a higher cognitive engagement level than those in the control group. Aldhaen [17] found that the digital competence program significantly enhanced all three dimensions of student engagement (cognitive engagement inclusive).

Another finding indicated that secondary school students' mastery goal orientation was extremely low at baseline. This could be attributed to a lack of exposure to the multi-dimensionality of learning approaches. At baseline, students were not able to set learning standards to achieve at school, and school was not important to them to learn a lot of new concepts for self-development. Interestingly, the mastery goal orientation highly improved as a result of exposure to Multidimensional Intervention. In harmony, Wang and Xue [28] reported that interventions are ultimately relevant to strengthening students' goal orientation in academic activities. Students assigned to the intervention group reported that they can set goals in class to learn as much as they can. They admitted that their goal is to learn a lot of new skills throughout the year. Because of the Multidimensional Intervention, secondary school students who benefited can prepare for goals, and generate rules that will guide them to achieve their school goals better than students who never benefited from the intervention. Musa [26] revealed that students taught using Motivation-Enhanced Activity-Based Learning (MEABL) exhibited higher mastery goals achievement than those not taught with the intervention.

In addition, MI significantly improved the mastery goal orientation of secondary school students. The finding concurred with Reinke [27] who demonstrated that creating a supportive and active learning environment is an important factor in mastering academic goals. Secondary school students in the intervention group were trained on how to prepare academic goals, generate possible goals, and set rules that help them master and achieve such goals. Likewise, Tang and Hew [16] demonstrated

that using mobile instant messaging intervention improved mastery goal awareness among participants in the intervention group compared to those withheld from such intervention.

6. Conclusion

The significance of cognitive engagement and mastery goal orientation in education is highly appreciable, but this can be more emphasized among the students living in the community violence areas. Multidimensional Intervention was applied in this context in Nigeria and found to be effective in enhancing cognitive engagement and mastery goal orientation among secondary school students. Students who were exposed to the intervention tend to place high priority on improving cognitive engagement and mastery goal orientation. Whereas, the students who were not assigned to the intervention group demonstrated a very low level of cognitive engagement and mastery goal orientation. Although the intervention was for two weeks, there is a need for follow-up to further help students in community violence areas who may begin to demonstrate low cognitive engagement and mastery goal orientation due to certain factors such as socio-economic background and posttraumatic stress among other extraneous factors that were not controlled in this study.

6.1. Limitations

Although an experimental approach was applied, a large sample size of up to 100 and above is required to promote generalizability of the findings, particularly in the context where community violence is imminent. However, the present study used the limited sample size available in the classroom due to community violence, where many students were afraid of attending classes, since students became the targets of the violence. Also, the study could not follow up with the participants to ascertain the long-lasting impact of the intervention in enhancing cognitive engagement and mastery goal orientation. Future studies could carry out post-intervention studies or exploratory testing to check the longevity of the intervention.

6.2. Recommendations

Based on the findings of this study, the following recommendations are made:

- 1) Students should continue to apply the principles of MI to help them improve cognitive engagement and mastery goal orientation. They should embrace and apply the MI principles to enable them to engage cognitively and master goals despite the community violence.
- 2) Teachers should incorporate the principles of MI in teaching secondary school students about cognitive engagement and mastery goal orientation. They should be ready to develop themselves through a workshop that will be organized for them on MI, cognitive engagement and mastery goal orientation.
- 3) School authorities should adopt the MI package as a tool for motivating students to engage cognitively and master the goals. They can support teachers and students to help them develop and equip them with the application and practice of MI.

- 4) Government can also provide funds for teachers' workshop on the application of MI in promoting academic cognitive engagement and mastery goal orientation among secondary school students. They can provide a high level of security around schools to guarantee students' safety.

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